Guidance for Flood Risk Analysis and Mapping

FIRM Graphics

This Document is Superseded.
For Reference Only.

May 2014

FEMA

This guidance document supports effective and efficient implementation of flood risk analysis and mapping standards codified in the Federal Insurance and Mitigation Administration Policy FP 204-07801.

For more information, please visit the Federal Emergency Management Agency (FEMA) Guidelines and Standards for Flood Risk Analysis and Mapping webpage (http://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping), which explains the policy, related guidance, technical references, and other information about the guidelines and standards process.

Nothing in this guidance document is mandatory other than standards codified separately in the aforementioned Policy. Alternate approaches that comply with FEMA standards that effectively and efficiently support program objectives are also acceptable.

Document History

Affected Section or Subsection	Date	Description
First Publication	May 2014	Initial version of new transformed guidance. The content was derived from the *Guidelines and Specifications for Flood Hazard Mapping Partners*, Procedure Memoranda, and/or Operating Guidance documents. It has been reorganized and is being published separately from the standards.

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1.0 FIRM Graphics Overview

This document contains guidance for the development and submission of Flood insurance Rate Map (FIRM) panels. The graphic format for the FIRM panels can be found in the *FIRM Panel Technical Reference* at http://www.fema.gov/media-library/assets/documents/34519.

2.0 FIRM Database Linkages

The *FIRM Database Technical Reference* provides the standards and schema for the FIRM Database which should be the source for most, if not all, of the components of the FIRM panels. Exceptions would be map elements that are unique to a Flood Risk Project that are not stored in the FIRM Database. Examples of items that are shown on the FIRM panel but are not explicitly included in the FIRM Database include the following:

- Levee seclusion area outlines
- Various notes, including:
  - Levee notes
  - Provisionally Accredited Levee (PAL) notes
  - Levee seclusion notes
  - "Too steep" cross section notes
  - Coincident features notes
  - Range and Township notes
  - Breakout panel notes

3.0 Map Body

The map body includes all of the base map information and flood hazard information contained within the FIRM panel neatline.

3.1 Halos

White halos around FIRM panel labels are used to ensure the readability of the annotation. They are required on FIRM panels that use an orthophoto base map and on panels that use a vector base map when overprinting occurs or the label is otherwise not clearly visible. Also, when adding labels inside floodplain areas on vector base maps, it is advisable to use white halos to enable the labels to be more clearly seen. White halos may be used in other cases at the discretion of the Mapping Partner. The specifications for halo sizes are provided in the *FIRM Panel Technical Reference*.

3.2 Overprinting

Overprinting should be avoided, but if it becomes necessary, the Mapping Partner should choose to overprint base map features that are of least importance to the theme of the map. Overprinting of any base feature that is within the flooding area should be avoided. Text may be placed outside the panel neatline but within the FIRM panel border and leadered into the body of the map panel as necessary. Any text placed around the outside of the map body must not overprint other text.

Where a text overprint cannot be avoided within the map body, the hierarchies listed in Tables 1, 2, and 3 below should be followed, and all text should be haloed. Cross section and coastal transect lines and labels, Base Flood Elevation (BFE) labels, flood zone and floodway boundaries and labels, and Coastal Barrier Resources System (CBRS) boundaries must not be overprinted and are listed in Tables 1, 2, and 3 for completeness only.

Figure 1: Example of Acceptable Overprint

3.3 Hierarchy for Labels and Map Features

When features are coincident with each other, only the highest priority feature should be shown. The following tables illustrate the order of priority (rank) of the various items depicted in the map body. These lists should be used as a guideline to resolve overprinting issues for labels and map features.

Table 1: Overprinting Hierarchy for Labels

Rank	Item
1	Cross Section and Coastal Transect Labels
2	BFE Labels
3	Flood Zone Labels
4	CBRS and Otherwise Protected Areas Labels
5	Special Notes
6	Jurisdiction Labels
7	All Other Labels
8	Base Map Labels

Table 2: Overprinting Hierarchy for Standard Map Elements

Rank	Item
1	Cross Sections and Coastal Transects
2	BFE Lines
3	CBRS and Otherwise Protected Areas
4	Jurisdiction Lines
5	Levees and General Structures
6	Flood Hazard Lines
7	Profile Baselines
8	Water Lines and Areas
9	U.S. Public Land Survey System (PLSS) Lines
10	Transportation Features
11	Flood Hazard Areas
12	Ortho Imagery

Table 3: Overprinting Hierarchy for Boundaries

Rank	Item
1	Jurisdiction Boundary
2	Coastal Barrier Boundary
3	Flood Insurance Risk Boundary
4	Other Boundaries
5	Base Map Features

4.0 Base Maps

Base maps form the backdrop against which flood hazard information is viewed. Base map features are employed by map users to identify properties and structures relative to the floodplains. The *Base Map Guidance* document provides information on the base map types, contents, and sources of base map data that are suitable for use as FIRM base maps.

This section contains guidance for the presentation of raster images and vector data used as base maps on FIRM panels. Note that base map types should not be mixed within a study (i.e., both raster and vector) without approval of the FEMA Project Officer.

4.1 Raster Images

Whenever possible, the assigned Mapping Partner should use orthophoto images as they are received from the U.S. Geological Survey (USGS) or the community, with little or no modification. Variations in tones between orthophoto images are acceptable. If more than one image is included on a FIRM panel, lightening or darkening of individual images to balance tones is not necessary. Overall lightening of all orthophoto images for a Flood Map Project using a single factor may be done so that flood hazard features can be clearly seen. A transparency setting of 20% generally works well. The transparency can be increased to 25% - 30% for darker images if necessary.

The assigned Mapping Partner may update roads or other features that have changed since the orthophotos were produced, placing vector data on top of the images, if available. At the request of the community and with approval from the FEMA Project Officer, road centerlines may also be shown on top of an orthophoto base map to clarify the locations of features.

The assigned Mapping Partner may show vectors that depict studied flooding sources on top of the orthophotos to clarify their locations. Flooding source vectors should not be shown outside the Special Flood Hazard Areas (SFHAs) unless removing them would entail additional work.

4.2 Vector Data

Vector base maps depict linear features (e.g., roads, railroads, streams) digitized as single-line centerlines. Roadway right-of-ways or buffered road centerlines are not desirable because they do not depict a feature that can be physically located by users, who rely on the base map features for general orientation. Users often measure distances from road features in order to locate structures. Road centerlines are more suitable for this type of use.

4.3 Base Map Features

Base map features include the following: transportation features, hydrographic features, hydraulic structures, political boundaries, and PLSS features

Unimproved roads or trails (i.e., those travel ways not intended for motorized vehicles or not usually used by motorized vehicles due to width or seasonal conditions) or private roads are not required but may be shown on the FIRM, particularly if they cross the floodplains.

The assigned Mapping Partner should derive base map feature names from the U.S. Census Bureau Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) files, USGS Geographic Names Information System (GNIS), community-supplied files, current FIRM panels, and/or other sources.

4.3.1. Transportation Features

In addition to primary roads, as defined by the MAF/TIGER data, and the roads shown and labeled on a Flood Profile, as many named roads as possible should be labeled inside of and within 1 inch of an SFHA. Communities can provide road labels beyond the minimum labels required. If provided, community-supplied labels should be shown on the FIRM provided they do not render the map unreadable due to excessive clutter. See Tables 2, 3, and 4 above for overprint hierarchies of labels and map features.

Depicted road labels should match the primary name stored in the FIRM Database. Road name labels should be placed parallel to road centerlines shown on vector-based FIRMs, but not on the road feature itself to obscure it. On orthophoto-based FIRMs, the road labels may be placed either parallel to or on top of the image of the road. Additional road name labels should be added as necessary for clarity. To avoid unnecessary clutter on the map, the road prefix, qualifier or suffix may be abbreviated. For example, “West Highland Drive”, may be labeled as “W Highland Dr”. Highway route shields may also be used in place of the full highway name. A mix of spelled out and abbreviated road labels is acceptable. If space is limited, a label may be placed over a transportation feature as long as the feature is still recognizable and the label is haloed. The application of curved labels, also known as splining, may be used as necessary. Road name labels may be leadered into the feature as necessary. If space is limited and leadering is not an option, the use of a numbered road key is acceptable.

If a label is larger than a transportation feature, the feature does not need to be labeled. However, it may be labeled with a leader to the feature if it is a primary road or falls in or within 1 inch of the SFHA.

Only railroads that are shown on a Flood Profile are required to be labeled. The label ‘RAILROAD’ should be placed along the feature when feasible, or leadered if space is limited.

Airports and runways do not need to be labeled.

4.3.2. Hydrographic Features

Hydrographic features include streams, rivers, lakes, ponds, and open bodies of water contained in the S_Wtr_Ar and S_Wtr_Ln layers of the FIRM Database.

As shown in Table 3 above, Overprinting Hierarchy for Standard Map Elements, profile baselines take precedence over hydrographic features. More information about the graphic representation of profile baselines is contained below in the Flood Hazard Features section of this document.

Line representations of hydrographic features are optional on ortho-based FIRM panels. They may be shown at the request of the FEMA Project Officer. However, if shown, care must be taken to ensure they do not overlap the profile baseline.

On vector-based FIRMs, both the river shorelines and the profile baseline usually can be shown without overlapping on wide rivers and streams. However, on narrower streams or where the hydrographic feature is represented by a stream centerline, care should be taken to make sure the profile baseline is clearly displayed.

Hydrographic features within an identified floodplain should be labeled at least once on each FIRM panel on which they fall. Stream labels should be placed parallel to the feature. The application of curved labels, also known as splining, is allowed. Additional stream name labels may be added for streams that traverse entire FIRM panels, or as necessary for clarity. When streams continue onto adjoining panels, stream labels should be placed at or near panel edges. Large hydrographic features, such as oceans and lakes, may be labeled using larger font sizes and/or more than once on individual FIRM panels as necessary for clarity.

4.3.3. Hydraulic Structures

Hydraulic structures such as dams, weirs, culverts, bridges, and floodwalls, should be labeled on the FIRM panel only if they are shown on the Flood Profile. The labels should be placed near the structure and leadered in as appropriate.

4.3.4. Political Entities and Boundaries

Political entities should be depicted and labeled as described below. The Mapping Partner should use leader lines as appropriate to reduce clutter. Large area features may be labeled using larger font sizes and/or more than once on individual FIRM panels (as necessary for clarity).

Political entities (incorporated areas, unincorporated areas, Extraterritorial Jurisdiction (ETJ) areas, “Areas Not Included [ANI],” etc.) should be labeled near the center of the jurisdiction, if possible. For incorporated communities, the community type should be followed by the name of the community (e.g., City of Smithville), and the Community Identification Number (CID) placed immediately under the community name. For unincorporated county areas, the county name should be shown with “Unincorporated Areas” beneath it, and the county CID should be placed immediately under that label.

When ETJ areas are significant for the purposes of the National Flood Insurance Program, they should be shown on the FIRM with the ETJ area labeled with the community name, followed by the words “Extraterritorial Jurisdiction,” and the CID number of the community exercising its ETJ authority. See the *Extraterritorial Jurisdiction Mapping Guidance* document for additional guidance on the depiction of ETJs.

Any area shown as an ANI should be labeled with the entity’s name and the notation “Area Not Included.” Vector data, including flood information and base map information, should not be

depicted for areas defined as an ANI, regardless of why the area is not included. For orthophoto-based FIRMs, the raster orthophoto base map should be shown in the ANI.

All Tribal lands are mapped on a case-by-case basis. Military and Tribal lands should be labeled with the official name at least once.

State and National Park and Forest labels are not required. If parks or forest boundaries are present in the S_Pol_Ar layer of the FIRM Database, they should be labeled. The political area in which the park or forest resides will be used for the beginning of the political label along with the community's CID. An additional line will be added to the political label to describe these areas generically as a park, forest, etc. (see example below). This community name and CID will also appear in the title block of the FIRM panel to represent the park area if the community is not already listed. No specific park or forest information will appear in the title block. In crowded or segmented areas, the political area label(s) can be leadered or made smaller.

Flood County Unincorporated Areas
123456
State Park

When boundaries of different types are coincident with each other or with base map features, the Mapping Partner should show only one. Priorities are defined in the Hierarchies for Labels and Map Features tables shown in Tables 1, 2, and 3 above.

4.3.5. Horizontal Reference Grids

Even though the FIRM Database will ultimately be delivered to the Map Service Center (MSC) in the Geographic Coordinate System (GCS), the FIRM panels will be prepared using a local projection (e.g., Universal Transverse Mercator [UTM] or State Plane). For the purposes of this discussion, the projection used for preparation of the FIRM panels is also shown on the FIRM panels as the primary horizontal reference grid.

A primary horizontal reference grid and secondary horizontal reference grid ticks are placed on the FIRM panels to orient map readers to real-world coordinates. In addition, the latitude and longitude in degrees, minutes, and seconds are shown at each of the four corners of the map panel, and the UTM reference grid (or grid ticks) is included on the FIRM. If the primary reference grid is UTM, then a secondary grid is optional. Other reference grids (e.g., State Plane) may be used as the primary reference grid. If UTM is not the primary grid, then it is used as the secondary reference grid (shown as grid ticks) and included on the FIRM. UTM and State Plane reference grids or grid ticks should be shown extending to the FIRM neatline.

The secondary grid ticks are shown as cross hairs within the body of the map and ticks along the edge.

The grid interval shown on the FIRM should not vary between panels within the same FIRM, even if the panels are shown at different scales. Generally, a UTM grid interval of 1,000 meters and a State Plane grid interval of 5,000 feet should be used.

4.3.6. U.S. Public Land Survey System

U.S. PLSS features (i.e., section lines with range and township information) are shown on a FIRM if they are available in digital format and/or were shown on a previous FIRM. They may also be added at the request of a community or FEMA Project Officer. Gridlines, range, township, and section lines should be terminated at the panel neatline and at the political boundaries of the subject community.

Township lines should be labeled at the left and right edges of the panel along both sides of the line. Range lines should be labeled at the top and bottom edges of the panel along both sides of the line. If a panel does not contain any township and range lines, a township and range information note should be placed in an area of the map body void of flood risk data, or in the map fringe just below the bottom neatline.

Section numbers should be placed in the center of the section, parallel to the horizontal neatlines of the panel. If the section is too small to fit the section number without crowding relevant data, the section number may be omitted. Land Grants and other specially designated areas should also be labeled.

If the subject community uses a PLSS grid, the primary grid shown on the FIRM is the PLSS. The secondary grid ticks should be the same as the coordinate system used for preparation of the FIRM panels. When the FIRM panels are prepared using the UTM coordinate system, UTM grid ticks are shown as cross hairs within the body of the map; State Plane grid ticks may also be shown along the edges of the panel but are not required. When the FIRM panels are prepared using the State Plane coordinate system, both UTM and State Plane grid ticks are shown through the map body.

4.3.7. Breakout Panels

If a printed panel falls within the area of a smaller-scale panel that is also printed, a breakout note is placed on the smaller-scale panel in the center of the area represented by the larger-scale panel (the breakout panel area). The note specifies the larger-scale panel map number and scale. It does not include the suffix (to avoid unnecessary future updates).

4.3.8. Other Base Map Features

In special cases, at the request of the FEMA Project Officer, additional landforms may be added to the FIRM.

5.0 Flood Hazard Features

This subsection provides guidance for showing floodplains and regulatory floodways, flood insurance risk zone labels, BFEs, cross sections, limits of study, coastal transects, and other items needed to depict hydrologic and hydraulic analyses.

5.1 Floodplains and Floodways

A transparency setting of 70 percent is recommended for all flood insurance risk zones. Slight transparency adjustments of all flood insurance risk zones for a Flood Map Project using a single

factor may be made so that flood hazard features can be clearly seen. Each flood risk zone is bounded by a graphically depicted flood zone boundary line. The seaward side of a coastal flood risk zone does not require a boundary to be shown graphically and is coded as an "Other Boundary." Lines coded as "Other Boundary" are not graphically depicted on the FIRM panel. Lines coded as "Limit Lines" are addressed below.

Regulatory floodways are shown on the FIRM with a standard floodway symbol. The following floodways will use the standard floodway symbol in conjunction with a note identifying the type of floodway as shown in the *FIRM Panel Technical Reference*:

- Riverine Floodway Shown in Coastal A Zone
- Administrative Floodway
- State Encroachment Areas
- Community Encroachment Area
- Flowage Easement Area

Specific designations of floodways will use a unique Special Floodway symbol. The following Special Floodway types will use the Special Floodway symbol and notes shown in the *FIRM Panel Technical Reference*:

- Colorado River Floodway
- Density Fringe Area
- Area of Special Consideration

5.2 Flood Hazard Information Based on Future-Conditions Analyses

At the request of community officials and with the approval of the FEMA Project Officer, future-conditions 1-percent-annual-chance floodplains may be shown on the FIRM and referenced in the accompanying FIS report for informational purposes. The future-conditions flood insurance risk zone is shown as a shaded Zone X area and labeled as "Zone X (Future)."

5.3 Zone Labels

All zone areas except Zone X (shaded and unshaded) should be labeled at least once with the applicable flood zone and, if appropriate, with the static elevation or depth. This includes Zone D areas. Zone labels should be repeated as necessary for clarity in large or complicated areas. Open water areas do not need to be labeled.

In the 1-percent-annual-chance floodplains, the floodway fringe areas should not be considered separate areas requiring labels. One zone label is sufficient for both the regulatory floodway and the floodway fringe.

In SFHAs with assigned static elevations, depths, or velocities, the static BFE, depth, or velocity value should be placed under the zone label. Additional guidance on static BFEs is provided in the *Mapping Base Flood Elevations on Flood Insurance Rate Maps Guidance* document.

Shaded Zone X areas should be labeled where they represent future-conditions using the specifications found in the *FIRM Panel Technical Reference*.

Areas behind levees are labeled with the appropriate levee note, indicating whether the levee is Accredited, Provisionally Accredited, or Non-Accredited and the level of protection afforded by the levee. The specifications for the levee notes can be found in the *FIRM Panel Technical Reference*.

5.4 Limit Lines

Regardless of whether the study limit is located where 1% or 0.2% annual chance flooding is truncated or where Zone AE flooding ends and Zone A flooding continues, the line symbology is a white line with a red line on both sides of it. Examples of limit lines are shown below.

The example shown on Figure 2 below illustrates the use of a Limit of Study label where SFHAs (including Zone A areas) or shaded Zone X areas (either with or without published base flood elevations) truncate abruptly.

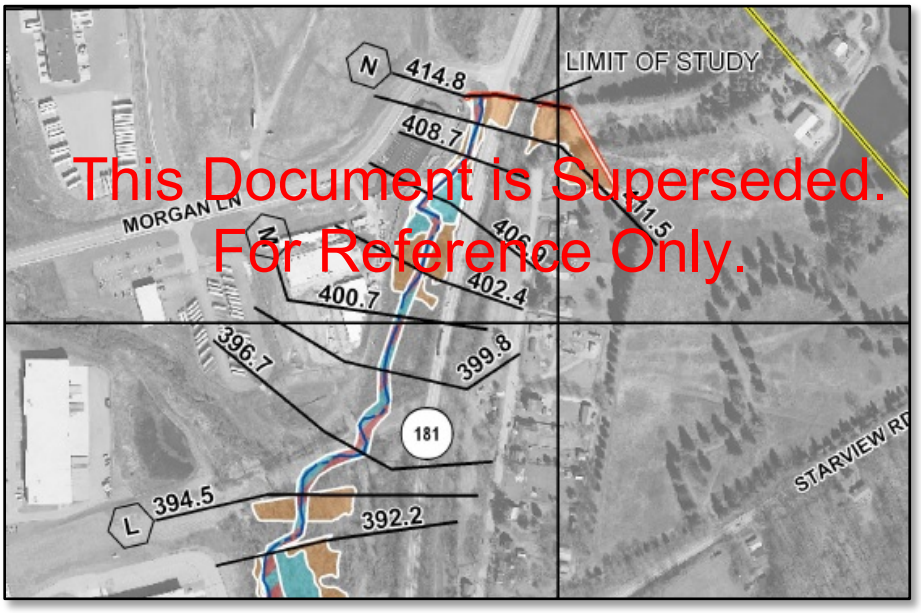

Figure 2: Truncated Flooding Limit of Study Example

The example shown in Figure 3 below illustrates the use of a Limit of Study line without a label. A Limit of Study line without a label is used in situations such as between Zone A and Zone AE flooding or between coastal zones with static BFEs and Zone A or Zone V areas.

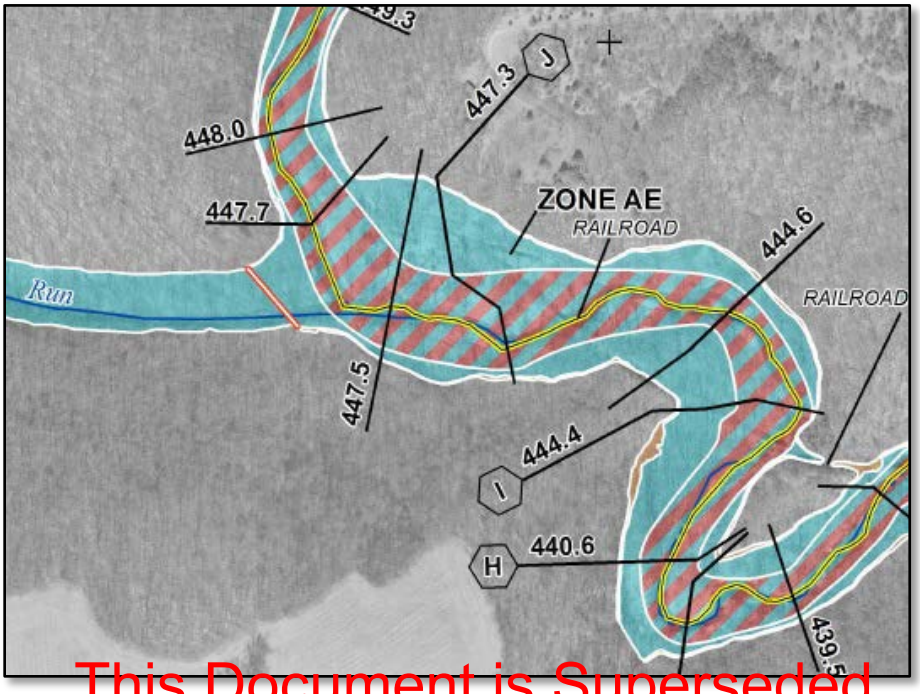

Figure 3: Flooding Continues Limit of Study Example

5.5 Profile Baselines

Profile baselines that represent the modeled flood flow and accurately reflect the distance between cross sections in the hydraulic model are included in the FIRM for all studied streams with flood profiles or otherwise established BFEs. The profile baseline allows users to more easily reference information in the hydraulic model and the flood profile. The specifications for the symbolization and labeling of the profile baseline can be found in the *FIRM Panel Technical Reference*. As noted above in Table 2 and in the section on hydrographic features, the profile baseline takes precedence over other hydrographic features along the same flooding source.

5.6 Cross Sections

Cross sections are shown on the FIRM panels and provide a spatial reference to the cross sections in the hydraulic model and on the flood profiles. Additional guidance on cross section placement will be provided in the *Cross Section Guidance* document.

Alphabetical labeling of cross sections is the preferred method. However, at the request of a community and with the approval of the FEMA Project Officer, cross sections may be labeled numerically instead of using letters. Along a single stream within a study, only one labeling method should be used. The typical numbering sequence is from the downstream to the upstream limit of study, using the stream distance value at that location divided by 100.

Lettered or numbered cross sections are labeled on the map with a hexagon at one end of the cross section line. Cross section hexagons should be oriented so that the letter or number can be clearly read and is not upside down. If necessary, the hexagon may be detached from the end of the cross section and situated closer to the feature. In especially crowded areas, the hexagon may be reduced in size at the Mapping Partner's discretion.

All cross sections are labeled with the regulatory Water Surface Elevation (WSEL) value, rounded to the nearest tenth of a foot. The WSEL value should be placed parallel to and above the cross section line. If overprints cannot be avoided, leadering of the WSEL value is an acceptable option.

Cross section lines should cross the entire floodplain (past the limits of the 1-percent-annual-chance floodplain, whenever possible). If a lettered or numbered cross section line cannot exit either side of the floodplain on the panel, the hexagon should be placed in the middle or on top of the cross section line and haloed to block out the line. All graphic adjustments to cross sections should remain separate from modeled cross section locations that are stored in the FIRM Database.

If "MAPPED" but unlettered cross sections cannot be shown on the FIRM because of crowding due to steep terrain, a note shall be placed referring the user to the profiles in the FIS report. The wording of the note can be found in the *FIRM Panel Technical Reference*. Only one such note is needed per FIRM panel.

In the event that a cross section contains multiple elevations (i.e., the cross section spans a levee), the cross section shall be segmented and each segment labeled with its corresponding WSEL value and, when the cross section is lettered, a hexagon.

New cross sections inserted between existing lettered cross sections may be numbered with an alphanumeric sequence to avoid re-lettering cross sections upstream (i.e., cross sections A1 and A2 might be inserted between existing cross sections A and B). This scenario is likely to occur only when a portion of a stream is restudied.

5.7 Base Flood Elevations (BFEs)

The use of BFE lines is only required in special cases. BFE lines are used to augment the WSELs shown on the cross sections or in areas where cross sections are not mapped. 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. Additional guidance on BFE placement will be provided in the *Mapping Base Flood Elevations on Flood Insurance Rate Maps Guidance* document.

To 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 1 inch of map panel distance, the Mapping Partner should determine the best elevation increments to retain clear labeling.

Static BFEs are shown centered under the zone labels (e.g., in areas of ponding, lacustrine, or coastal areas). Static BFE labels may also be added as graphic labels if floodplain areas at the

edge of a panel are too small to show a BFE line or fall between established locations for BFE lines and cross sections.

The preferred unit for static elevations, depth, and velocity is feet. Metric values, where required such as in Puerto Rico and other studies, are also acceptable.

5.8 Coastal Transects

Transect lines are delineated and labeled on the FIRM to identify the physical location of the wave transects described in the Flood Insurance Study (FIS) report. The transect delineation on the FIRM also helps users determine which wave transect analysis may influence or directly affect their property or area of interest. The wave effects mapped for any transect begin at the shoreline and end at the limits of 1-percent-annual-chance flood hazards, even though the actual transect line on the FIRM may extend farther seaward and landward of the coastal flood hazard areas. Transect lines should not be truncated for mapping purposes but should reflect the full extent of coastal modeling.

Coastal transect numbers are placed in a circle on one end of the transect line. Number placement should be uniform across transect lines. If the end of the line cannot be labeled due to space limitations, a haloed label may be placed in the middle of the transect line. If necessary, the circle may be detached from the end of the coastal transect and situated close to the feature. Transect numbers should be oriented so that the number can be clearly read and is not upside down. Transect numbering should generally proceed consecutively from north to south or west to east along a shoreline. New coastal transects inserted between existing transects may be numbered with an alphanumeric sequence to avoid re-numbering transects on unrevised panels (i.e., Transects 5A and 5B might be inserted between existing Transects 5 and 6).

5.9 Limit of Moderate Wave Action (LiMWA)

The inland limit of the area affected by waves greater than 1.5 feet is called the LiMWA. The LiMWA should be shown on FIRMs as an informational layer, when identified, using the guidance for delineation set forth in other FEMA guidance.

At the request of the FEMA Project Officer, the symbology of the LiMWA line on the FIRM may be modified to give it some directionality so it is easily understood which side of the line has the higher wave hazards. An example of a LiMWA line with the hatches pointing towards the V-zones is provided in other FEMA guidance.

6.0 Coastal Barrier Resources System Features

In cooperation with the U.S. Department of the Interior, Fish and Wildlife Service, FEMA transfers CBRS boundaries to FIRMs using congressionally adopted CBRS source maps. FIRMs clearly depict the different CBRS areas and their insurance prohibition dates with special map notes and symbologies. It should be noted that although FEMA shows CBRS areas on FIRMs, Congress is the only entity that may authorize a revision to CBRS boundaries.

This Guidance Document uses the terms “Coastal Barriers” and “CBRS units.” These terms are intended to be inclusive of all classifications of Coastal Barriers within the CBRS, including areas designated as Otherwise Protected Areas (OPAs).

6.1 Coastal Barrier Resources System Boundaries

Boundary lines are shown to differentiate between contiguous barriers of different classifications, because each CBRS classification carries a different insurance prohibition. Each CBRS area is bounded on all sides by a boundary.

6.2 Coastal Barrier Resources System Area Screens

Coastal barrier areas are portrayed with two unique screens to differentiate between CBRS and OPA units, which contain differing prohibitions. All barriers are labeled or identified by notes that list the CBRS classification of each area.

6.3 Coastal Barrier Resources System Area FIRM Note

All separate CBRS areas on a FIRM are labeled with the appropriate identification note showing the prohibition date associated with that CBRS area.

CBRS identification notes should be located, whenever possible, on or near the land area, and should not overprint existing base or floodplain features. When the note cannot be located on the land area because of space and clarity considerations, the note should be placed in the open water within the CBRS screen, near the land area. When the note cannot be placed within the CBRS screen without creating overprints, the note should be leadered to the land area.

7.0 Map Collar Information

The Map collar information includes the Map Legend, Notes to Users, Map Scale Box, Panel Locator Diagram, and FIRM title block. Details of each are provided below.

7.1 Map Legend

The map legend contains those items that are needed to assist the map user in interpreting map symbols, flood hazard screens, linework, flood hazard zone information, and other regulatory information that is depicted on the FIRM panel. Planimetric data (such as roads and railroads) are not included in the FIRM legend.

The FIRM legend elements are standardized and do not vary. However, the symbology shown in the map legend varies depending on whether the FIRM uses an orthophoto or vector base map.

If the need arises, and with the approval of the FEMA Project Officer, customized legend elements may be added to the legend shown in the FIS report.

7.2 Notes to Users

The Notes to Users section of the FIRM provides map users with contact information regarding how to obtain additional information, available related products, and flood insurance availability.

The Notes to Users section also provides information about levees, levee seclusion, and the CBRS, if applicable.

Using standardized notes, users are referred to the accompanying FIS report for general information about specific items on the FIRM, background and reference information about sources of data used to prepare the FIRM, and sources of additional information pertinent to specific items on the FIRM. Websites listed in Notes to Users should be black and not underlined.

The following customized notes are added to the Notes to Users section as applicable.

7.2.1. Base Map Source Note

The base map source note included in the Notes to Users should be customized to reflect the source(s) and date(s) of the base map data used to produce the FIRM.

7.2.2. Local Vertical Control Monuments

The assigned Mapping Partner may find it necessary to add special, flood risk project-specific notes if a community requests a reference to local vertical monuments. The monuments will not appear on the map, but the Notes to Users section provides information on where those monuments can be obtained.

7.2.3. Levee Notes

If the FIRM panel contains a levee, the applicable levee note will be added to the Notes to Users. The specifications for Accredited and Provisionally Accredited levee notes can be found in the *FIRM Panel Technical Reference*. The specifications for levee seclusion notes will be provided in the *Levees Guidance* document.

7.2.4. LiMWA Note and Legend

If the FIRM panel includes a LiMWA line, the Notes to Users section will include the LiMWA note and legend. The specifications for the LiMWA note and legend can be found in the *FIRM Panel Technical Reference*.

7.2.5. CBRS Note and Legend

If the FIRM panel includes CBRS Units, the Notes to Users section should include the CBRS Note and legend. The specifications for the CBRS note and legend can be found in the *FIRM Panel Technical Reference*.

7.2.6. Custom Notes

At the request of a Cooperating Technical Partner (CTP) or Mapping Partner and with the approval of the FEMA Project Officer, custom notes may be added to the Notes to Users. An example is shown below in Figure 4.

Only coastal structures that are certified to provide protection from the 1-percent-chance annual flood are shown on this panel. However, all structures taken into consideration for the purpose of coastal flood hazard analysis and mapping are present in the DFIRM database in S_Gen_Struct.

Figure 4: Custom Notes to Users Example

The *Vertical Datum Conversions Guidance* document provides additional examples of a custom note that would be added to the Notes to Users for a community-based datum conversion.

7.2.7. State Seal or Cooperating Technical Partner Logo

Small areas for State Seals or CTP logos have been reserved at the bottom of the Notes to Users for use as needed. Logo box placeholders do not need to be shown if no additional logos are included on the map.

7.2.8. Map Scale Box

The Scale Box contains the north arrow, scale bar, and information about the map projections and horizontal and vertical datums used for the Flood Risk Project. The specifications for the Scale Box are provided in the *FIRM Panel Technical Reference*. The Scale Box should be centered in the Panel Locator box.

Even though the FIRM Database will ultimately be delivered to the MSC in the GCS, the FIRM panels will be prepared using a local projection (e.g., UTM or State Plane). The projection information included in the Map Scale Box should reflect the projection used for preparation of the FIRM panels, not the GCS used for delivery of the FIRM Database.

The *Vertical Datum Conversions Guidance* document provides an example of a customized Map Projection note that would be used for a community-based datum conversion.

7.3 Panel Locator Diagram

Panel Locator Diagrams serve as a reference to orient the map user to the entire community or county and to adjacent panels. The specifications for the Panel Locator Diagram are provided in the *FIRM Panel Technical Reference*. The following guidelines should be followed when preparing a Panel Locator Diagram, which should be shown on every FIRM panel, unless a community or county has only one printed panel:

- The diagram size may vary with the size of the community and the space constraints of the diagram.
- The diagram should center on the FIRM panel on which the locator lies and at a minimum will show all adjacent panels with their panel numbers; the Mapping Partner may choose to show more panels as long as the diagram remains readable. The panel numbers in the Panel Locator Diagram do not need to be haloed.
- A diagram inset will show the area of detail within the county; if the entire county can fit in the Panel Locator Diagram, no diagram inset needs to be included.

7.4 FIRM Title Block

The FIRM title block contains those items that identify the community and provide panel-specific information, including the map number and effective date of the FIRM panel. The following title block elements are standard and occur in every FIRM panel title block. The specifications for the elements in the FIRM title block are provided in the *FIRM Panel Technical Reference*.

7.4.1. Community Identification

The community identification information varies slightly depending on the type of study.

- Single jurisdiction FIRMs for incorporated communities list the community type (e.g., city, town, or village), community name, and full State name. Single jurisdiction FIRMs for incorporated communities also include the name of the county, except for jurisdictions that are officially classified as "Independent."
- Single jurisdiction FIRMs for unincorporated areas of counties list the county name and full State name followed by "(Unincorporated Areas)".
- Countywide FIRMs list the county name and full State name followed by either "And Incorporated Areas" if the countywide FIRM includes both unincorporated and incorporated areas, or "All Jurisdictions" if the countywide FIRM includes flood hazard information for entire counties in which no separate county government exists; all land is administered by community agencies.
- ETJ designators are not listed in the FIRM title block. The community exercising its ETJ authority is listed one time when an ETJ area falls on a FIRM panel. See the *Extraterritorial Jurisdiction Mapping and Distribution Guidance* document for additional guidance on the depiction of ETJs.
- The Vertical Datum Conversion Guidance document provides an example of a customized community listing in a FIRM title block that notes that would be used for a community-based datum conversion.

7.4.2. FIRM Panel Number and Highest Number in the Series

Below the community identification information the FIRM title block lists the FIRM panel number and the highest FIRM panel number in the series. The highest number listed should agree with the highest FIRM panel number listed on the Map Index and in the FIRM Database S_FIRM_Pan layer. If the community can be shown on a single FIRM panel, "Only Panel Printed" is used instead of the FIRM panel number.

7.4.3. Listing of Communities Shown on FIRM Panel

Below the FIRM panel number is a listing of all of the communities shown on the FIRM panel. This listing includes the community name, CID number, FIRM panel number, and map suffix. Communities are listed in alphabetical order. The community name is followed by the community type, if applicable (i.e., Coastland, City of). Parks and forests should not be included in the listing of communities shown on the FIRM panel.

7.4.4. Version Number

Below the community listing is the version number. The version number indicates the version of the Guidelines and Standards under which a product was produced. More information on the version number will be provided in the *Version Guidance* document.

7.4.5. Map Number

Below the version number is the map number. The map number is an 11-digit number that includes the CID for single jurisdiction FIRMs or county Federal Information Processing System code plus "C" for countywide FIRMs, the FIRM panel number, and the map suffix.

The map suffix is used to track published editions of each FIRM panel. All panels within a flood risk project may not have the same map suffix if they were not all updated at the same time.

7.4.6. Effective Date

Below the map number is the effective date of the FIRM panel. It is listed as "Effective Date" when first published and "Map Revised" for subsequent revisions.

Several items may be added to the FIRM panel title block as applicable. These include the following.

7.4.7. Date Stamp

When FIRM panels are sent to communities for review at the preliminary or other stages, the title blocks are stamped "Preliminary" or "Revised Preliminary" or "Proof Copy" with the date they are sent. The specifications for the date stamp can be found in the *FIRM Panel Technical Reference*.

7.4.8. Notice to User Note

If a FIRM panel is reissued to make a correction, a Notice to Users note is added to the title block per the guidance contained in the *Notice-to-User Revisions Guidance* document.