

# Base Level Engineering & Base Flood Elevation Viewer

Manuel J. Razo, GISP, CFM  
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## What is Base Level Engineering?

- Combination of
  - High resolution ground elevation data (i.e. LiDAR)
  - CNMS miles
- Engineering models then determine flood elevations along each stream reach studied



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## How is BLE made?

- Stream selection
  - FEMA creates a watershed stream network coverage that initiates with the current flood hazard inventory coverage (CNMS)
  - FEMA and its Mapping Partners review these against the National Hydrography Dataset (NHD).
  - The NHD medium resolution data inventoried by the US Geological Survey (USGS) Maps used to review the water courses
  - In the vicinity of population centers of 1,000 or more are reviewed for additional mileage against the high resolution data



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### Prioritization Tool

Source	Mileage	BLE Mileage
GREEN - Current Inventory (CNMS)	1278	
BLUE - NHD Medium (100K)	871	
PINK - NHD High (24K) - Populated Areas	20	
<b>Total BLE Mileage</b>		<b>2,169</b>

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### Stream Network

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GREEN - Current Inventory (CNMS)	1278
BLUE - NHD Medium (100K)	871
PINK - NHD High (24K) - Populated Areas	20
<b>Total BLE Mileage</b>	<b>2,169</b>

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### How is BLE Made?

- Terrain
  - The BLE is only initiated in watersheds and project areas where high resolution ground elevation
  - Topographic datasets are combined into a composite Digital Elevation Model (DEM) surface
  - The DEM is used to digitize the stream network using available National Hydrography Dataset (NHD) data for reference.

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## How is BLE made?

- Hydrology
  - BLE produces hydrology information based on USGS regional regression equations, utilizing gage analysis where stream gages with sufficient records exist.
- Hydraulics
  - Uses the terrain model in combination with hydrology input to establish water surface elevations.




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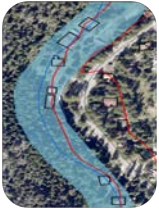
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## Base Level Engineering – Focus Areas


**1**

**Unknown & Unverified Miles**




**2**

**Unmodernized Communities**



**3**

**Unmapped Miles**



3

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www.msc.fema.gov

## FEMA Map Service Center

FEMA Flood Map Service Center: Search By Address

Enter an address, place, or coordinates:

Search Results—Products for BASTROP, CITY OF [Show All Profiles](#)

The flood map for the selected area is number 48021C0355E, effective on 01/19/2006

**DYNAMIC MAP**



**MAP IMAGE**



Changes to this FIRM

- Reasons (2)
- Amendments (4)
- Revisions (2)

Go To NFPA, VA




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## FIRMS vs BLE

- BLE information does not replace your current Flood Insurance Rate Map (FIRM)
- BLE is NOT a FIRM, but data/modeling produced can support future FIRM update.
- BLE data is meant to compliment FIRMS.
- BLE arms communities with data to assist regulation and development decisions, WITHOUT mandatory purchase of flood insurance and other requirements that are unearthed by creation/update of a FIRM




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## Region 6 - Obtaining Estimated BFE

*Welcome to the* **Estimated Base Flood Elevation Viewer**

Base Level Engineering assessments are produced using high resolution ground data to create technically credible flood hazard information that may be used to expand and modernize FEMA's current flood hazard inventory.

**I Want to Explore**

**View Base Level Engineering Data**

Access all available Base Level Engineering data without GIS software.

- Click the **DATA LAYERS** button to add or remove map layers.
- Click the **LEGEND** tab to view an explanation of all data shown.
- Click the **MAP VIEW** button to open or close a second viewing window for side-by-side comparisons.

**I Want to Download**

**Download Datasets & Models**

Download the Base Level Engineering data presented in the viewer.

- Click the **DATA LAYERS** button and add the **DOWNLOADABLE DATA** layer.
- Click shaded areas in the map to open a dialog for choosing datasets to download.

**What is My Flood Risk?**

**Property Look Up**

Where data is available, produce a property-specific report with estimated base flood information.

- Click the **REPORT** tab to create a flood risk report for a specific location.

Click a topic to get started!

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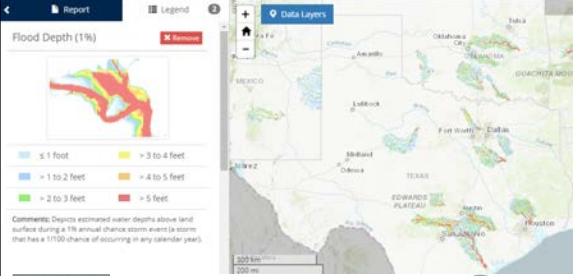
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## Estimated Base Flood Elevation Viewer



### Estimated Base Flood Elevation (estBFE) Viewer



**Flood Depth (1%)**

≤ 1 foot	> 3 to 4 feet
> 1 to 2 feet	> 4 to 5 feet
> 2 to 3 feet	> 5 feet

Comments: Depicts estimated water depths above land surface during a 1% annual chance storm event (a storm that has a 1/100 chance of occurring in any calendar year).


[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)


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## Run a Site Specific Report

1 Enter your address or a City, Stream, Watershed name to zoom in

2 or CLICK "My Location" to zoom in based on your current location

+3 Once ZOOMED in, use "Map Click" to place the locator & run report

[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)

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## Searching for a Location

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llano

32 Results

Counties & Political Divisions

- Llano Santa Barbara Tract  
Tacos County, NM
- Llano County  
Llano County, TX
- Llano North Division  
Llano County, TX
- Llano South Division  
Llano County, TX

Cities & Populated Places

- Llano Del Medio  
Guadalupe County, NM
- Llano Viejo  
Guadalupe County, NM
- Llano  
Tacos County, NM
- Llano Largo

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## Run a Site Specific Report

[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)

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## Run a Site Specific Report



[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)

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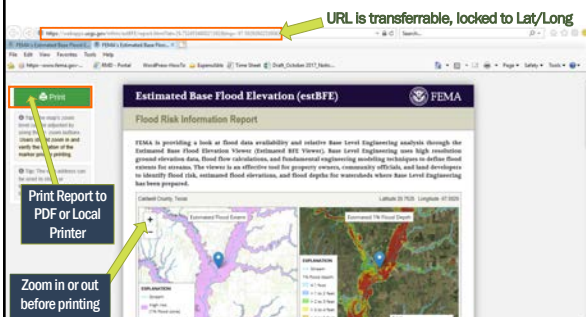
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## Run a Site Specific Report



[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)

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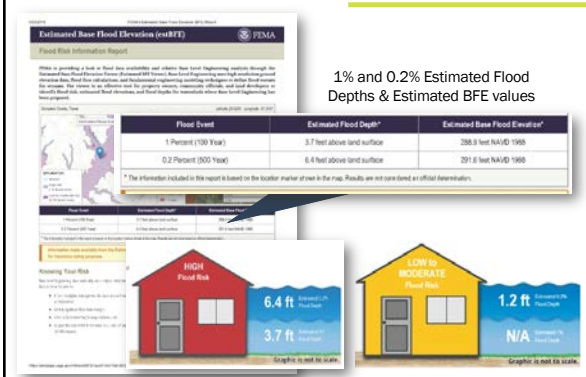
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## Report Features

[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)




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## Report Features [www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)

**Using This Data**

Consult the local floodplain manager and building department in your community before making any building or land modifications. Local officials may use this information to require development and flooding permits to make sure flood-related communities local building and permitting requirements are being met and are based on local decisions and priorities.

**Regulate in FEMA.** The practice of engineering a flood can vary due to uncalculated conditions, such as the actual effects of community growth and development or intense storm winds/damage to regional levees, maintaining or restoring a flood insurance policy is essential to insure a property owner is covered if a flood occurs. Visit <http://floodproof.gov> for more information on the risks of flooding and to make an insurance agent in your area.

**Base Level Engineering and the Estimated BFE.** Please read help identify the BFE in **Article 26.01**. If a property owner believes that a structure is above or outside of the base flood elevation or an adjacent Zone A, a CDFM report may be submitted and the Base Level Engineering and the Estimated BFE owner should be included. To complete an application, use the online web-based tool or download the paper form (<https://www.infrm.us/estBFE>) map changes. Items needed to apply include the following:

- Copy of a **plat map** that identifies the property and include the local's recording information.
- Copy of the property deed with both county recording information and the property's address description and a **plat or tax map** identifying the location.
- **Detailed information** including the base level elevation to the building method by a licensed land surveyor or registered professional engineer, except for building along a levee within the Zone A flood warning building period. Also include the information from the professional map use the standard BFE (BFE) result for the BFE value or the elevation from an affidavit.
- The **Estimated BFE** based on the information supplied within the property including the estimated base level and height.
- A **letter of engineer and surveyor** from your local floodplain administrator for the Estimated BFE information included in your report.

Please note other types of development may require additional documentation and provide an application fee. A CDFM report is instead of the CDFM designated and the federal requirement for flood insurance. However, maintaining a flood policy may still be required by the owner. Flood insurance coverage is required by flooding is available for areas outside the Zone A.

[www.InFRM.us/estBFE](http://www.InFRM.us/estBFE)

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## How can I use Base Level Engineering Data?

**PERMITTING**

**MITIGATION PLANNING**

**INSURANCE RATING**

**LOMAs**

LOWEST GRADE ADJACENT TO BUILDING

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## PERMITTING

- BLE can be used as “best available data”
  - Where no data exists (No FIRM)
  - Where limited data exists (Zone A)
  - Where data is more conservative or similar to existing (Zone AE)

Texas Water Development Board

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## No Change Required Flood Damage Prevention Ordinance

- From FEMA: “Base Level Engineering information can be adopted and used as Best Available Information by locals without FIRM or Ordinance update”

(8) When base flood elevation data has not been provided in accordance with Article 3, Section B, the Floodplain Administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a Federal, State or other source, in order to administer the provisions of Article 5.




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## Best Available Data

- BLE can be used as “best available data”
  - Where no data exists (No FIRM)
  - **Where limited data exists (Zone A)**
  - Where data is more conservative or similar to existing (Zone AE)




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  - **Where data is more conservative or similar to existing (Zone AE)**




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## Other BLE Uses

- Identifying buildings / areas susceptible to flooding
- Target communications and public outreach
- Locate critical facilities outside flood prone areas
- Large-scale community planning and zoning
- Focus mitigation actions on high-risk properties
- Update the local mitigation plan
- Response and recovery




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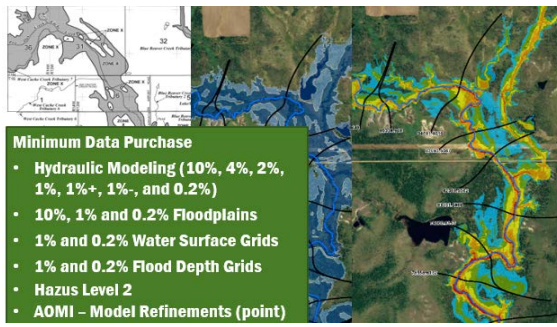
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## BLE Deliverables



**Minimum Data Purchase**

- Hydraulic Modeling (10%, 4%, 2%, 1%, 1%+, 1%-, and 0.2%)
- 10%, 1% and 0.2% Floodplains
- 1% and 0.2% Water Surface Grids
- 1% and 0.2% Flood Depth Grids
- Hazus Level 2
- AOMI – Model Refinements (point)




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## www.infrm.us/estBFE

*Welcome to the*

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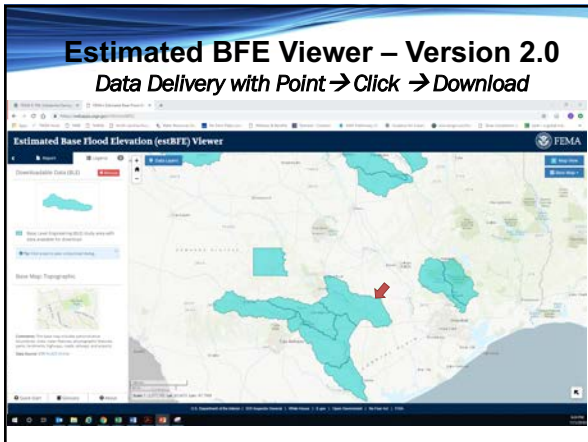
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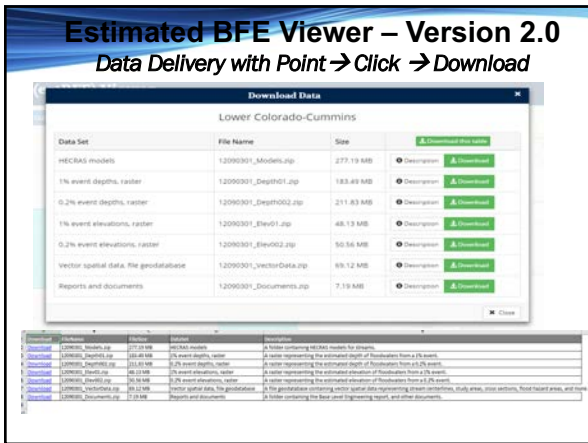
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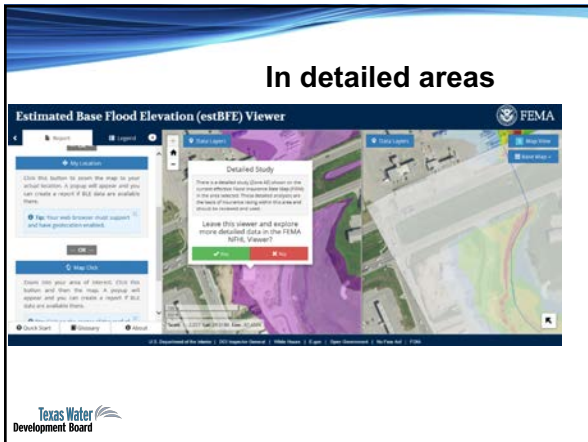
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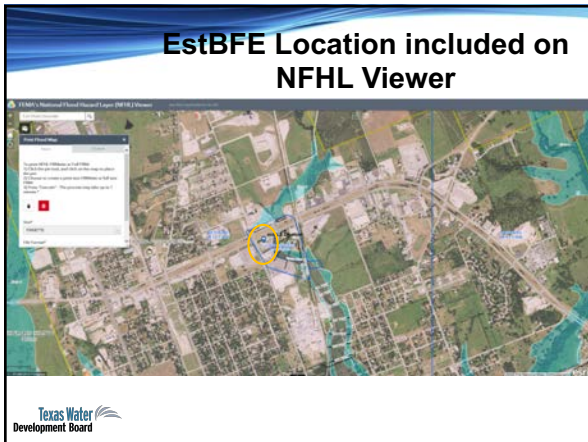
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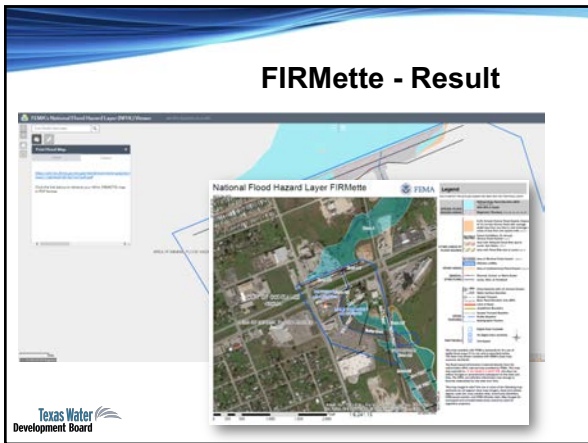
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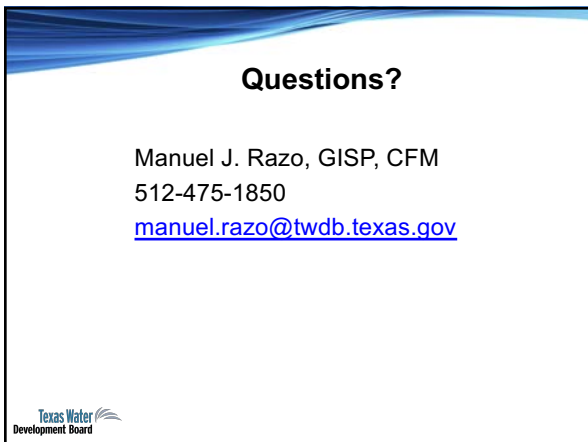
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