Flood Insurance Rate Map (FIRM) Database Technical Reference

Preparing Flood Insurance Rate Map Databases

May 2016

FEMA

For more information, please visit the FEMA Guidelines and Standards for Flood Risk Analysis and Mapping webpage (www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping). Copies of the Standards for Flood Risk Analysis and Mapping policy, related guidance, technical references, and other information about the guidelines and standards development process are all available here. You can also search directly by document title at www.fema.gov/library.

Implementation Instructions

This version of the Technical Reference must be used on projects as described below. Generally, the changes in this version may also be implemented on any project, in coordination with the FEMA Project and Contracting Officer's Representative.

Revision Date	Implementation
May 2016	Implemented for all projects beginning Data Development after May 30, 2016.

Table of Revisions

The following summary of changes details revisions to the Flood Insurance Rate Map (FIRM) Database Technical Reference subsequent to its most recent version in November 2015.

Affected Section or Subsection	Revision Date	Revision Description
Section 9 - S_Fld_Haz_Ar	May 2016	Added AREA WITH FLOOD RISK DUE TO LEVEE as a Zone Subtype to Zone D in the Flood Zone and Zone Subtype Cross-Walk table.

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FIRM Database Technical Reference

The purpose of this Technical Reference is to provide guidance to the Mapping Partner that prepares the Preliminary and Final Flood Insurance Rate Map (FIRM) Databases delivered to the Federal Emergency Management Agency (FEMA). For a particular Flood Risk Project, the FEMA Project Officer may assign both tasks to one Mapping Partner or each task (i.e. the preliminary FIRM database or the final FIRM database) to a different Mapping Partner. This Technical Reference is not intended to specify in-process compilation or digitizing procedures but to present standards and requirements for outputs and deliverables.

Although occasional guidance (or best practices) have been included where necessary throughout this Technical Reference, the majority of the content in this Technical Reference represent standards to be used in preparing the Preliminary and Final FIRM Databases.

Due to the dynamic nature of some aspects of digital Geographic Information System (GIS) data, certain requirements are specified in documents outside of this Technical Reference. The following documents are also referenced in this Technical Reference:

- FIRM Database Verification Tool (DVT) – Topology Verification Guidelines
- FIRM Panel Technical Reference
- Flood Insurance Study (FIS) Report Technical Reference
- Domain Tables Technical Reference
- Metadata Profiles Technical Reference

The most current version of these documents can be obtained from the FEMA Guidelines and Standards for Flood Risk Analysis and Mapping webpage.

1. FIRM Database Overview

The FEMA FIRM Database will store the digital GIS data used in the map production process, as well as tabular information inside the Flood Insurance Study (FIS) report. The Database will provide a standard, systematic method for FEMA to distribute comprehensive details of flood hazard identification studies to the public and others in a digital format.

Additional guidance on individual FIRM Database elements may be found in the FIRM Database Guidance document.

2. File Formats and Setup

All of the submitted GIS layers and tables must be in the same GIS file format. The requirements for production FIRM Databases and FIRM Database Submittals are described below.

- FIRM Database Submittals shall be delivered in the Environmental Systems Research Institute (Esri) Shapefile (SHP).
- In the production GDB the single FIRM Database feature dataset must be named "FIRM_Spatial_Layers".
- In the production GDB , non-spatial tables shall exist outside of the "FIRM_Spatial_Layers" feature dataset, but inside the GDB.
- In the FIRM Database Submittal (SHP) deliverable, the FIRM Database Submittal non-spatial tables must be in DBF files.

3. Table Descriptions

A summary of the FIRM Database tables is provided in Table 1, along with a description of the feature class purpose.

Table 1 - FIRM Database Table Summary

FIRM Table Name	Table Type	Table Description
S_Alluvial_Fan	Spatial	Location and attributes of alluvial fan studies.
S_Base_Index	Spatial	Location and attributes of the raster base map files used for the FIRM.
S_BFE	Spatial	Location and attributes for Base Flood Elevations lines shown on FIRM.
S_CBRS	Spatial	Location and attributes for Coastal Barrier Resource System units on the FIRM.
S_Cst_Gage	Spatial	Location and attributes of coastal gages.
S_Cst_Tsct_Ln	Spatial	Location and attributes for coastal transect lines shown on the FIRM.

FIRM Table Name	Table Type	Table Description
S_Datum_Conv_Pt	Spatial	Information regarding the location of points used to determine the datum conversion factor performed as part of this Flood Risk Project.
S_FIRM_Pan	Spatial	Location and attributes for FIRM hardcopy map panels.
S_Fld_Haz_Ar	Spatial	Location and attributes for flood insurance risk zones on the FIRM.
S_Fld_Haz_Ln	Spatial	Location and attributes for boundaries of flood insurance risk zones on the FIRM.
S_Gage	Spatial	Information about gage locations used in this Flood Risk Project.
S_Gen_Struct	Spatial	Location and attributes for flood control structures shown on the flood profile and FIRM.
S_HWM	Spatial	Location of high water marks.
S_Hydro_Reach	Spatial	Location of hydrologic reach between nodes.
S_Label_Ld	Spatial	Location and attributes for label leader lines shown on the FIRM.
S_Label_Pt	Spatial	Location and attributes for labels shown on the FIRM.
S_Levee	Spatial	Location of levee centerlines, floodwalls, and closure structures protecting accredited and provisionally accredited levees.
S_LiMWA	Spatial	Location of Limit of Moderate Wave Action boundary.
S_LOMR	Spatial	Location and attributes for LOMRs not yet incorporated on the FIRM. Used only as part of the National Flood Hazard Layer (NFHL).
S_Nodes	Spatial	Location and attributes of points used to define the topology of the hydrologic network.
S_PFD_Ln	Spatial	Location and attributes for the primary frontal dune features for the coastal Flood Risk Project area.
S_PLSS_Ar	Spatial	Location and attributes of sections, townships, and ranges on the FIRM.
S_Pol_Ar	Spatial	Location and attributes for political jurisdictions shown on the FIRM.
S_Profil_Basln	Spatial	Location and attributes for profile baseline and stream centerline features for the Flood Risk Project area.
S_Riv_Mrk	Spatial	Location and attributes for river mile markers shown on the FIRM.

FIRM Table Name	Table Type	Table Description
S_Stn_Start	Spatial	Location and attributes for starting points for stream distance measurements.
S_Subbasins	Spatial	Location and attributes for subbasins in the hydrologic analysis.
S_Submittal_Info	Spatial	Location of areas updated in this Flood Risk Project along with attributes associated with each submittal.
S_Topo_Confidence	Spatial	Location of topographic low confidence areas required by Procedure Memorandum 61.
S_Trnsport_Ln	Spatial	Location and attributes for roads, railroads, and other transportation features shown on the FIRM.
S_Tsct_Basln	Spatial	Location of mapped coastal transect baselines and associated attribute information.
S_Wtr_Ar	Spatial	Location and attributes for hydrography features shown on FIRM as areas.
S_Wtr_Ln	Spatial	Location and attributes for hydrography features shown on FIRM as lines.
S_XS	Spatial	Location and attributes for cross section lines in the area covered by the FIRM. This layer must contain all cross sections in a model, not just the lettered cross sections.
Study_Info	Non-Spatial	General information about the FIRM.
L_Comm_Info	Lookup	Information about each community on the FIRM.
L_Comm_Revis	Lookup	Information about revisions to each communities maps used in the FIS Community Map History table.
L_Cst_Model	Lookup	Information about the coastal model used during the engineering analysis. It is used to create the respective table(s) in the FIS Report text.
L_Cst_Struct	Lookup	Information about coastal structures that affect local topography and flood hazards. It is used to create the respective table(s) in the FIS Report text.
L_Cst_Tsct_Elev	Lookup	Information about the coastal model elevations at each mapped transect and those transects referenced in the FIS Report.
L_ManningsN	Lookup	Information regarding Manning's "n" values shown in the FIS Report.
L_Meetings	Lookup	Information regarding the scoping and final community meetings that occur during the Flood Risk Project. It is used to create the respective table(s) in the FIS Report text.

FIRM Table Name	Table Type	Table Description
L_MT2_LOMR	Lookup	Information regarding LOMRs incorporated into or superseded by the FIRM. It is used to create the respective table(s) in the FIS Report text.
L_Mtg_POC	Lookup	Information regarding the scoping and final community meetings that occur during the Flood Risk Project. It is used to create the respective table(s) in the FIS Report text.
L_Pan_Revis	Lookup	Information about revisions to each FIRM panel.
L_Pol_FHBM	Lookup	Information listing communities that have ever had revisions to their historic FHBM maps.
L_Profil_Bkwtr_El	Lookup	Information about the backwater elevations for each flood frequency by stream. This table is only required if RASPLOT v.3 or higher was used to generate the FIS profiles.
L_Profil_Label	Lookup	This table stores the labels needed for FIS profiles by stream when the labels are not associated with specific cross sections or structures. This table is only required if RASPLOT v.3 or higher was used to generate the FIS profiles.
L_Profil_Panel	Lookup	Information to allow for defining panels for FIS profiles by stream. This table is only required if RASPLOT v.3 or higher was used to generate the FIS profiles.
L_Source_Cit	Lookup	Listing and description of the sources of information used in the FIRM or referenced in the FIS Report bibliography.
L_Summary_Discharges	Lookup	Information about the hydrologic discharge information associated with nodes referenced in the FIS Report Summary of Discharges table.
L_Summary_Elevations	Lookup	Information about Special Flood Hazard Areas with static elevations that are referenced in the FIS Report Summary of Elevations table.
L_Survey_Pt	Lookup	Collection of field survey points captured and used as part of this flood study, per the Data Capture Technical Reference.
L_XS_Elev	Lookup	Information about the hydraulic model at each mapped cross section and those cross sections referenced in the FIS Report Floodway Data Tables. This table is used to generate the Floodway Data Tables and contains lettered cross sections.

FIRM Table Name	Table Type	Table Description
L_XS_Struct	Lookup	Information about the cross sections at structures needed for the profiles. This table is only required if RASPLOT v.3 or higher was used to generate the FIS profiles.

4. FIRM Database Table Deliverables by Task

Table 2 presents the FIRM Database tables that apply to specific components of a Flood Risk Project. The scope of a particular project could include several of these activities; therefore, all of the tables from each of the activities involved in the project will likely apply to that project.

The following FIRM Database tables are either R – Required or A – Required if Applicable, depending on the interim data development submittal requirements. These tables need to be submitted to FEMA via the Mapping Information Platform (MIP) workflow at the corresponding MIP step.

Table 2. FIRM Database Submittal Table

Table Name	Discovery	Acquire Base Map	Develop Topographic Data	Perform Field Survey	Perform Hydrologic Analyses	Perform Hydraulic Analyses	Perform Coastal Analyses	Perform Alluvial Fan Analysis	Perform Floodplain Mapping	Develop DFIRM Database	FIS Database Component	Data CaptureComponent	LOMR Component
DCS_L_Mtg_POC	R											✓	
DCS_L_Source_Cit	R											✓	
DCS_S_Discovery_Map	R											✓	
DCS_S_HUC	R											✓	
DCS_S_Pol_Ar	R											✓	
DCS_S_Prp_FIRMPan	A											✓	
DCS_S_Trnsport_Ln	R											✓	
S_Alluvial_Fan								R	A	A	A	✓	A
S_Base_Index		A								A		✓	
S_BFE						A			A	A		✓	A
S_CBRS							A		A	A	A	✓	A
S_Cst_Gage							A		A	A	A	✓	A
S_Cst_Tsct_Ln							R		A	A	A	✓	A
S_Datum_Conv_Pt		A								A	A	✓	
S_FIRM_Pan		R								R	R	✓	

Table Name	Discovery	Acquire Base Map	Develop Topographic Data	Perform Field Survey	Perform Hydrologic Analyses	Perform Hydraulic Analyses	Perform Coastal Analyses	Perform Alluvial Fan Analysis	Perform Floodplain Mapping	Develop DFIRM Database	FIS Database Component	Data CaptureComponent	LOMR Component
S_Fld_Haz_Ar						R	R		R	R	R	✓	R[5]
S_Fld_Haz_Ln										R	R	✓	R[6]
S_Gage					A					A	A	✓	A
S_Gen_Struct		A				A	A	A	A	A	A	✓	A
S_HWM						A	A			A	A	✓	A
S_Hydro_Reach					R					A		✓	A
S_Label_Ld										R			
S_Label_Pt										R			
S_Levee						A	A		A	A	A	✓	A
S_LiMWA							R		A	A	A	✓	A
S_LOMR	NFHL Only												R
S_Nodes					R	A				A	A	✓	A
S_PFD_Ln							A		A	A		✓	A
S_PLSS_Ar		A								A		✓	
S_Pol_Ar		R								R	R	✓	A
S_Profil_Basln						R		R	A	A	A	✓	A
S_Riv_Mrk						A			A	A	A	✓	A
S_Stn_Start						A		R	A	A	A	✓	A
S_Subbasins					R				A	R[1]	A[1]	✓	A
S_Submittal_Info		R	R	R	R	R	R	R	R	R	R	✓	R[7]
S_Topo_Confidence			A									✓	
S_Trnsport_Ln		A								A		✓	A
S_Tsct_Basln							R		A	A	A	✓	A
S_Wtr_Ar		A								A		✓	A
S_Wtr_Ln		A[2]								A		✓	A
S_XS						A		R	A	A	A	✓	A
Study_Info										R	R		R[8]
L_Comm_Info										R	R		A
L_Comm_Revis										R	R		
L_Cst_Model							R		A	A	A	✓	A
L_Cst_Struct							A		A	A	A	✓	A
L_Cst_Tsct_Elev							R		A	A	A	✓	A
L_ManningsN						A				A	A	✓	A
L_Meetings										R	A	✓	A
L_MT2_LOMR										A	A		

Table Name	Discovery	Acquire Base Map	Develop Topographic Data	Perform Field Survey	Perform Hydrologic Analyses	Perform Hydraulic Analyses	Perform Coastal Analyses	Perform Alluvial Fan Analysis	Perform Floodplain Mapping	Develop DFIRM Database	FIS Database Component	Data CaptureComponent	LOMR Component
L_Mtg_POC										R	A	✓	A
L_Pan_Revis										A	A		
L_Pol_FHBM										A	A		
L_Profil_Bkwtr_El						A			A	A	A	✓	A
L_Profil_Label						A			A	A	A	✓	A
L_Profil_Panel						A			A	A	A	✓	A
L_Source_Cit		R	R	R	R	R	R	R	R	R	R	✓	R
L_Summary_Discharges					R				A	A	A	✓	A
L_Summary_Elevations					A	A	A[4]			A	A	✓	A
L_Survey_Pt				R								✓	A
L_XS_Elev						A[3]		R	A	A	A	✓	A
L_XS_Struct						A		A	A	A	A	✓	A

[1] HUC8 Boundaries used for Index Map and FIS Table preparation must be added to Hydrology subbasins if new hydrologic analyses are performed.

[2] S_WTR_LN is not needed if FIRM is ortho-based or all streams on the FIRMs have profile baselines.

[3] L_XS_Elev is required for all High/ Medium Risk studies and any new Low Risk studies where cross-sections are used, but not for historic low risk studies such as Zone A areas with no model backup.

[4] Coastal stillwater elevations are stored in L_Cst_Tsct_Elev unless there are no corresponding coastal transects in S_Cst_Tsct_Ln. Those non-transect based coastal stillwater elevations are placed in L_Summary_Elevations instead.

[5] Required even if the LOMR removes all SFHA, in order to capture the LOMR source boundary coded as an “OTHER BOUNDARY” and the SOURCE_CIT entry for linking to L_Source_Cit.

[6] Required even if the LOMR removes all SFHA, in order to capture the Zone and Zone Subtype in the S_Fld_Haz_Ar feature class and the SOURCE_CIT entry for linking to L_Source_Cit.

[7] Required even if the LOMR removes all SFHA, in order to capture the LOMR submittal information, such as model types and other background engineering information.

[8] Update of DBREV_DT required for LOMR incorporations into the National Flood Hazard Layer (NFHL).

5. Field Specifications

5.1 Field Types

The definition of the field length, precision and scale depends on the GIS data file format. The requirements for GDB Fields, SHP Fields, Primary Key Fields, Domain Table Values and Null Values are described below:

5.1.1 GDB Field Specifics

For date and numeric field types in a GDB, the length describes the data size, in bytes, of the field. The length is dependent upon the selected data type and the user has no control over its value. The precision and scale in a GDB are not utilized and will show only as a 0 value.

For reference, the default field length, precision and scale for a GDB by data type are:

- Double (8, 0, 0)
- Float (4, 0, 0)
- Long Integer (4, 0, 0)
- Short Integer (2, 0, 0)
- Date (8, 0, 0)
- Text (50, 0, 0)

5.1.2 Shapefile Field Specifics

For numeric field types in a SHP file, the field length defines the total number of characters that exist to the left and right of the decimal place. The precision defines the number of characters to the left of the decimal place. The scale defines the number of characters to the right of the decimal place. For those data types that store fractional values (e.g. double and float), the user will define the precision and scale. For SHP files, the scale will be 2 and the precision will be 10. For the date field type in a SHP file, the length, precision and scale are inherent and cannot be specified by the user. For the text field type, the field length indicates the number of characters that may be stored in the table column. For the date field type in a SHP, the length, precision and scale are inherent and cannot be specified by the user. The tables in this Technical Reference identifying the field properties will include the specification for the data type, length (for text fields), precision (for numeric fields) and scale.

For reference, the default field length, precision and scale for a SHP file by data type are:

- Double (19, 0, 0)
- Float (13, 0, 0)
- Long Integer (9, 9, 0)
- Short Integer (4, 4, 0)
- Date (8, 0, 0)

- Text (50, 0, 0)

5.1.3 Primary Key Fields

Each FIRM Database table has a primary key field defined. This field normally uses a name similar to the table name followed by "_ID." The Mapping Partner that creates the digital data must populate these fields. Normally, features in each table will be numbered sequentially using this field, although the Mapping Partner may choose another method provided it is logical, documented, consistently implemented and results in a unique ID value for each spatial feature. Each FIRM Database also has a DFIRM_ID field to store the six-digit code for State and county/community, as well as the VERSION_ID that stores the version of the FIRM Database standard (which corresponds to the version of the FIRM Database Technical Reference).

5.2 Field Domains

Valid values for domain tables referenced in this Technical Reference can be found in the Domain Tables Technical Reference.

5.3 Acceptable Null Values

In the table documentation in Section 8, each field name is followed by a letter code as follows:

- R – Required for all records
- A – Required if applicable to spatial feature described

For required fields, Null values are not permitted. In the event that the correct information cannot be obtained for a required or required if applicable field, the FEMA Project Officer may allow the Mapping Partner to substitute a value that indicates that the affected field was intentionally not populated. Any use of non-populated values must be documented and explained in the metadata. The values to use for non-populated data for each field type are as follows:

- Text: "NP"
- Numeric: -8888
- Date: 8/8/8888
- True.False: "U"

Text fields must follow the capitalization standards per the FIRM Panel Technical Reference. For a field that is required when applicable but does not apply, the value for text fields must be Null (i.e., the field must be left empty, not set to zero). The Mapping Partner shall use the value zero only when an attribute has the specific value of zero. Because of limitations in the GIS formats used by FEMA, a true Null value cannot be used for some fields. The value to use for "Null" fields for each field type is as follows:

- Text: Null (or "", the empty string)
- Numeric: -9999

- Date: 9/9/9999
- True.False: Null (or “”, the empty string)

Date fields in the FIRM Database are stored in the native date format for the data format in which the table is distributed. For GDB, the default is the Short Date format and for SHP, the default is the Date format. Using the default GDB and SHP settings, the output format of the date will be the required Month / Date / Year (MM/DD/YYYY).

6. Metadata and Sources

As part of data collection, coordination and submittal, the Mapping Partner that produces the FIRM Database must provide metadata that documents the data sources, date of collection or digitizing, scale of digitizing, projections, coordinate systems, horizontal datum, vertical datum and units of all digital data used and submitted. The FIRM Database Federal Geographic Data Committee (FGDC) compliant metadata file is used to store this information and is submitted with the FIRM Database. For each data source used, the Mapping Partner shall add a record to the L_Source_Cit table described herein and add a corresponding Source Citation entry to the FIRM Database metadata file in the Lineage section under Data Quality. Within the metadata file, the Mapping Partner shall assign each data source a Source Citation Abbreviation. These abbreviations are presented in Table 3.

Table 3. Source Citation Abbreviations

Source Citation Abbreviation	Use
BASE	For all base map sources (includes digital orthophotography, roads, railroads, airports, hydrography, and political boundaries)
FIRM	For features extracted from the existing FIRM
FHBM	For features extracted from the existing Flood Hazard Boundary Map (FHBM)
FBFM	For features extracted from the existing Flood Boundary and Floodway Map (FBFM)
LOMC	For information derived from a Letter of Map Change (LOMC)
FIS	For information taken from a previously published FIS Report, including Floodway Data Tables and Flood Profiles
STUDY	For information developed for the current Flood Risk Project
SURVEY	For sources of leveraged survey data
TOPO	For sources of leveraged topographic data
TSDN	For any information taken from the Technical Support Data Notebook (TSDN) (used for existing backup information in FEMA’s archives not published on previous FIRM)
REF	For any other reference material listed in the FIS Bibliography Table not covered by one of the Source Citation types listed above.

The Mapping Partner that produces the FIRM Database shall number each source citation abbreviation for a distinct data source (e.g. BASE1, BASE2 and BASE3). All spatial tables in the standards discussed in Section 8 have a SOURCE_CIT field tied to values in the L_Source_Cit lookup table. The Mapping Partner that produces the FIRM Database shall populate the field with the Source Citation Abbreviation from the lookup table that applies to the related spatial feature. These L_Source_Cit field abbreviations are associated with documented source descriptions in the corresponding metadata files.

Information on the preparation of FIRM Database metadata can be found in the latest Metadata Profiles Technical Reference.

7. Spatial Reference Systems

Delivered FIRM datasets shall have the following spatial reference standards:

Coordinate System: Geographic (GCS)

- Spheroid:
  - o Name: GRS_1980
  - o Semi major Axis: 6378137
  - o Semi minor Axis: 6356752.3141403561
- Angular Unit
  - o Name: Degree
  - o Radians per unit: 0.017453292519943299
- Prime Meridian
  - o Name: Greenwich
  - o Longitude 00° 00’ 00”

Horizontal Datum: NAD 83 (1986). This is the original NAD 83 realization.

Horizontal Units: Decimal Degrees (dd)

Vertical Datum: North American Vertical Datum 1988 (NAVD88)

Vertical Units: US Survey Feet

Cluster Tolerance: 0.000000784415 dd

Spatial Resolution: 0.0000000784415 dd

To provide national consistency, the above tolerances have been set based upon the approximate center of the contiguous 48 States (Meade’s Ranch, Kansas).

All elevation data, including water surface elevation rasters, shall reference the North American Vertical Datum of 1988 (NAVD88) with units of US Survey Feet. The use of other datums or vertical units (e.g. the use of meters in areas such as Puerto Rico where Base Flood Elevations [BFEs] are expressed in meters) will require approval of the FEMA Project Officer.

Non-geodatabase formats shall maintain these spatial reference standards where allowable by file type and format.

8. Topology Rules

Vector data files must meet the following data structure requirements:

- Digitized linework must be collected at a reasonably fine line weight.
- Only simple point, polyline, and polygon elements may be used. Multi-part features are not allowed.
- Line features must be continuous (no dashes, dots, patterns or hatching).
- Spatial files must not contain any linear or area patterns.
- Area spatial features for a given theme must cover the entire Flood Risk Project area without overlaps or sliver polygons between adjacent polygons. Gaps or overshoots between features that should close must be eliminated.

Topology Rules are shown in Table 4.

Table 4. Topology Rules

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (dd)
BASE_INDX	S_Base_Index	Must Be Larger Than Cluster Tolerance		0.000000784415
BFE_XS	S_BFE	Must Be Larger Than Cluster Tolerance		0.000000784415
BFE_XS	S_BFE	Must Not Overlap		0.000000784415
BFE_XS	S_BFE	Must Not Have Pseudo nodes		0.000000784415
BFE_XS	S_BFE	Must Be Single Part		0.000000784415
BFE_XS	S_BFE	Must Not Overlap With Lettered Cross Sections	S_XS	0.000000784415
BFE_XS	S_XS	Must Be Larger Than Cluster Tolerance		0.000000784415
BFE_XS	S_XS	Must Not Overlap		0.000000784415
BFE_XS	S_XS	Must Not Have Pseudo nodes		0.000000784415
BFE_XS	S_XS	Must Be Single Part		0.000000784415
CBRS	S_CBRS	Must Be Larger Than Cluster Tolerance		0.000000784415
CBRS	S_CBRS	Must Not Overlap		0.000000784415
FIRM_PAN	S_FIRM_Pan	Must Be Larger Than Cluster Tolerance		0.000000784415
FIRM_PAN	S_FIRM_Pan	Must Not Overlap		0.000000784415
FIRM_PAN	S_FIRM_Pan	Must Not Have Gaps		0.000000784415
BFE	S_BFE	Must Not Self-Intersect		0.000000784415
BFE	S_BFE	Must Not Self-Overlap		0.000000784415
FLD_HAZ	S_Fld_Haz_Ln	Must Not Self-Intersect		0.000000784415
FLD_HAZ	S_Fld_Haz_Ln	Must Not Self-Overlap		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ar	Must Be Larger Than Cluster Tolerance		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ar	Must Not Overlap		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ar	Must Not Have Gaps		0.000000784415

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (dd)
FLD_HAZ_POL	S_Fld_Haz_Ar	Boundary Must Be Covered By	S_Fld_Haz_Ln	0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ar	Boundary Must Be Covered By Feature Class Of	S_Pol_Ar	0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ln	Must Be Larger Than Cluster Tolerance		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ln	Must Not Overlap		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ln	Must Not Intersect		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ln	Must Not Have Dangles		0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ln	Must Be Covered By Boundary Of	S_Fld_Haz_Ar R	0.000000784415
FLD_HAZ_POL	S_Fld_Haz_Ln	Must Be Single Part		0.000000784415
FLD_HAZ_POL	S_Pol_Ar	Must Be Larger Than Cluster Tolerance		0.000000784415
FLD_HAZ_POL	S_Pol_Ar	Must Not Overlap		0.000000784415
FLD_HAZ_POL	S_Pol_Ar	Must Not Have Gaps		0.000000784415
GEN_ST	S_Gen_Struct	Must Be Larger Than Cluster Tolerance		0.000000784415
GEN_ST	S_Gen_Struct	Must Not Overlap		0.000000784415
GEN_ST	S_Gen_Struct	Must Be Single Part		0.000000784415
GEN_ST	S_Gen_Struct	Must Not Self-Intersect		0.000000784415
GEN_ST	S_Gen_Struct	Must Not Self-Overlap		0.000000784415
LEVEE	S_Levee	Must Be Larger Than Cluster Tolerance		0.000000784415
LEVEE	S_Levee	Must Not Overlap		0.000000784415
LEVEE	S_Levee	Must Be Single Part		0.000000784415
LEVEE	S_Levee	Must Not Self-Intersect		0.000000784415
LEVEE	S_Levee	Must Not Self-Overlap		0.000000784415
LIMWA	S_LiMWA	Must Be Larger Than Cluster Tolerance		0.000000784415

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (dd)
LIMWA	S_LiMWA	Must Not Overlap		0.000000784415
LIMWA	S_LiMWA	Must Be Single Part		0.000000784415
LIMWA	S_LiMWA	Must Not Self-Intersect		0.000000784415
LIMWA	S_LiMWA	Must Not Self-Overlap		0.000000784415
PFD	S_PFD_Ln	Must Be Larger Than Cluster Tolerance		0.000000784415
PFD	S_PFD_Ln	Must Not Overlap		0.000000784415
PFD	S_PFD_Ln	Must Be Single Part		0.000000784415
PFD	S_PFD_Ln	Must Not Self-Intersect		0.000000784415
PFD	S_PFD_Ln	Must Not Self-Overlap		0.000000784415
PLSS	S_PLSS_Ar	Must Be Larger Than Cluster Tolerance		0.000000784415
PLSS	S_PLSS_Ar	Must Not Overlap		0.000000784415
PLSS	S_PLSS_Ar	Must Not Have Gaps		0.000000784415
PROFIL	S_Profil_Basln	Must Be Larger Than Cluster Tolerance		0.000000784415
PROFIL	S_Profil_Basln	Must Not Overlap		0.000000784415
PROFIL	S_Profil_Basln	Must Be Single Part		0.000000784415
PROFIL	S_Profil_Basln	Must Not Self-Intersect		0.000000784415
PROFIL	S_Profil_Basln	Must Not Self-Overlap		0.000000784415
SUBBAS	S_Subbasins	Must Be Larger Than Cluster Tolerance		0.000000784415
SUBBAS	S_Subbasins	Must Not Overlap		0.000000784415
TRNS	S_Trnsport_Ln	Must Be Larger Than Cluster Tolerance		0.000000784415
TRNS	S_Trnsport_Ln	Must Not Overlap		0.000000784415
TRNS	S_Trnsport_Ln	Must Be Single Part		0.000000784415
TRNS	S_Trnsport_Ln	Must Not Self-Intersect		0.000000784415
TRNS	S_Trnsport_Ln	Must Not Self-Overlap		0.000000784415

Topology Filename (*_TOPOLOGY)	Spatial Layer	Topology Rule	Parameter	Minimum Cluster Tolerance (dd)
TSCT	S_Cst_Tsct_Ln	Must Be Larger Than Cluster Tolerance		0.000000784415
TSCT	S_Cst_Tsct_Ln	Must Not Overlap		0.000000784415
TSCT	S_Cst_Tsct_Ln	Must Be Single Part		0.000000784415
TSCT	S_Cst_Tsct_Ln	Must Not Self-Intersect		0.000000784415
TSCT	S_Cst_Tsct_Ln	Must Not Self-Overlap		0.000000784415
TSCT	S_Tsct_Basln	Must Be Larger Than Cluster Tolerance		0.000000784415
TSCT	S_Tsct_Basln	Must Not Overlap		0.000000784415
TSCT	S_Tsct_Basln	Must Be Single Part		0.000000784415
TSCT	S_Tsct_Basln	Must Not Self-Intersect		0.000000784415
TSCT	S_Tsct_Basln	Must Not Self-Overlap		0.000000784415
WTR	S_Wtr_Ar	Must Be Larger Than Cluster Tolerance		0.000000784415
WTR	S_Wtr_Ln	Must Be Larger Than Cluster Tolerance		0.000000784415
WTR	S_Wtr_Ln	Must Not Overlap		0.000000784415
WTR	S_Wtr_Ln	Must Be Single Part		0.000000784415
WTR	S_Wtr_Ln	Must Not Self-Intersect		0.000000784415
WTR	S_Wtr_Ln	Must Not Self-Overlap		0.000000784415

9. FIRM Database Tables

Table: S_Alluvial_Fan

This table is required when the modeling includes alluvial fans. Only the 1-percent-annual-chance flood is mapped for alluvial fans. The alluvial fan could be mapped as: Zone AO areas with depths and velocities; Zone AO areas with just depths or Zone A, AE or X. This information is needed for the Summary of Alluvial Fan Analyses and Results of Alluvial Fan Analyses tables in the FIS Report.

The spatial entities representing the alluvial fans are polygons.

The S_Alluvial_Fan layer contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State Federal Information Processing Standard (FIPS) code and the four-digit FEMA Community Identification (CID) code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code, and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
ALLUVL_ID	R	Primary key for table lookup. Assigned by table creator.
ACTIVE_FAN	R	Active Fan Designation. This value specifies if the alluvial fan is currently active. This field will be true when the alluvial fan is active. It should be false when the fan is inactive. Acceptable values for this field are listed in the D_TrueFalse table.
FANAPEX_DA	R	Drainage Area at Fan Apex.
AREA_UNITS	R	Units of Alluvial Fan Drainage Area. This unit indicates the measurement system used for drainage area. This would normally be in square miles. Acceptable values for this field are listed in D_Area_Units table.
FANAPEX_Q	R	1-percent-annual-chance Discharge at Fan Apex.
DISCH_UNIT	R	Units of Alluvial Fan Discharge. This unit indicates the measurement system used for discharge. This would normally be in cubic feet per second (cfs). Acceptable values for this field are listed in the D_Discharge_Units table.
FAN_VEL_MN	A	Alluvial Fan Minimum Velocity. This value represents the minimum velocity of the 1-percent-annual-chance flood flow in this area, if there is a velocity range specified. If there is only one velocity listed, it must be entered here. This field is populated when the FAN program is used for analysis.
FAN_VEL_MX	A	Alluvial Fan Maximum Velocity. This value represents the maximum velocity of the 1-percent-annual-chance flood flow in this area, if there is a velocity range specified. This field is populated when the FAN program is used for analysis.

Field Name	Require/ Required if Applicable	Description
VEL_UNIT	A	Velocity Unit. This is the unit of measurement for the velocity of the 1-percent-annual-chance flood. This field is populated when the VELOCITY field is populated. Acceptable values for this field are listed in the D_Velocity_Units table.
DEPTH	A	Depth. This is the depth of the 1-percent-annual-chance flood for Zone AO areas. This field is populated if the hydraulic analysis determines a depth for the AO zone.
DEPTH_UNIT	A	Depth Units. This unit indicates the measurement system used for depths. This field is populated when the DEPTH field is populated. Acceptable values for this field are listed in the D_Length_Units table.
FLD_ZONE	R	Flood Zone. This is the flood zone designation for the alluvial fan. These zones are used by FEMA to designate the SFHAs and for insurance rating purposes. Acceptable values for this field are listed in the D_Zone table.
ZONE_SUBTY	A	Flood Zone Subtype. This field captures additional information about the flood zones not related to insurance rating purposes. For example, insurance rate Zone X could have "AREA WITH REDUCED FLOOD RISK DUE TO LEVEE" or "0.2 PCT ANNUAL CHANCE FLOOD HAZARD." Types of floodways are also stored in this field. Floodways are designated by FEMA and adopted by communities to provide an area that will remain free of development to moderate increases in flood heights due to encroachment on the floodplain. Normal floodways are specified as 'FLOODWAY.' Special cases will have a more specific term for the designation (such as COLORADO RIVER) and will appear as a note on the hardcopy FIRM. See the FIRM Panel Technical Reference for available floodway notes. NOTE: The symbol '%' is a reserved symbol in most software packages, so the word 'percent' was abbreviated to 'PCT.' Acceptable values for this field are listed in the D_Zone_Subtype table.
METH_DESC	A	Description of Methodology Used In Alluvial Fan analysis. Used in Results of Alluvial Fan Analyses section of an FIS Report.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Alluvial_Fan

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
ALLUVL_ID	R	Text	25		N/A
ACTIVE_FAN	R	Text	1		D_TrueFalse
FANAPEX_DA	R	Double	Default		N/A
AREA_UNITS	R	Text	17		D_Area_Units
FANAPEX_Q	R	Double	Default		N/A
DISCH_UNIT	R	Text	3		D_Discharge_Units
FAN_VEL_MN	A	Double	Default		N/A
FAN_VEL_MX	A	Double	Default		N/A
VEL_UNIT	A	Text	20		D_Velocity_Units
DEPTH	A	Double	Default		N/A
DEPTH_UNIT	A	Text	16		D_Length_Units
FLD_ZONE	R	Text	17		D_Zone
ZONE_SUBTY	R	Text	72		D_Zone_Subtype
METH_DESC	A	Text	254		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Base_Index

The S_Base_Index table contains information about the raster data used as a base map for the Flood Risk Project area. This table is required if a raster base map was used as the base map for the FIRM.

The spatial elements representing raster base map tile index features are rectangular polygons. For standard U.S. Geological Survey Digital Ortho Quadrangles, polygons must match quarter-quad boundaries. Otherwise, polygons must match the boundaries of the raster tiles used. Polygonal overlap is acceptable where necessary. S_Base_Index is required on both tiled rasters and raster mosaics.

The S_Base_Index layer contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code, and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
BASE_ID	R	Primary key for table lookup. Assigned by table creator.
FILENAME	R	Base Filename. This filename must be assigned by the raster base map provider or the table creator. The filename should match the filename or specific product identifier assigned by the primary distributor of the raster base map used. This must be the complete filename including the file extension. This identifier must allow the user of the FIRM Database to unambiguously identify the raster base maps used on the FIRM to the primary distributor of the raster base map.
BASE_DATE	R	Base Date. This is the date that raster base map was acquired by the producer of the base map. It corresponds to the ground conditions metadata date value. For a vector base map that is rasterized for distribution, this data should be the acquisition date for the original vector base map.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Base_Index

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
BASE_ID	R	Text	25		N/A
FILENAME	R	Text	128		N/A
BASE_DATE	R	Date	Default	0	N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_BFE

The Base Flood Elevation (BFE) table is required for any digital data where BFE lines will be shown on the corresponding FIRM, with the exception of newly studied areas where a profile exists. For newly studied areas areas where a profile exists, the water-surface elevation (BFE value) will be labeled on the cross sections as stored in the FIRM Database S_XS feature class. The use of BFE lines is only required in special cases. BFEs (i.e., cross-section values supplemented with BFE lines where needed) must be shown at appropriate locations to allow map users to accurately interpolate flood elevations both horizontally and vertically. BFEs for ponding and lacustrine areas must be expressed to the 10th of a foot if they have been calculated to that level of precision; otherwise they should be shown as whole-foot rounded elevations. Unrevised lake and ponding elevations may be converted to 10th foot elevations if supported by technical data on a project-by project basis and if supported by the FEMA Region. BFEs for coastal flood zones must be shown as whole foot elevations. Other examples include; a riverine AE zone without a flood profile in the FIS Report, areas studied with two-dimensional modeling, certain ponding areas and backwater areas off to the side of streams with flood profiles. BFEs may be used for other exceptions at the discretion of the FEMA Project Officer. Any exceptions to these guidelines should be documented in the metadata.

The Mapping Partner must avoid overcrowding of the BFE and cross section lines. When a stream is so steep that there are more than four cross sections and / or BFE lines per one inch of map panel distance, determine the best elevation increments to retain clear labeling.

There are cases when S_BFE may be required in the FIRM Database, even if it is not required by the data submittal requirements in the Data Capture Technical Reference. Table 6 provides an overview of S_BFE requirements at different mapping stages.

Table 6. S_BFE Requirements

Study Scenarios	S_BFE Required by Data Capture Technical Reference?	S_BFE Required in FIRM Database?	BFE Lines Shown on FIRM?
Profiles available for all studied streams and map users can interpolate flood elevations vertically and horizontally	No	No	No
Profiles available for all studied streams and map users cannot interpolate flood elevations vertically and horizontally	No	Yes	Yes
Profiles available for some studied streams	Yes	Yes	Yes
Study has two dimensional modeling	Yes	Yes	Yes
Study contains ponding areas or backwater areas	Yes	Yes	Yes
Study contains exceptions approved by FEMA Project Officer	Yes	Yes	Yes

The S_BFE contains information about the BFEs within a Flood Risk Project area. A spatial file with location information also corresponds with this data table.

The spatial elements representing BFE features are lines extending from Special Flood Hazard Area (SFHA) boundary to SFHA boundary. The ends of the BFE lines must be snapped precisely to the SFHA boundary. Each BFE is represented by a single line with no pseudo-nodes. Where BFE lines are shown, they must be consistent with procedures described in the FIRM Panel Technical Reference.

The S_BFE layer contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code, and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
BFE_LN_ID	R	Primary key for table lookup. Assigned by table creator.
ELEV	R	The rounded, whole-foot elevation of the 1-percent-annual-chance flood. This is the value of the BFE that is printed next to the BFE line on the FIRM.
LEN_UNIT	R	BFE Units. This unit indicates the measurement system used for the BFEs. Normally this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_BFE

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
BFE_LN_ID	R	Text	25		N/A
ELEV	R	Double	Default	2	N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_CBRS

The S_CBRS layer only applies to coastal areas that have specially protected areas designated by Congress on John H. Chafee Coastal Barrier Resources System (CBRS) maps. Authoritative CBRS boundary locations are shown on maps administered by the U.S. Fish and Wildlife Service. Normally, these areas are already shown on existing FIRMs for the area. CBRS areas have restrictions on Federal funding (including flood insurance coverage) after specified dates for new or substantially improved structures. This table is required when CBRS areas occur in the jurisdiction. See the FIRM Panel Technical Reference and the CBRS Guidance document for more detailed information about CBRS areas. This information is needed for the Coastal Barrier Resources System Information table in the FIS Report and for the FIRM panels.

The spatial entities representing the CBRS and Other Protected Areas (OPA) features are polygons. There is a polygon for each CBRS unit.

The S_CBRS table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
CBRS_ID	R	Primary key for table lookup. Assigned by table creator.
CBRS_TYP	R	CBRS Type. The type code provides details of the types of prohibitions that apply to the area. Normally this would be a CBRS area or Otherwise Protected Area (OPA). This must be indicated on the FIRM panel with a note or with a fill pattern indicated on the legend. Acceptable values for this field are listed in the D_CBRS_Typ table.
CBRS_DATE	R	CBRS Date. Legislative or administrative date on which prohibitions for the CBRS area apply. This must be indicated on the FIRM panel with a note or with a fill pattern indicated on the legend.
WTR_NM	R	Primary CBRS Flooding Source, e.g. Atlantic Ocean, Gulf of Mexico, Chesapeake Bay, etc . This is the formal name of the surface water feature associated with the CBRS or OPA, as listed in the FIS Report Coastal Barrier Resources System Information table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_CBRS

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
CBRS_ID	R	Text	25		N/A
CBRS_TYP	R	Text	32		D_CBRS_Typ
CBRS_DATE	R	Date	Default	0	N/A
WTR_NM	R	Text	100		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Cst_Gage

The S_Cst_Gage layer is required when gage information (from tide, wind or buoy stations) is used in the determination or to support flood height calculations. Specifically, this table is required in the following situations: when tide gage information is used to support the calibration and validation of hydrodynamic models; when tide gage information is used in the determination of flood elevations by statistical analyses of annual extrema; when wave buoy data provides information regarding the wave climate in the Flood Risk Project area; when wave buoy data has been used in the estimation of offshore wave conditions; for calibration and validation of a numerical wave model and when data from wind stations has been used for water level hindcasts or wave estimation. Wave heights, wave period and spectral parameters computed during the Flood Risk Project must be compared with observed data from wave buoys whenever possible.

The S_Cst_Gage table contains information about coastal gages for the Flood Risk Project area. The spatial location of these gages may be some distance from the areas for which coastal flood hazards were determined. This information is needed for the Tide Gage Analysis Specifics table in the FIS Report.

The spatial entities representing the coastal gages are points.

The S_Cst_Gage table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter “C” (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
CSTGAGE_ID	R	Primary key for table lookup. Assigned by table creator.
CST_MDL_ID	A	Coastal Model Identification. This is the foreign key to the L_Cst_Model table. The L_Cst_Model table contains detailed information about the coastal models that were used to determine the coastal flood hazard for the area of each individual gage. This ID field should contain a number that matches the CST_MDL_ID field for a record in the _L_Cst_Model. Multiple gages may link to a single record in the L_Cst_Model table. This field is required for new coastal studies.
GAGE_NM	R	Gage Name. This is the name of the gage assigned by the agency maintaining the gage. This field can include information such as gage station ID number, gage name, and location description. It is used in the FIS Report Tide Gage Analysis Specifics table.

Field Name	Require/ Required if Applicable	Description
AGENCY	R	Gage Agency. This is the name of the agency maintaining the gage. It is used in the FIS Report Tide Gage Analysis Specifics table.
REC_INTVL	A	Recording Interval. This is the interval of time at which the gage records data. This field is populated only if the coastal gage is a fixed-interval gage.
TIME_UNIT	A	Recording Interval Time Unit. This field is populated only if the coastal gage is a fixed-interval gage. Acceptable values for this field are listed in the D_Time_Units table.
START_PD	R	Gage Record Starting Date. This is the date for the start of the earliest period of record used in gage analysis. This field is used in the FIS Report Tide Gage Analysis Specifics table to calculate the length of record.
START_TIME	A	Gage Record Starting Time. This is the time for the start of the earliest period of record used in gage analysis. This value should be formatted as hh:mm. This field is populated when the starting time is available.
END_PD	R	Gage Record Ending Date. This is the date for the end of the latest period of record used in gage analysis. This field is used in the FIS Report Tide Gage Analysis Specifics table to calculate the length of record.
END_TIME	A	Gage Record Ending Date. This is the time for the end of the latest period of record used in gage analysis. This value should be formatted as hh:mm. This field is populated when the end time is available.
GAGE_TYPE	R	Gage Type. This value indicates the type of coastal gage. It is used in the FIS Report Tide Gage Analysis Specifics table. Acceptable values for this field are listed in the D_Gage_Typ table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the gage elevations are measured. Acceptable values for this field are listed in the D_V_Datum table.
DATUM_CONV	A	Vertical Datum Conversion. This is the value used to convert from the gage datum (such as Mean Lower Low Water (MLLW) and Mean Sea Level (MSL)) to NAVD88. This value may be a decimal number. This field is populated when there is a vertical datum conversion between the gage data datum and NAVD88
TIDE_TF	R	Record Tide Elevations. Does the gage record tide elevations? Acceptable values for this field are listed in the D_TrueFalse table.
TIDE_EPOCH	A	Tidal Epoch. This field stores the date range for the tidal epoch; for example, “1983-2001.” This field is populated when the tide gage information is available.
TIDE_VBM	A	Tide Benchmark Vertical Marker. This is the National Oceanic and Atmospheric Administration (NOAA) Natioanl Geodetic Survey (NGS), or community-assigned permanent benchmark identifier. The identifier must be unique for each benchmark.
WVDIR_TF	R	Record Wave Direction. Does the gage record wave direction? Acceptable values for this field are listed in the D_TrueFalse table.

Field Name	Require/ Required if Applicable	Description
WVSPEC_TF	R	Record Wave Spectra. Does the gage record wave spectra? Acceptable values for this field are listed in the D_TrueFalse table.
WDSPD_TF	R	Record Wind Speed. Does the gage record wind speed? Acceptable values for this field are listed in the D_TrueFalse table.
WDDIR_TF	R	Record Wind Direction. Does the gage record wind direction? Acceptable values for this field are listed in the D_TrueFalse table.
WDSTN_HT	A	Wind Station Height. This is the height of the wind station above ground elevation. This field is populated when wind gage data are used in the Flood Risk Project.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Cst_Gage

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
CSTGAGE_ID	R	Text	25		N/A
CST_MDL_ID	A	Text	25		L_Cst_Model
GAGE_NM	R	Text	150		N/A
AGENCY	R	Text	150		N/A
REC_INTVL	A	Text	11		N/A
TIME_UNIT	A	Text	7		D_Time_Units
START_PD	R	Date	Default	0	N/A
START_TIME	A	Text	10		N/A
END_PD	R	Date	Default	0	N/A
END_TIME	A	Text	10		N/A
GAGE_TYPE	R	Text	25		D_Gage_Typ
V_DATUM	R	Text	17		D_V_Datum
DATUM_CONV	A	Double	Default		N/A
TIDE_TF	R	Text	1		D_TrueFalse
TIDE_EPOCH	A	Text	11		N/A
TIDE_VBM	A	Text	11		N/A
WVDIR_TF	R	Text	1		D_TrueFalse
WVSPEC_TF	R	Text	1		D_TrueFalse
WDSPD_TF	R	Text	1		D_TrueFalse
WDDIR_TF	R	Text	1		D_TrueFalse

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
WDSTN_HT	A	Long Integer	Default		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Cst_Tsct_Ln

The S_Cst_Tsct_Ln layer is required for all coastal studies for which transect-based analyses are performed. Normally this is any area with a coastal Flood Risk Project. The S_Cst_Tsct_Ln table contains information about the Coastal Transect Lines within the Flood Risk Project area, if applicable.

The spatial elements representing coastal transects are lines that generally extend from offshore all the way across the coastal floodplain. Transects can also extend seaward when wave runup modeling is used to determine coastal flood hazards. This information is needed for the Transect Locator Map table and Coastal Transect Parameters table in the FIS Report.

The S_Cst_Tsct_Ln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
TRAN_LN_ID	R	Primary key for table lookup. Assigned by table creator.
TBASELN_ID	R	Foreign key to S_Tsct_Basln. Connects the coastal transect to the appropriate transect baseline in S_Tsct_Basln.
TRAN_NO	R	Transect Number. The transect number as shown on the FIRM or in the FIS Report. Each transect is normally numbered sequentially.
METHOD	A	Transect Source Method. This value describes the general methodology used in deriving the station and elevation point data along transects used in coastal flood hazards. Acceptable values for this field are listed in the D_Method table. When the data development task is related to coastal redelineation or digital conversion, this field is populated when the data are available. For new coastal analysis, this field is always populated.
XCOORD	R	X-Coordinate. This is the X-coordinate of the 0.0-foot elevation point along the transect. This point must fall on the transect and have the same horizontal datum of the subsequent flood insurance study. The coordinates must be entered using the same coordinate system intended for the FIRM Database. Typically the 0.0-foot elevation point would represent the point of intersection between the S_Tsct_Basln and S_Cst_Tsct_Ln spatial files.

Field Name	Require/ Required if Applicable	Description
YCOORD	R	Y-Coordinate. This is the Y-coordinate of the 0.0-foot elevation point along the transect. This point must fall on the transect and have the same horizontal datum as the subsequent FIRM study. The coordinates must be entered using the same coordinate system intended for the FIRM Database. Typically the 0.0-foot elevation point would represent the point of intersection between the S_Tsct_Basln and S_Cst_Tsct_Ln spatial files. This field is used in the Coastal Transect Parameters table in the FIS Report.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature acting as the primary flooding source for the transect line.
V_DATUM	R	Vertical Datum. This is the vertical datum in which the transect lines were drawn. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.
DATUM_CONV	A	Vertical Datum Conversion. This is the value used to convert from the gage datum (such as MLLW and MSL) to NAVD88. This value may be a decimal number. This field is populated when there is a vertical datum conversion between the gage data datum and NAVD88.
CSTLN_TYP	R	Coastline Type. This describes the type of coastline. Acceptable values for this field are listed in the D_Cst_Typ table.
BEACH_SET	A	Beach Setting. This field describes the local geomorphic characteristics of the shore and backshore zone. Acceptable values for this field are listed in the D_BeachSet table. See the coastal components of the Guidelines and Standards for additional information regarding beach setting. This field is populated for new coastal analysis. Additionally, for coastal redelineation or digital conversion, this field is populated if the data are available.
SHORE_TYP	A	Shoreline Type. This field describes the type of shoreline along the transect baseline. Acceptable values for this field are listed in the D_Shr_Typ domain table.
CST_MDL_ID	A	Coastal Model Identification. This field is the foreign key to the L_Cst_Model table. Multiple transects may link to a single record in the L_Cst_Model table. This field is populated for new coastal studies. This field is also populated for coastal redelineations and digital conversions when the data are available.
EVENT_TYP	R	Flood Event. Identifies the annual percent chance of exceedance for a flooding event such as 0.2-, 1-, 2-, 4, and 10-percent. Acceptable values for this field are listed in the D_Event table.
SWEL	R	Stillwater Elevation. This is the stillwater elevation for the flood event specified in the EVENT_TYP field at the shoreline. This field is populated for new coastal studies.

Field Name	Require/ Required if Applicable	Description
SIG_HT	A	Significant Wave Height. This is the wave height associated with the 1-percent-annual-chance storm event. It is the average height of the highest 1/3 of all waves. It is used in Wave Height Analysis for Flood Insurance Studies (WHAFIS) and RUNUP models. Normally shown in feet. For new wave setup analysis, this field is populated if data are available.
SIG_PD	A	Significant Wave Period. This is the wave period associated with the 1-percent-annual-chance storm event. It is the time it takes for a wave of the significant wave height to pass a point. Normally shown in seconds. For new wave setup analysis, this field is populated if the data are available.
CON_HT	A	Controlling Wave Height. The controlling wave height value is 1.6 times the significant wave height. This field is populated when the controlling wave height is available for the start of each transect. This field is not required if the controlling wave height is not available for the start of each transect, and WHAFIS default values are used.
CON_PD	A	Controlling Wave Period. This is the time it takes for a wave of the controlling wave height to pass a point. Normally shown in seconds. This field is populated when the controlling wave period is available for the start of each transect. This field is not required if the controlling wave period is not available for the start of each transect, and WHAFIS default values are used.
MEAN_HT	A	Mean Wave Height. Average height of all waves. This information is typically derived from wave gage data. This field is populated when gage analysis is performed in the new coastal Flood Risk Project.
MEAN_PD	A	Mean Wave Period. Average period of all waves. This information is typically derived from wave gage data. Normally shown in seconds. This field is populated when gage analysis is performed in the new coastal Flood Risk Project.
FETCH_LEN	A	Fetch Length. This is the starting fetch length. This field is populated when it is used for starting wave conditions for new coastal wave studies.
FTCHLNUNIT	A	Fetch Length Units. This unit indicates the measurement system used for the fetch length. Normally shown in miles. Acceptable values for this field are listed in the D_Length_Units table. This field is populated when it is used for starting wave conditions for new coastal wave studies.
EROS_METH	A	Erosion Methodology. This field describes the erosion methodology. This field is populated when dunes are present in the Flood Risk Project area for the new coastal analysis. Acceptable values for this field are listed in the D_Erosion table.
LOC_DESC	R	Location Description. This field describes the location of the coastal transect, such as “starts at the Atlantic Ocean Shoreline 200 feet east of Main Street.”

Field Name	Require/ Required if Applicable	Description
LU_SOURCE	A	Land Use Description Source. This describes a land-use data source along the transect (aerial, land-use shapefile, etc.). This field is always populated for new coastal analysis. For data development tasks related to coastal redelineation or digital conversion, this field is populated when data are available.
RUP	R	Wave Runup Elevation. This is the wave runup elevation for the annual chance flood event specified in the EVENT_TYP field. This field is populated for new coastal studies.
ELEV_UNIT	R	Elevation Units. This is the unit of measurement for the SWEL and runup fields. Acceptable values for this field are listed in the D_Length_Units table.
WHAFIS_TF	R	Overland propagation of wave height modeling. Was overland propagation of wave height modeling using FEMA's WHAFIS model performed? Acceptable values for this field are listed in the D_TrueFalse table.
OVERTOP_TF	R	Wave Overtopping Calculations. Have wave overtopping calculations been performed? Acceptable values for this field are listed in the D_TrueFalse table.
BW_HGT_TF	R	Breaking Wave Height Calculations. Have breaking wave calculations been performed? Acceptable values for this field are listed in the D_TrueFalse table.
HVFLOW_TF	R	High Velocity Flow Calculations. Have high velocity flow calculations been performed? Acceptable values for this field are listed in the D_TrueFalse table.
VZONE_EXT	A	V Zone Extent. This information provides a brief summary to users about the predominant methodology used to determine the landward extent of the V Zone in the vicinity of a transect. Acceptable values for this field are listed in the D_VZone table. When the data development task is related to coastal digital conversion, this field is populated when data are available. For new coastal analysis and redelineation, this field is always populated.
SETUP_DPTH	A	Wave Set-up Depth. This is the depth of the wave setup that is added to the 1-percent-annual-chance elevation. Normally shown in feet. When the data development task is related to coastal redelineation or digital conversion, this field is populated when data are available. For new coastal analysis, this field is populated when the wave setup depth is calculated and available.
WAVE_02PCT	R	0.2-percent Wave Calculations. Were 0.2-percent wave calculations performed? Acceptable values for this field are listed in the D_TrueFalse table.
LEN_UNIT	A	Length Units. This unit indicates the measurement system used for wave setup depth, controlling wave height, significant wave height or mean wave height. Normally this would be feet. Acceptable values for this field are listed in the D_Length_Units table. This field is populated when the SETUP_DEPTH, CON_HT, SIG_HT or MEAN_HT field is populated.

Field Name	Require/ Required if Applicable	Description
TIME_UNIT	A	Units of Time Measurement. This field is populated if there is a value entered for the significant wave period, controlling wave period or the mean wave period. The period values all should use the same unit of time measurement. Acceptable values for this field are listed in the D_Time_Units table. This field is populated when the SIG_PD, CON_PD or MEAN_PD field is populated.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Cst_Tsct_Ln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
TRAN_LN_ID	R	Text	25		L_Cst_Tsct_Elev
TBASELN_ID	R	Text	25		S_Tsct_Basln
TRAN_NO	R	Text	4		N/A
METHOD	A	Text	24		D_Method
XCOORD	R	Double	Default		N/A
YCOORD	R	Double	Default		N/A
WTR_NM	R	Text	100		N/A
V_DATUM	R	Text	17		D_V_Datum
DATUM_CONV	A	Double	Default		N/A
CSTLN_TYP	R	Text	40		D_Cst_Typ
BEACH_SET	A	Text	63		D_BeachSet
SHORE_TYP	A	Text	26		D_Shr_Typ
CST_MDL_ID	A	Text	25		L_Cst_Model
EVENT_TYP	R	Text	37		D_Event
SWEL	R	Double	Default		N/A
SIG_HT	A	Double	Default		N/A
SIG_PD	A	Double	Default		N/A
CON_HT	A	Double	Default		N/A
CON_PD	A	Double	Default		N/A
MEAN_HT	A	Double	Default		N/A
MEAN_PD	A	Double	Default		N/A
FETCH_LEN	A	Double	Default		N/A
FTCHLNUNIT	A	Text	16		D_Length_Units
EROS_METH	A	Text	12		D_Erosion

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
LOC_DESC	R	Text	254		N/A
LU_SOURCE	A	Text	254		N/A
RUP	R	Double	Default		N/A
ELEV_UNIT	R	Text	16		D_Length_Units
WHAFIS_TF	R	Text	1		D_TrueFalse
OVERTOP_TF	R	Text	1		D_TrueFalse
BW_HGT_TF	R	Text	1		D_TrueFalse
HVFLOW_TF	R	Text	1		D_TrueFalse
VZONE_EXT	A	Text	28		D_VZONE
SETUP_DPTH	A	Double	Default		N/A
WAVE_02PCT	R	Text	1		D_TrueFalse
LEN_UNIT	A	Text	16		D_Length_Units
TIME_UNIT	A	Text	7		D_Time_Units
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Datum_Conv_Pt

The S_Datum_Conv_Pt table is required when a countywide/community-based or flooding sourced-based vertical datum conversion was performed as part of the Flood Risk Project. It is not required for a passive vertical datum conversion. The Vertical Datum Conversion Guidance document should be referenced to determine which type of factor must be calculated. See also the FIRM Database Guidance document for additional information about datum conversion points.

The spatial elements representing this layer are points. There cannot be a mixture of countywide/community-based and flooding source-based conversion factors within one FIRM Database. This information is needed for the Countywide Vertical Datum Conversion and Flooding Source-Based Vertical Datum Conversion tables in the FIS Report.

The S_Datum_Conv_Pt table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
DATCONPTID	R	Primary key for this table. Assigned by table creator.
QUAD_NM	A	Quad Name. Provides the name for the U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangle map. For example "Red Rock." If the points are for a stream-by-stream conversion factor calculation, this field may be left null.
QUAD_COR	A	Quad Corner. Describes one of four quad corners (e.g. NW, SW, NE and SE). Acceptable values for this field are listed in the D_Quad_Corner table. If the points are for a stream-by-stream conversion factor calculation, this field may be left null.
FROM_DATUM	R	The original vertical datum being converted. Acceptable values for this field are listed in the D_V_Datum table.
TO_DATUM	R	The new vertical datum that is being converted to. Acceptable values for this field are listed in the D_V_Datum table.
WTR_NM	R	The extent of the datum conversion factor calculation of this point. This refers to whether this datum conversion point is used for a whole countywide / community FIRM or a flooding source-based datum conversion. Acceptable values for this are either the flooding source name or the name of the group of flooding sources (watershed) that this datum conversion point applies to or the term "COUNTYWIDE/COMMUNITY-BASED" if all the points in the table are for a countywide conversion.

Field Name	Require/ Required if Applicable	Description
CONVFACTOR	R	Vertical Datum Conversion Factor at this specific sample point, not the average of all points. References the vertical datum conversion factor used in observing surface elevations in different datums. The two most common standard vertical datums in use nationwide are the National Geodetic Vertical Datum (NGVD) of 1929 and the North American Vertical Datum (NAVD) of 1988. NGVD 29 to NAVD 88 conversion values range from roughly negative 1 foot or more on the east coast to more than negative 4 feet on the west coast.
LEN_UNIT	R	Length Units. This unit indicates the measurement system used for vertical datum conversion factor height. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Datum_Conv_Pt

Field	R/A	Type	Length/Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
DATCONPTID	R	Text	25		N/A
QUAD_NM	A	Text	50		N/A
QUAD_COR	A	Text	2		D_Quad_Corner
FROM_DATUM	R	Text	17		D_V_Datum
TO_DATUM	R	Text	17		D_V_Datum
WTR_NM	A	Text	100		N/A
CONVFACTOR	R	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_FIRM_Pan

This table is required for all Preliminary or Final FIRM Databases.

The S_FIRM_Pan table contains information about the FIRM panel area. A spatial file with location information also corresponds with this data table.

The spatial entities representing FIRM panels are polygons. The polygon for the FIRM panel corresponds to the panel neatlines. FIRM panels must not overlap or have gaps within a study. In situations where a portion of a panel lies outside the jurisdiction being mapped, the user must refer to the S_Pol_Ar table to determine the portion of the panel area where the FIRM Database shows the effective flood hazard data for the mapped jurisdiction.

This information is needed for the FIRM Panel Index and the following tables in the FIS Report: Listing of NFIP Jurisdictions, Levees, Incorporated Letters of Map Change and Coastal Barrier Resources System Information.

The S_FIRM_Pan table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
FIRM_ID	R	Primary key for table lookup. Assigned by table creator.
ST_FIPS	R	State FIPS. This is the two-digit code that corresponds to the State Federal Information Processing Standard (FIPS) code. This is a standard numbering system used by the Federal government, defined in FIPS Pub 6-4. These two numbers correspond to the first two digits of the panel number. Acceptable values for this field are listed in the D_State_FIPS table.
PCOMM	R	Community or County Identification Number. This is the third through the sixth digits of the panel number. For community based maps this corresponds to the FEMA Community Identification number. For countywide maps this is the county (or county equivalent) FIPS code with a "C."
PANEL	R	Panel Number. This is seventh through the 10th digits in the complete panel number. This is assigned by the scale of the map and the position within the community or county. The panel number scheme is described in detail in the FIRM Panel Technical Reference.

Field Name	Require/ Required if Applicable	Description
SUFFIX	R	Map Suffix. This is the final digit in the complete panel number. This is a letter suffix at the end of the panel number. The map suffix is incremented one letter every time the panel gets republished.
FIRM_PAN	R	FIRM Panel Number. This is the complete 11-digit FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL and SUFFIX. This is the FIRM panel number that is shown in the title block of the map.
PANEL_TYP	R	Panel Type. The type of FIRM panel identifies whether the panel is printed or not and whether it is community based or countywide. Acceptable values for this field are listed in the D_Panel_Typ table.
PRE_DATE	A	Preliminary Release Date. This is the preliminary release date of the current map revision. This field is not populated until the FIRM preliminary release date is established and the Prelim FIRM is ready for hardcopy production by the Mapping Partner. Then it is required.
EFF_DATE	A	Effective Date. This is the effective date of the current map revision. This field is not populated until the FIRM effective date is established and the Final FIRM is ready for hardcopy production by FEMA. Then it is required.
SCALE	R	Map Scale. This is the denominator of the FIRM scale as a ratio. For example, 24000 is the denominator for a 1″ = 2000′ map. Acceptable values for this field are listed in the D_Scale table.
PNP_REASON	A	Panel Not Printed Reason. This is the explanation for the FIRM panels that are not printed. Only completed if the hardcopy panel is not printed by FEMA. For example “No Special Flood Hazard Areas.” See the FIS Report Technical Reference for commonly used values.
BASE_TYP	R	Base map type. The type of base map used for the FIRM panel shall be recorded in this field. Acceptable values for this field are listed in the D_Basemap_Typ table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_FIRM_Pan

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
FIRM_ID	R	Text	25		N/A
ST_FIPS	R	Text	2		D_State_FIPS
PCOMM	R	Text	4		N/A
PANEL	R	Text	4		N/A
SUFFIX	R	Text	1		N/A
FIRM_PAN	R	Text	11		L_Pan_Revis L_MT2_LOMR S_Label_Ld S_Label_Pt
PANEL_TYP	R	Text	30		D_Panel_Typ
PRE_DATE	A	Date	Default		N/A
EFF_DATE	A	Date	Default	0	N/A
SCALE	R	Text	5		D_Scale
PNP_REASON	A	Text	254		N/A
BASE_TYP	R	Text	10		D_Basemap_Typ
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Fld_Haz_Ar

This table is required for all FIRM Databases.

The S_Fld_Haz_Ar table contains information about the flood hazards within the Flood Risk Project area. A spatial file with location information also corresponds with this data table. These zones are used by FEMA to designate the Special Flood Hazard Area (SFHA) and for insurance rating purposes. These data are the regulatory flood zones designated by FEMA.

This information is needed for the following tables in the FIS Report: Flooding Sources Included in this FIS Report and Summary of Hydrologic and Hydraulic Analyses.

The spatial elements representing the flood zones are polygons. The entire area of the jurisdiction(s) mapped by the FIRM should have a corresponding flood zone polygon. There is one polygon for each contiguous flood zone designated.

The S_Fld_Haz_Ar table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
FLD_AR_ID	R	Primary key for table lookup. Assigned by table creator.
STUDY_TYP	R	Study Type. This describes the type of Flood Risk Project performed for flood hazard identification. Acceptable values for this field are listed in the D_Study_Typ table.
FLD_ZONE	R	Flood Zone. This is a flood zone designation. These zones are used by FEMA to designate the SFHAs and for insurance rating purposes. Acceptable values for this field are listed in the D_Zone table.

Field Name	Require/ Required if Applicable	Description
ZONE_SUBTY	A	Flood Zone Subtype. This field captures additional information about the flood zones not related to insurance rating purposes. For example, Zone X could have "AREA WITH REDUCED FLOOD RISK DUE TO LEVEE" or "0.2 PCT ANNUAL CHANCE FLOOD HAZARD" as a subtype. Types of floodways are also stored in this field. Floodways are designated by FEMA and adopted by communities to provide an area that will remain free of development to moderate increases in flood heights due to encroachment on the floodplain. Normal floodways are specified as 'FLOODWAY.' Special cases will have a more specific term for the designation (such as COLORADO RIVER) and will appear as a note on the hardcopy FIRM. See the FIRM Panel Technical Reference for available floodway notes. NOTE: The symbol '%' is a reserved symbol in most software packages, so the word 'percent' was abbreviated to 'PCT.' Acceptable values for this field are listed in the D_Zone_Subtype table.
SFHA_TF	R	Special Flood Hazard Area. If the area is within a SFHA this field would be true. This field will be true for any area coded as an A or V flood zone area. It should be false for any X or D flood areas. Acceptable values for this field are listed in the D_TrueFalse table.
STATIC_BFE	A	Static Base Flood Elevation. This field will be populated for areas that have been determined to have a constant Base Flood Elevation (BFE) over a flood zone. The BFE value will be shown beneath the zone label. In this situation the same BFE applies to the entire polygon. This normally occurs in lakes or coastal zones.
V_DATUM	A	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally this would be North American Vertical Datum of 1988 for new studies. This field is only populated if the STATIC_BFE field is populated. Acceptable values for this field are listed in the D_V_Datum table.
DEPTH	A	Depth This is the depth for Zone AO areas. This value is shown beneath the zone label on the FIRM. This field is only populated if a depth is shown on the FIRM.
LEN_UNIT	A	Length Units. This unit indicates the measurement system used for the BFEs and/or depths. Normally this would be feet. This field is only populated if the STATIC_BFE or DEPTH field is populated. Acceptable values for this field are listed in the D_Length_Units table.
VELOCITY	A	Velocity. This is the velocity measurement of the flood flow in the area. Normally this is applicable to alluvial fan areas (certain Zone AO areas). This value is shown beneath the zone label on the FIRM. This field is only populated when a velocity is associated with the flood zone area.
VEL_UNIT	A	Velocity Unit. This is the unit of measurement for the velocity. This field is populated when the VELOCITY field is populated. Acceptable values for this field are listed in the D_Velocity_Units table.

Field Name	Require/ Required if Applicable	Description
AR_REVERT	A	Flood Control Restoration Zones – Zone AR Classification. If this area is Zone AR in FLD_Zone field, this field would hold the zone that area would revert to if the AR zone were removed. This field is only populated if the corresponding area is Zone AR. Acceptable values for this field are listed in the D_Zone table, but should only include one of AE, AO, AH, A, and X domain values.
AR_SUBTRV	A	Flood Control Restoration Zones – Zone AR Classification Zone Subtype. If this area is Zone AR in FLD_Zone field, this field would hold the zone subtype that area would revert to if the AR zone were removed. This field is only populated if the corresponding area is Zone AR. NOTE: The symbol '%' is a reserved symbol in most software packages, so the word 'percent' was abbreviated to 'PCT.' Acceptable values for this field are listed in the D_Zone_Subtype_ table and must be one of the allowable subtypes for Zones AE, AO, AH, A or X.
BFE_REVERT	A	Flood Control Restoration Zones – BFE Revert. If zone is Zone AR in FLD_Zone field, this field would hold the static base flood elevation for the reverted zone. This field is populated when Zone equals AR and the reverted zone has a static BFE.
DEP_REVERT	A	Flood Control Restoration Zones – Depth Revert. If zone is Zone AR in FLD_Zone field, this field would hold the flood depth for the reverted zone. This field is populated when Zone equals AR and the reverted zone has a depth assigned.
DUAL_ZONE	A	Flood Control Restoration Zones – Dual Zone Classification. If the flood hazard areas shown on the effective FIRM shall be designated as "dual" flood insurance rate zones (i.e., Zone AR/AE, Zone AR/AH, Zone AR/AO, Zone AR/A), this field will be coded as true. It should be false for any for AR Zones that revert to Shaded X. Acceptable values for this field are listed in the D_TrueFalse table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Fld_Haz_Ar

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
FLD_AR_ID	R	Text	25		N/A
STUDY_TYP	R	Text	28		D_Study_Typ
FLD_ZONE	R	Text	17		D_Zone
ZONE_SUBTY	A	Text	72		D_Zone_Subtype
SFHA_TF	R	Text	1		D_TrueFalse
STATIC_BFE	A	Double	Default	2	N/A
V_DATUM	A	Text	17		D_V_Datum
DEPTH	A	Double	Default	2	N/A
LEN_UNIT	A	Text	16		D_Length_Units
VELOCITY	A	Double	Default	2	N/A
VEL_UNIT	A	Text	20		D_Velocity_Units
AR_REVERT	A	Text	17		D_Zone
AR_SUBTRV	A	Text	72		D_Zone_Subtype
BFE_REVERT	A	Double	Default	2	N/A
DEP_REVERT	A	Double	Default	2	N/A
DUAL_ZONE	A	Text	1		D_TrueFalse
SOURCE_CIT	R	Text	11		L_Source_Cit

Table 7: Flood Zone and Zone Subtype Cross-Walk

Flood Zones	Applicable Zone Subtypes
A	<NULL> 1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN STRUCTURE 1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL COASTAL FLOODPLAIN[2] COMBINED RIVERINE AND COASTAL FLOODPLAIN[2] RIVERINE FLOODPLAIN IN COASTAL AREA[2]
A99	AREA WITH REDUCED FLOOD RISK DUE TO LEVEE
AE	<NULL> 1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN STRUCTURE 1 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL ADMINISTRATIVE FLOODWAY AREA OF SPECIAL CONSIDERATION COLORADO RIVER FLOODWAY COMMUNITY ENCROACHMENT AREA DENSITY FRINGE AREA FLOODWAY FLOODWAY CONTAINED IN STRUCTURE FLOODWAY CONTAINED IN CHANNEL FLOWAGE EASEMENT AREA NARROW FLOODWAY STATE ENCROACHMENT AREA COASTAL FLOODPLAIN[2] COMBINED RIVERINE AND COASTAL FLOODPLAIN[2] RIVERINE FLOODPLAIN IN COASTAL AREA[2] RIVERINE FLOODWAY IN COMBINED RIVERINE AND COASTAL ZONE[2]
AH	<NULL>
AO	<NULL> FLOODWAY
AR	AREA WITH REDUCED FLOOD RISK DUE TO LEVEE
AREA NOT INCLUDED	<NULL>
D	<NULL> AREA WITH FLOOD RISK DUE TO LEVEE
OPEN WATER	<NULL>
V	<NULL> RIVERINE FLOODWAY SHOWN IN COASTAL ZONE[2] RIVERINE FLOODWAY IN COMBINED RIVERINE AND COASTAL ZONE[2] COASTAL FLOODPLAIN[2] COMBINED RIVERINE AND COASTAL FLOODPLAIN[2] RIVERINE FLOODPLAIN IN COASTAL AREA[2]

Flood Zones	Applicable Zone Subtypes
VE	<NULL> RIVERINE FLOODWAY SHOWN IN COASTAL ZONE[2] RIVERINE FLOODWAY IN COMBINED RIVERINE AND COASTAL ZONE[2] COASTAL FLOODPLAIN[2] COMBINED RIVERINE AND COASTAL FLOODPLAIN[2] RIVERINE FLOODPLAIN IN COASTAL AREA[2]
X	0.2 PCT ANNUAL CHANCE FLOOD HAZARD 0.2 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN STRUCTURE 0.2 PCT ANNUAL CHANCE FLOOD HAZARD CONTAINED IN CHANNEL 1 PCT DEPTH LESS THAN 1 FOOT 1 PCT DRAINAGE AREA LESS THAN 1 SQUARE MILE 1 PCT FUTURE CONDITIONS 1 PCT FUTURE CONDITIONS CONTAINED IN STRUCTURE AREA OF MINIMAL FLOOD HAZARD[1] AREA WITH REDUCED FLOOD RISK DUE TO LEVEE 0.2PCT ANNUAL CHANCE FLOOD HAZARD IN COASTAL ZONE[2] 0.2PCT ANNUAL CHANCE FLOOD HAZARD IN COMBINED RIVERINE AND COASTAL ZONE[2]

[1] "AREA OF MINIMAL FLOOD HAZARD" terminology is used by the Code of Federal Regulations (CFR) 64.3 to define unshaded Zone X areas.

[2] These zone subtypes should only be used in coastal areas.

Table: S_Fld_Haz_Ln

This table is required for all Preliminary or Final FIRM Databases.

The S_Fld_Haz_Ln table contains information about the flood zone boundary features for the Flood Risk Project area. A spatial file with location information also corresponds with this data table. Flood hazard data should not be shown beyond the extent of the county/community boundary. If the modeled information extends beyond the political area, the flood hazard data should be clipped to the political boundary.

The spatial elements representing the boundaries of the flood hazard areas depicted on the FIRM are lines.

The S_Fld_Haz_Ln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
FLD_LN_ID	R	Primary key for table lookup. Assigned by table creator.
LN_TYP	R	Line Type. These line types describe the flood boundary and may be used to indicate how the feature must be depicted on the hardcopy FIRM. Acceptable values for this field are listed in D_Ln_Typ table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Fld_Haz_Ln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
FLD_LN_ID	R	Text	25		N/A
LN_TYP	R	Text	26		D_Ln_Typ
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Gage

S_Gage table contains information about riverine gages for the Flood Risk Project area. Coastal gages are stored in S_Cst_Gage. This table is required for all new studies containing riverine analysis and should be populated with available data from existing studies when possible. The spatial location of these gages may be some distance from areas from which flood hazards were determined. A spatial file with location information also corresponds with this data table. This information is needed for the Stream Gage Information Used to Determine Discharges table in the FIS Report.

The spatial elements representing this layer are points.

The S_Gage table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
GAGE_ID	R	Primary key for table lookup. Assigned by table creator.
GAGE_OWNID	A	Unique Gage ID used by the Gage Owner. For reference purposes, this field should be populated with the unique gage ID used by the gage owner.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature associated with the gage.
AGENCY	R	Agency Name. This is the name of the agency responsible for maintaining the gage.
DTA_ACCESS	A	Data Access Information. URL for finding gage data, if available.
GAGE_DESC	R	Gage Description. This provides a description of the gage.
GAGE_TYP	R	Gage Type. This value indicates the type of gage (e.g. precipitation, coastal). Acceptable values for this field are listed in D_Gage_Typ.
REC_INTRVL	A	Recording Interval. This field is populated only if the gage is a fixed-interval gage.
TIME_UNIT	A	Recording Interval Time Unit. This field is populated only if the gage is a fixed-interval. Acceptable values for this field are listed in D_Time_Units.
START_PD	R	Gage Record Starting Date. Start of earliest period of record used in gage analysis.
END_PD	R	Gage Record Ending Date. End of latest period of record used in gage analysis.
DRAIN_AREA	R	Drainage Area. This is the contributing drainage basin area.
AREA_UNIT	R	Area Unit. This unit indicates the measurement system used for drainage area. This would normally be square miles. Acceptable values for this field are listed in D_Area_Units table.

Field Name	Require/ Required if Applicable	Description
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Gage

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
GAGE_ID	R	Text	25		N/A
GAGE_OWNID	A	Text	25		N/A
WTR_NM	R	Text	100		N/A
AGENCY	R	Text	150		N/A
DTA_ACCESS	A	Text	254		N/A
GAGE_DESC	R	Text	100		N/A
GAGE_TYP	R	Text	25		D_Gage_Typ
REC_INTRVL	A	Text	25		N/A
TIME_UNIT	A	Text	7		D_Time_Units
START_PD	R	Date	8	0	N/A
END_PD	R	Date	8	0	N/A
DRAIN_AREA	R	Double	Default		N/A
AREA_UNIT	R	Text	17		D_Area_Units
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Gen_Struct

This table is required whenever hydraulic structures are shown in the flood profile. It is also required when channels containing the flooding are shown on the FIRM or any other structure that impacts the area's flood risk is shown on the FIRM. This table contains both riverine and coastal structure types.

The S_Gen_Struct table must include all structures shown on the flood profiles, with the exception of riverine or coastal levees, floodwalls and closure structures; those structures must be placed in S_Levee, not in S_Gen_Struct. Refer to the S_Levee table for more information. Additional information about coastal structures is placed in L_Cst_Struct.

In addition, channels that contain flooding and other significant flood control structures shown on the FIRM, must be included.

Spatial elements representing general structures are represented by lines. The lines must represent the primary characteristic of the structure. For example, bridges must be represented by the transportation centerline carried by the bridge. Dams must be represented by a line corresponding to the top of the dam. A line corresponding to the centerline of the main barrel must represent a culvert.

The S_Gen_Struct table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
STRUCT_ID	R	Primary key for table lookup. Assigned by table creator.
STRUCT_TYP	R	Structure Type. These are hydraulic structures within the Flood Risk Project area. Acceptable values for this field are listed in the D_Struct_Typ table.
CST_STRUCT	A	Coastal Structure Classification. This provides the primary classification of the coastal structure. This field is populated when the structure type is a coastal structure. Acceptable values for this field are listed in the D_Cst_Struct table.

Field Name	Require/ Required if Applicable	Description
STRUCT_NM	A	Structure Name. This is the proper name of the feature and/or the related transportation feature name as shown on the FIRM and/or the flood profile. If the flood profile has the proper structure name and no related transportation name, this field stores the proper name (e.g. Hoover Dam). If the flood profile has the related transportation name and no proper name, this field stores the related transportation name (e.g. Main Street). If the flood profile has the proper name and the transportation name, this field stores both names (e.g. Hoover Dam / Main Street). If structure has no proper name and no related transportation name, this field is left blank; this field should not store the structure type (e.g. dam).
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface-water feature associated with the structure, as it will appear on the hardcopy FIRM.
LOC_DESC	A	Location Description. This is a description of where the structure is located. Used in FIS Report Flood Protection Measures table, if applicable.
STRUC_DESC	A	Structure Description. This is a description of the structure itself.
SHOWN_FIRM	R	Shown on FIRM. If the structure is shown on the FIRM, this field would be True. If the structure is not shown on the FIRM, this field is False. All structures shown on the profile must be shown on the FIRM. Acceptable values for this field are listed in D_TrueFalse.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Gen_Struct

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
STRUCT_ID	R	Text	25		L_Cst_Struct
STRUCT_TYP	R	Text	60		D_Struct_Typ
CST_STRUCT	A	Text	29		D_Cst_Struct
STRUCT_NM	A	Text	50		N/A
WTR_NM	R	Text	100		N/A
LOC_DESC	A	Text	254		N/A
STRUC_DESC	A	Text	254		N/A
SHOWN_FIRM	R	Text	1		D_TrueFalse
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_HWM

S_HWM table contains information about high water marks (HWMs) for the Flood Risk Project area. This table is required for Preliminary and Final FIRM Databases when the community has provided high water mark data. A spatial file with location information also corresponds with this data table. This table is used for the Historic Flooding Elevations table in the FIS Report, if this information is available.

The spatial entities representing the high water marks are points.

The S_HWM table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
HWM_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature associated with the high water mark.
LOC_DESC	R	Location Description. This provides a description of the location where the water marks were observed.
EVENT_DT	R	Event Date. This is the date the water marks were recorded.
ELEV	R	Elevation. This is the water-surface elevation.
LEN_UNIT	R	Water-Surface Elevation Units. This unit indicates the measurement system used for the water-surface elevation. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the elevation is measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.
HWM_SOURCE	R	Source of Historic Water Mark Data. Brief description of the source of the high water mark data.
APX_FREQ	R	Approximate recurrence interval in years, of the high water event associated with this high water event.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_HWM

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
HWM_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
LOC_DESC	R	Text	254		N/A
EVENT_DT	R	Date	Default		N/A
ELEV	R	Double	Default	2	N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum
HWM_SOURCE	R	Text	100		N/A
APX_FREQ	R	Short Integer	Default		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Hydro_Reach

The table is required for all hydrologic analyses. The hydrologic reach represents the connectivity between the subbasins and the flow direction between nodes in the hydrologic model.

The spatial entities representing the hydrologic reaches are lines.

The S_Hydro_Reach layer contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
REACH_ID	R	Primary key for table lookup. Assigned by table creator.
UP_NODE	A	Upstream Node. This is the node ID at the upstream end of the reach. This field must contain a number that matches the NODE_ID field in the S_Nodes table, which documents points used to define the topology of the hydrologic network. This field is populated when the feature is associated with an upstream node.
DN_NODE	A	Downstream Node. This is the node ID at the downstream end of the reach. This field must contain a number that matches the NODE_ID field in the S_Nodes table, which documents points used to define the topology of the hydrologic network. This field is populated when the feature is associated with a downstream node.
ROUTE_METH	A	Hydrologic Routing Method. This is the hydrologic routing method used for the reach. This field is populated if hydrologic routing is used for the reach.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature.

Table: S_Hydro_Reach

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
REACH_ID	R	Text	25		N/A
UP_NODE	A	Text	25		S_Nodes
DN_NODE	A	Text	25		S_Nodes
ROUTE_METH	A	Text	254		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Label_Ld

This table is required for FIRM data if any label leader lines are shown on the hardcopy FIRM.

The S_Label_Ld table contains information about leader lines that would connect labels to feature locations. The purpose of this table, along with the S_Label_Pt table is so that the FIRM Database can contain all labels and notes shown on the FIRM panel. A spatial file with location information also corresponds with this data table.

The spatial entities representing label leaders will be lines.

The S_Label_Ld table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LEADER_ID	R	Primary key for table lookup. Assigned by table creator.
LABEL_TYPE	R	Label type. This is a description of the features to which the leaders are associated. This field contains information for all labels and notes shown in the FIRM panel map body. Acceptable values for this field are listed in the D_Label_Typ table.
FIRM_PAN	R	FIRM Panel Number. This is the complete 11-digit FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL and SUFFIX. This is the FIRM panel number on which the label falls and must be one of the FIRM panels listed in S_FIRM_Pan for this revision.
SCALE	R	Map Scale. This is the denominator of the FIRM scale as a ratio. For example, 24000 is the denominator for a 1″ = 2000′ map. Acceptable values for this field are listed in the D_Scale table.

Table: S_Label_Ld

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LEADER_ID	R	Text	25		N/A
LABEL_TYPE	R	Text	20		D_Label_Typ
FIRM_PAN	R	Text	11		S_FIRM_Pan
SCALE	R	Text	5		D_Scale

Table: S_Label_Pt

This table is required for all Preliminary or Final FIRM Databases.

The S_Label_Pt table contains information for point locations that would link labels to base map features. The purpose of this table, along with the S_Label_Ld table is so the FIRM Database can contain the names of all features and annotation needed to make the FIRM panel. A spatial file with location information also corresponds with this data table.

The spatial entities representing labels are points. The point corresponds to the lower left corner of the label and notes.

The S_Label_Pt table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LABEL_ID	R	Primary key for table lookup. Assigned by table creator.
LABEL	R	Label for map feature.
LABEL2	A	Label continued if the note placed on the map exceeds the maximum field length of LABEL.
LABEL_TYPE	R	Label type. This is a description of the features to which the labels are associated. This field contains information for all labels and notes shown in the FIRM panel map body. Acceptable values for this field are listed in the D_Label_Typ table.
FONT_SIZE	R	Font Size. Lists the font size for each feature as it is placed in the map body of a FIRM panel.
FONT_TYPE	R	Font Type. Lists the font used to display a feature in the map body of a FIRM panel. Acceptable values for this field are listed in the D_Font table.
FONT_STYLE	R	Font Style. Lists the font style used to display a feature in the map body of a FIRM panel (Bold, Italic, Bold Italic, Regular). Acceptable values for this field are listed in the D_Font_Style table.
DEGREES	R	The degrees of rotation required for the placement of a feature label onto a FIRM panel. The rotation angle of the text measured in degrees. The angle is zero for unrotated horizontal text and increases in a counterclockwise direction to 359. Text rotated clockwise has a negative value between 0 and –359.

Field Name	Require/ Required if Applicable	Description
FIRM_PAN	R	FIRM Panel Number. This is the complete 11-digit FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL and SUFFIX. This is the FIRM panel number on which the label falls and must be one of the FIRM panels listed in S_FIRM_Pan for this revision.
SCALE	R	Map Scale. This is the denominator of the FIRM scale as a ratio. For example, 24000 is the denominator for a 1″ = 2000′ map. Acceptable values for this field are listed in the D_Scale table.

Table: S_Label_Pt

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LABEL_ID	R	Text	25		N/A
LABEL	R	Text	254		N/A
LABEL2	A	Text	100		N/A
LABEL_TYPE	R	Text	20		D_Label_Typ
FONT_SIZE	R	Text	3		N/A
FONT_TYPE	R	Text	27		D_Font
FONT_STYLE	R	Text	11		D_Font_Style
DEGREES	R	Short Integer	Default		N/A
FIRM_PAN	R	Text	11		S_FIRM_Pan
SCALE	R	Text	5		D_Scale

Table: S_Levee

This table is required for any Preliminary or Final FIRM Database that includes levees, floodwalls or dikes that have been designed for flood control, including those portions that are closure structures, whether or not they have been demonstrated to meet the NFIP requirements in 44 CFR 65.10. This information is shown in the Levees table in the FIS Report and on the FIRM panels.

The S_Levee table contains information about levees shown on the FIRMs that are accredited and known to be protecting against the 1-percent-annual-chance flood, as well as levees that are provisionally accredited, de-accredited and never accredited. The purpose of this table is to document the accreditation status of levees, as well as associated information necessary to be shown on the FIRM and for the population of FIS Report text related to levee structures.

The spatial entities representing levees are lines, drawn at the centerline of levees, floodwalls and levee closure structures.

The S_Levee table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LEVEE_ID	R	Primary key for table lookup. Assigned by table creator.
FC_SYS_ID	R	Levee System ID. An identifier for each levee system with which a levee is associated. Used to associate levees with areas protected by a levee.
LEVEE_NM	R	Any commonly used name for the levee.
LEVEE_TYP	R	Describes the type of protecting structure. Valid values can be found in the D_Levee_Typ domain table.
WTR_NM	R	Surface Water Feature Name. Name of the water body that the levee structure or segment is providing protection from.
BANK_LOC	R	Bank Location of Levee. A field to describe the location of the levee centerline in relation to the water body. For example, "Left Bank," "Right Bank."
USACE_LEV	R	Determines if this is a U.S. Army Corps of Engineers (USACE) Levee. Valid values can be found in the D_TrueFalse domain table.

Field Name	Require/ Required if Applicable	Description
DISTRICT	A	USACE District Code. This is the code for the USACE district responsible for the segment. Field is required when the structure is owned or maintained by the USACE, with a value of "T" in the USACE_LEV field. Valid values can be found in the D_USACE_District domain table.
PL84_99TF	R	Status of levee. This field indicates if the levee is covered under PL84-99, which is the USACE authority to provide emergency assistance and repair damaged levees. Valid values can be found in the D_TrueFalse domain table.
CONST_DATE	A	Construction Date. Date on which construction was completed.
DGN_FREQ	A	Design Frequency. Enter the design frequency of the levee, if known. For accredited levees, a valid entry in this field is required.
FREEBOARD	A	Freeboard Value. For accredited levees, enter the smallest amount of freeboard above the 1-percent-annual-chance flood along the entire levee, floodwall, closure structure or embankments.
LEVEE_STAT	R	Levee Status. This field stores the accreditation status of the levee. Acceptable values for this field are listed in the D_Levee_Status table. The domain value "NEVER ACCREDITED" indicates that the levee provides some flood protection but does not provide protection for the 1-percent-annual-chance flood event; this value may only be used with the approval of the FEMA Project Officer.
PAL_DATE	A	Provisionally Accredited Levee Date. This field stores the end date of the Provisionally Accredited Levee (PAL) period for the levee associated with the flood zone. This field is populated for those structure features that have a PAL designation.
LVDBASE_ID	A	Midterm Levee Database Identification. If the levee, floodwall or closure structure is included in the Midterm Levee Database, this is the structure's identification name/number in the Midterm Levee Database. This field is populated for all these structures, included in the Midterm Levee Database, regardless of their status.
OWNER	R	Levee Owner. Name of the entity that owns the levee.
LEN_UNIT	R	This unit indicates the measurement system used for the freeboard elevations. Normally this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Levee

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LEVEE_ID	R	Text	25		N/A
FC_SYS_ID	R	Text	25		N/A
LEVEE_NM	R	Text	100		N/A
LEVEE_TYP	R	Text	24		D_Levee_Typ
WTR_NM	R	Text	100		N/A
BANK_LOC	R	Text	100		N/A
USACE_LEV	R	Text	1		D_TrueFalse
DISTRICT	A	Text	13		D_USACE_District
PL84_99TF	R	Text	1		D_TrueFalse
CONST_DATE	A	Date	Default	0	N/A
DGN_FREQ	A	Text	50		N/A
FREEBOARD	A	Double	Default		N/A
LEVEE_STAT	R	Text	24		D_Levee_Status
PAL_DATE	A	Date	Default	0	N/A
LVDBASE_ID	A	Text	25		N/A
OWNER	R	Text	100		N/A
LEN_UNIT	R	Text	16		D_Length_Units
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_LiMWA

This table is required for all Preliminary or Final FIRM Databases that show coastal Limit of Moderate Wave Action (LiMWA) features. Reference Procedure Memorandum No. 50 for additional information.

The S_LiMWA layer is required when a Limit of Moderate Wave Action (LiMWA, previously described as a Coastal Zone A boundary line) is delineated within the coastal floodplain. This layer is required for new coastal analysis.

The spatial entities representing the LiMWA are lines. The line represents the limit of 1.5-foot or greater waves in a Coastal AE Zone.

The S_LiMWA table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LIMWA_ID	R	Primary key for table lookup. Assigned by table creator.
SHOWN_FIRM	R	LiMWA Line Shown On FIRM. This field indicates if the LiMWA line feature is shown on the FIRM. This field is true when the line is shown and false when the line is not shown. Acceptable values for this field are listed in the D_TrueFalse table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_LiMWA

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LIMWA_ID	R	Text	25		N/A
SHOWN_FIRM	R	Text	1		D_TrueFalse
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_LOMR

This table is maintained only in the National Flood Hazard Layer (NFHL) database. It is not part of Mapping Partners' Preliminary or Effective FIRM Database submittals.

This table is not prepared by Mapping Partners but by the FEMA contractors responsible for maintaining the NFHL database. This layer incorporates the results of effective Letter of Map Revisions (LOMRs) into FIRM data submitted to FEMA and is stored in the NFHL database for future PMRs.

The S_LOMR layer includes all LOMRs that have been incorporated into the NFHL database. The S_LOMR feature class should contain at least one record for each LOMR incorporated into the NFHL. Multipart polygons are not allowed.

The spatial entities representing LOMRs are polygons. The spatial information contains the bounding polygon for each LOMR area, broken on panel boundaries.

The S_LOMR table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LOMR_ID	R	Primary key for table lookup. Assigned by table creator.
EFF_DATE	R	Effective Date. Effective date of the LOMR.
CASE_NO	R	Case Number. This is the case number of the LOMR that is assigned by FEMA. The case number is used to track the LOMR's supporting documentation. Hyphens are included (e.g. 11-03-0036P).
SCALE	R	Map Scale. This is the denominator of the effective LOMR scale as a ratio. For example, 24000 is the denominator for a 1″ = 2000′ map. Acceptable values for this field are listed in the D_Scale table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.
STATUS	R	Status of the LOMR. Acceptable values for this field are listed in the D_LOMC_Status table.

Table: S_LOMR

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LOMR_ID	R	Text	25		N/A
EFF_DATE	R	Date	Default	0	N/A
CASE_NO	R	Text	13		N/A
SCALE	R	Text	5		D_Scale
STATUS	R	Text	12		D_LOMC_Status
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Nodes

The S_Nodes layer is required for non-coastal hydrologic analyses where nodes were defined as part of the analysis. The contributing drainage area and the discharges for all frequencies required for the Flood Risk Project (e.g. the 10-percent, 2-percent, 1-percent and 0.2-percent-annual-chance floods) represent the discharges based on the cumulative upstream drainage area. Nodes can represent sub basin outlets, junctions, reservoirs, structures or diversions. Note that nodes are required at all flow change locations. This information is used in the following tables in the FIS Report: Summary of Discharges, Summary of Summary of Non-Coastal Stillwater Elevations and Flood Hazard and Non-Encroachment Data for Selected Streams.

In addition to hydrologic modeling usage, for situations where cross sections are not integral to modeling, the cross section spatial file should not be submitted and the water-surface elevations must be reported in the L_Summary_Elevations file at the corresponding node. A node should be placed in areas with non-coastal static BFEs and a corresponding L_Summary_Elev record entered for each event type for the NODE_ID unless the Region determines that the flood sources do not warrant inclusion in the FIS Report.

The spatial entities representing nodes are points.

The S_Nodes layer contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter “C” (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
NODE_ID	R	Primary key for table lookup. Assigned by table creator.
NODE_TYP	A	Node Type. Values include junction (default), structure, outlet, and diversion. This field is required when the node is utilized in the hydraulic model. Acceptable values for this field are listed in the D_Node_Typ table.
WTR_NM	R	Surface Water Name. This is the name of the flooding source.
NODE_DESC	R	Node Location Description. This describes the location of the node. This name must match what is used in the model and is what will be shown in the Summary of Discharges Table in the FIS Report Text. Should be unique across a watershed. Examples of this value include “Downstream of State Route 234,” “At the confluence of Hillton Run” and “Approximately 1.08 miles upstream of confluence with McIntosh Run.”

Field Name	Require/ Required if Applicable	Description
MODEL_ID	R	Model Identifier. This field stores the feature's identifier that was used during hydrologic and hydraulic modeling. This field provides a link between the hydrologic or hydraulic modeling and this spatial file.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Nodes

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
NODE_ID	R	Text	25		L_Summary_Discharges L_Summary_Elevations S_Hydro_Reach S_Subbasins
NODE_TYP	A	Text	16		D_Node_Typ
WTR_NM	R	Text	100		N/A
NODE_DESC	R	Text	100		N/A
MODEL_ID	R	Text	100		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_PFD_Ln

The S_PFD_Ln layer is required when a primary frontal dune (PFD) is present along portions or the entire coastline within the modeled coastal floodplain. PFDs are not required to be continuous along the length of the studied shoreline. The S_PFD_Ln spatial file contains information about the PFD features for the coastal Flood Risk Project area. PFDs are not shown on the FIRM but are used in the coastal floodplain analysis. This layer is required for new coastal analysis and redelineations if primary frontal dunes exist in the study area.

The spatial entities representing the PFDs are lines that represent the landward dune heel or where the gradient changes from steep to gentle.

The S_PFD_Ln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
PFD_ID	R	Primary key for table lookup. Assigned by table creator.
VZONE_LIMT	R	Limit of V Zone. This field indicates if the Zone V(E) limit is based on the PFD. This field is true when the PFD determines the Zone V(E) limit and is false when the PFD is not the controlling factor of the Zone V(E) limit. Acceptable values for this field are listed in the D_TrueFalse table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_PFD_Ln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
PFD_ID	R	Text	25		N/A
VZONE_LIMT	R	Text	1		D_TrueFalse
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_PLSS_Ar

This table is required when U. S. Public Land Survey System (PLSS) areas are shown on the FIRM.

The S_PLSS_Ar table contains information about the PLSS areas that are associated within the Flood Risk Project area. These include the attributes for the range, township and section areas. A spatial file with location information also corresponds with this data table.

The spatial elements representing the PLSS areas are polygons. Generally, there is one polygon per section. The PLSS areas should cover the entire jurisdiction where sections are defined.

This information is provided for reference on the paper maps.

The S_PLSS_Ar table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
PLSS_AR_ID	R	Primary key for table lookup. Assigned by table creator.
RANGE	A	Range Number. This is the range number assigned to the PLSS area shown. This attribute would also include the designation of E (east) or W (west) as part of the data. For example, 21W would be an acceptable value. This field is applicable whenever the SECT_NO does not equal zero.
TWP	A	Township. This is the township number assigned to the PLSS area shown. This attribute would also include the designation of N (north) or S (south) as part of the data. For example, 14S would be an acceptable value. This field is applicable whenever the SECT_NO does not equal zero.
SECT_NO	R	Section. This is the section number assigned to the PLSS area shown. Use 0 for special cases.
NAME	A	Land Grant or Other Name. This field is required when an area within the PLSS is designated as a Land Grant or has an otherwise special designation.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_PLSS_Ar

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
PLSS_AR_ID	R	Text	25		N/A
RANGE	A	Text	8		N/A
TWP	A	Text	8		N/A
SECT_NO	R	Text	4		N/A
NAME	A	Text	254		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Pol_Ar

This table is required for all Preliminary or Final FIRM Databases.

The S_Pol_Ar table contains information about political areas within the Flood Risk Project area. This includes the attributes for the political areas within the Flood Risk Project and whether or not they have been studied or participate in the National Flood Insurance Program (NFIP). The political jurisdiction assigned to each area corresponds to the jurisdiction responsible for NFIP and floodplain management for that area.

This table is used in following FIS Report components: the FIS Report cover, the FIRM panel index, the Panel Locator on the FIRM panels, the Transect Locator Map and the following tables in the FIS Report: Listing of NFIP Jurisdictions, Flooding Sources Included this FIS Report, Flood Zone Designations by Community, Levees, Transect Locator Map, Summary of Topographic Elevation Data Used in Mapping, Community Map History, Summary of Contracted Studies Included in this FIS Report and Community Meetings.

The spatial entities representing political areas are polygons.

The S_Pol_Ar table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
POL_AR_ID	R	Primary key for table lookup. Assigned by table creator.
POL_NAME1	R	Political Area Name 1. This is the name of the area with floodplain management jurisdiction, which must have a CID. For areas that have more than one name, this would be the primary name with subsequent names shown in field below. This corresponds to the official name of this jurisdiction used by FEMA in the NFIP. For unincorporated areas of a county, this must be the county name (e.g. Montgomery County).
POL_NAME2	A	Political Area Name 2. This is the secondary name of the area shown populated if there is a common name for an area other than the official jurisdiction name. Location identifiers such as "Unincorporated Areas" or "Extrajurisdictional Areas" should be placed here.

Field Name	Require/ Required if Applicable	Description
POL_NAME3	A	Political Area Name 3. This is the tertiary name of the area shown populated if there is a situation where islands, National Parks, National Forests, military bases or other area boundaries and labels need to be shown on the FIRM underneath the POL_NAME1 and POL_NAME2 labels.
CO_FIPS	R	County Federal Information Processing Standard (FIPS) Code. This is the three-digit county FIPS code. This is a standard numbering system that is used by the federal government. Defined in FIPS Pub 6-4.
ST_FIPS	R	State FIPS. This is the two-digit code that corresponds to the State FIPS code. This is a standard numbering system that is used by the Federal government defined in FIPS Pub 6-4. Acceptable values for this field are listed in the D_State_FIPS table.
COMM_NO	R	Community Number. This is the four-digit number assigned by FEMA to each community for tracking purposes under the NFIP. On newer FIRMs the State FIPS and the community number appear below the community name where it is shown in the body of the map. For single-jurisdiction FIRMs, this is the third through the sixth digits of the panel number. This number can be obtained from the Community Status Book at www.msc.fema.gov.
CID	R	Community Identification Number. This is the six-digit community number assigned by FEMA. It is created by combining the State FIPS code with the COMM_NO. If the jurisdiction does not have a community number assigned by FEMA, the CID is created by combining the State FIPS code with the abbreviation contained in the COMM_NO field (FED, ST or OTHR).
ANI_TF	R	Area Not Included (ANI). This field contains information about the geographical area to determine whether or not it is included on the FIRM. Areas Not Included fall within the extent of the FIRM but no flood risk information is shown. This is either because the area is mapped on another FEMA map or because the area is not mapped at all by FEMA. Enter true when the area is not included in the FIRM. Acceptable values for this field are listed in the D_TrueFalse table.
ANI_FIRM	A	Used for ANI polygons where ANI_TF equals “T” and where the data are included in another FIRM Database, usually because it is a multicounty community. Enter the DFIRM_ID of the FIRM Database that contains the SFHA data of the ANI community. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter “C” (e.g. 48107C). Populate with “NP” if the area has never been converted to a FIRM Database from paper FIRM format.

Field Name	Require/ Required if Applicable	Description
COM_NFO_ID	A	Community Information Identification. Foreign key to L_Comm_Info table. This attribute links to the table L_Comm_Info that contains information about the specific community. This table must contain a number that matches a corresponding number in the COM_NFO_ID field of the L_Comm_Info table. This field is populated for any jurisdiction that has a CID number issued by FEMA.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Pol_Ar

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
POL_AR_ID	R	Text	25		N/A
POL_NAME1	R	Text	50		N/A
POL_NAME2	A	Text	50		N/A
POL_NAME3	A	Text	50		N/A
CO_FIPS	R	Text	3		N/A
ST_FIPS	R	Text	2		D_State_FIPS
COMM_NO	R	Text	4		N/A
CID	R	Text	6		N/A
ANI_TF	R	Text	1		D_TrueFalse
ANI_FIRM	A	Text	6		N/A
COM_NFO_ID	A	Text	25		L_Comm_Info
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Profil_Basln

The S_Profil_Basln layer is required for all types of riverine hydraulic analyses. Profile baselines are required to be shown on FIRM panels for all valid studies with profiles or otherwise established Base Flood Elevations. Profile baselines are also required in new riverine Zone A areas with model backup. At the discretion of the FEMA Project Officer water lines may be shown on vector maps to represent the bank or stream centerline location. When a profile baseline and water lines are available for the same stream reach, only the profile baseline shall be shown on the FIRM in order to eliminate overlaps. A profile baseline is also required when a Flood Risk Project is not being updated but the effective profile baseline still accurately represents conditions on the ground.

This information is used in the following tables within the FIS Report: Flooding Sources Included in this FIS Report, Principal Flood Problems, Summary of Hydrologic and Hydraulic Analyses, Summary of Topographic Elevation Data Used in Mapping, the Stream-by-Stream Vertical Datum Conversion and Summary of Contracted Studies Included in this FIS Report.

The spatial entities representing the profile baseline are lines. Profile baselines are to be stored in Polyline ZM feature classes, storing both profile station values (M-values) and 1-percent-annual-chance water-surface elevations (Z-values) at cross sections, structures and other modeled inflection points. For new models and effective models with valid profile baselines, vertices along the profile baseline are to be calibrated between cross sections and structures using linear referencing / dynamic segmentation tools in GIS. The first vertex of each profile baseline will be the downstream most point on the profile.

This table stores Principal Flood Problem and Special Consideration data for use in the FIS text. Due to the limitations in the Esri Shapefile DBF format, text fields are limited in size. Several fields have been provided but in the event that the description of principal flood problems or special considerations exceeds the number of characters provided, a tab separated value text file may be submitted instead. The first row of the text file must include a header as follows:

WTR_NM <TAB> FLD_PROB <TAB> SPEC_CON <CR>

Each row after the header would have the name of the studied reach/stream followed by a tab, the principal flood problem text followed by a tab and special considerations for that reach, followed by a carriage return.

When required, principal flood problem and special consideration files shall be named using the following convention: <DFIRM_ID>_FIS_Fld_Problems_Spec_Considerations.txt

The S_Profil_Basln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
BASELN_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature as it will appear on the hardcopy FIRM.
SEGMT_NAME	A	Segment Name. This is an optional identification string for each link. If used, this value must be unique for a stream.
WATER_TYP	R	Surface Water Feature Type. The type value describes the kind of watercourse represented. In the FIRM Database, this layer contains profile baselines and/or streams that are coincident with profile baselines. Acceptable values for this field are listed in the D_Prof_Basln_Typ table.
STUDY_TYP	R	Study Type. This describes the type of Flood Risk Project performed for flood hazard identification. Acceptable values for this field are listed in the D_Study_Typ table.
SHOWN_FIRM	R	Profile Baseline Shown on FIRM. This field is true only if the profile baseline is shown on the FIRM. Because various FIS tables require a profile baseline for all studied reaches regardless of zone designation, this field must be populated to determine which profile baselines are to be shown on the FIRM panels. Acceptable values for this field are listed in the D_TrueFalse table.
R_ST_DESC	R	Reach Name Start Description. This describes the location of the start of the Flood Risk Project reach.
R_END_DESC	R	Reach Name End Description. This describes the location of the end of the Flood Risk Project reach.
V_DATM_OFF	A	Vertical Datum Offset (Conversion Factor). Populated if a single vertical datum offset cannot be used across the Flood Risk Project and offset values must be calculated stream by stream.
DATUM_UNIT	A	Length Datum Offset (Conversion Factor) Units. This is the unit of measure for the vertical datum offset (conversion factor) distance height. Acceptable values for the field are listed in the D_Length_Units table.
FLD_PROB1	A	Description of Flooding Problems by flooding source.
FLD_PROB2	A	Description of Flooding Problems by flooding source, continued. Used when FLD_PRB1 field does not have enough characters to hold the flooding problem description.
FLD_PROB3	A	Description of Flooding Problems by flooding source, continued. Used when FLD_PRB1 and FLD_PRB2 fields do not have enough characters to hold the flooding problem description.

Field Name	Require/ Required if Applicable	Description
SPEC_CONS1	A	Special Considerations field for describing the modeling methodology used.
SPEC_CONS2	A	Second Special Considerations field for describing the modeling methodology used. Use this field when the description cannot be contained within the SPEC_CONS1 field.
START_ID	R	Station Start Identification. This is the foreign key to the S_Stn_Start layer. This field is the link that is used to reference station start descriptions in the FDTs and profiles and which links the S_Profil_Basln table, L_XS_Elev table via the S_XS table and river marks in the S_Riv_Mrk table to the appropriate stationing starting point.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Profil_Basln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
BASELN_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
SEGMT_NAME	A	Text	254		N/A
WATER_TYP	R	Text	38		D_Prof_Basln_Typ
STUDY_TYP	R	Text	28		D_Study_Typ
SHOWN_FIRM	R	Text	1		D_TrueFalse
R_ST_DESC	R	Text	254		N/A
R_END_DESC	R	Text	254		N/A
V_DATM_OFF	A	Text	6		N/A
DATUM_UNIT	A	Text	16		D_Length_Units
FLD_PROB1	A	Text	254		N/A
FLD_PROB2	A	Text	254		N/A
FLD_PROB3	A	Text	254		N/A
SPEC_CONS1	A	Text	254		N/A
SPEC_CONS2	A	Text	254		N/A
START_ID	R	Text	25		S_Stn_Start
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Riv_Mrk

This table is required if the FIRM shows river distance marks.

The S_Riv_Mrk table contains information about the river marks shown on the FIRM if applicable. A spatial file with location information also corresponds with this data table.

The spatial entities representing the river marks are points. The points are generally located along the centerline of the river at regular intervals or as indicated by the data source.

The S_Riv_Mrk table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
RIV_MRK_ID	R	Primary key for table lookup. Assigned by table creator.
START_ID	R	Station Start Identification. This is the foreign key to the S_Stn_Start layer. A code that provides a link to a point in the S_Stn_Start table at which the river mark distances start.
RIV_MRK_NO	R	River Mark Number. This attribute usually represents the distance from a known point (identified by START_ID), such as the confluence with another river, to the current river mark. This is the value shown next to the river mark on the FIRM.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Riv_Mrk

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
RIV_MRK_ID	R	Text	25		N/A
START_ID	R	Text	25		S_Stn_Start
RIV_MRK_NO	R	Text	6		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Stn_Start

This table is required for any FIRM Database that has an S_Profil_Basln, S_Riv_Mrk or L_XS_Elev table. It is used to populate the Floodway Data Tables and Flood Profiles, as well as the Flood Hazard and Non-Encroachment Data for Selected Streams table in the FIS Report.

The S_Stn_Start table contains information about station starting locations. These locations indicate the reference point that was used as the origin for distance measurements along streams and rivers. This table is referenced by both the L_XS_Elev table, which contains stream station information for cross sections and the S_Riv_Mrk table, which contains river distance marker points.

The S_Stn_Start table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
START_ID	R	Primary key for table lookup. Assigned by table creator. This field is the link that is used to reference station start descriptions in the FDTs and profiles and which links the S_Profil_Basln table, L_XS_Elev table via the S_XS table, and river marks in the S_Riv_Mrk table to the appropriate stationing starting point.
START_DESC	R	Start Description. The description of the location of the station starting point. This should include the measurement units. For example, "Distances are measured in feet upstream from the confluence with the Main Channel of the Big River."
LOC_ACC	R	Start Station Locational Accuracy. The spatial placement accuracy level of the Station Start point. For all new models with profile baselines, the exact location of the profile baseline station start should be placed and the locational accuracy be categorized as "HIGH." For old models where the profile baseline and station start are documented on work maps, the locational accuracy is "MEDIUM." For areas that only have a text description, the point shall be placed as best possible, and the locational accuracy will be attributed as "LOW." The acceptable values for this field can be found in the D_Loc_Accuracy table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Stn_Start

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
START_ID	R	Text	25		S_Profil_Basln S_XS S_Riv_Mrk
START_DESC	R	Text	254		N/A
LOC_ACC	R	Text	6		D_Loc_Accuracy
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Subbasins

This table is required for all studies with new or revised hydrologic data.

The S_Subbasins table contains data specific to each subbasin in the hydrologic analysis, including the relationship of the subbasin to the hydrologic network. The subbasin may be specific to a detailed hydrologic model. It may also correspond to the drainage area used in a regression analysis or to the drainage area for a stream gage. S_Subbasins is intended to store Hydrologic Unit Code 8 (HUC8) or smaller subbasin information related to the hydrologic model. This information is used in the Basin Characteristics tables in the FIS Report, as well as for the FIRM Panel Index Map.

The spatial elements representing the subbasins are polygons. In some cases the extent of these polygons may overlap, for example, cumulative subbasin areas for a regression analysis.

The S_Subbasins table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
SUBBAS_ID	R	Primary key for this table. Assigned by table creator.
SUBBAS_NM	R	Name of subbasin.
HUC8	R	USGS HUC8 code number of subbasin.
WTR_NM	R	Surface Water Feature Name. This is the name of the primary flooding source drained by the subbasin.
BASIN_DESC	R	Subbasin description. Enter a descriptive phrase for the subbasin.
SUB_AREA	R	Area of subbasin.
AREA_UNIT	R	Area Unit. This unit indicates the measurement system used for the subbasin area. This would normally be square miles. Acceptable values for this field are listed in D_Area_Units table.
NODE_ID	A	Node Identification. This is the foreign key to the S_Nodes table. The node is associated with the subbasin.
BASIN_TYP	R	Type of Subbasin. This field documents whether the subbasin polygon comes from a hydrologic analysis or from the USGS HUC8 dataset. Only HUC8 basins are shown on the FIRM Index Map. Acceptable values for this field are listed in the D_Subbasin_Typ table.

Field Name	Require/ Required if Applicable	Description
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Subbasins

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
SUBBAS_ID	R	Text	25		N/A
SUBBAS_NM	R	Text	254		N/A
HUC8	R	Text	8		N/A
WTR_NM	R	Text	100		N/A
BASIN_DESC	R	Text	254		N/A
SUB_AREA	R	Double	Default		N/A
AREA_UNIT	R	Text	17		D_Area_Units
NODE_ID	A	Text	25		S_Nodes
BASIN_TYP	R	Text	19		D_Subbasin_Typ
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Submittal_Info

The S_Submittal_Info layer contains essential information about the Flood Risk Project such as the FEMA case number and utilized engineering models.

The spatial entities representing the Flood Risk Project areas are polygons corresponding to the area to be revised by this Flood Risk Project. These can be one or multiple irregular polygons that capture the extent of the Flood Risk Project area(s). If multiple polygons are required, the attributes of each polygon should be set appropriately for the area covered and all polygons for that project should contain the same FEMA case number. Multiple polygons may be needed, for instance, when a Mapping Partner performs hydraulic analyses for two streams, each with a different type of hydraulic model. This information is used in the following tables in the FIS Report: Summary of Contracted Studies Included in this FIS Report, Summary of Hydrologic and Hydraulic Analyses and Summary of Topographic Elevation Data Used in Mapping.

The S_Submittal_Info is a polygon layer that contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
SUBINFO_ID	R	Primary key for table lookup. Assigned by table creator.
CASE_NO	R	FEMA Case Number. The FEMA case number is an alphanumeric identifier for a project that is generated by the MIP. An example of a FEMA case number for a Flood Risk Project is 10-03-0002S. Hyphens are to be included.
CASE_DESC	R	Case Description. General description of the Flood Risk Project area outlining the extent of work performed. This description should include the Flood Risk Project location with limits of Flood Risk Project, methods used and any unique circumstances associated with this Flood Risk Project (e.g. This is a redelineation of the East River using USGS DEMs.).
SUBMIT_BY	R	Data Submitter. Company or Agency name of the Mapping Partner submitting the dataset.
HUC8	A	USGS HUC8 Code. This is the unique eigth-digit hydrologic unit code based on USGS levels of classification in the hydrologic unit system. This field is required when the data development task is not COASTAL.
STUDY_TYP	R	Study Type. This describes the type of Flood Risk Project performed for flood hazard identification. Acceptable values for this field are listed in the D_Study_Typ table.

Field Name	Require/ Required if Applicable	Description
COMP_DATE	R	Completion Date. This is the date on which the assigned Mapping Partner completed the work.
TASK_TYP	R	Data Development Task Type. This is the type of data development task represented by the polygonal footprint of that task. Acceptable values for this field are listed in the D_Task_Typ table.
HYDRO_MDL	A	Hydrologic Model. This is the name or abbreviation of the hydrologic model that was used for the engineering analysis. This field is required when a hydrologic model was utilized in the Flood Risk Project area. Acceptable values for this field are listed in the D_Hydro_Mdl table.
HYDRA_MDL	A	Hydraulic Model. This is the name or abbreviation of the hydraulic model that was used for the engineering analysis. This field is required when a hydraulic model was utilized in the Flood Risk Project area. Acceptable values for this field are listed in the D_Hydra_Mdl table.
CST_MDL_ID	A	Coastal Model. This is the foreign key to the L_Cst_Model table. The L_Cst_Model table contains information about the specific coastal models utilized in the Flood Risk Project area. This field is required when the data development task type is COASTAL or FLOODPLAIN MAPPING and when a coastal model was utilized for this update.
TOPO_SRC	A	Source of the topographic data used in this specific submittal. This value is used to populate the FIS Report Floodplain Mapping Methodology table.
TOPO_SCALE	A	The scale of the topographic data used in this specific submittal. This references the scale of the topographic map and is stored as the scale ratio denominator (i.e. 2400, for 1:2400 or 1″=200′).
CONT_INTVL	A	Contour interval of the topographic data used in this specific submittal. This provides the difference in surface values between contours.
EFF_DATE	R	Submittal Effective Date.
CONTRCT_NO	R	Contract Number.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. This field links the S_Submittal_Info record to the bibliography information located in L_Source_Cit. The abbreviation must match a value in L_Source_Cit.

Table: S_Submittal_Info

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
SUBINFO_ID	R	Text	25		N/A
CASE_NO	R	Text	13		N/A

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
CASE_DESC	R	Text	254		N/A
SUBMIT_BY	R	Text	100		N/A
HUC8	A	Text	8		N/A
STUDY_TYP	R	Text	28		D_Study_Typ
COMP_DATE	R	Date	Default	0	N/A
TASK_TYP	R	Text	21		D_Task_Typ
HYDRO_MDL	A	Text	40		D_Hydro_Mdl
HYDRA_MDL	A	Text	83		D_Hydra_Mdl
CST_MDL_ID	A	Text	25		L_Cst_Model
TOPO_SRC	A	Text	50		N/A
TOPO_SCALE	A	Long Integer	Default		N/A
CONT_INTVL	A	Double	Default		N/A
EFF_DATE	R	Date	Default	0	N/A
CONTRCT_NO	R	Text	50		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Topo_Confidence

This table is used for tracking areas of low confidence in topographic data, whether it be Light Detection and Range (LiDAR), photogrammetry or Interferometric Synthetic Aperture Radar (IFSAR), as a required in the Data Capture Technical Reference.

The spatial entities representing topographic low confidence areas are polygons. The spatial information contains the bounding polygon for each topographic low confidence area, matching the full extents of the corresponding S_Submittal_Info terrain submittal record.

The S_Topo_Confidence table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LOWCONF_ID	R	Primary key for table lookup. Assigned by table creator.
DATESTAMP	A	Date of Topographic Low Confidence Assessment.
CONF_TYPE	R	Area of Low Confidence in Submitted Topographic Data. Acceptable values for this field are listed in the D_Obscured table.
SOURCE_CIT	R	Source Citation of the Topographic Data being Assessed for Low Confidence Issues. Abbreviation used in the metadata file when describing the source information for the feature. This source citation must match the polygon record in S_Submittal_Info matching this terrain submittal. The abbreviation must match a value in L_Source_Cit.

Table: S_Topo Confidence

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LOWCONF_ID	R	Text	25		N/A
DATESTAMP	A	Date	Default	0	N/A
CONF_TYPE	R	Text	26		D_Obscured
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Trnsport_Ln

This table is required for all FIRM Databases that use a vector rather than raster base map data but should be populated for all studies where Master Address File (MAF) / Topologically Integrated Geographic Encoding and Referencing (TIGER) data are available.

The S_Trnsport_Ln table contains information about the linear base map transportation features such as roads and railroads. A spatial file with location information also corresponds with this data table.

The default source for transportation features is U.S. Census Bureau MAF/TIGER transportation data. If MAF/TIGER data are not available or the use of MAF/TIGER is not feasible, transportation data from a different source may be used at the discretion of the FEMA Project Officer, provided that they meet the FEMA base map standard. Any exceptions to these guidelines should be documented in the metadata. If a community wants to use its own data, the features must be provided in the data structure specified in the table below. The community-supplied transportation features must reference the correct Master Address File / Topologically Integrated Geographic Encoding and Referencing Feature Class Codes (MTFCC) as referenced in the D_MTFCC domain table. This information is used in the FIRM Panel Index Map and on the Transect Locator Map in the FIS Report.

The spatial entities representing linear transportation features are normally lines.

The S_Trnsport_Ln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter “C” (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
TRANS_ID	R	Primary key for table lookup. Assigned by table creator.
MTFCC	R	MAF/TIGER feature class code. Defines of the primary feature type for the transportation feature, as defined the D_MTFCC domain table. Examples include Primary Road (S1100), Secondary Route (S1200), etc.

Field Name	Require/ Required if Applicable	Description
FULLNAME	R	Full name of feature. Concatenation of expanded text for prefix, qualifier, prefix direction, prefix type, base map name, suffix type, suffix direction and suffix qualifier (as available) with a space between each expanded text field. For areas with more than one name, this would be the primary name with subsequent names shown in fields below. Non-standard names like "Intracoastal Waterway" would also be included in this item.
ALTNAME1	A	First alternative name of feature. This is the secondary name of the feature.
ALTNAME2	A	Second alternative name of feature. This is the tertiary name of the feature.
ROUTENUM	A	Route Number. This is where route numbers are stored for placing route shields on the FIRMs. Determined from MAF/TIGER FULLNAME field.
ROUTE_TYP	R	Route Type. This is the route type used for placing route shields on the FIRM panel. Acceptable values for this field are listed in the D_Carto_Trans_Code table.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Trnsport_Ln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
TRANS_ID	R	Text	25		N/A
MTFCC	R	Text	70		D_MTFCC
FULLNAME	R	Text	100		N/A
ALTNAME1	A	Text	100		N/A
ALTNAME2	A	Text	100		N/A
ROUTENUM	A	Text	6		N/A
ROUTE_TYP	R	Text	14		D_Carto_Trans_Code
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Tsct_Basln

The S_Tsct_Basln layer is required for all coastal studies. The S_Tsct_Basln spatial file contains information about the transect baseline used in the coastal flood hazard model. Typically, the S_Tsct_Basln represents the 0.0-foot elevation contour, the starting point for the transect and the measuring point for the coastal mapping. The spatial elements representing the transect baselines are lines. The file describes the transect baseline profile setting and must also include a reference to the vertical datum. When a coastal transect baseline and water lines are available for the same study reach, only the transect baseline shall be shown on the FIRM in order to eliminate overlaps. This information is used in the following tables in the FIS Report: Transect Locator Map, as well as in the Flooding Sources Included this FIS Report, Summary of Coastal Analyses, Summary of Topographic Elevation Data Used in Mapping and Coastal Transect Parameters.

The spatial entities representing the transect baselines are lines.

The S_Tsct_Basln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
TBASELN_ID	R	Primary key for table lookup. Assigned by table creator.
CST_MDL_ID	A	Coastal Model Identification. This field is the foreign key to the L_Cst_Model table. Multiple transects may link to a single record in the L_Cst_Model table. This field is populated for new coastal studies. This field is also populated for coastal redelineations and digital conversions when the data are available.
TBASE_TYP	R	Transect Baseline Type. This is the type of source data for the transect baseline. This value describes the criteria used in determining the transect baseline in coastal flood hazard models. Acceptable values for this field are listed in the D_TsctBasln_Typ table.
R_ST_DESC	R	Reach Name Start Description. This describes the location of the start of the Flood Risk Project reach.
R_END_DESC	R	Reach Name End Description. This describes the location of the end of the Flood Risk Project reach.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the 0.0-foot contour is measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.

Field Name	Require/ Required if Applicable	Description
WTR_NM	R	Surface Water Feature Name. This is the formal name of the coastal water feature as it will appear on the hardcopy FIRM.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Tsct_Basln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
TBASELN_ID	R	Text	25		S_Cst_Tsct_Ln
CST_MDL_ID	A	Text	25		L_Cst_Model
TBASE_TYP	R	Text	43		D_TsctBasln_Typ
R_ST_DESC	R	Text	254		N/A
R_END_DESC	R	Text	254		N/A
V_DATUM	R	Text	17		D_V_Datum
WTR_NM	R	Text	100		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Wtr_Ar

This table is required for any FIRM Database where vector surface water features are shown on the FIRM and some of these features are represented as polygons in the spatial data. Otherwise, the table is optional.

The S_Wtr_Ar table contains information about surface water area features. A spatial file with location information also corresponds with this data table.

The spatial elements representing surface water area features are polygons. This information is used in the Transect Locator Map and the FIRM Panel Index in the FIS Report, as well as the FIRM panels.

The S_Wtr_Ar table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
WTR_AR_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM. This field is populated when the water feature name is known and shown on the FIRM. Unnamed bodies of water follow the convention shown in Section 5.3 related to null text values.
SHOWN_FIRM	A	Shown on FIRM. If the water feature is shown on the FIRM, this field would be True. Water features that obscure a profile baseline feature for the same reach should be attributed as False. Used for cartographic representation. Acceptable values for this field are listed in D_TrueFalse.
SHOWN_INDX	A	Shown on Index Map. If the water feature is shown on the Index Map, this field would be True. Due to the scale of the Index Map format, lower order and overly detailed water features would be attributed as False to avoid clutter on the map. Used for cartographic representation. Acceptable values for this field are listed in D_TrueFalse.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Wtr_Ar

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
WTR_AR_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
SHOWN_FIRM	A	Text	1		D_TrueFalse
SHOWN_INDX	A	Text	1		D_TrueFalse
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_Wtr_Ln

This table is required for any FIRM Database where vector surface water features are shown on the FIRM and some of these features are represented as lines in the spatial data. Vector streams must always be shown with a vector base map. They may also be shown on raster base maps at the discretion of the FEMA Project Officer.

The S_Wtr_Ln table contains information about surface water linear features. A spatial file with location information also corresponds with this data table.

The spatial elements representing surface water line features are lines. Surface water features may appear in either the S_Wtr_Ar table or the S_Wtr_Ln table or both. However, features that appear in both must match exactly. The hydrologic structure of the modeled stream network will be represented by the S_Profil_Basln layer.

This information is used in the Transect Locator Map and the FIRM Panel Index in the FIS Report, as well as the FIRM panels.

The S_Wtr_Ln table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
WTR_LN_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy FIRM.
SHOWN_FIRM	A	Shown on FIRM. If the water feature is shown on the FIRM, this field would be True. Water features that obscure a profile baseline feature for the same reach should be attributed as False. Used for cartographic representation. Acceptable values for this field are listed in D_TrueFalse.
SHOWN_INDX	A	Shown on Index Map. If the water feature is shown on the Index Map, this field would be True. Due to the scale of the Index Map format, lower order and overly detailed water features would be attributed as False to avoid clutter on the map. Used for cartographic representation. Acceptable values for this field are listed in D_TrueFalse.
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_Wtr_Ln

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
WTR_LN_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
SHOWN_FIRM	A	Text	1		D_TrueFalse
SHOWN_INDX	A	Text	1		D_TrueFalse
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: S_XS

This table is required for any FIRM Database where cross sections are shown on the FIRM or where modeled cross sections were used to generate the special flood hazard area boundaries. Normally, any FIRM that has associated flood profiles has cross sections.

The S_XS table contains information about cross section lines. This information is used in the Floodway Data Tables in the FIS Report, as well as on the FIRM panels. Database attributes should reflect the final regulatory water surface elevations and should be consistent with values in the floodway data tables and flood profiles, where applicable.

All cross sections – modeled or interpolated – must be stored in the S_XS, regardless of whether or not they are shown on the FIRM and regardless of the flood hazard zone ultimately depicted on the effective panels.

Refer to the BFE Mapping Guidance document for additional information about BFE and cross section placement and labeling elevation values on the FIRM panels.

The spatial entities representing cross sections are lines.

The S_XS layer contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
XS_LN_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the name of the stream or water body.
STREAM_STN	R	Stream Station. This is the measurement along the profile baseline to the cross section location. This value is used in the FDTs and profiles.
START_ID	R	Station Start Identification. This is the foreign key to the S_Stn_Start layer. The station start describes the origin for the measurements in the STREAM_STN field. This value is used in the FDTs and profiles.
XS_LTR	A	Cross Section Letter. This is the letter or number that is assigned to the cross section on the hardcopy FIRM and in the FIS Report. This field is populated when the cross section is lettered.

Field Name	Require/ Required if Applicable	Description
XS_LN_TYP	R	Cross-Section Line Type. This attribute should contain 'LETTERED, MAPPED' for cross sections that are shown on the hardcopy FIRM and are given a letter. If the cross section will be shown on the FIRM but not lettered, the attribute should contain 'NOT LETTERED, MAPPED' to indicate that it is a cross section shown on the hardcopy FIRM, but not on the FDTs or profiles. If the cross section will not be shown on the hardcopy FIRM, this attribute should contain 'NOT LETTERED, NOT MAPPED' to indicate that the cross section is part of the backup data for the Flood Risk Project, but is not shown on the FIRM. All cross sections used in the development of effective hydraulic models shall be stored in this table, regardless of the flood hazard zone depicted on the effective panels. Acceptable values for this field are listed in the D_XS_Ln_Typ table.
WSEL_REG	R	Regulatory Water Surface Elevation for the 1-Percent-Annual-Chance Flood Event. This the regulatory water-surface elevation for the 1-percent-annual-chance flood event in the stream channel at this cross section. In the case of levee(s) associated with a cross section, it is assumed that the levee(s) holds. For cross sections in the coastal floodplain, this value should be coded "-8888". For cross sections in the combined coastal and riverine floodplain, this value should reflect the results of the combined rate of occurrence analysis. This field is stored here and in L_XS_Elev to simplify annotation of the FIRM panel water-surface elevation at this cross section. This value and the corresponding value in L_XS_Elev should match.
STRMBED_EL	R	Streambed Elevation. This is the water-surface elevation for the thalweg or the lowest point in the main channel. This value is used in the profiles.
LEN_UNIT	R	Water-Surface and Streambed Elevation Units. This unit indicates the measurement system used for the water-surface and streambed elevations. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the flood and streambed elevations are measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.
PROFXS_TXT	A	Profile Cross Section Text. This field stores user-defined cross section text that is plotted on the profile. This field is only required to be populated if and when the data can be exported from RASPLOT in FIRM Database Technical Reference format.
MODEL_ID	R	Model Identifier. This field stores the feature's identifier that was used during hydrologic and hydraulic modeling. This field provides a link between the hydrologic or hydraulic modeling and this spatial file.
SEQ	A	Sequence. This is the order in which the cross sections plot on the profile. This value is needed for profiles. This field is only required if and when the data can be exported from RASPLOT in FIRM Database Technical Reference format.

Field Name	Require/ Required if Applicable	Description
SOURCE_CIT	R	Source Citation. Abbreviation used in the metadata file when describing the source information for the feature. The abbreviation must match a value in L_Source_Cit.

Table: S_XS

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
XS_LN_ID	R	Text	25		L_XS_Elev L_XS_Struct
WTR_NM	R	Text	100		N/A
STREAM_STN	R	Double	Default		N/A
START_ID	R	Text	25		S_Stn_Start
XS_LTR	A	Text	12		N/A
XS_LN_TYP	R	Text	24		D_XS_Ln_Typ
WSEL_REG	R	Double	Default		N/A
STRMBED_EL	R	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum
PROFXS_TXT	A	Text	80		N/A
MODEL_ID	R	Text	100		N/A
SEQ	A	Short Integer	Default		N/A
SOURCE_CIT	R	Text	11		L_Source_Cit

Table: Study_Info

This table is required for all Preliminary and Final FIRM Databases.

The Study_Info table contains details about the Flood Risk Project such as the project name, datum and projection. There is normally only one record in this table for each Flood Risk Project. This information is used on the FIS Report cover, the FIRM Panel Index and the FIRM Notes to Users table in the FIS Report.

The Study_Info table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
STD_NFO_ID	R	Primary key for table lookup. Assigned by table creator.
STUDY_PRE	A	Study Prefix. This is the prefix of the Flood Risk Project name such as 'City of' or 'Town of.' This field is applicable for single-jurisdiction maps where the type of jurisdiction precedes the name of the jurisdiction in the map title. For countywide maps or maps of the unincorporated portions of a county, this field is null. Acceptable values for this field are listed in the D_Study_Prefix table.
STUDY_NM	R	Study Name. This attribute contains the main portion of the Flood Risk Project name, which is shown in the title block of the hardcopy FIRM. For countywide FIRMs, or FIRMs for the unincorporated portions of counties, the name should include the county or county equivalent descriptor (e.g. Washington County or Iberia Parish).
STATE_NM	R	State Name. This attribute contains the State name for the Flood Risk Project and is shown in the title block of the hardcopy FIRM.
CNTY_NM	R	County Name. This is the name of the county (or county equivalent) in which the Flood Risk Project falls. The name should include the county or county equivalent descriptor (e.g. Washington County or Iberia Parish). The county name is also shown in the title block section of the hardcopy FIRM.
JURIS_TYP	A	Political Jurisdiction Type. This field is populated when the political entity has an associated jurisdiction type. If there are data in this attribute, it is also shown in the title block section of the hardcopy FIRM. Acceptable values for this field are listed in the D_Jurisdiction_Typ table.
LG_PAN_NO	R	Largest Panel Number. This is the highest panel number shown on the FIRM Index for the area mapped. This number is shown in the title block section of the hardcopy FIRM.

Field Name	Require/ Required if Applicable	Description
OPP_TF	R	Only Panel Printed. This field is true when the Flood Risk Project has only one printed panel. Acceptable values for this field are listed in the D_TrueFalse table.
H_DATUM	R	Horizontal Datum. This is the horizontal datum used for the printed FIRM. The horizontal datum describes the reference system on which the horizontal coordinate information shown on the FIRM is based. NAD83 is the preferred horizontal datum. Acceptable values for this field are listed in the D_Horiz_Datum table.
V_DATUM	R	Vertical Datum. This is the vertical datum of the printed FIRM. The vertical datum describes the reference surface from which elevation on the map is measured. Normally, this would be North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
PROJECTION	R	Map Projection used for hardcopy FIRM publication. The preferred projection is Universal Transverse Mercator (UTM). If a State Plane coordinate system and associated projection is used, this field should include the name of the projection, the State and the zone (e.g. Virginia North Zone). Acceptable values for this field are listed in the D_Projection table.
PROJ_ZONE	R	Projection Zone associated with the hardcopy FIRM. When using many map projections and coordinate systems, there is a zone associated with the area. This field is populated based on the projection selected for the Final hardcopy map production. This applies if the projection used has a zone parameter such as UTM or State plane. The zone should be stated as the appropriate zone associated with the map projection. Acceptable values for this field are listed in the D_Projzone table.
PROJ_UNIT	R	Projection Unit associated with the hardcopy FIRM. When using map projections and coordinate systems, there is a unit associated with the projection defined in the PROJECTION field. This field is populated based on the projection selected for the Final hardcopy map production. Acceptable values for this field are listed in the D_Proj_Unit table.
PROJ_SECND	A	Secondary Projection shown on FIRM. A UTM projection is required as a reference grid for every Flood Risk Project. If the PROJECTION field value is a State Plane projection, this field must be populated with a UTM projection. If the PROJECTION field value is the UTM projection, this field may be populated at the discretion of the Mapping Partner. Acceptable values for this field are listed in the D_Projection table.
PROJ_SUNIT	A	Secondary Projection Unit shown on FIRM. When using map projections and coordinate systems, there is a unit associated with the projection. This field is populated based on the projection selected for the PROJ_SECND field. If the PROJ_SECND field value is Null, this field should also be Null. Acceptable values for this field are listed in the D_Proj_Unit table.

Field Name	Require/ Required if Applicable	Description
PROJ_SZONE	A	Secondary Projection Zone shown on FIRM. When using many map projections and coordinate systems, there is a zone associated with the area. This field is populated based on the projection selected for the Final hardcopy map production. This applies if the secondary projection used has a zone parameter such as UTM or State plane. The zone should be stated as the appropriate zone associated with the secondary projection. Acceptable values for this field are listed in the D_Projzone table.
LANDWD_VAL	R	Landward value of Coastal Base Flood Elevations shown on the FIRM Notes to Users figure in the FIS Report. This is usually but not always 0.0 feet, and the FIS Report would state "Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88)."
CW_TF	R	Countywide Flood Risk Project. This attribute is true if the Flood Risk Project includes all incorporated areas and any unincorporated areas of the county. Acceptable values for this field are listed in the D_TrueFalse table.
RTROFT_TF	R	Retrofit, True/False. The Retrofit attribute should be true if older Flood Risk Project data are used with updated stream location data. If flood features were adjusted to fit new stream locations due to better base map information this attribute would be true. Acceptable values for this field are listed in the D_TrueFalse table.
META_NM	R	Metadata File Name. This attribute stores the name of the metadata file. The file should be provided in either TXT or XML formats and named <ST_FIPS><PCOMM>_<EFF_DATE>_metadata.txt (or .xml); where ST_FIPS is the two digit State FIPS code; PCOMM is the four digit community or county identification number and EFF_DATE is the effective date of the Flood Risk Project. If the Flood Risk Project is not yet effective, the effective date, <EFF_DATE>, should be replaced with the word "PRELIM."
FIS_NM	R	FIS Report text File Name. This attribute stores the name of the FIS Report text file. The file should be named <FIPS><VolumeNumber><Suffix>.PDF; where <VolumeNumber> has four digits: V000 if one volume, V001 if there are multiple.
LOGO_NM	R	Logo File Name. This attribute stores the file name of the logo used on the map panels, either the DHS or the FEMA logo.
INDX_EFFDT	R	Index Effective Date. This attribute stores the current effective date of the Index.
DBREV_DT	R	FIRM Database last updated date. This date is the most recent date that the Database was updated to incorporate new information such as LOMRs or a PMR. For the NFHL, this will be either: the effective date of the most recent LOMR or the effective study date, whichever is newer. For PMRs for first-time countywides, this is the effective date of the PMR or countywide. For draft and preliminary databases, this field will use the 9/9/9999 null date.

Field Name	Require/ Required if Applicable	Description
AVG_CFACTR	A	Countywide Vertical Datum Conversion Factor. For "COUNTYWIDE / COMMUNITY-BASED" datum conversion factors that meet the <0.25 foot variance requirements, enter the countywide conversion factor in this field. If the flooding source-based method is required, the stream reach's datum conversion factor would be entered in the S_Profil_Basln feature associated with that stream reach.

Table: Study_Info

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
STD_NFO_ID	R	Text	25		N/A
STUDY_PRE	A	Text	19		D_Study_Prefix
STUDY_NM	R	Text	128		N/A
STATE_NM	R	Text	24		D_State_Name
CNTY_NM	R	Text	128		N/A
JURIS_TYP	A	Text	22		D_Jurisdiction_Typ
LG_PAN_NO	R	Text	4		N/A
OPP_TF	R	Text	1		D_TrueFalse
H_DATUM	R	Text	30		D_Horiz_Datum
V_DATUM	R	Text	17		D_V_Datum
PROJECTION	R	Text	75		D_Projection
PROJ_ZONE	A	Text	5		D_Projzone
PROJ_UNIT	R	Text	18		D_Proj_Unit
PROJ_SECND	A	Text	75		D_Projection
PROJ_SUNIT	A	Text	18		D_Proj_Unit
PROJ_SZONE	A	Text	5		D_Projzone
LANDWD_VAL	R	Double	Default		N/A
CW_TF	R	Text	1		D_TrueFalse
RTROFT_TF	R	Text	1		D_TrueFalse
META_NM	R	Text	50		N/A
FIS_NM	R	Text	15		N/A
LOGO_NM	R	Text	50		N/A
INDX_EFFDT	R	Date	Default	0	N/A
DBREV_DT	R	Date	Default	0	N/A
AVG_CFACTR	A	Double	Default		N/A

Table: L_Comm_Info

This table is required for all Preliminary or Final FIRM Databases.

The L_Comm_Info table is a lookup table that contains community map repository details and map history information that is shown in the Listing of NFIP Jurisdictions, Map Repositories, and Community Meetings tables in the FIS Report. This table will include one record for each community that has a CID, even if it is considered non-floodprone or non-participating. Communities that do not have a CID issued by FEMA, or are not included within the area of the data submittal, will not appear in this table. The "not populated" values that are described in Section 5.3 may be used to fill in some of the required fields when necessary. There is one record in this table for each community mapped on the FIRM.

The L_Comm_Info table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
COM_NFO_ID	R	Primary key for table lookup. Values in this field must match values in the COM_NFO_ID field of the S_Pol_Ar table.
REPOS_ADR1	R	Repository Street Address 1. First line of the mailing or street address for the map repository. The map repository is the office the community has designated as responsible for maintaining copies of all the flood hazard information FEMA publishes for the community. The public may view copies of the current effective information at the map repository. For example, this line might read 'Division of Community and Economic Development.'
REPOS_ADR2	A	Repository Street Address 2. Second line of the mailing or street address for the map repository. For example, this line might read '226 W. Fourth Street.' This field is applicable if the map repository address requires more than one line.
REPOS_ADR3	A	Repository Street Address 3. Third line of the mailing or street address for the map repository. For example, this line might read 'Suite 200.' This field is applicable if address requires additional space.
REPOS_CITY	R	Repository City. City portion of the mailing or street address for the map repository. For example, this line might read 'Springfield.'

Field Name	Require/ Required if Applicable	Description
REPOS_ST	R	Repository State. State portion of the mailing or street address for the map repository. The full name of the State should be provided. For example, this line might read 'ILLINOIS.' This field is used to populate the FIS Report Map Repositories table. Acceptable values for this field are listed in the D_State_Name table.
REPOS_ZIP	R	Repository Zip code. ZIP code portion of the mailing or street address for the map repository. This information is also displayed in the FIRM legend or index. For example, this line might read '62269.' This field is used to populate the FIS Report Map Repositories table.
IN_ID_DAT	R	Initial Identification Date. This is the initial identification date for the community as shown on the FIRM legend, index, or FIS Report. This information can also be obtained from FEMA. See the FIS Report Technical Reference for more detailed information about map dates.
IN_NFIP_DT	R	Initial NFIP Date. This is the initial date of the first NFIP map published by FEMA for this community. This can be obtained from the FIRM legend, index or FIS Report. This information can also be obtained from FEMA. See the FIS Report Technical Reference for more detailed information about map dates.
IN_FHBM_DT	R	Initial FHBM Date. This is the initial date of first Flood Hazard Boundary Map published for this community.
IN_FRM_DAT	R	Initial FIRM Date. This is the date of the initial FIRM created for this community. This can be obtained from the FIRM legend, index or FIS Report. This information can also be obtained from FEMA. See See the FIS Report Technical Reference for more detailed information about map dates.
FST_CW_EFF	R	Initial Countywide Effective Date. This is the effective date of the first countywide FIRM for this community. This date will be displayed on the FIRM panel under the heading EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP.
FST_CW_FIS	R	Initial Countywide Effective Flood Insurance Study Date. This is the effective date of the first countywide FIS for this community. This date will generally be the same as the first countywide FIRM for this community, except where an FIS was not published with the first countywide FIRM.
RECENT_DAT	A	Most Recent Panel Date. This can be obtained from the FIRM Index or the FEMA Community Status book at www.msc.fema.gov. This field is only populated for Final FIRM Databases. See the FIS Report Technical Reference for more detailed information about map dates.
REVISIONS	R	Revisions. This indicates whether the community has had map revisions. If there are map revisions for this community, enter true. Acceptable values for this field are listed in the D_TrueFalse table.
MULTICO_TF	R	Multi-county community. This attribute would be True if the community is in more than one county. Acceptable values for this field are listed in the D_TrueFalse table.
FLOODPRONE	R	Floodprone. This attribute stores information about the floodprone status of the community. Enter True if the community is floodprone. Acceptable values for this field are listed in the D_TrueFalse table.

Field Name	Require/ Required if Applicable	Description
FIS_INCLUD	R	Community Included in this FIS. This value indicates whether the community is included in this FIS Report. If the FIS is included, this field is True. Acceptable values for this field are listed in the D_TrueFalse table.
RECENT_FIS	R	FIS Report Effective Date. This is the effective date of the current FIS Report.

Table: L_Comm_Info

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
COM_NFO_ID	R	Text	25		S_Pol_Ar L_Comm_Revis L_Meetings L_Pol_FHBM
REPOS_ADR1	R	Text	50		N/A
REPOS_ADR2	A	Text	50		N/A
REPOS_ADR3	A	Text	50		N/A
REPOS_CITY	R	Text	50		N/A
REPOS_ST	R	Text	24		D_State_Name
REPOS_ZIP	R	Text	10		N/A
IN_ID_DAT	R	Date	Default	0	N/A
IN_NFIP_DT	R	Date	Default	0	N/A
IN_FHBM_DT	R	Date	Default	0	N/A
IN_FRM_DAT	R	Date	Default	0	N/A
FST_CW_EFF	R	Date	Default	0	N/A
FST_CW_FIS	R	Date	Default	0	N/A
RECENT_DAT	A	Date	Default	0	N/A
REVISIONS	R	Text	1		D_TrueFalse
MULTICO_TF	R	Text	1		D_TrueFalse
FLOODPRONE	R	Text	1		D_TrueFalse
FIS_INCLUD	R	Text	1		D_TrueFalse
RECENT_FIS	R	Date	Default	0	N/A

Table: L_Comm_Revis

The L_Comm_Revis table is completed to capture FIRM revision dates per community. It is used to populate the FIRM revision dates column in the Community Map History table in the FIS Report text. There can be multiple FIRM revision dates for each community listed in L_Comm_Info.

The L_Comm_Revis table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit state FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to which it was created.
COM_REV_ID	R	Primary key for table lookup. Assigned by table creator.
COM_NFO_ID	R	Foreign Key to L_Comm_Info. There can be multiple records for each community listed in L_Comm_Info.
REVIS_DATE	R	Revision Date. Effective date of revision to the FIRM panel. FIRM revision dates can be found in the FIRM legend or the FIS Report.

Table: L_Comm_Revis

Field	R/A/O R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
COM_REV_ID	R	Text	25		N/A
COM_NFO_ID	R	Text	25		L_Comm_Info
REVIS_DATE	R	Date	Default	0	N/A

Table: L_Cst_Model

The L_Cst_Model table is completed if a coastal engineering analysis was performed. It is required for new coastal studies. For coastal redelineations and digital conversions, the table may be populated if the information is available. The L_Cst_Model table is a lookup table that contains information about the coastal models used during the engineering analysis. If a different set of models is used for different reaches of the Flood Risk Project area, a unique row must be populated for each set. It is used in the following tables in the FIS Report: Summary of Coastal Analyses, Tide Gage Analysis Specifics, and Coastal Transect Parameters.

The L_Cst_Model table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
CST_MDL_ID	R	Primary key for table lookup. Assigned by table creator.
HUC8	R	HUC8 Code. This is the unique eight-digit hydrologic unit code based on USGS levels of classification in the hydrologic unit system.
STUDY_TYP	R	Study Type. This describes the type of Flood Risk Project performed for flood hazard identification. Acceptable values for this field are listed in the D_Study_Typ table.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature.
LIMIT_FROM	R	Study Limit From. This is the study limit "from" value (e.g. "From the North Carolina/City of Virginia Beach boundary.")
LIMIT_TO	R	Study Limit To. This is the study limit "to" value (e.g. "To the northernmost boundary of Fort Story at 96th Street".)
SURGE_MDL	A	Storm Surge Model. This is the name or abbreviation of the FEMA-approved storm surge model associated with the coastal engineering analysis. Acceptable values for this field are listed in the D_Surge_Mdl table. This field is populated when new surge calculations are conducted as part of the new coastal Flood Risk Project. This field is also populated for a coastal redelineation or digital conversion when surge model data are available from a previous Flood Risk Project.
SURGE_DATE	A	Storm Surge Model Run Date. This is the date of the last model run included in the analysis. This field is populated when new surge calculations are conducted as part of the coastal Flood Risk Project. This field is also populated for a coastal redelineation or digital conversion when surge model data are available from a previous Flood Risk Project.

Field Name	Require/ Required if Applicable	Description
SURGE_EFF	A	Surge Effective Date. Effective date of the surge model. This field is populated for a coastal redelineation or digital conversion when previously effective surge model data were used. This field is not populated for new coastal analysis.
STRM_PRM	A	Storm Parameterization Method. This is the name or abbreviation of the storm parameterization method used for storm surge simulations. This field is populated when storm parameterization is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when storm surge modeling data are available from a previous Flood Risk Project.
STM_PRM_DT	A	Storm Parameterization Date. This is the date the storm parameterization was completed. This field is populated when the storm parameterization is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when the storm parameterization data are available from a previous Flood Risk Project.
TDESTAT_MT	A	Tide Gage Analysis Method. This is the name or abbreviation of the flood frequency analysis method and distribution used for tide gage analysis. This field is populated when tide gage analysis is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when tide gage analysis data are available from a previous Flood Risk Project.
TDESTAT_DT	A	Tide Gage Analysis Date. This is the date the tide gage analysis was completed. This field is populated when the tide gage analysis is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when the tide gage analysis data are available from a previous Flood Risk Project.
WAVEHT_MDL	A	Wave Height Model. This is the name or abbreviation of the FEMA-approved wave height model that was used for the coastal engineering analysis. Acceptable values for this field are listed in the D_Wave_Mdl table. This field is populated when wave calculations are included in the scope of the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when wave height model data are available from a previous Flood Risk Project.
WAVEHT_DT	A	Wave Height Model Run Date. This is the date the model was run. This field is populated when wave calculations are included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when wave height model data are available from a previous Flood Risk Project.
RUNUP_MDL	A	Runup Model. This is the name or abbreviation of the FEMA-approved wave runup model that was used for the coastal engineering analysis. Acceptable values for this field are listed in the D_Runup_Mdl table. This field is populated when runup calculations are included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when runup model data are available from a previous Flood Risk Project.

Field Name	Require/ Required if Applicable	Description
RUNUP_DATE	A	Runup Model Run Date. This is the date the wave runup model was run. This field is populated when runup calculations are included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when runup model data are available from a previous Flood Risk Project.
SETUP_METH	A	Wave Setup Methodology. This information should detail the methodology used for determining the wave setup magnitude. This field is populated when wave setup is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when wave setup methodology is available from a previous Flood Risk Project.
SETUP_DATE	A	Wave Setup Methodology Date. This is the date the setup methodology was run. This field is populated when wave setup is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when wave setup methodology is available from a previous Flood Risk Project.
R_FETCH_MT	A	Restricted Fetch Wave Growth Methodology. This information should detail the methodology used for calculating restricted fetch wave growth. This field is populated when restricted fetch wave growth is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when restricted fetch wave growth analysis is available from a previous Flood Risk Project.
R_FETCH_DT	A	Restricted Fetch Wave Growth Methodology Date. This is the date the restricted fetch wave growth modeling was run. This field is populated when restricted fetch wave growth analysis is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when restricted fetch wave growth analysis is available from a previous Flood Risk Project.
EROS_METH	A	Dune or Bluff Erosion Methodology. This information should detail the methodology used for determining the eroded profile geometry. Acceptable values for this field are listed in the D_Erosion table. This field is populated when erosion is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when erosion methodology is available from a previous Flood Risk Project.
EROS_DATE	A	Erosion Analysis Date. This is the date the erosion analysis was completed. This field is populated when erosion is included in the new coastal analysis. This field is also populated for a coastal redelineation or digital conversion when erosion analysis is available from a previous Flood Risk Project.
EROS_TF	R	Erosion Treatment. Has erosion treatment been applied in the coastal modeling? This field is populated with “True” when erosion is included in the new coastal analysis. Acceptable values for this field are listed in the D_TrueFalse table.
PFD_TF	R	Primary Frontal Dune. Have primary frontal dune criteria been applied in the coastal modeling? This field is populated with “True” when a primary frontal dune is included in the new coastal analysis. Acceptable values for this field are listed in the D_TrueFalse table.

Field Name	Require/ Required if Applicable	Description
WAVE_EFFDT	A	Wave Effective Date. Effective date of the wave height and wave runup models. This field is populated for a coastal redelineation or digital conversion when previously effective wave analysis data were used. This field is not populated for new coastal analysis.
HAZARDEVAL	R	Coastal hazard type evaluated. Examples include Storm Surge, Storm Parameterization, Wave Runup, Wave Generation and Overland Wave Propagation.

Table: L_Cst_Model

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
CST_MDL_ID	R	Text	25		S_Cst_Gage S_Cst_Tsct_Ln S_Submittal_Info S_Tsct_Basln
HUC8	R	Text	8		N/A
STUDY_TYP	R	Text	28		D_Study_Typ
WTR_NM	R	Text	100		N/A
LIMIT_FROM	R	Text	100		N/A
LIMIT_TO	R	Text	100		N/A
SURGE_MDL	A	Text	37		D_Surge_Mdl
SURGE_DATE	A	Date	Default	0	N/A
SURGE_EFF	A	Date	Default	0	N/A
STRM_PRM	A	Text	50		N/A
STM_PRM_DT	A	Date	Default	0	N/A
TDESTAT_MT	A	Text	50		N/A
TDESTAT_DT	A	Date	Default	0	N/A
WAVEHT_MDL	A	Text	23		D_Wave_Mdl
WAVEHT_DT	A	Date	Default	0	N/A
RUNUP_MDL	A	Text	24		D_Runup_Mdl
RUNUP_DATE	A	Date	Default	0	N/A
SETUP_METH	A	Text	50		N/A
SETUP_DATE	A	Date	Default	0	N/A
R_FETCH_MT	A	Text	50		N/A
R_FETCH_DT	A	Date	Default	0	N/A
EROS_METH	A	Text	12		D_Erosion
EROS_DATE	A	Date	Default	0	N/A
EROS_TF	R	Text	1		D_TrueFalse
PFD_TF	R	Text	1		D_TrueFalse
WAVE_EFFDT	A	Date	Default	0	N/A
HAZARDEVAL	R	Text	25		N/A

Table: L_Cst_Struct

The L_Cst_Struct table is required whenever coastal structures, such as breakwaters, levees or seawalls, affect local topography and flood hazards. The L_Cst_Struct table contains information about the coastal structures within the Flood Risk Project area.

The L_Cst_Struct table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
CST_STR_ID	R	Primary key for table lookup. Assigned by table creator.
STRUCT_ID	R	Foreign Key to S_Gen_Struct.
CERT_DOC	A	Certification Document. <Filename.zip> of the structure certification documentation. This field is populated when the coastal structure has been certified by a professional engineer or federal agency to remain intact during a 1-percent-annual-chance flood event.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature associated with the coastal structure.
CERT_STAT	R	Certification Status. This describes the type of certification that the coastal structure possesses. This field is populated for structures that protect up to the 1-percent-annual-chance flood. Acceptable values for this field are listed in the D_Cert_Status table.
STRUCT_LEN	R	Structure Length. This field stores the length of the coastal structure.
LEN_UNIT	R	Length Units. This is the unit of measure for the structure length. Acceptable values for the field are listed in the D_Length_Units table.
STRUCT_MTL	R	Structure Material. This describes the type of material of which the structure is composed. Acceptable values for this field are listed in the D_Struct_Mtl table.
SURVEY_DT	A	Survey Date. Date of the structure survey. This field is populated when the structure is surveyed.
SURVEY_TM	A	Survey Time. Time of the structure survey. This value should be formatted as hh:mm. This field is populated when the time of the survey is available.

Table: L_Cst_Struct

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
CST_STR_ID	R	Text	25		N/A
STRUCT_ID	R	Text	25		S_Gen_Struct
CERT_DOC	A	Text	60		N/A
WTR_NM	R	Text	100		N/A
CERT_STAT	R	Text	44		D_Cert_Status
STRUCT_LEN	R	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
STRUCT_MTL	R	Text	8		D_Struct_Mtl
SURVEY_DT	A	Date	Default	0	N/A
SURVEY_TM	A	Text	10		N/A

Table L_Cst_Tsct_Elev

The L_Cst_Tsct_Elev table is required for all coastal studies that utilize coastal transects and when transects are included in the Coastal Transect Parameters table in the FIS Report. This table contains information about stillwater elevations at coastal transects for each event type. It is used to create the Coastal Transect Parameter table in the FIS Report. There can be multiple elevation records in this table for each coastal transect located in the S_Cst_Tsct_Ln feature class.

The L_Cst_Tsct_Info table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
CT_INFO_ID	R	Primary key for table lookup. Assigned by table creator.
TRAN_LN_ID	R	Foreign key to S_Cst_Tsct_Ln. Used to join each transect in S_Cst_Tsct_Ln to stillwater elevations for each event type at the corresponding transect.
EVENT_TYP	R	Flood Event. Identifies the annual percent chance of exceedance for a flooding event such as 0.2-, 1-, 2-, 4- and 10-percent. Acceptable values for this field are listed in the D_Event table.
WSEL_START	A	Starting Stillwater Elevation at this transect for the specified event type.
WSEL_MIN	A	Minimum Stillwater Elevation at this transect for the specified event type. If a range of stillwater elevations is specified, this value must be the minimum value.
WSEL_MAX	A	Maximum Stillwater Elevation at this transect for the specified event type. If a range of stillwater elevations is specified, this value must be the maximum value.

Table L_Cst_Tsct_Elev

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
CT_INFO_ID	R	Text	25		N/A
TRAN_LN_ID	R	Text	25		S_Cst_Tsct_Ln
EVENT_TYP	R	Text	37		D_Event
WSEL_START	A	Double	Default	1	N/A
WSEL_MIN	A	Double	Default	1	N/A
WSEL_MAX	A	Double	Default	1	N/A

Table: L_ManningsN

L_ManningsN table contains information on Manning's "n" or "k" roughness coefficients used in the Flood Risk Project to create the FIS Report Roughness Coefficients table. This table is required for all new studies and should be populated if data is available in existing FIS Reports.

The L_ManningsN table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
MANN_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature associated with the Mannings "N" value.
CHANNEL_N	R	Channel Roughness Coefficient. This is the roughness coefficient for the channel. This is normally a number between 0.01 and 0.2. For a range of roughness coefficients enter the range as it will appear in the FIS Report table (i.e. "0.01 to 0.2.")
OVERBANK_N	R	Overbank Roughness Coefficient. This is the roughness coefficient for the overbank. This is normally a number between 0.01 and 0.2. For a range of roughness coefficients enter the range as it will appear in the FIS Report table (i.e. "0.01 to 0.2.")
LANDCOVER	R	Land Cover. This is a description of the land cover used in the hydraulic analysis. Examples include short grass, boulders, dense brush, etc.

Table: L_ManningsN

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
MANN_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
CHANNEL_N	R	Text	12		N/A
OVERBANK_N	R	Text	12		N/A
LANDCOVER	R	Text	254		N/A

Table: L_Meetings

The L_Meetings table is completed to capture information regarding meetings that are referenced in the FIS Report. This information is used in the FIS Report Community Meetings table.

The L_Meetings table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
MTG_ID	R	Primary key for this table. Assigned by table creator.
COM_NFO_ID	R	Community Information Identification. This attribute links to the table L_Comm_Info that contains information about the specific community. This table must contain a number that matches a corresponding number in the COM_NFO_ID field of the S_Pol_Ar table.
MTG_TYP	R	Type of meeting. Acceptable values for this field are listed in the D_Mtg_Typ table.
MTG_DATE	R	Date of meeting.
MTG_LOC	R	Meeting Location. Include address, city and ZIP code.
MTG_PURP	R	Purpose of meeting.
FIS_EFF_DT	R	Effective date of the FIS Report discussed at meeting.

Table: L_Meetings

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
MTG_ID	R	Text	25		L_Mtg_POC
COM_NFO_ID	R	Text	25		L_Comm_Info
MTG_TYP	R	Text	17		D_Mtg_Typ
MTG_DATE	R	Date	Default	0	N/A
MTG_LOC	R	Text	100		N/A
MTG_PURP	R	Text	100		N/A
FIS_EFF_DT	R	Date	Default	0	N/A

Table: L_MT2_LOMR

The L_MT2_LOMR table lists the effective Letters of Map Revision (LOMRs), by FIRM panel, incorporated into FIRM data submitted to FEMA as part of the study. It is used to populate the FIS Report LOMRs table. Mapping Partners must submit the L_MT2_LOMR table for any Letters of Map Revision (LOMRs) incorporated into a Preliminary or Effective FIRM in order to populate the Letters of Map Revision table in the FIS Report.

The L_MT2_LOMR table includes all LOMRs that will be incorporated into or superseded by the new maps. This is to alert reviewers and ensure that all LOMRs are incorporated correctly into the new Flood Risk Project, as necessary. The L_MT2_LOMR table should contain at least one record for each LOMR on the Preliminary and Final Summary of Map Amendments (SOMAs). There will be multiple records for any LOMR that spans multiple FIRM panels.

The L_MT2_LOMR table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Study Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
LOMR_ID	R	Primary key for table lookup. Assigned by table creator.
CASE_NO	R	Case Number. This is the case number of the LOMR that is assigned by FEMA. The case number is used to track the LOMR's supporting documentation. This value is used in the FIS Report LOMRs table.
EFF_DATE	R	Effective Date. Effective date of the LOMR. This value is used in the FIS Report LOMRs table.
WTR_NM	R	Primary Flooding Source of the LOMR. This is the formal name of the surface water feature, as it appears on the hardcopy FIRM and on the LOMR.
FIRM_PAN	R	FIRM Panel Number of the LOMR area. This is the complete 11-digit FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL and SUFFIX. This is the FIRM panel number that is shown in the title block of the map. There may be multiple records for each LOMR if the LOMR falls on multiple panels.
STATUS	R	Status of the LOMR. Acceptable values for this field are listed in the D_LOMC_Status Table. This value is used in the FIS Report LOMRs table.
SCALE	R	Map Scale. This is the denominator of the effective LOMR scale as a ratio. For example, 24000 is the denominator for a 1″ = 2000′ map. Acceptable values for this field are listed in the D_Scale table.

Table: L_MT2_LOMR

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
LOMR_ID	R	Text	25		N/A
CASE_NO	R	Text	13		N/A
EFF_DATE	R	Date	Default	0	N/A
WTR_NM	R	Text	100		N/A
FIRM_PAN	R	Text	11		S_FIRM_Pan
STATUS	R	Text	12		D_LOMC_Status
SCALE	R	Text	5		D_Scale

Table: L_Mtg_POC

The L_Mtg_POC table is completed to capture information regarding meeting points of contact that are referenced in the FIS Report. This information is used in the FIS Report Meetings table.

The L_Mtg_POC table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
POC_ID	R	Primary key for this table. Assigned by table creator.
MTG_ID	R	Meeting Identifier. Foreign key to the L_Meetings table.
POC_NAME	R	Point of Contact Full Name.
FIRST_NAME	R	Point of Contact First Name.
LAST_NAME	R	Point of Contact Last Name.
CNT_TITLE	A	Contact Position or Title.
AGENCY	R	Contact Agency Name.
AGY_ROLE	A	Role of Contact Agency.
CEO	R	Community CEO for NFIP purposes. Acceptable values for this field can be found in the D_TrueFalse domain table
FPA	R	Community Floodplain Administrator for NFIP Purposes. Acceptable values for this field can be found in the D_TrueFalse domain table
SHMO	R	State Hazard Mitigation Officer. Acceptable values for this field can be found in the D_TrueFalse domain table
GIS	R	GIS Point of Contact for Community/Agency. Acceptable values for this field can be found in the D_TrueFalse domain table
ADDRESS	A	Contact Address.
ADDRESS_2	A	Contact Address 2.
CITY	A	Contact City.
STATE	A	Contact State. Acceptable values for this field are listed in the D_State_Name table.
ZIP	A	Contact Zip Code.
PHONE	A	Contact Primary Phone Number. Only numbers (i.e. 3035551212).
PHONE_EXT	A	Contact Primary Phone Number Extension. For example, x2345.
E-MAIL	A	Contact E-mail Address.
COMMENTS	A	User provided comments..

Table: L_Mtg_POC

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
POC_ID	R	Text	25		N/A
MTG_ID	R	Text	25		L_Meetings
POC_NAME	R	Text	50		N/A
FIRST_NAME	R	Text	25		N/A
LAST_NAME	R	Text	25		N/A
CNT_TITLE	A	Text	50		N/A
AGENCY	R	Text	50		N/A
AGY_ROLE	A	Text	50		N/A
CEO	R	Text	1		D_TrueFalse
FPA	R	Text	1		D_TrueFalse
SHMO	R	Text	1		D_TrueFalse
GIS	R	Text	1		D_TrueFalse
ADDRESS	A	Text	75		N/A
ADDRESS_2	A	Text	75		N/A
CITY	A	Text	25		N/A
STATE	A	Text	24		D_State_Name
ZIP	A	Text	10		N/A
PHONE	A	Text	10		N/A
PHONE_EXT	A	Text	6		N/A
EMAIL	A	Text	50		N/A
COMMENTS	A	Text	254		N/A

Table: L_Pan_Revis

This table will not apply for an initial FIRM or for a FIRM that has a completely new paneling scheme such as a first-time countywide FIRM. Otherwise, this table is required for all Preliminary or Final FIRM Databases.

The L_Pan_Revis table is a lookup table that contains information about historic revisions to each FIRM panel.

For each FIRM panel being revised, there must be at least one record. There will be multiple records for a single revision date if there are multiple revision notes for that date. Each FIRM panel may have a unique set of revision dates and revision codes. There must be one record for each FIRM_PAN, REVIS_DATE and REVIS_NOTE combination.

The L_Pan_Revis table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
REVIS_ID	R	Primary key for table lookup. Assigned by table creator.
FIRM_PAN	R	FIRM Panel Number. This field links to the S_FIRM_Pan table. This must match a value in the FIRM_PAN field of the S_FIRM_Pan table. This is the complete FIRM panel number, which is made up of ST_FIPS, PCOMM, PANEL and SUFFIX, which are found in S_FIRM_Pan table. The FIRM panel number is the 11-digit FIRM panel number that is shown in the title block of the map.
REVIS_DATE	R	Revision Date. Effective date of revision to the FIRM panel.
REVIS_NOTE	R	Revision Note. Note describing the reason for the revision to the panel.

Table: L_Pan_Revis

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
REVIS_ID	R	Text	25		N/A
FIRM_PAN	R	Text	11		S_FIRM_Pan
REVIS_DATE	R	Date	Default	0	N/A
REVIS_NOTE	R	Text	254		N/A

Table: L_Pol_FHBM

This table is required if any community on the FIRM ever had revisions to their Flood Hazard Boundary Maps (FHBMs). There can be multiple FHBM revision records for each community listed in L_Comm_Info.

The L_Pol_FHBM table is a lookup table that contains a list of communities and FHBM revisions.

Each community may have multiple different revision dates. Each revision date may have multiple revision notes.

The L_Pol_FHBM table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
FHBM_ID	R	Primary key for this table. Assigned by table creator
COM_NFO_ID	R	Foreign key to L_Comm_Info. Values in this field must match values in the COM_NFO_ID field of the L_Comm_Info table.
FHBM_DATE	R	Effective Date of Flood Hazard Boundary Map. This field is used to populate the FIS Report Community Map History table.
FHBM_NOTE	R	Flood Hazard Boundary Map Notes. A list of standard revision notes appears in the FIRM Database Guidance document.

Table: L_Pol_FHBM

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
FHBM_ID	R	Text	25		N/A
COM_NFO_ID	R	Text	25		L_Comm_Info
FHBM_DATE	R	Date	Default	0	N/A
FHBM_NOTE	R	Text	254		N/A

Table: L_Profil_Bkwtr_El

The L_ Profil_Backwtr_El table is required when the stream profile in the FIS text includes backwater elevation and if RASPLOT v.3 or higher was used to generate the FIS profiles. This table stores the backwater elevations for each flood frequency by stream.

The L_ Profil_Bkwtr_El table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
PROF_BW_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the name of the stream or water body.
EVENT_TYP	R	Flood Event. Identifies the annual percent chance of exceedance for a flooding event such as 0.2-, 1-, 2-, 4- and 10-percent. Acceptable values for this field are listed in the D_Event table.
BKWTR_WSEL	R	Backwater Water-Surface Elevation. This is the backwater water-surface elevation for the flood event specified in the EVENT field. This value is used in the FDTs and profiles.
LEN_UNIT	R	Width and Elevation Units. This unit indicates the measurement system used for the water-surface elevation. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.

Table: L_Profil_Bkwtr_El

Field	R/A/O	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
PROF_BW_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
EVENT_TYP	R	Text	37		D_Event
BKWTR_WSEL	A	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum

Table: L_Profil_Label

The L_ Profil_Label table is required when the stream profile in the FIS text includes user-defined landmark labels that are not associated with specific cross sections or structures and if RASPLOT v.3 or higher was used to generate the FIS profiles. This table stores the labels needed for FIS profiles by stream.

The L_ Profil_Label table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
PROFLBL_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the name of the stream or water body.
STREAM_STN	R	Stream Station. This is the measurement along the profile baseline to the cross section location. This value is used in the FDTs and profiles.
ELEV	R	Elevation. This is the elevation at which the text will be labeled on the profile.
DESCR	R	Description. This is the user-defined description of the landmark that is to be placed in the FIS profile at this location.
ORIENT	R	Orientation of Text. This is the orientation of the text. Acceptable values for this field are listed in the D_Prof_Lbl_Orient table.
ADJUSTED	R	Adjustment of Text. This provides additional information about the placement of the text. Acceptable values are LEFT, RIGH, or CENTER for vertical text and TOP, MIDDLE or BOTTOM for horizontal text. Acceptable values for this field are listed in the D_Prof_Lbl_Adjust table.
UNDERLINE	R	Is Text Underlined? Acceptable values for this field can be found in the D_TrueFalse domain table.
LEN_UNIT	R	Width and Elevation Units. This unit indicates the measurement system used for the stream stationing and water-surface elevation. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the elevations are measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.

Table: L_Profil_Label

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
PROFLBL_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
STREAM_STN	R	Double	Default		N/A
ELEV	R	Double	Default		N/A
DESCR	R	Text	80		N/A
ORIENT	R	Text	10		D_Prof_Lbl_Orient
ADJUSTED	R	Text	6		D_Prof_Lbl_Adjust
UNDERLINE	R	Text	1		D_TrueFalse
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum

Table: L_Profil_Panel

The L_ Profil_Panel table is required for SFHAs with High Flood Risk when stream profiles exist in the FIS Report for these areas or when SFHAs with Low or Medium Flood Risk have modeling information sufficient to produce RASPLOT profiles. This table is only required if RASPLOT v.3 or higher was used to generate the FIS profiles. This table stores the information used to define the panels for FIS profiles by stream.

The L_ Profil_Panel table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
PROFPAN_ID	R	Primary key for table lookup. Assigned by table creator.
WTR_NM	R	Surface Water Feature Name. This is the formal name of the surface water feature, as it will appear on the hardcopy profile panel.
PANEL_NO	R	Profile Panel Number. This is the user defined number that will be used to number the profile sheets which is defined inside RASPLOT before export.
FIS_PAN_NO	R	Profile Panel Number in FIS Report. This is the profile panel number for as it will appear in the preliminary and effective FIS Report, for example 73P. It will differ from the PANEL_NO value exported from RASPLOT. Populate this field before preliminary and after any subsequent changes.
START_STN	R	Profile Station Start Value. This is the starting station of the actual profile features. It may differ from the profile grid minimum X station value.
END_STN	R	Profile Station Start Value. This is the ending station of the actual profile features. It may differ from the profile grid maximum X station value.
START_ELEV	R	Starting Elevation. This is the starting elevation of the actual profile features. It may differ from the profile grid Y origin.
END_ELEV	R	Ending Elevation. This is the ending elevation of the actual profile features. It may differ from the profile grid maximum Y elevation value.

Field Name	Require/ Required if Applicable	Description
ORIGIN_X	R	Profile Origin X Value. This is the stream stationing value used for the beginning of the profile sheet, at the lower left corner of the profile grid.
ORIGIN_Y	R	Profile Origin Y Value. This is the elevation value used for the beginning of the profile sheet, at the lower left corner of the profile grid.
H_SCALE	R	Horizontal Scale. This is the horizontal scale of the profile, as represented by one inch on the profile.
V_SCALE	R	Vertical Scale. This is the vertical scale of the profile, as represented by one inch on the profile.
LEN_UNIT	R	Width and Elevation Units. This unit indicates the measurement system used for the stream stationing and water-surface elevation. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the elevations are measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.

Table: L_Profil_Panel

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
PROFPAN_ID	R	Text	25		N/A
WTR_NM	R	Text	100		N/A
PANEL_NO	R	Short Integer	Default		N/A
FIS_PAN_NO	R	Text	6		N/A
START_STN	R	Double	Default		N/A
END_STN	R	Double	Default		N/A
START_ELEV	R	Double	Default		N/A
END_ELEV	R	Double	Default		N/A
ORIGIN_X	R	Double	Default		N/A
ORIGIN_Y	R	Double	Default		N/A
H_SCALE	R	Double	Default		N/A
V_SCALE	R	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum

Table: L_Source_Cit

L_Source_Cit is used to document the sources of data used in the FIRM Database and FIS Report. The table standardizes input used in many other tables within the FIRM Database as well as input used for generating metadata. In addition, this table contains all bibliography entries intended for use in the Bibliography and References table in the FIS Report text. It is required for all submittals.

The L_Source_Cit table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
SOURCE_CIT	R	Source Citation identifier used in the FIRM Database and in the FIRM metadata file. Default source abbreviations are listed in Table 4 of this document. Source citations start with the type of source, followed by sequential numbers, for example "BASE1," "BASE2," etc.
CITATION	A	Citation Used in FIS Report text and Bibliography and References Table. A short and unique citation name (Author and Year) used within the FIS Report to reference this publication, such as "US Census 2010."
PUBLISHER	R	Publisher Name Used in FIS Report Bibliography and References Table. This is the name of the publishing entity.
TITLE	R	Title of referenced publication or data Used in FIS Report Bibliography and References Table. Should include a volume number if applicable.
AUTHOR	A	Author/Editor Used in FIS Report Bibliography and References Table.. This is the author or editor of the reference. Multiple authors may be listed in this field.
PUB_PLACE	A	Publication Place Used in FIS Report Bibliography and References Table. This is the place of publication (i.e. "Washington DC").
PUB_DATE	R	Publication Date Used in FIS Report Bibliography and References Table. This is the date of publication or date of issuance. This field is a free text field to allow for various date formats and ranges. Reprint dates may also be included if applicable.
WEBLINK	A	Reference Web Address Used in FIS Report Bibliography and References Table. This is the web address for the reference, if applicable.
SRC_SCALE	A	Scale of the source data, if applicable. For example 1:24000. Used in FIS Report Bibliography and References Table.

Field Name	Require/ Required if Applicable	Description
MEDIA	R	Media on which the source data were received.
SRC_DATE	A	Calendar date of the source data. Required for spatial sources. Used in metadata.
DATE_REF	A	Date currentness reference. What the source date represents (e.g. ground condition, effective date, publication date, model date, MIP submission date, etc.). Required for spatial sources. Used in metadata.
CONTRIB	A	Source contribution. Information contributed by the source to the data set. Required for spatial sources. Used in metadata.
NOTES	A	User Defined Notes.

Table: L_Source_Cit

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
SOURCE_CIT	R	Text	11		All Spatial Tables Except S_Label_Ld and S_Label_Pt
CITATION	A	Text	25		N/A
PUBLISHER	R	Text	254		N/A
TITLE	R	Text	254		N/A
AUTHOR	A	Text	254		N/A
PUB_PLACE	A	Text	100		N/A
PUB_DATE	R	Text	30		N/A
WEBLINK	A	Text	128		N/A
SRC_SCALE	A	Text	12		N/A
MEDIA	R	Text	50		N/A
SRC_DATE	A	Date	Default		N/A
DATE_REF	A	Text	254		N/A
CONTRIB	A	Text	254		N/A
NOTES	A	Text	254		N/A

Table: L_Summary_Discharges

The L_Summary_Discharges table is required when a Summary of Discharges table is to be included in the FIS Report. This table stores the hydrologic information, including drainage area and peak discharges, associated with the node. This table contains information used in the Summary of Discharges table in the FIS Report.

The L_Summary_Discharges table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
SUMDSCH_ID	R	Primary key for table lookup. Assigned by table creator
NODE_ID	R	Node Identification. This is the foreign key to the S_Nodes table.
NODE_DESC	R	Node Location Description. This describes the location of the node. This name must match what is used in the model and will be shown in the Summary of Discharges Table in the FIS Report text. It must be unique across a watershed. Examples of this value include "Downstream of State Route 234," "At the confluence of Hillton Run," and "Approximately 1.08 miles upstream of confluence with McIntosh Run."
DRAIN_AREA	R	Drainage Area. This is the contributing drainage area. For alluvial fan studies, this is the "above the apex" value.
AREA_UNIT	R	Area Units. This unit indicates the measurement system used for the drainage area. Normally, this would be square miles. Acceptable values for this field are listed in the D_Area_Units table.
EVENT_TYP	R	Flood Event. Identifies the annual percentage of the chance of exceedance for a flooding event, such as 0.2-, 1-, 2-, 4 and 10-percent. Acceptable values for this field are listed in the D_Event table.
DISCH	R	Discharge. Existing conditions discharge at the node for the flood event described in the EVENT_TYP field. This is the cumulative discharge based on the total drainage above the node.
DISCH_UNIT	R	Discharge Units. This unit indicates the measurement system used for the discharge associated with the drainage area. Normally, this would be cubic feet per second (cfs). Acceptable values for this field are listed in the D_Discharge_Units table.
WSEL	A	Water-Surface Elevation. Water-surface elevation at the node for the flood event described in the EVENT_TYP field. This field is populated when cross sections are not utilized in the engineering analysis.

Field Name	Require/ Required if Applicable	Description
WSEL_UNIT	A	Water-Surface Elevation Units. This unit indicates the measurement system used for the water-surface elevation. Normally, this would be feet. This field is populated when cross sections are not utilized in the engineering analysis. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	A	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally, this would be NAVD88. This field is populated when cross sections are not utilized in the engineering analysis. Acceptable values for this field are listed in the D_V_Datum table.
SHOWN_FIS	R	Shown in FIS Summary of Discharges table. This field determines whether the discharge at this node is to be included in the FIS Summary of Discharges table. Acceptable values for this field are listed in the D_TrueFalse table.

Table: L_Summary_Discharges

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
SUMDSCH_ID	R	Text	25		N/A
NODE_ID	R	Text	25		S_Nodes
NODE_DESC	R	Text	100		N/A
DRAIN_AREA	R	Double	Default	1	N/A
AREA_UNIT	R	Text	17		D_Area_Units
EVENT_TYP	R	Text	37		D_Event
DISCH	R	Double	Default		N/A
DISCH_UNIT	R	Text	3		D_Discharge_Units
WSEL	A	Double	Default	2	N/A
WSEL_UNIT	A	Text	16		D_Length_Units
V_DATUM	A	Text	17		D_V_Datum
SHOWN_FIS	R	Text	1		D_TrueFalse

Table: L_Summary_Elevations

The L_Summary_Elevations table is required when a Summary of Non-Coastal Stillwater Elevations table is included in the FIS Report, when coastal stillwater elevations exist within the study or when nodes are used in the hydraulic analysis. This table stores the static elevation information for water bodies including lakes, reservoirs, and ponds; rivers that were studied with hydraulic models, including 1D models, whose results are provided at nodes and coastal flooding sources that do not have any associated coastal transects.

The L_Summary_Elevations table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.0
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
SUMELEV_ID	R	Primary key for table lookup. Assigned by table creator.
NODE_ID	R	Node Identification. This is the foreign key to the S_Nodes table.
EVENT_TYP	R	Flood Event. Identifies the annual percent chance of exceedance for a flooding event such as 0.2-, 1-, 2-, 4- and 10-percent. Acceptable values for this field are listed in the D_Event table.
WSEL	R	Water-Surface Elevation. This is the water-surface elevation for the flooding event specified in the EVENT_TYP field. This field is populated when the flood is analyzed for the water body area in the hydraulic model. For nodes located in the coastal floodplain, this value should be coded "-8888." For nodes in the combined coastal and riverine floodplain, this value should reflect the results of the combined rate of occurrence analysis.
WSEL_UNIT	R	Water-Surface Elevation Units. This field is populated when the flood is analyzed for the water body area in the hydraulic model. This unit indicates the measurement system used for the water-surface elevation. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.

Field Name	Require/ Required if Applicable	Description
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the water-surface elevations are measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.
SHOWN_FIS	R	Shown in FIS Summary of Non-Coastal Stillwater Elevations table. This field determines whether the elevation at this node is to be included in the FIS Summary of Non-Coastal Stillwater Elevations table. Coastal stillwater elevations are not shown in the FIS Summary of Non-Coastal Stillwater Elevations table and are shown as “F” in this field. Acceptable values for this field are listed in the D_TrueFalse table.

Table: L_Summary_Elevations

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
SUMELEV_ID	R	Text	25		N/A
NODE_ID	R	Text	25		S_Nodes
EVENT_TYP	R	Text	37		D_Event
WSEL	R	Double	Default	2	N/A
WSEL_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum
SHOWN_FIS	R	Text	1		D_TrueFalse

Table: L_Survey_Pt

The L_Survey_Pt table is required for field survey data generated as part of flood risk studies included in this FIRM Database. This table is a survey deliverable requirement in the Data Capture Technical Reference. While the Data Capture Technical Reference requests a survey data file for each watershed, L_Survey_Pt shall contain all the survey points for all the reaches surveyed.

The L_Survey_Pt table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
SURVPT_ID	R	Primary key for table lookup. Assigned by table creator.
SURVSTR_ID	R	Structure ID of Structure or Feature Being Surveyed. SURVSTR_ID corresponds to the Structure ID field in the Data Capture Technical Reference where the first three characters represent the stream reach name abbreviation, followed by an underscore and then the stream station at which the feature is found.
SURV_CODE	R	Survey Code Describing the Surveyed Feature Type. SURV_CODE corresponds to the Survey Code field in the Data Capture Technical Reference. Information about the type of feature being surveyed is input into this field, for example "TOS" for "Toe of Slope". Default survey codes and descriptions are provided as best practice information in the Data Capture Technical Reference.
STRUCTDESC	R	Description of the structure or feature being surveyed, for example "Cross Section 2". STRUCTDESC corresponds to the Structure Description field in the Data Capture Technical Reference.
NORTHING	R	Northing location of the survey point, in the projection specified.
EASTING	R	Easting location of the survey point, in the projection specified.
ELEV	R	Elevation of the survey point, in the vertical datum and elevation units specified.
ELEV_UNIT	R	Elevation Units. This unit indicates the measurement system used for the survey points. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
H_DATUM	R	Horizontal Datum. This is the horizontal datum used for the survey points. NAD83 is the preferred horizontal datum. Acceptable values for this field are listed in the D_Horiz_Datum table.

Field Name	Require/ Required if Applicable	Description
V_DATUM	R	Vertical Datum. This is the vertical datum of the surveyed points. The vertical datum describes the reference surface from which elevation of the surveyed points is measured. Normally, this would be North American Vertical Datum of 1988 for new studies. Acceptable values for this field are listed in the D_V_Datum table.
PROJECTION	R	Projection of the Surveyed Points. Acceptable values for this field are listed in the D_Projection table.
PROJ_ZONE	A	Projection Zone associated with the surveyed points. Acceptable values for this field are listed in the D_Projzone table.
PROJ_UNIT	R	Horizontal Projection Unit associated with the surveyed points. When using map projections and coordinate systems, there is a unit associated with the projection defined in the PROJECTION field such as US SURVEY FEET, etc. This field is populated based on the projection selected for the Final hardcopy map production. Acceptable values for this field are listed in the D_Proj_Unit table.

Table: L_Survey_Pt

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
SURVPT_ID	R	Text	25		N/A
SURVSTR_ID	R	Text	11		N/A
SURV_CODE	R	Text	30		N/A
STRUCTDESC	R	Text	254		N/A
NORTHING	R	Double	Default		N/A
EASTING	R	Double	Default		N/A
ELEV	R	Double	Default		N/A
ELEV_UNIT	R	Text	16		D_Length_Units
H_DATUM	R	Text	30		D_Horiz_Datum
V_DATUM	R	Text	17		D_V_Datum
PROJECTION	R	Text	75		D_Projection
PROJ_ZONE	A	Text	5		D_Projzone
PROJ_UNIT	R	Text	18		D_Proj_Unit

Table: L_XS_Elev

The L_XS_Elev table is required for hydraulic models that utilize cross sections and when the cross section is included in the Floodway Data Tables in the FIS Report or is shown on the FIRM or is used for plotting the profile. This table contains information for those cross sections that will be included in the Floodway Data Table in the FIS Report or are shown on the FIRM or are used for plotting the profile. Both lettered and non-lettered cross sections may be included in this table. This table includes cross-section information for all event types, and for levee and future conditions scenarios. For studies of high-risk stream reaches such as Zone AE areas, cross sections are required to be shown on the FIRM and flood profile at significant profile inflection points (breaks in the profiles) or as close to the inflection points as possible. The Mapping Partner responsible for the hydraulic analysis should select cross sections so that linear interpolation between two cross sections is minimally different than the base flood profile (no more than a 0.5 foot difference). In areas where the profile is flat, the Mapping Partner should choose at least two cross sections per FIRM panel. This table stores the hydraulic information, including water-surface elevations, velocity and floodway width, associated with the cross section.

The L_XS_Elev table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
XS_ELEV_ID	R	Primary key for table lookup. Assigned by table creator.
XS_LN_ID	R	Foreign key to S_XS table. This field captures the cross section line identification number that corresponds to this record. This is used in order to link a cross section to multiple elevation records.
FW_WIDTH	A	Floodway Width. Total width of the floodway at this cross section as shown in the Floodway Data table. This field is populated when a floodway is defined. This value is used in the FDTs.
FW_WIDTHIN	A	Floodway width in the FIRM database jurisdiction at this cross section as shown in the floodway data table. This field is populated when a floodway is defined and a portion of the floodway width extends beyond the FIRM database jurisdiction such as beyond a county boundary. This value is used in the Floodway Data Table.
NE_WIDTH_L	A	Non-Encroachment Zone Width, Left Side. This is the width of the non-encroachment zone at this cross section as shown in the Flood Hazard and Non-Encroachment Data for Selected Streams table of the FIS Report. This field is populated when a non-encroachment zone is defined.

Field Name	Require/ Required if Applicable	Description
NE_WIDTH_R	A	Non-Encroachment Zone Width, Right Side. This is the width of the non-encroachment zone at this cross section as shown in the Flood Hazard and Non-Encroachment Data for Selected Streams table of the FIS Report. This field is populated when a non-encroachment zone is defined.
XS_AREA	A	Cross Section Area. Area of the cross section underwater for the width of the floodway as shown in the Floodway Data table. This field is populated when a floodway is defined. This value is used in the FDTs.
AREA_UNIT	A	Area Unit. This unit specifies the areal unit for the area of the cross section underwater for the width of the floodway. This field is populated when a floodway is defined. This value is used in the FDTs. Acceptable values for this field are listed in the D_Area_Units table.
VELOCITY	A	Mean Velocity. The mean velocity of the floodway at this cross section as shown in the Floodway Data table. This field is populated when a floodway is defined. This value is used in the FDTs.
VEL_UNIT	A	Velocity Measurement. This unit specifies the unit of measurement for the velocity of the floodway. This field is populated when a floodway is defined. This value is used in the FDTs. Acceptable values for this field are listed in the D_Velocity_Units table.
EVENT_TYP	R	Flood Event. Identifies the annual percent chance of exceedance for a flooding event such as 0.2-, 1-, 2-, 4- and 10-percent. Acceptable values for this field are listed in the D_Event table.
WSEL	R	Water-Surface Elevation. This is the water-surface elevation for the flood event specified in the EVENT field at the cross section. This value is used in the FDTs for the 1–percent-annual-chance and 1-percent-annual-chance future event types. This elevation exactly matches the elevation of the flood event in the Flood Profiles and the Floodway Data table in the FIS Report. When a levee is present, this is the Regulatory Water Surface Elevation with Levee. If there is only one levee on the stream and it is de-accredited, this is the regulatory water-surface elevation for the 1-percent-annual-chance flood at the cross section. If there is only one levee on the stream and it is accredited, this is the regulatory water-surface elevation computed with the assumption that the levee is in place. If there are two levees on the stream and both are de-accredited, this value is the regulatory elevation computed with no levees in place. If there are two levees on the stream and one levee is de-accredited, this value is the regulatory elevation computed without consideration of the de-accredited levee. If there are two levees on the stream and both are accredited, this value is the regulatory elevation computed with the assumption that the levees are in place. For cross sections located in the coastal floodplain, this value should be coded “-8888.” For cross sections in the combined coastal and riverine floodplain, this value should reflect the results of the combined rate of occurrence analysis.

Field Name	Require/ Required if Applicable	Description
WSEL_WOFWY	A	Base Flood Water-Surface Elevation Without Floodway. This is the water-surface elevation of the base flood without the floodway calculated at this cross section. This number is determined during the engineering analysis for the Flood Risk Project. This value should match the "without floodway" column in the Floodway Data table in the FIS Report. This field is populated when a floodway is defined, usually only for the 1-percent-annual-chance event. This field may contain the modeled water surface elevation if the CALC_WO_BW field is coded as T. This value is used in the FDTs.
WSEL_FLDWY	A	Base Flood Water-Surface Elevation With Floodway. This is the water-surface elevation of the base flood with the floodway calculated at this cross section. This number is determined during the engineering analysis for the Flood Risk Project. This value should match the "with floodway" column in the Floodway Data table in the FIS Report. This field is populated when a floodway is defined, usually only for the 1-percent-annual-chance flood event. This value is used in the FDTs.
WSEL_INCRS	A	Increase between Base Flood Water-Surface Elevation Without Floodway and With Floodway. This is difference between the calculated water-surface elevations for the 1-percent-annual-chance flood event with and without the floodway. This value may be calculated by subtracting the WSEL_WOFWY value from the WSEL_FLDWY value. If the Floodway Data table is published, this value should match the increase column in the Floodway Data table in the FIS Report. This field is populated when a floodway is defined, usually only for the 1-percent-annual-chance flood event. This value is used in the FDTs.
LEN_UNIT	R	Width and Elevation Units. This unit indicates the measurement system used for the water-surface elevation and floodway width. Normally, this would be feet. This value is used in the FDTs and profiles. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally, this would be NAVD88. This value is used in the FDTs and profiles. Acceptable values for this field are listed in the D_V_Datum table.
LEVEE_TF	R	Cross Section is Associated with Levee(s). Acceptable values for this field are listed in the D_TrueFalse table.
LVSCENARIO	A	Cross Section Levee Scenario. This field describes the modeled levee scenario. This field must be populated when LEVEE_TF is populated with "T". Acceptable values for this field are listed in the D_Levee_Scenario table.

Field Name	Require/ Required if Applicable	Description
WSELREG_LL	A	Regulatory Water Surface Elevation for the 1-Percent-Annual Chance Flood Event for the Left Levee. If there are two levees on the stream and both are de-accredited, this is the regulatory water-surface elevation landward of the left levee for the 1-percent-annual-chance flood at the cross section. The calculated value includes backwater. This field is populated when the cross section is associated with de-accredited levees on the left and right banks.
WSELREG_RL	A	Regulatory Water Surface Elevation for the 1-Percent-Annual Chance Flood Event for the Right Levee. If there are two levees on the stream and both are de-accredited, this is the regulatory water-surface elevation landward of the right levee for the 1-percent-annual-chance flood at the cross section. The calculated value includes backwater. This field is populated when the cross section is associated with de-accredited levees on the left and right banks.
FREEBRD_LL	A	Freeboard Value of the Left Levee. The freeboard value above the 1-PCT Annual Chance Flood water-surface elevation at the cross section. This field is only required if and when the data can be exported from RASPLOT in the required FIRM Database formats.
FREEBRD_RL	A	Freeboard Value of the Right Levee. The freeboard value above the 1-percent-annual-chance elevation at the cross section. This field is only required if and when the data can be exported from RASPLOT in the required FIRM Database formats.
CALC_WO_BW	R	Calculated Without Backwater Effects Note. This indicates whether the elevations listed for this cross section in the WSEL_WOFWY are calculated without backwater effects. This is used to add a footnote to the Floodway Data Table to the values in the WITHOUT FLOODWAY column. This should be coded as T if the WSEL field contains the regulatory elevation and the WSEL_WOFWY field contains the modeled water suface elevation that is different from the regulatory elevation. Acceptable values for this field are listed in the D_TrueFalse table.

Table: L_XS_Elev

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
XS_ELEV_ID	R	Text	25		N/A
XS_LN_ID	R	Text	25		S_XS
FW_WIDTH	A	Double	Default		N/A
FW_WIDTHIN	A	Double	Default		N/A
NE_WIDTH_L	A	Double	Default		N/A
NE_WIDTH_R	A	Double	Default		N/A
XS_AREA	A	Double	Default		N/A
AREA_UNIT	A	Text	17		D_Area_Units
VELOCITY	A	Double	Default		N/A
VEL_UNIT	A	Text	20		D_Velocity_Units
EVENT_TYP	R	Text	37		D_Event
WSEL	R	Double	Default		N/A
WSEL_WOFWY	A	Double	Default		N/A
WSEL_FLDWY	A	Double	Default		N/A
WSEL_INCRS	A	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum
LEVEE_TF	R	Text	1		D_TrueFalse
LVSCENARIO	A	Text	16		D_Levee_Scenario
WSELREG_LL	A	Double	Default		N/A
WSELREG_RL	A	Double	Default		N/A
FREEBRD_LL	A	Double	Default		N/A
FREEBRD_RL	A	Double	Default		N/A
CALC_WO_BW	R	Text	1		D_TrueFalse

Table: L_XS_Struct

The L_ XS_Struct table is required when the cross section is associated with a structure (other than a levee) shown on the profile. This table is only required if RASPLOT v.3 or higher was used to generate the FIS profiles. There will be two records per structure in this table – one for the downstream face of the structure and one for the upstream face of the structure. This table stores information needed to plot the structure on the profile.

The L_ XS_Struct table contains the following elements:

Field Name	Require/ Required if Applicable	Description
DFIRM_ID	R	Flood Risk Project Identifier. For a single-jurisdiction Flood Risk Project, the value is composed of the two-digit State FIPS code and the four-digit FEMA CID code (e.g. 480001). For a countywide Flood Risk Project, the value is composed of the two-digit State FIPS code, the three-digit county FIPS code and the letter "C" (e.g. 48107C). Within each FIRM Database, the DFIRM_ID value will be identical.
VERSION_ID	R	Version Identifier. Identifies the product version and relates the feature to standards according to how it was created.
XS_STR_ID	R	Primary key for table lookup. Assigned by table creator.
XS_LN_ID	R	Cross Section Line ID. This is the foreign key to the S_XS table. This field captures the cross section line identification number that corresponds to this record. This is used in order to link a cross section to multiple structure records.
STRUCT_TYP	R	Structure Type. Hydraulic structures within the Flood Risk Project area. Acceptable values for this field are listed in the D_Struct_Typ table.
WTR_NM	R	Surface Water Feature Name. This is the name of the stream or water body. This value is used in the profiles.
STRUC_FACE	R	Structure Face. This is the face of the structure (e.g. UPSTREAM or DOWNSTREAM). Acceptable values for this field are listed in the D_Struct_Face table.
STR_STN	R	Structure Station. This is the measurement along the profile baseline to the face of the structure described in the STRUC_FACE field, as measured from the STN_START point. This value is needed for profiles.
LO_CHRD_EL	R	Low-chord Elevation at the Face of the Structure. For bridges, this is the structure bottom of the deck or beam elevation at the face of the bridge. It is at the same location when measured vertically from the ground point with the lowest streambed elevation in the main channel. For culverts, this is the crown elevation at the face of the culvert. For dams and inline weirs, the low-chord elevation is not computed. This value is needed for profiles.
HI_CHRD_EL	R	High-chord Elevation at the Face of the Structure. This is the structure top of the deck or rail elevation at the face of the bridge, culvert or inline weir. It is at the same location when measured vertically from the ground point with the lowest streambed elevation in the main channel. This value is needed for profiles.

Field Name	Require/ Required if Applicable	Description
STRMBED_EL	R	Streambed Elevation. This is the water-surface elevation for the thalweg or the lowest point in the main channel. For culverts, this is the invert elevation. This value is used in the profiles.
LEN_UNIT	R	Width and Elevation Units. This unit indicates the measurement system used for the water-surface elevation. Normally, this would be feet. Acceptable values for this field are listed in the D_Length_Units table.
V_DATUM	R	Vertical Datum. The vertical datum indicates the reference surface from which the flood elevations are measured. Normally, this would be NAVD88. Acceptable values for this field are listed in the D_V_Datum table.

Table: L_XS_Struct

Field	R/A	Type	Length/ Precision	Scale (SHP Only)	Joined Spatial / Lookup Tables or Domains
DFIRM_ID	R	Text	6		N/A
VERSION_ID	R	Text	11		N/A
XS_STR_ID	R	Text	25		N/A
XS_LN_ID	R	Text	25		S_XS
STRUCT_TYP	R	Text	60		D_Struct_Typ
WTR_NM	R	Text	100		N/A
STRUC_FACE	R	Text	10		D_Struct_Face
STR_STN	R	Double	Default		N/A
LO_CHRD_EL	R	Double	Default		N/A
HI_CHRD_EL	R	Double	Default		N/A
STRMBED_EL	R	Double	Default		N/A
LEN_UNIT	R	Text	16		D_Length_Units
V_DATUM	R	Text	17		D_V_Datum

10. National Flood Hazard Layer

The National Flood Hazard Layer (NFHL) compiles all the digital FIRM and LOMR database information into a nationwide database. The basis of the NFHL schema has been outlined above in the FIRM Database Technical Reference. Due to the nature of compiling individual FIRM Databases and historical data into a single database there are some differences in the NFHL schema.

10.1 NFHL Field changes

Each of the Primary Key and Foreign Key fields has been extended from 25 characters to 32 characters and SOURCE_CIT fields have been extended from 11 characters to 21 characters. This allows for the concatenation of the Flood Risk Project Identifier (DFIRM_ID) and the Primary, Foreign Key, or SOURCE_CIT fields. This will ensure that data loaded into the NFHL will have a unique identifier in the Primary Key field for each table. This will allow the relationships within the FIRM Ddatabase to function on a national level.

10.2 NFHL Spatial Reference Systems

The projection of the FIRM Database and NFHL have been aligned to eliminate products being delivered in different projections. However, due to the historical data within the NFHL the cluster tolerance and resolution used by the FIRM Database were not incorporated into the NFHL.

Delivered NFHL datasets shall have the following spatial reference standards:

Coordinate System: Geographic (GCS)

- Spheroid:
  - o Name: GRS_1980
  - o Semi major Axis: 6378137
  - o Semi minor Axis: 6356752.3141403561
- Angular Unit
  - o Name: Degree
  - o Radians per unit: 0.017453292519943299
- Prime Meridian
  - o Name: Greenwich
  - o Longitude 00° 00’ 00”

Horizontal Datum: North American Datum 1983 (NAD83)

Horizontal Units: Decimal Degrees (dd)

Vertical Datum: North American Vertical Datum 1988 (NAVD88)

Vertical Units: US Survey Feet

Cluster Tolerance: 0.000000008983153 dd

Spatial Resolution: 0.000000001309673 dd

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