

BASICS OF FLOODPLAIN MANAGEMENT & PLANNING IN NEW JERSEY

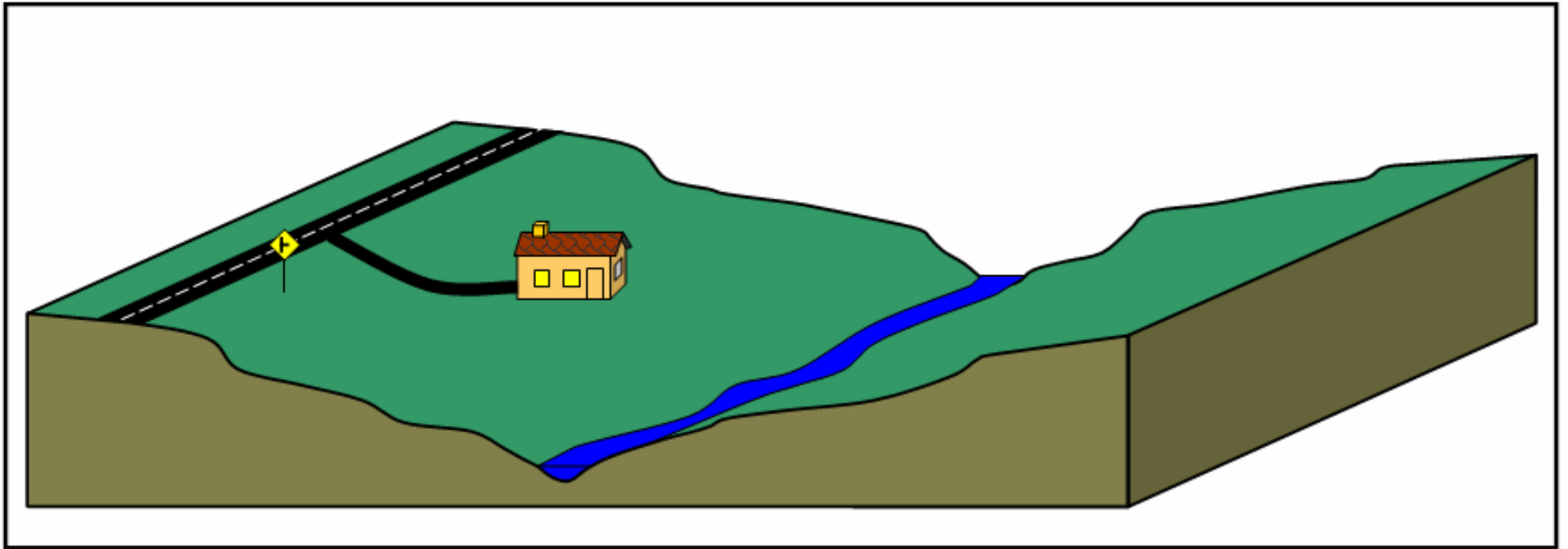
*STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION*

*VINCENT J. MAZZEI, JR., PE
November 12, 2008*

Flood Hazard Areas

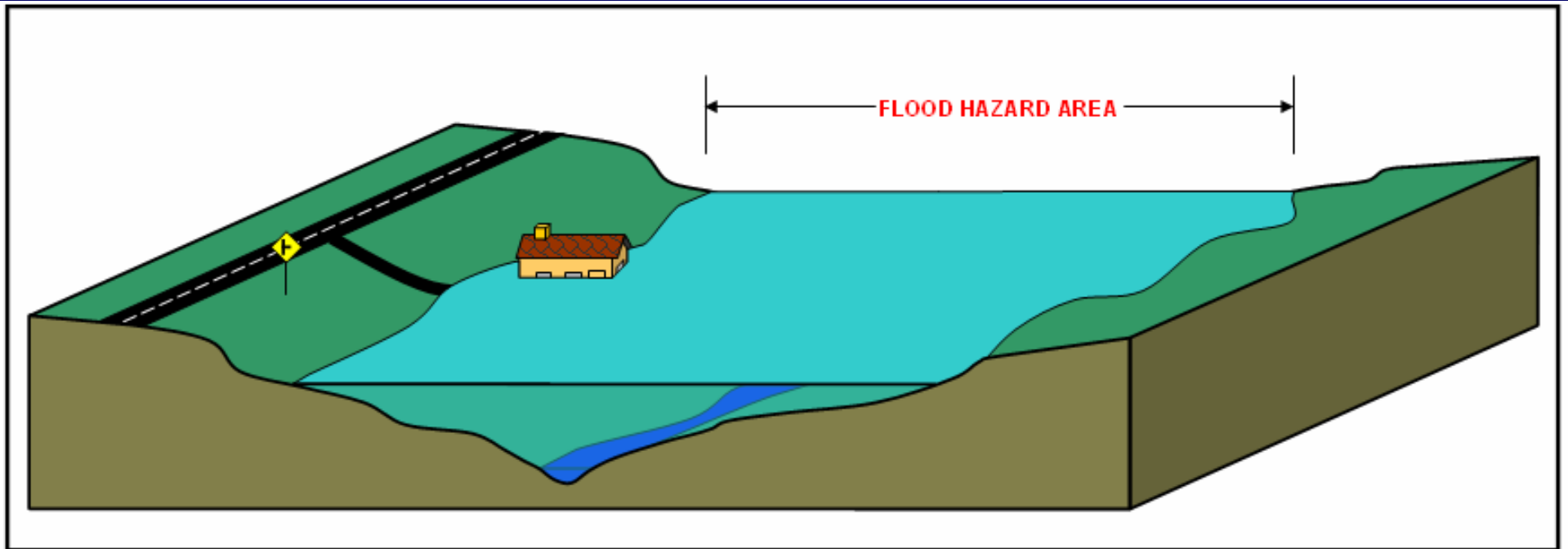
- What is a **100-year flood**?
- Better described as a **1% flood**:
a flood that has 1% percent probability of being equaled or exceeded in any one-year period

Flood Hazard Areas



Flood Hazard Areas

- Approximately 35% of New Jersey lies in a flood hazard area



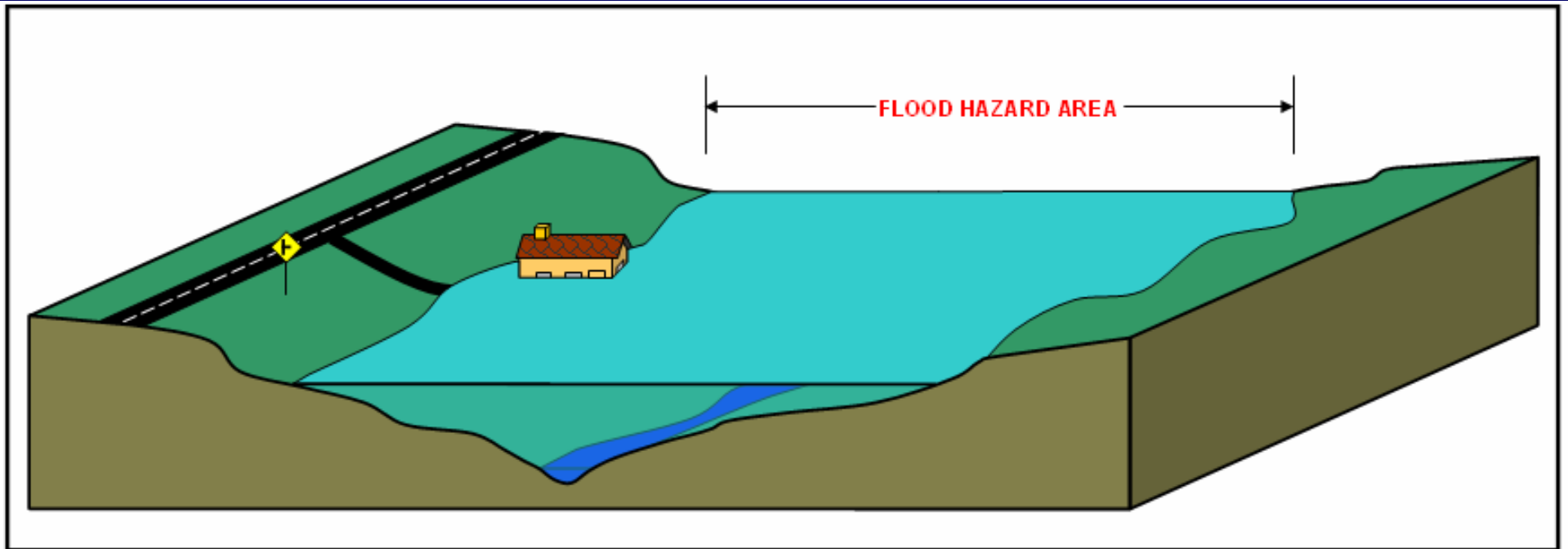
Flood Hazard Areas

- Area inundated by the **flood hazard area design flood**
- Under New Jersey laws:
 - In tidal areas: equal to 100-yr (1%) flood
 - In fluvial areas: equal to 100-yr (1%) flood plus a factor of safety

Flood Hazard Areas

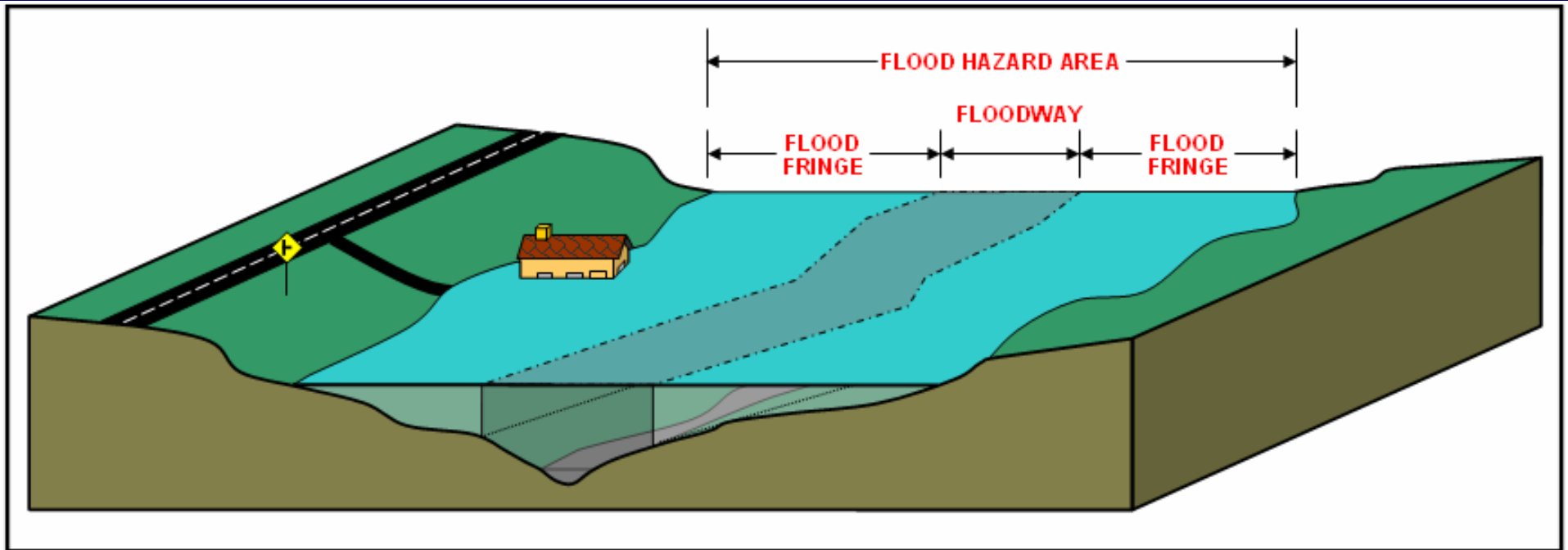
- NJ laws add different factors of safety to the 100-year flood depending on the mapping resources available:
 - NJ Studied – add 25% additional flow
 - FEMA Studied – add 1 ft to the 100-year flood elevation (in fluvial areas)
 - Applicant Studied – add 25% additional flow

Flood Hazard Areas



Flood Hazard Areas

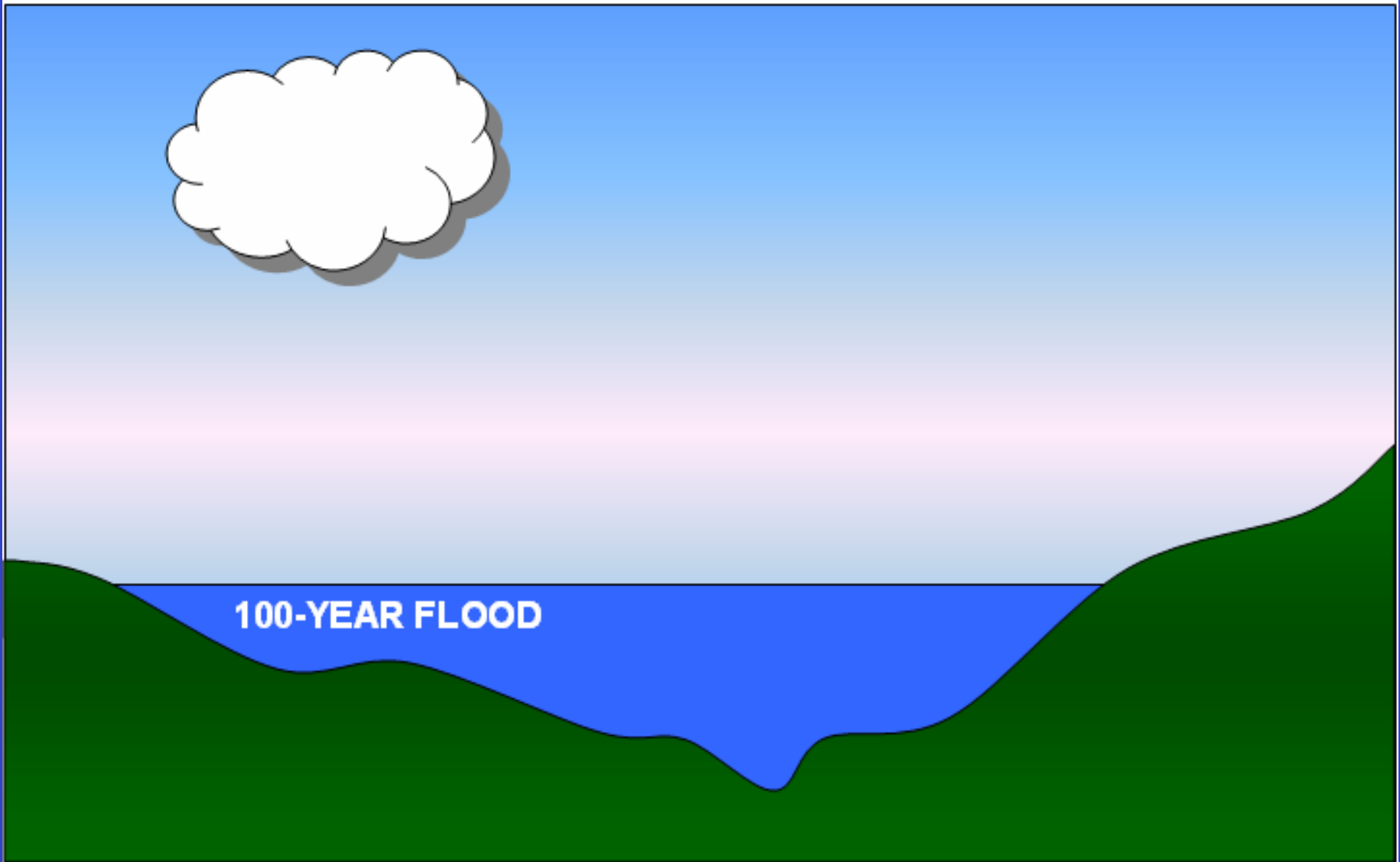
- The flood hazard area is comprised of the **floodway** and the **flood fringe**



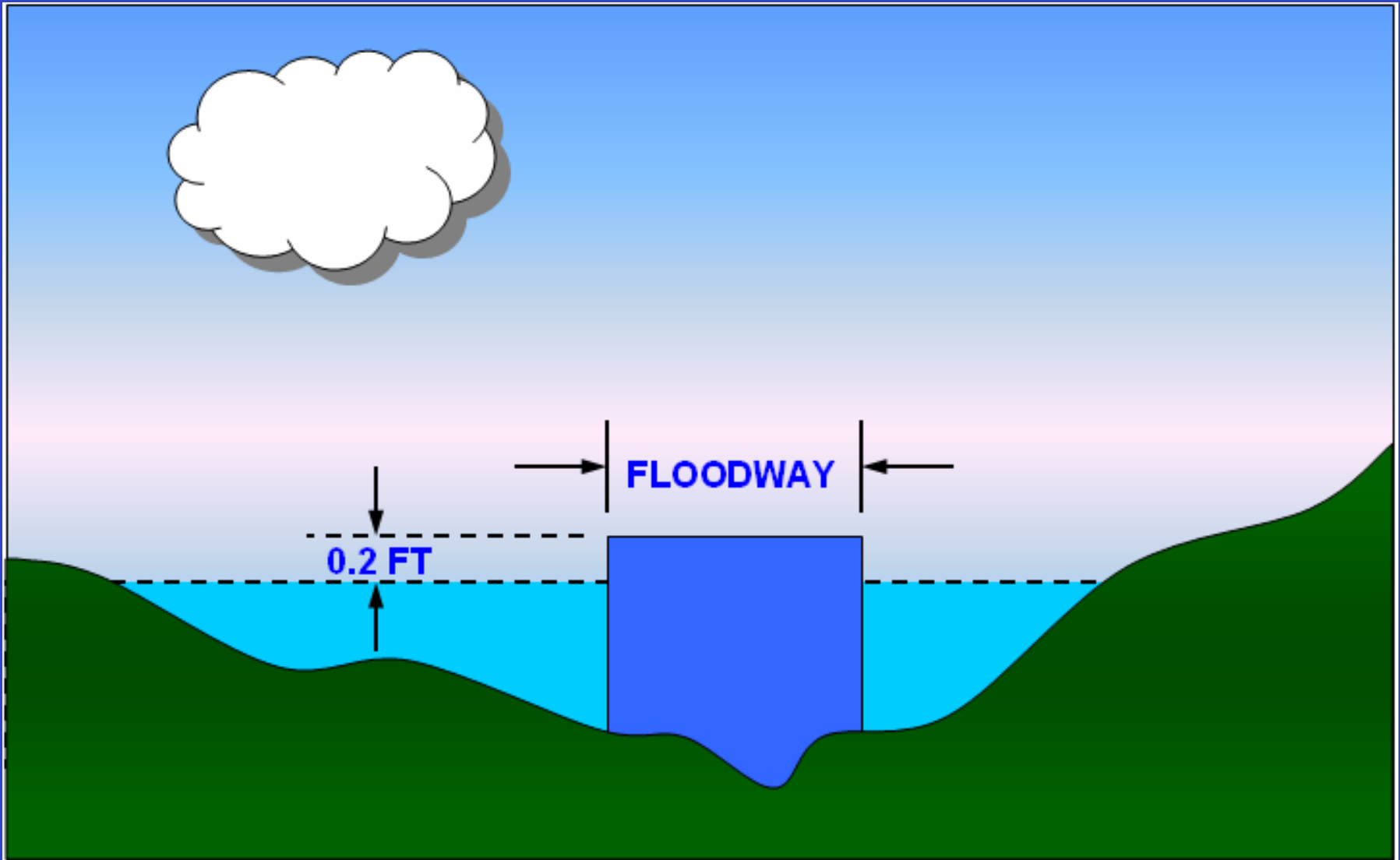
Floodway

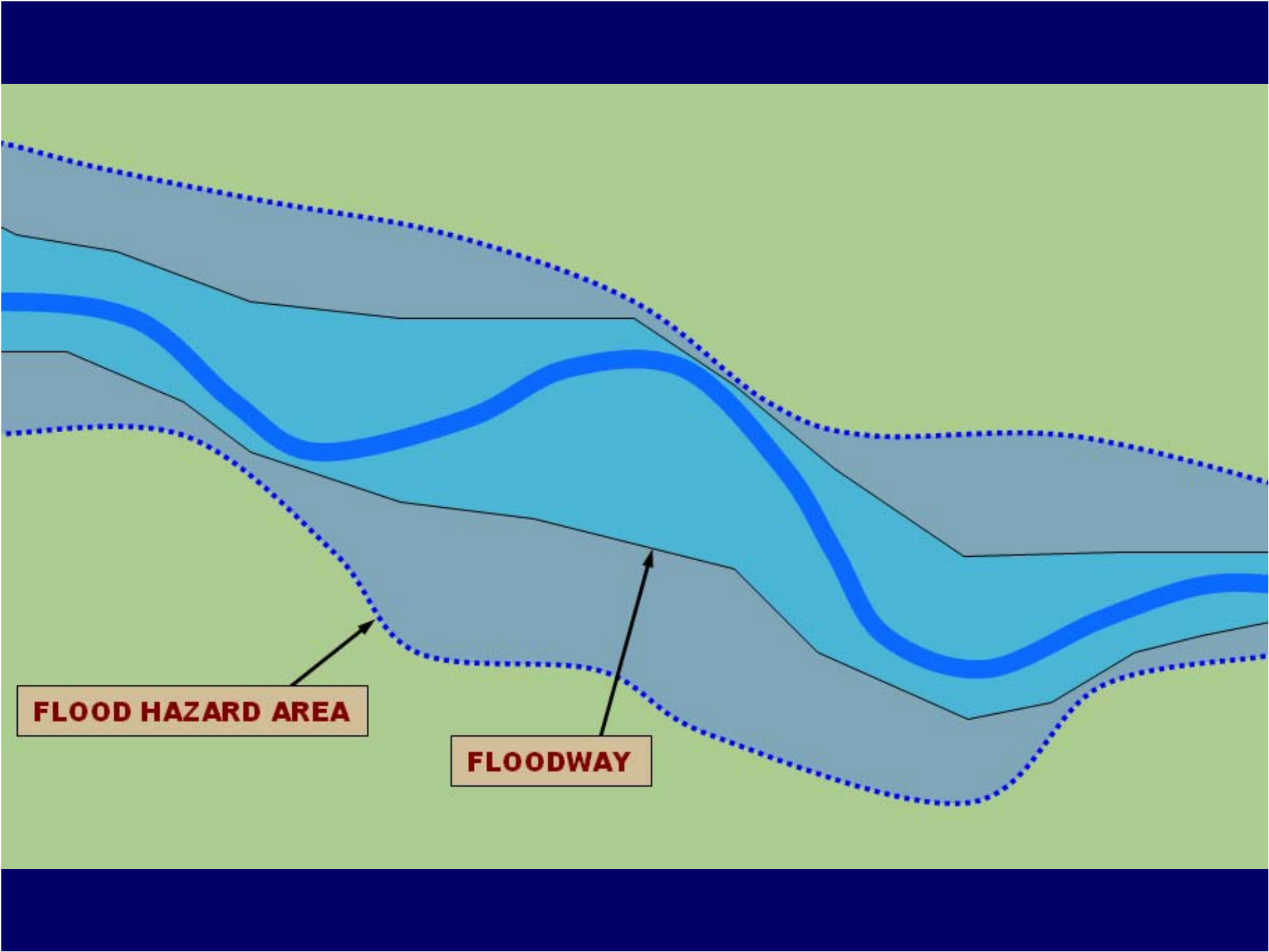
- Conveys the majority of floodwater
- Structures & other materials can obstruct flow and increase flooding
- In New Jersey, it is calculated using a 0.2-ft rise in the 100-year flood elevation
- Outside NJ it is typically determined using a 1.0-ft rise, which is less stringent

Floodway



Floodway





FLOOD HAZARD AREA

FLOODWAY



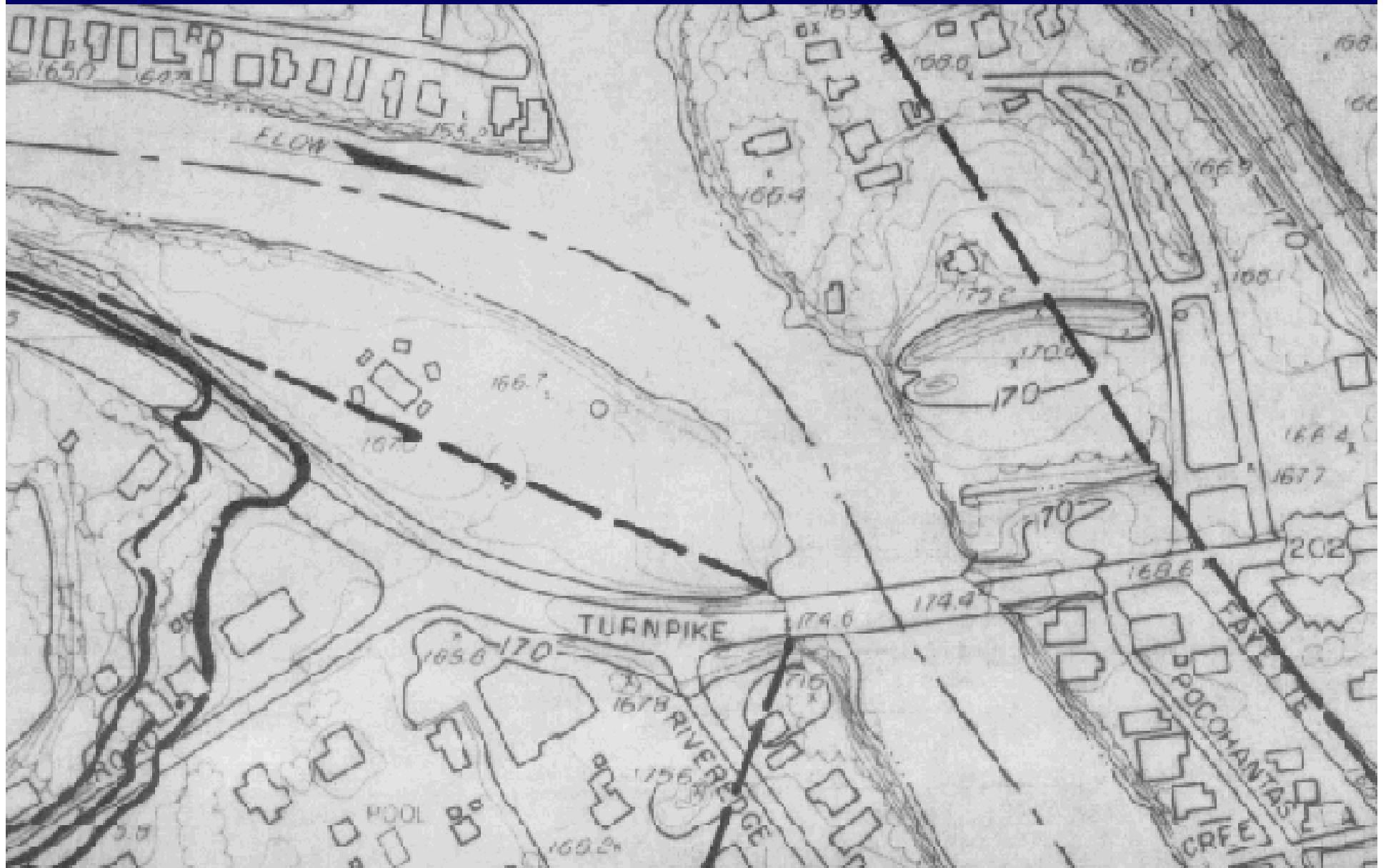
Flood Fringe

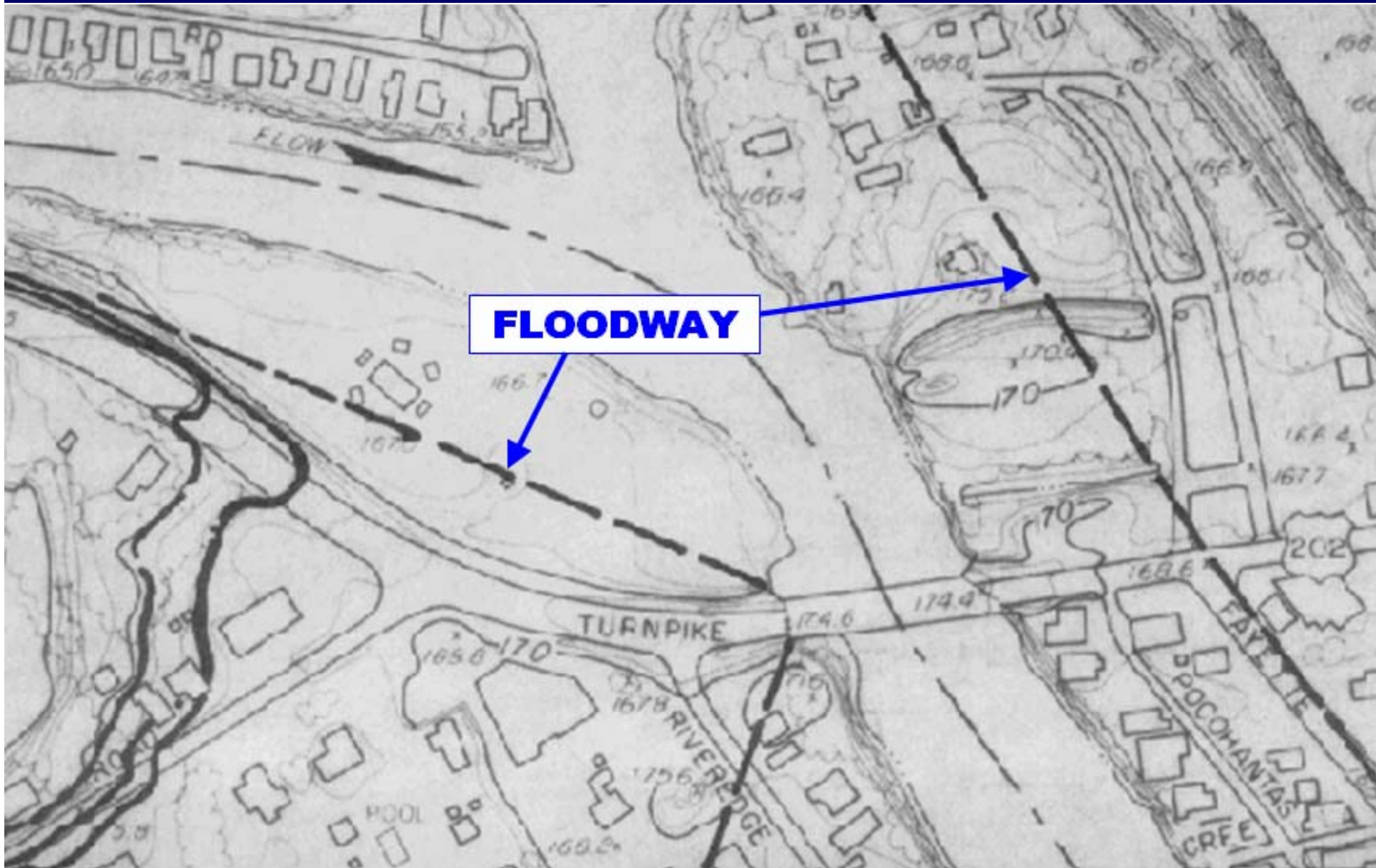
- The portion of the flood hazard area outside the floodway
- Waters are less deep and move slower than in floodway
- Structures, fill and other material can displace flood storage volume and increase flooding

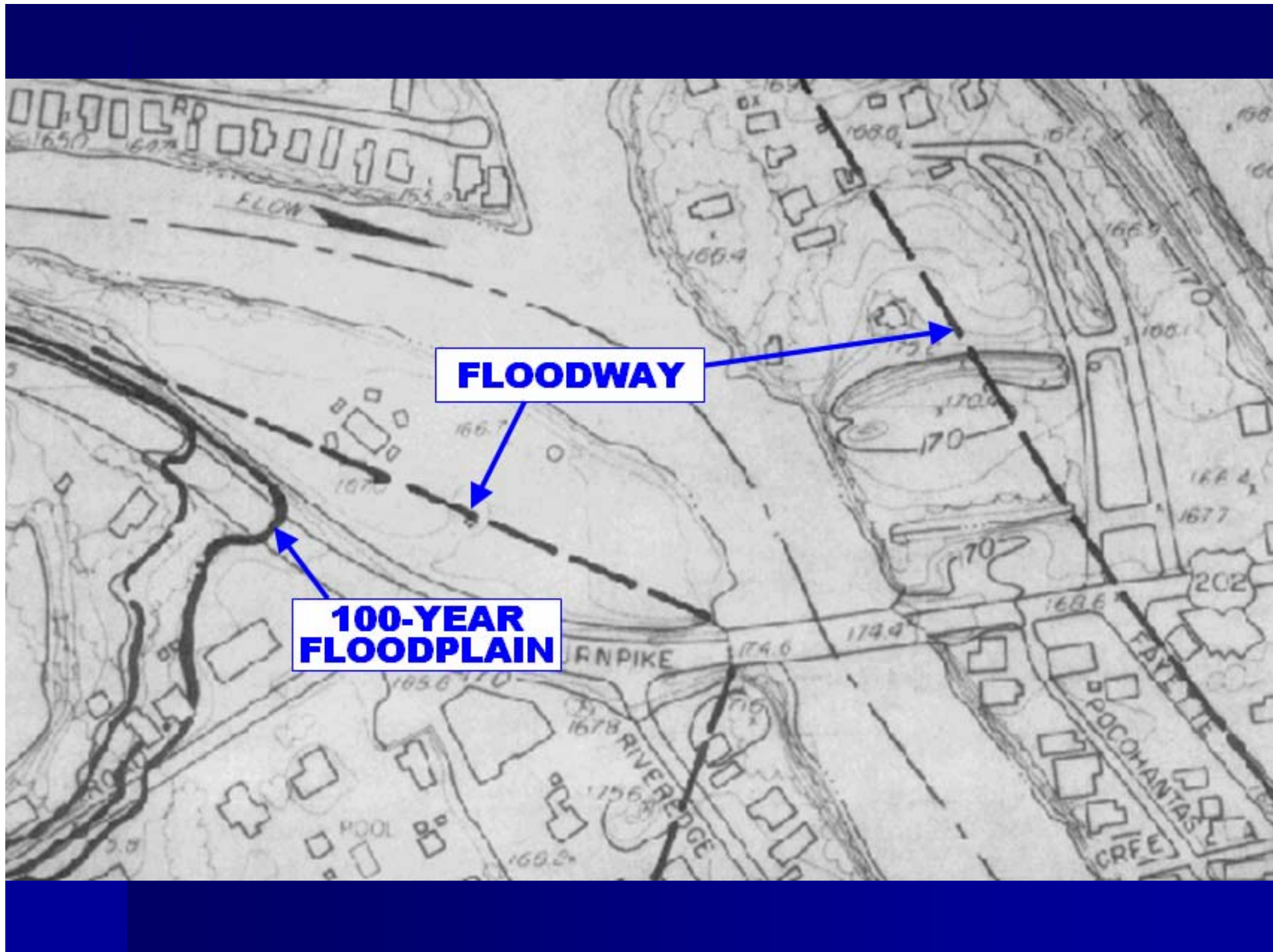


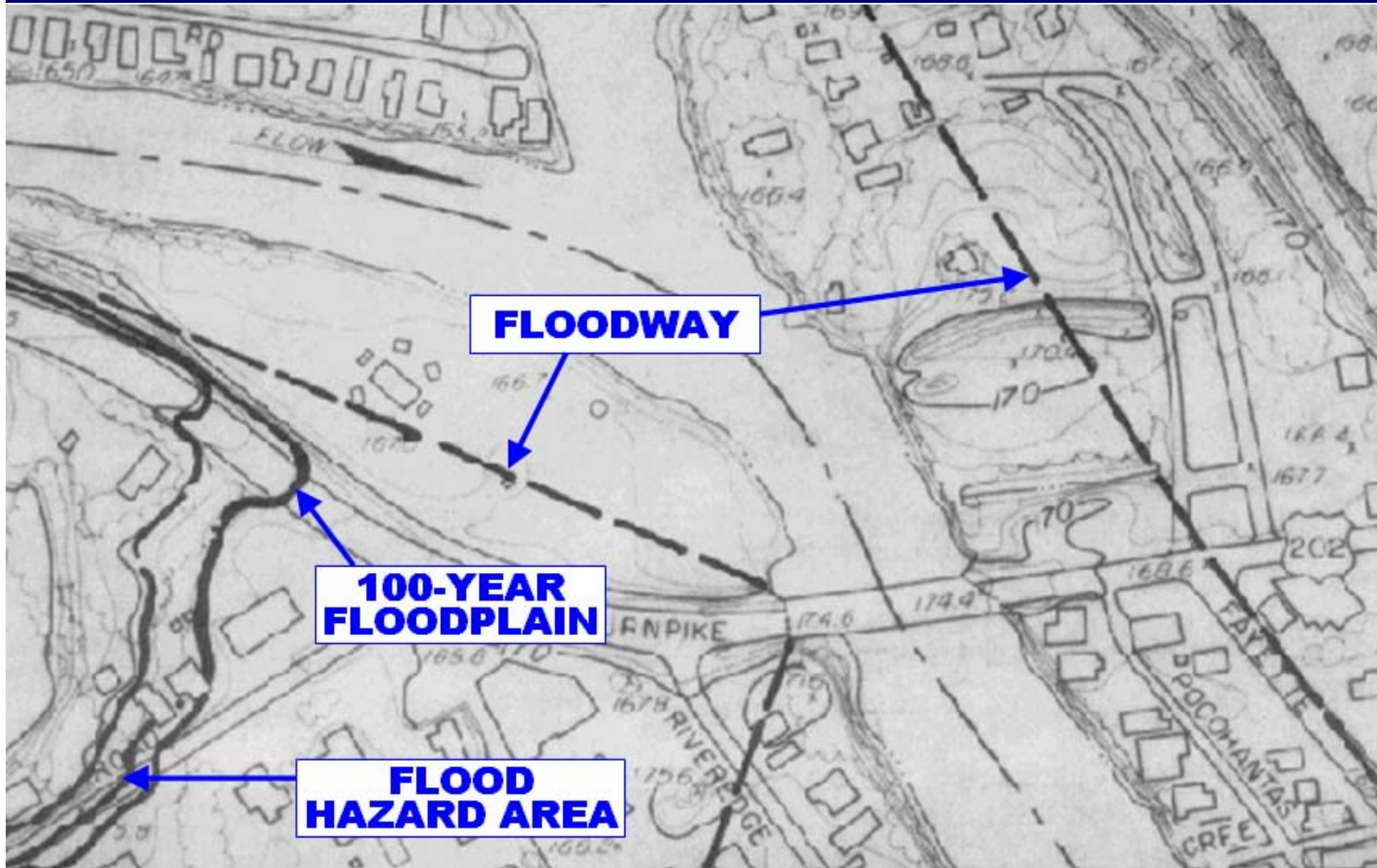












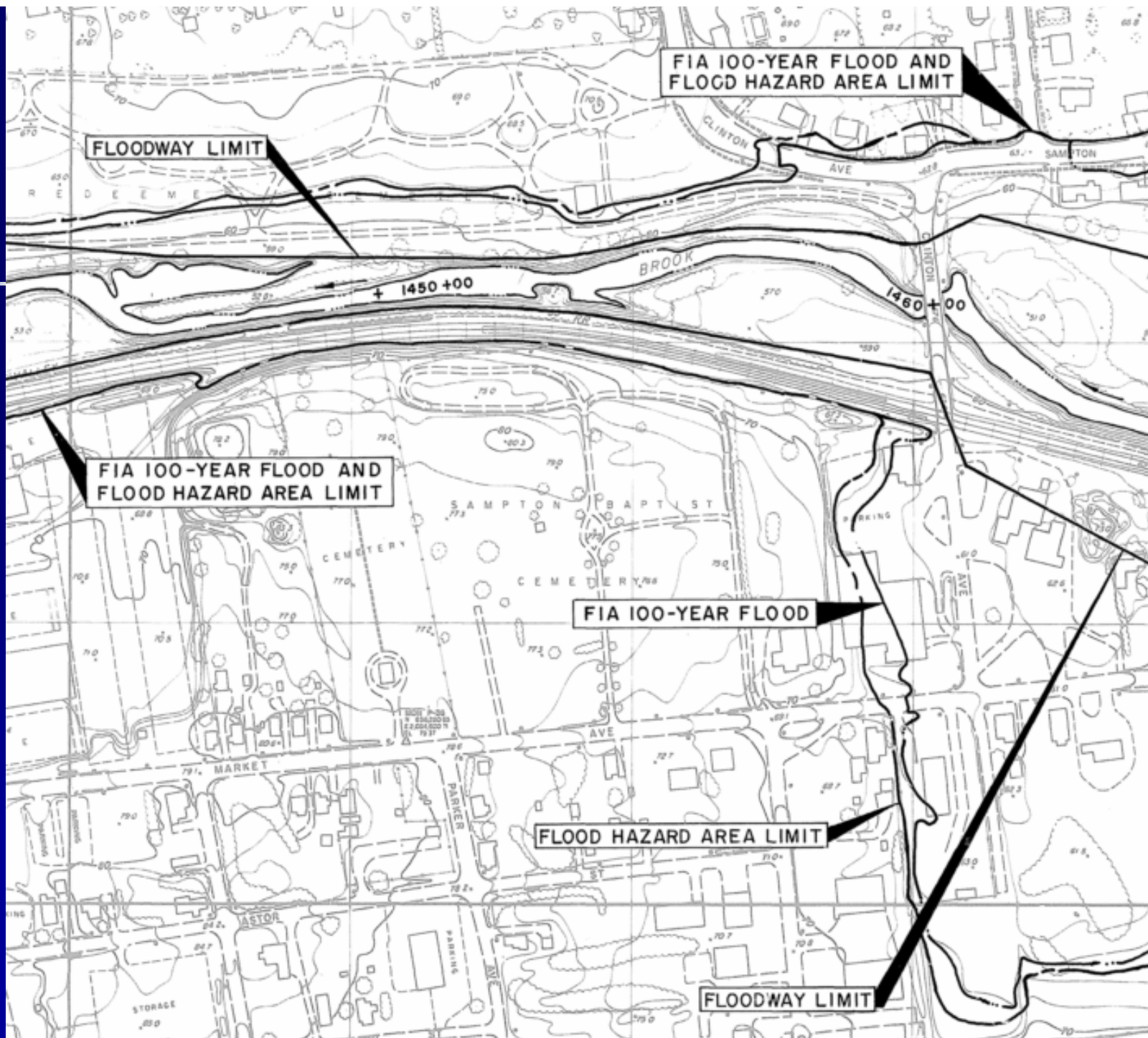
FLOODWAY

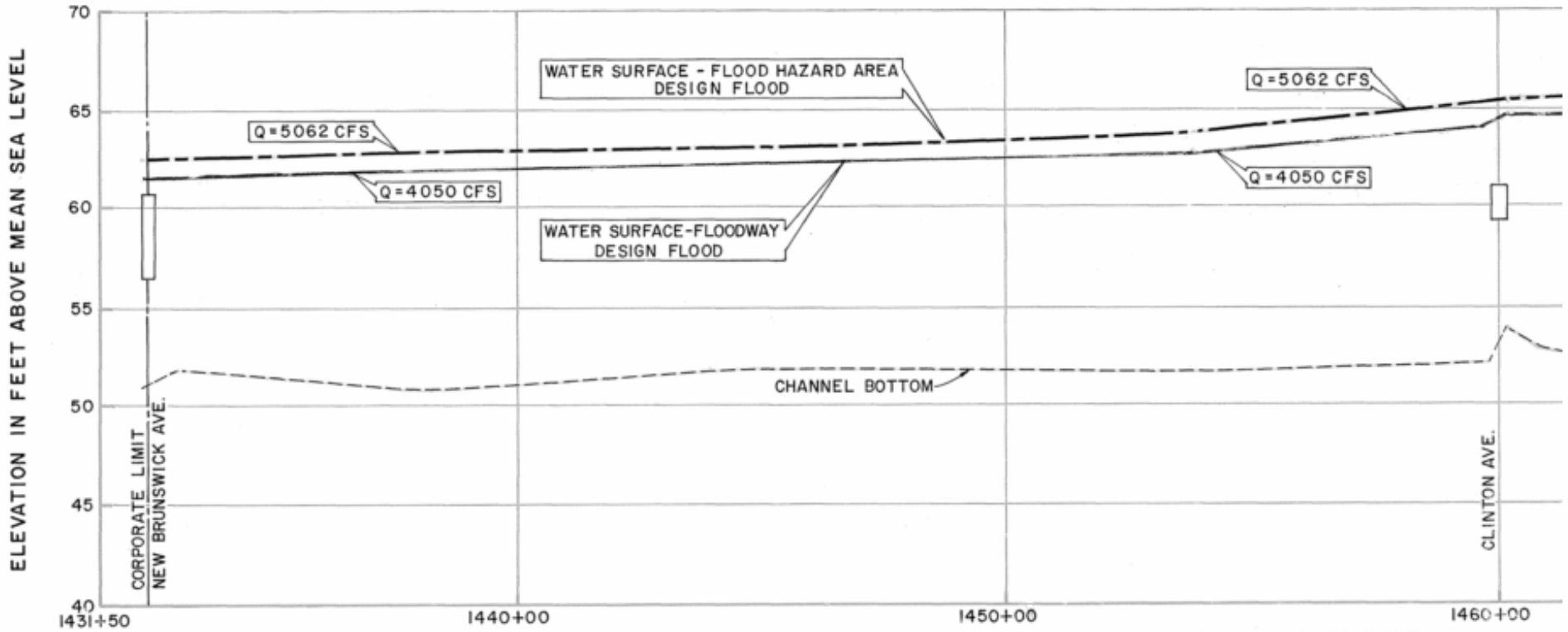
**100-YEAR
FLOODPLAIN**

**FLOOD
HAZARD AREA**

Flood Mapping

- Use the floodway limits **exactly** as shown on the maps
- Refer to the **profile** to find the design flood elevation, and determine the actual flood limit yourself



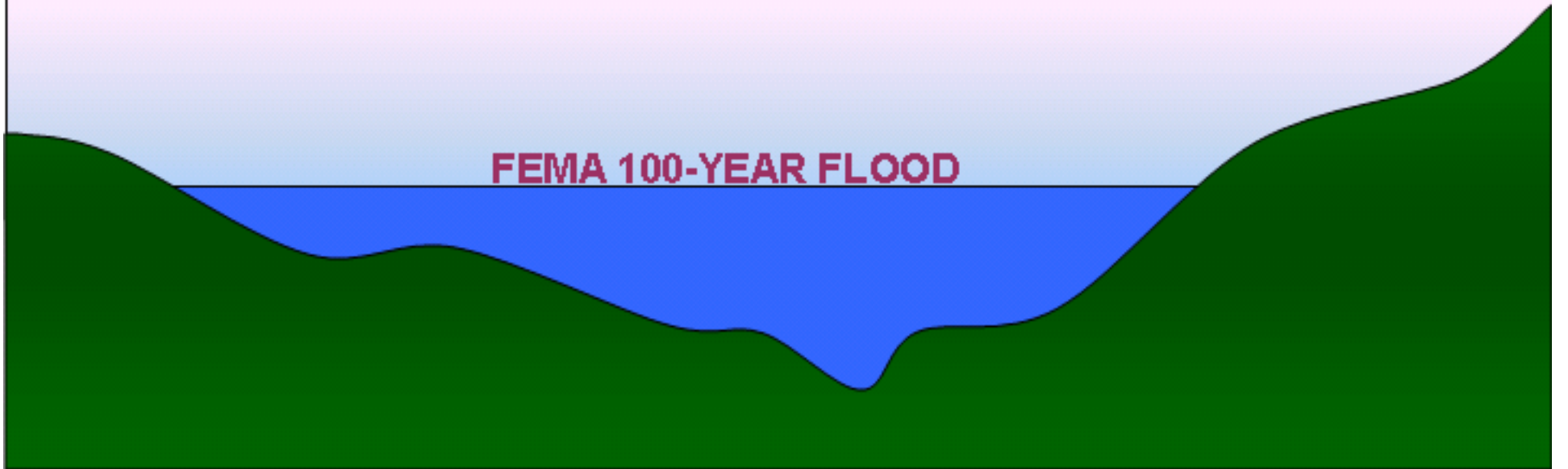


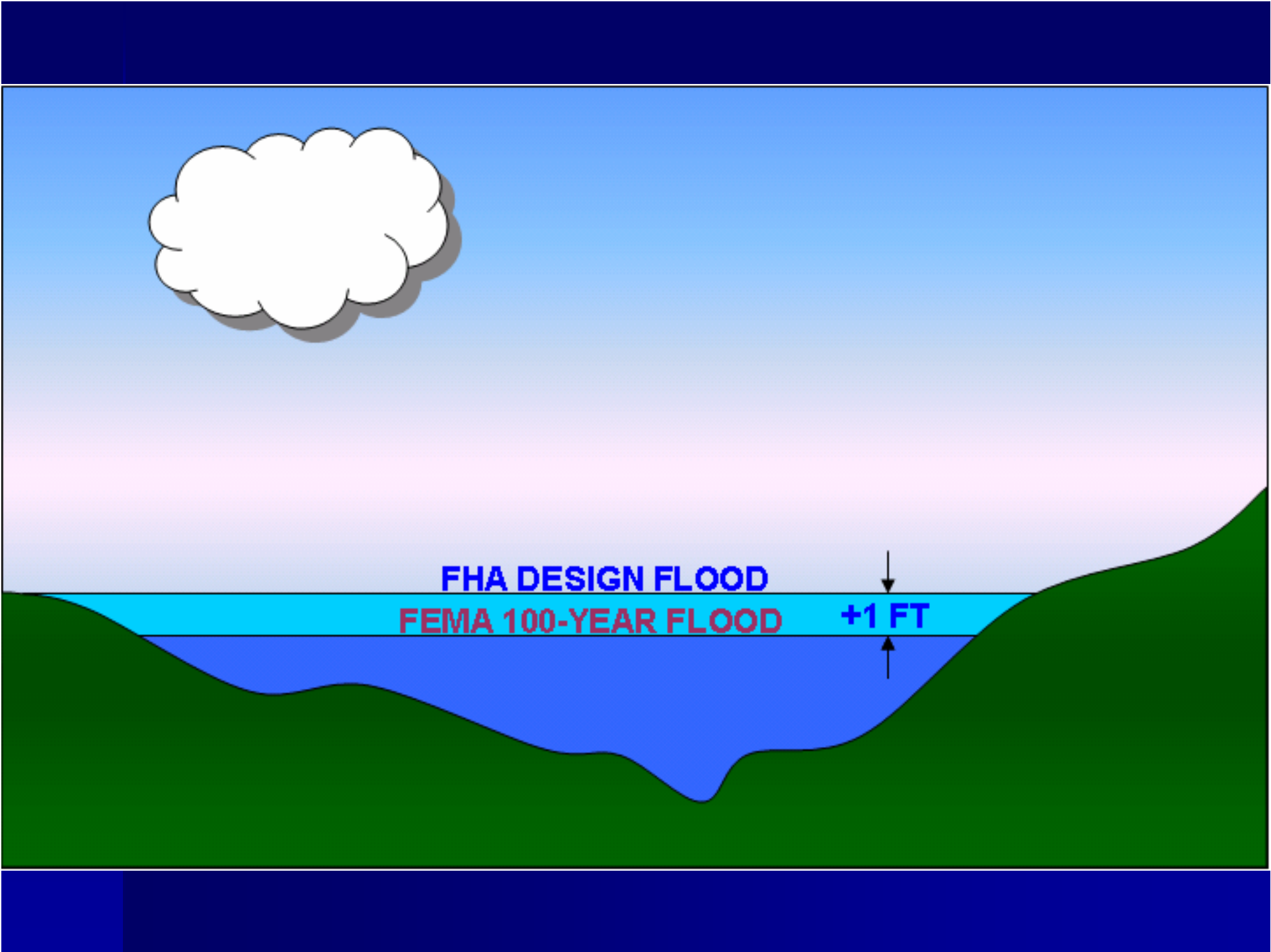
FEMA Mapping

- In New Jersey – only used if no State mapping is available
- NJ Flood elevation equal to FEMA 100-year elevation in tidal areas
- NJ Flood elevation equal to 1 ft above FEMA 100-year elevation in fluvial areas



FEMA 100-YEAR FLOOD



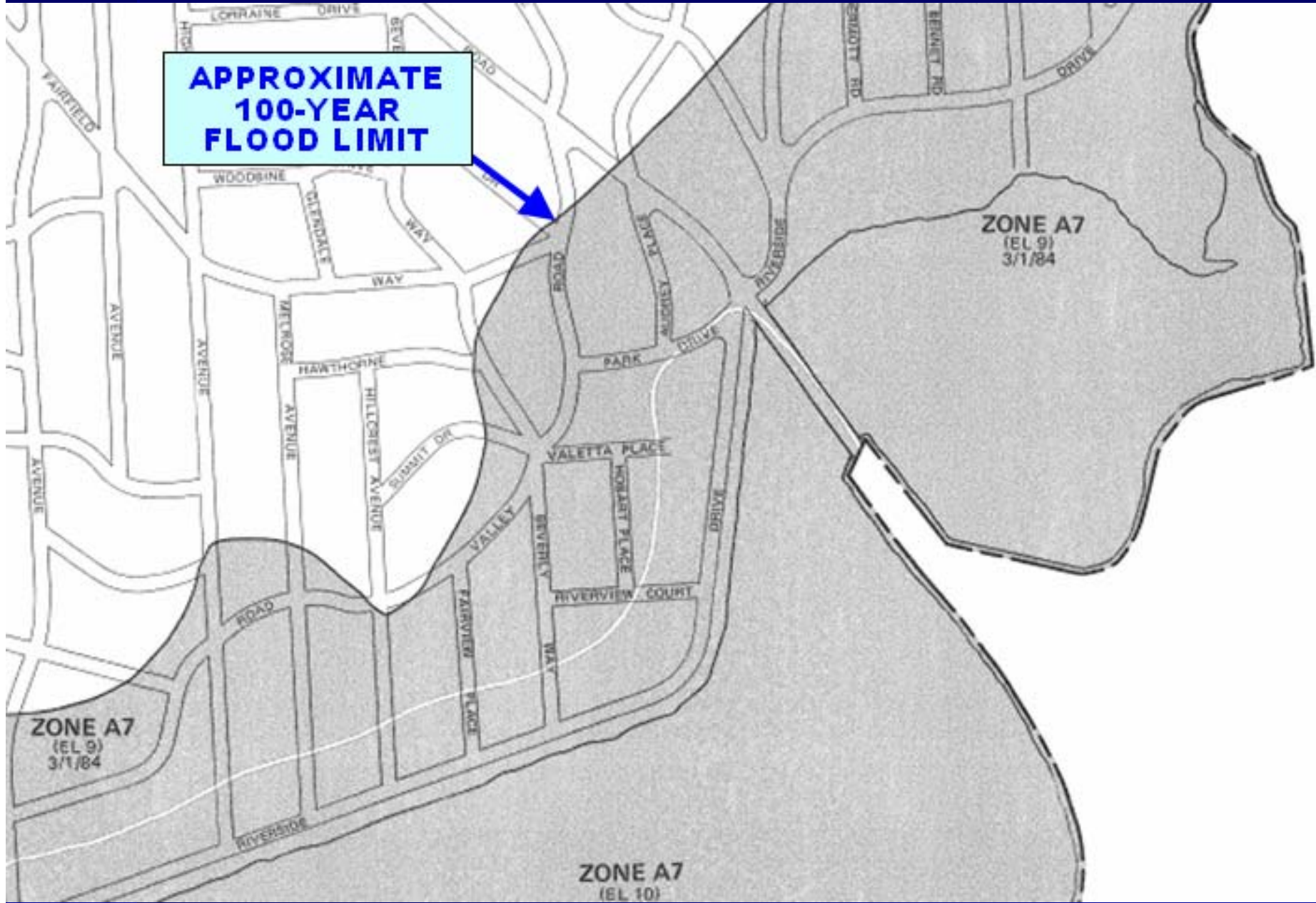


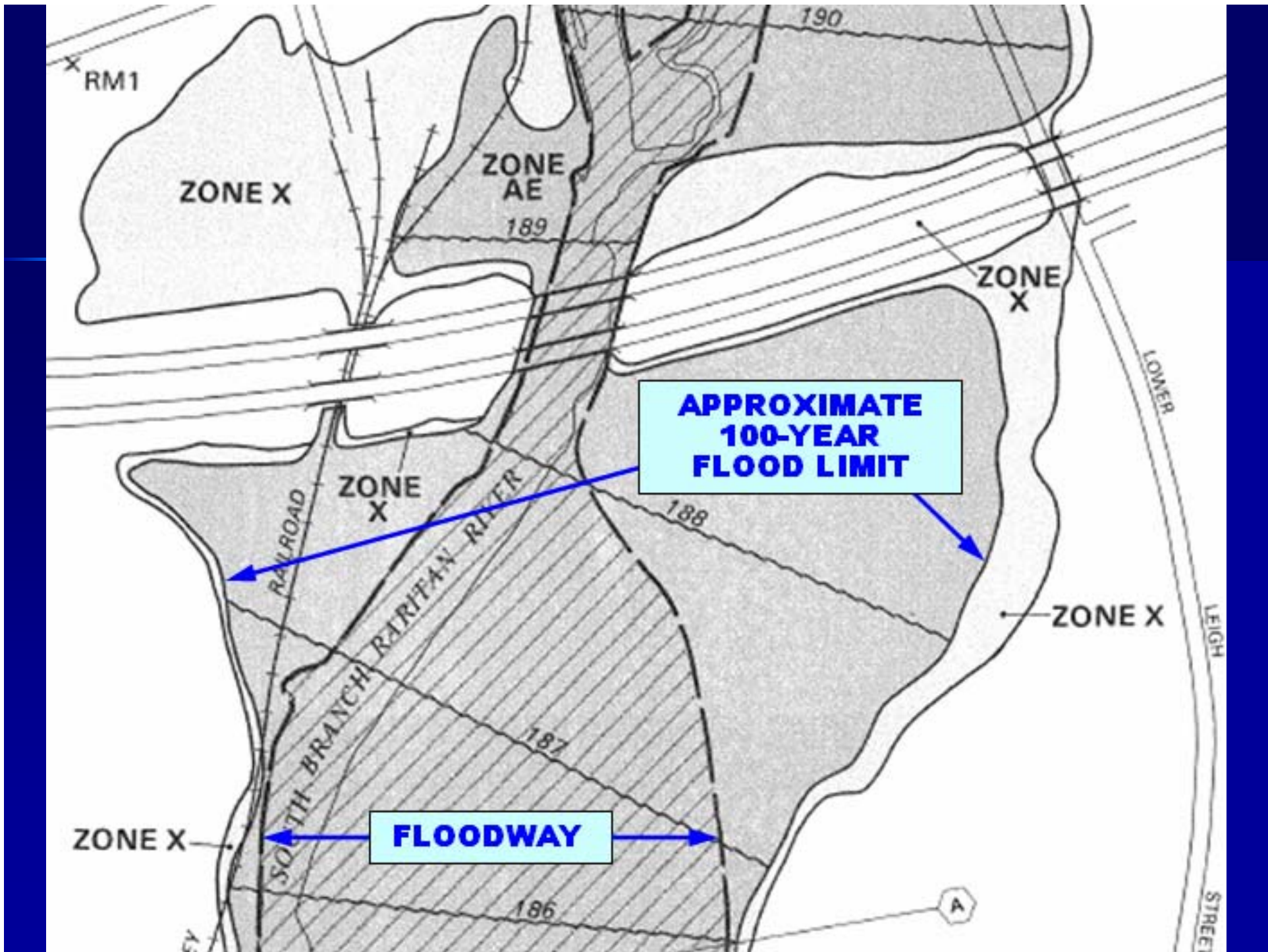
FHA DESIGN FLOOD

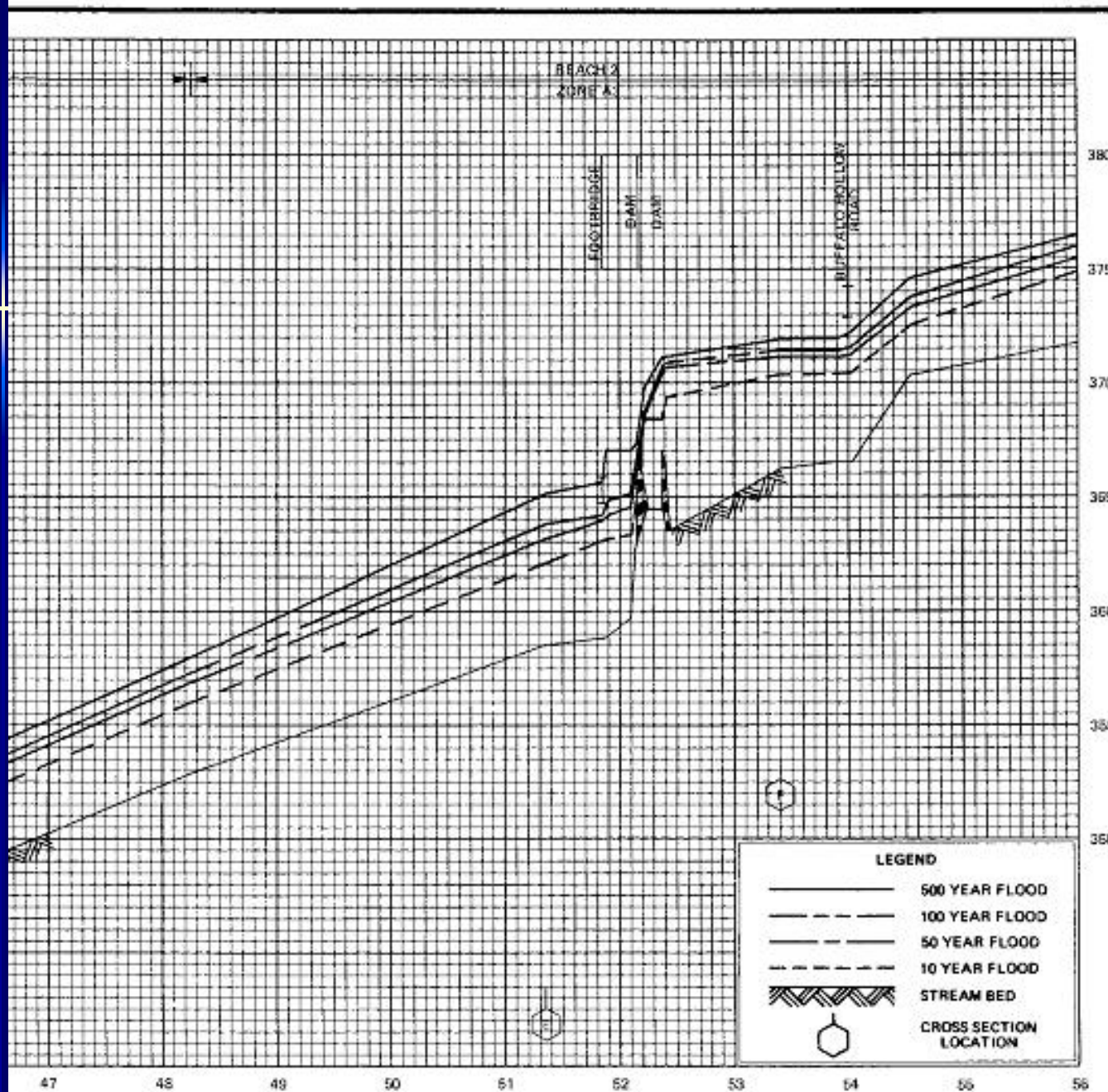
FEMA 100-YEAR FLOOD

+1 FT

**APPROXIMATE
100-YEAR
FLOOD LIMIT**







EAM DISTANCE IN HUNDREDS OF FEET ABOVE CONFLUENCE WITH SPRUCE RUN RESERVOIR

FEDERAL EMERGENCY MANAGEMENT AGENCY
 TOWNSHIP OF LEBANON, NJ
 (HUNTERDON CO.)

FLOOD PROFILES
 WILLOWBY BROOK

Theme of New Jersey's Law

- **No Adverse Impact:** Ensuring that “...the action of one property owner does not adversely impact the rights of other property owners, as measured by increased flood peaks, flood stage, flood velocity, and erosion and sedimentation...” (Association of State Floodplain Managers, NAI White Paper, April 29, 2004)

Goals

- **Ensure flooding does not increase**
 - Preserve flood storage
 - Prevent obstructions to flow
- **Protect public safety**
 - Construct new buildings and roads above the flood hazard area elevation
- **Provide healthy riparian corridors**
 - Preserve vegetation
 - Protect habitat

Flood Hazard Area

- A **flood hazard area** exists along every regulated water that has a drainage area of 50 acres or more

SEE N.J.A.C. 7:13-2.3(a)1

Riparian Zone

- A **riparian zone** exists along every regulated water, except there is no riparian zone along:
 - **The Atlantic Ocean**
 - **Any manmade lagoon or stormwater management basin**
 - **Any oceanfront barrier island, spit or peninsula**
 - **Any piped section of an otherwise regulated water**

SEE N.J.A.C. 7:13-2.3(a)2

Regulated Activities

1. The alteration of topography through excavation, grading and/or placement of fill;
2. The clearing, cutting and/or removal of vegetation in a riparian zone;
3. The creation of impervious surface;
4. The storage of unsecured material;
5. The construction, reconstruction and/or enlargement of a structure; and
6. The conversion of a building into a private residence or a public building.

SEE N.J.A.C. 7:13-2.4(a)

FLOOD STORAGE DISPLACEMENT

0% NET-FILL

- Most projects in New Jersey are not allowed to displace flood storage in a flood fringe
- All fill must be compensated for by creation of equal flood storage elsewhere nearby

FLOOD STORAGE DISPLACEMENT

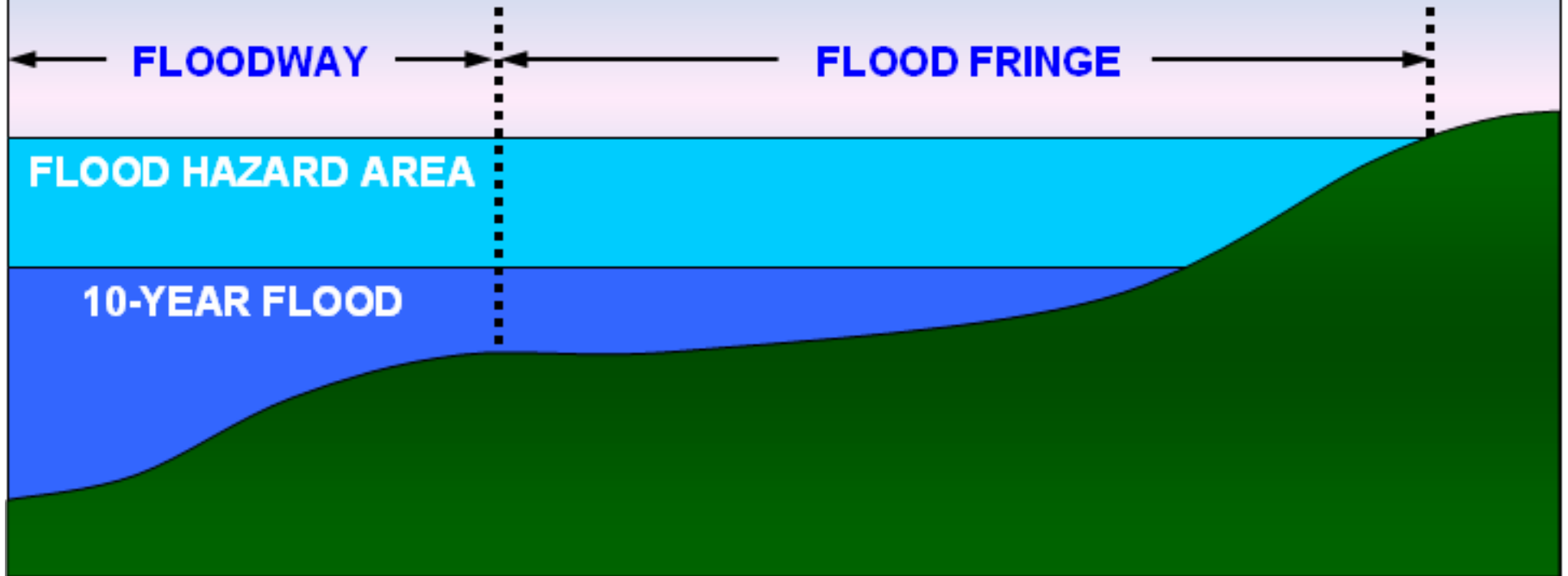
0% NET-FILL APPLIES TO:

- The space between the flood hazard area design flood and the 10-year flood AND
- The space between the 10-year flood and the ground

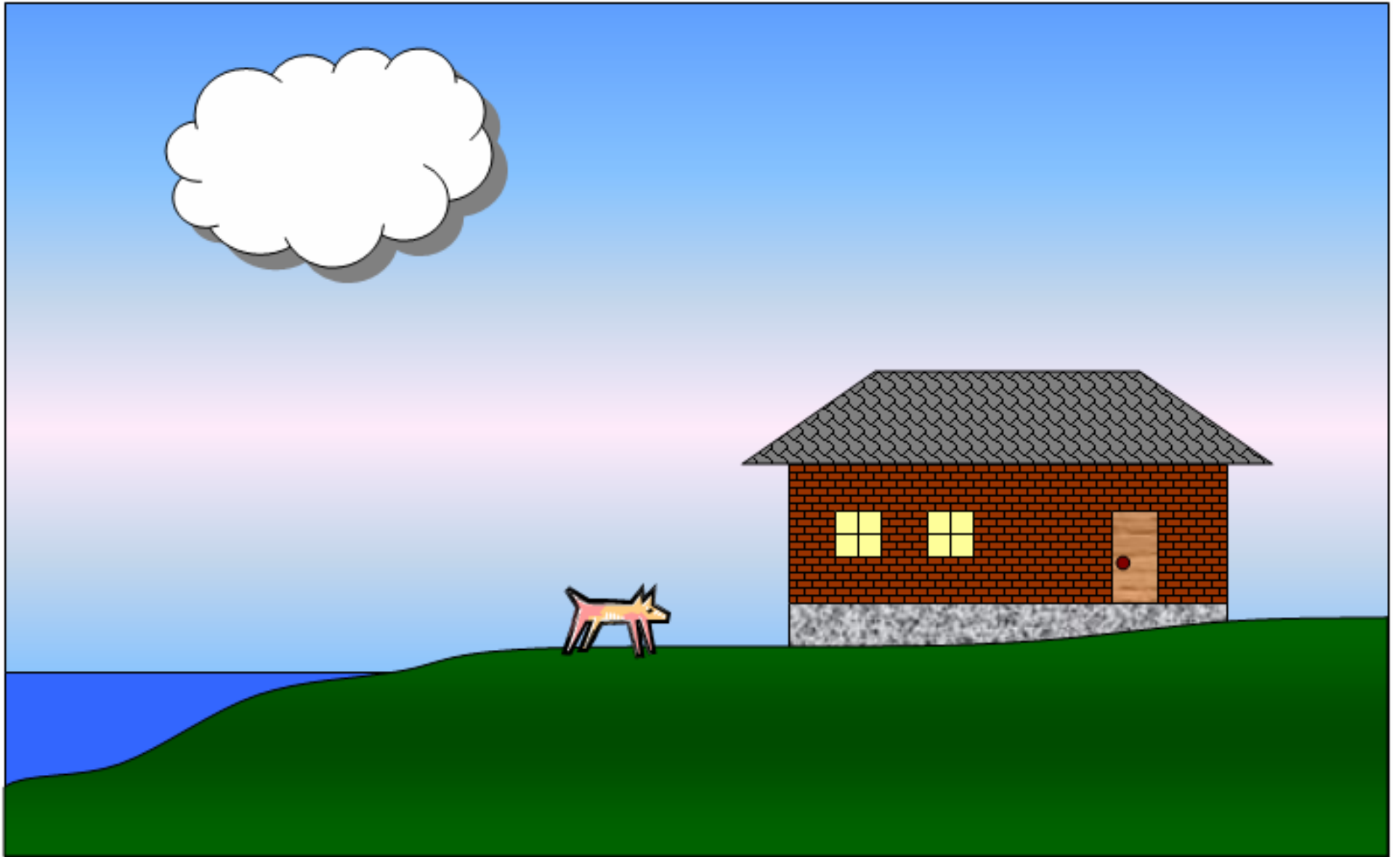


**FLOOD STORAGE CALCULATIONS MUST
BE DONE FOR:**

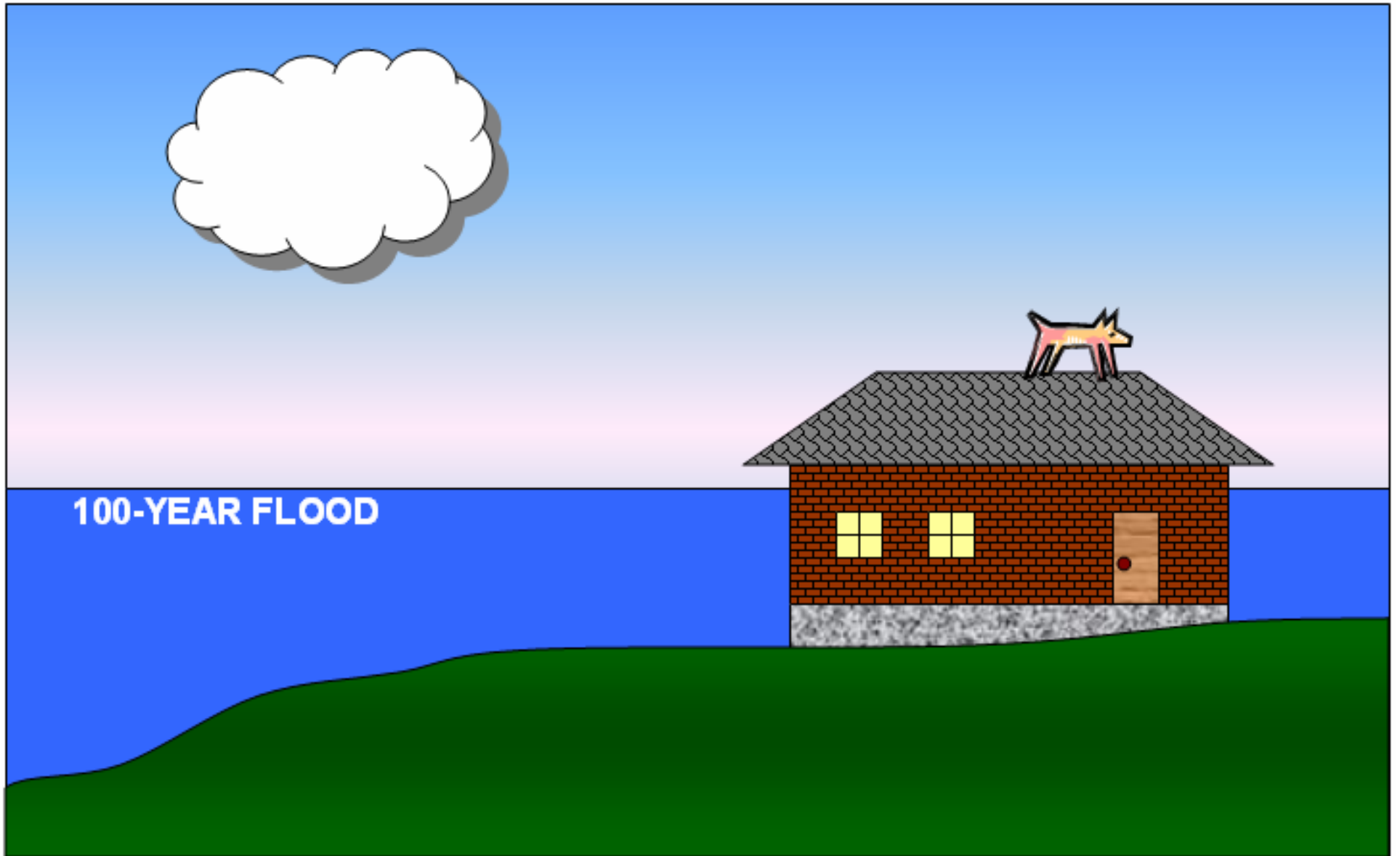
**THE AREA BELOW THE 10-YEAR FLOOD
AND
THE AREA ABOVE THE 10-YEAR FLOOD**



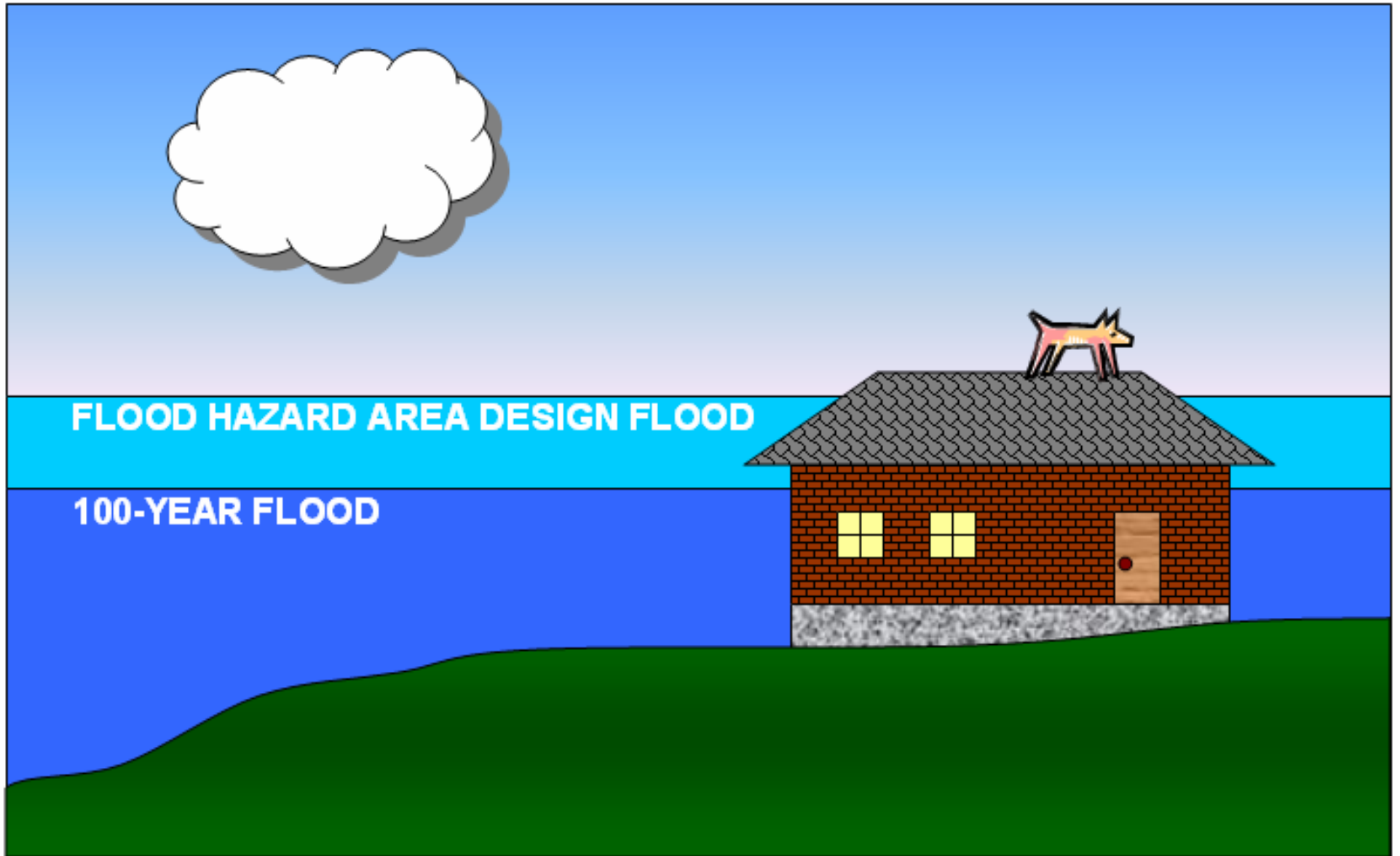
Requirements for buildings



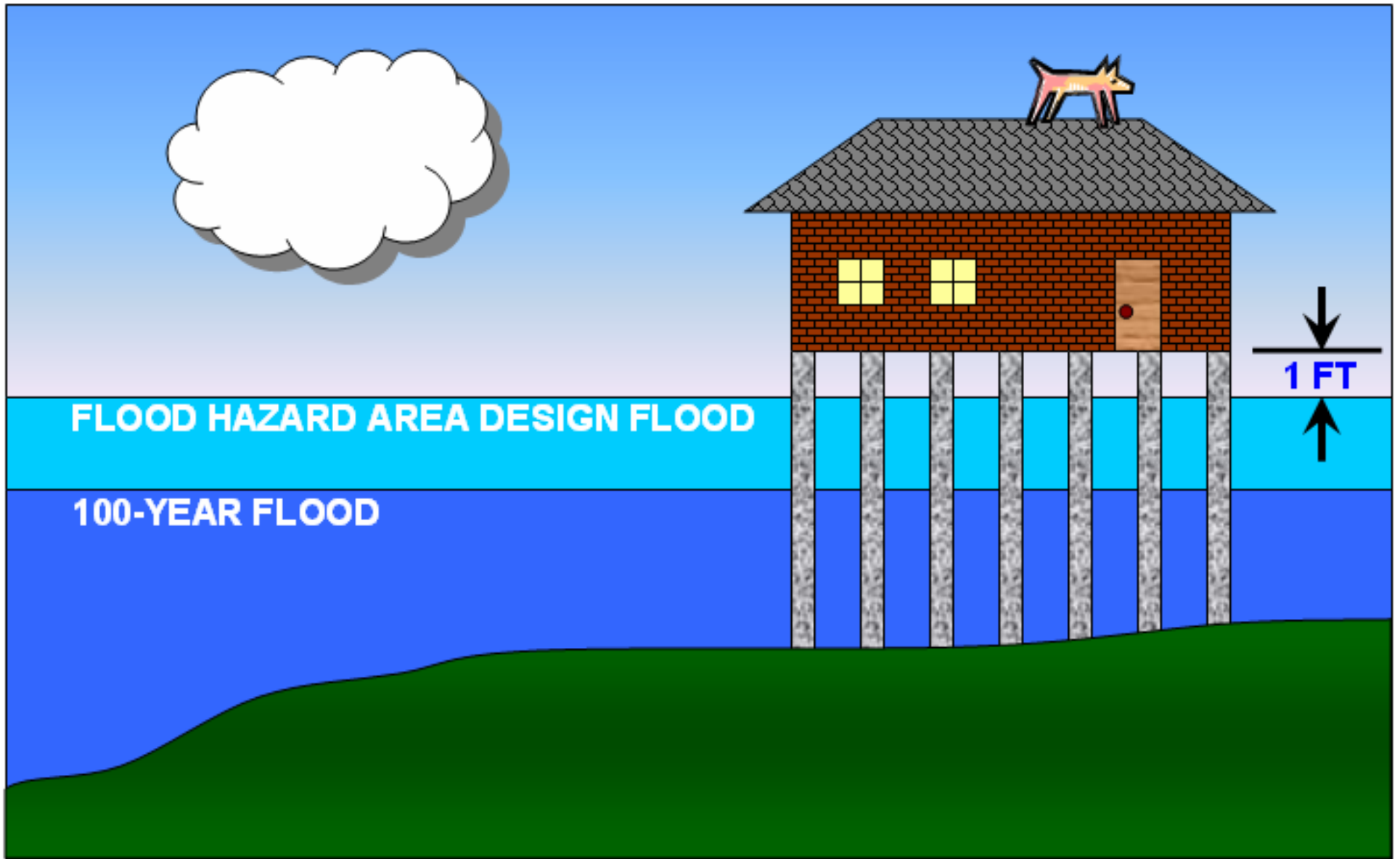
Requirements for buildings



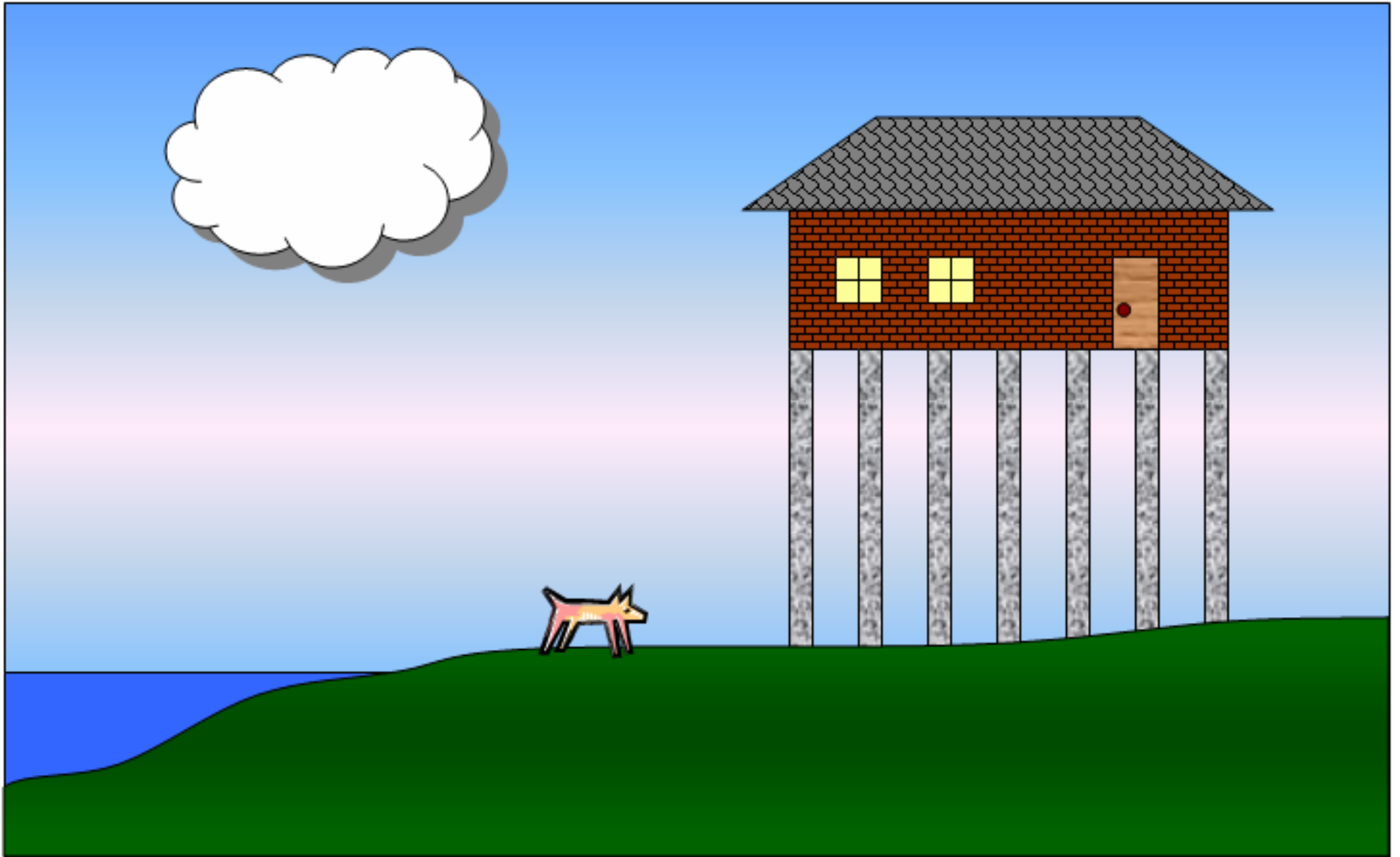
Requirements for buildings



Requirements for buildings



Requirements for buildings





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MECHANIC ST

STOP

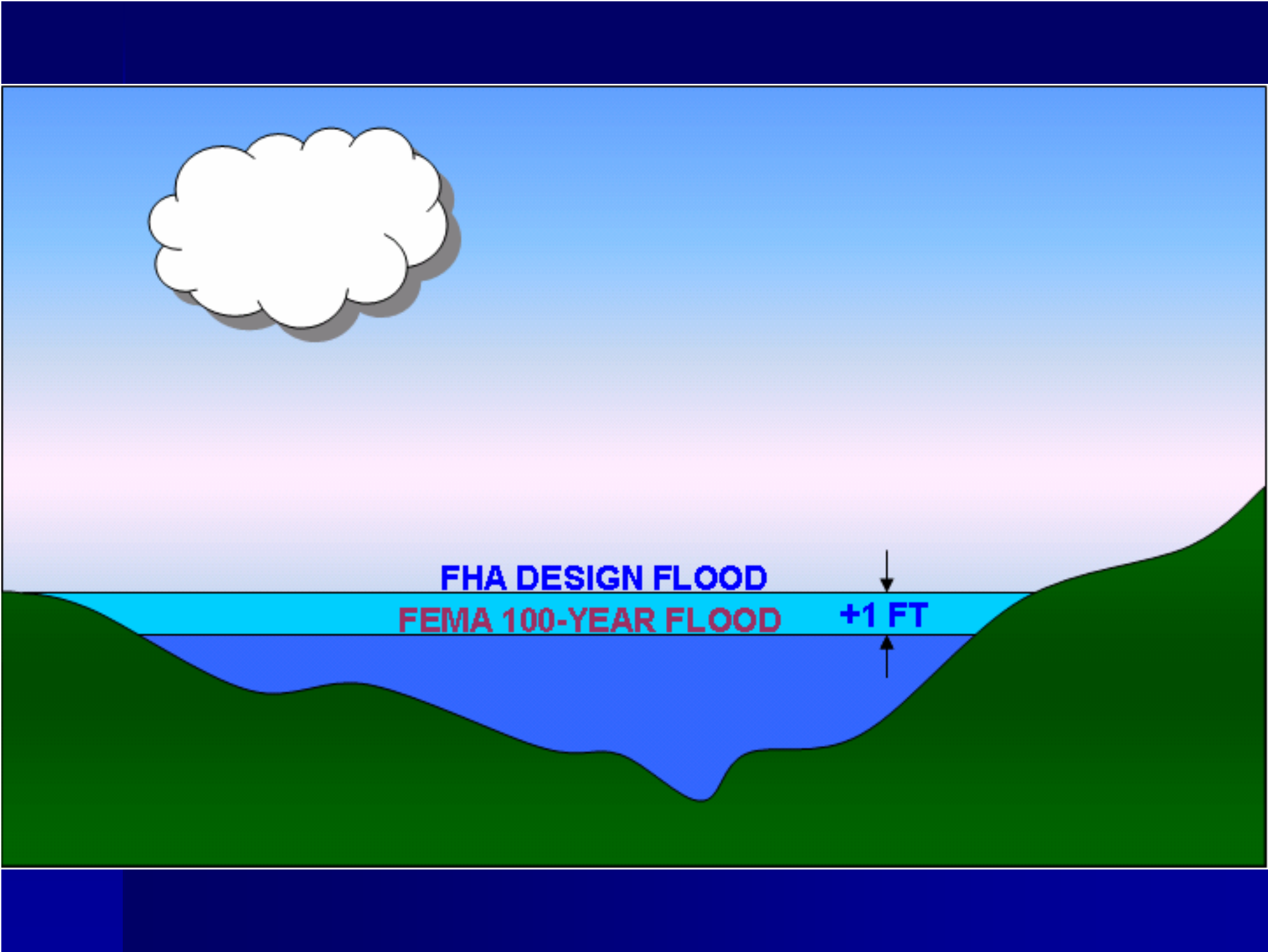
P (No Parking)

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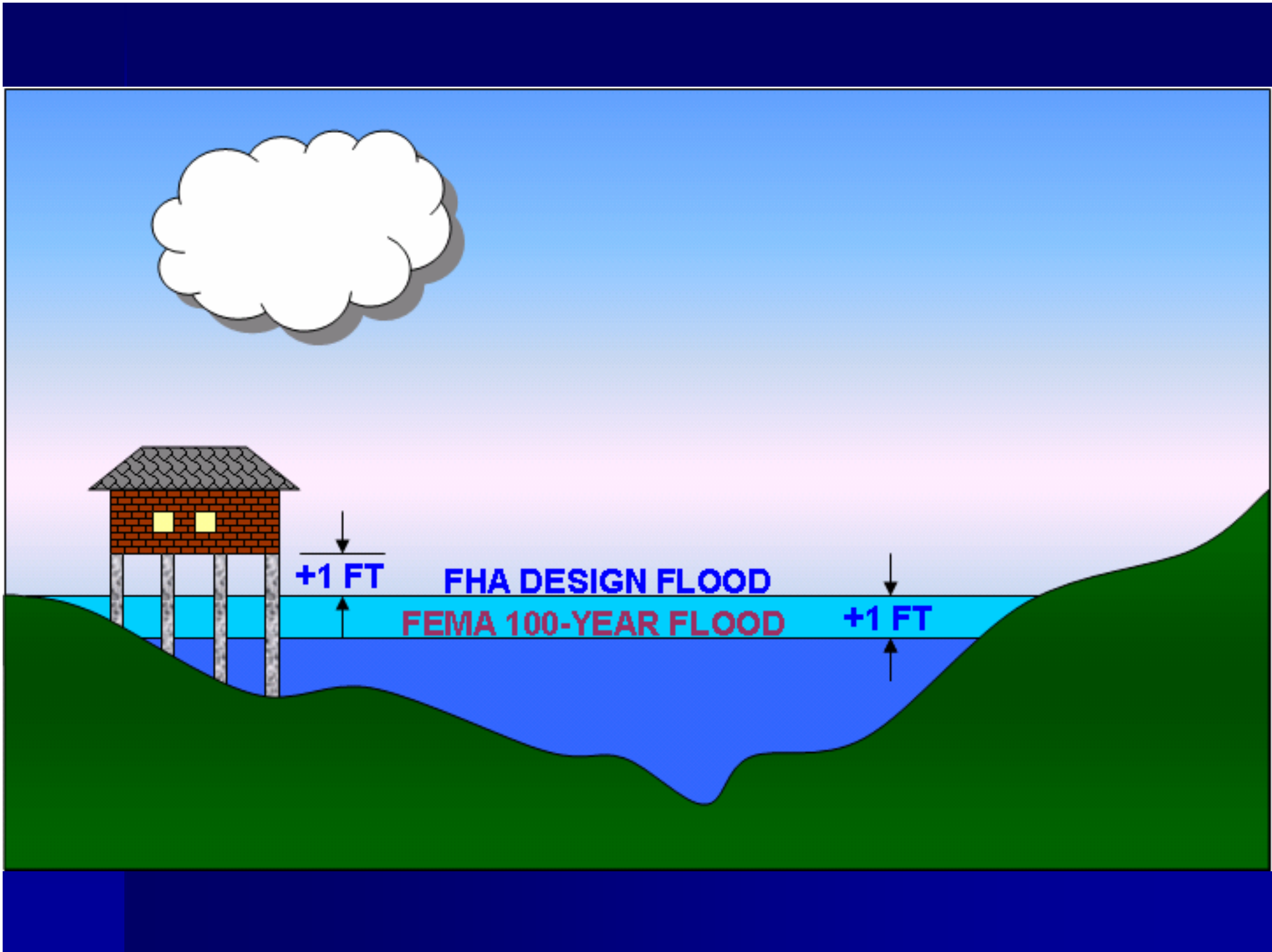




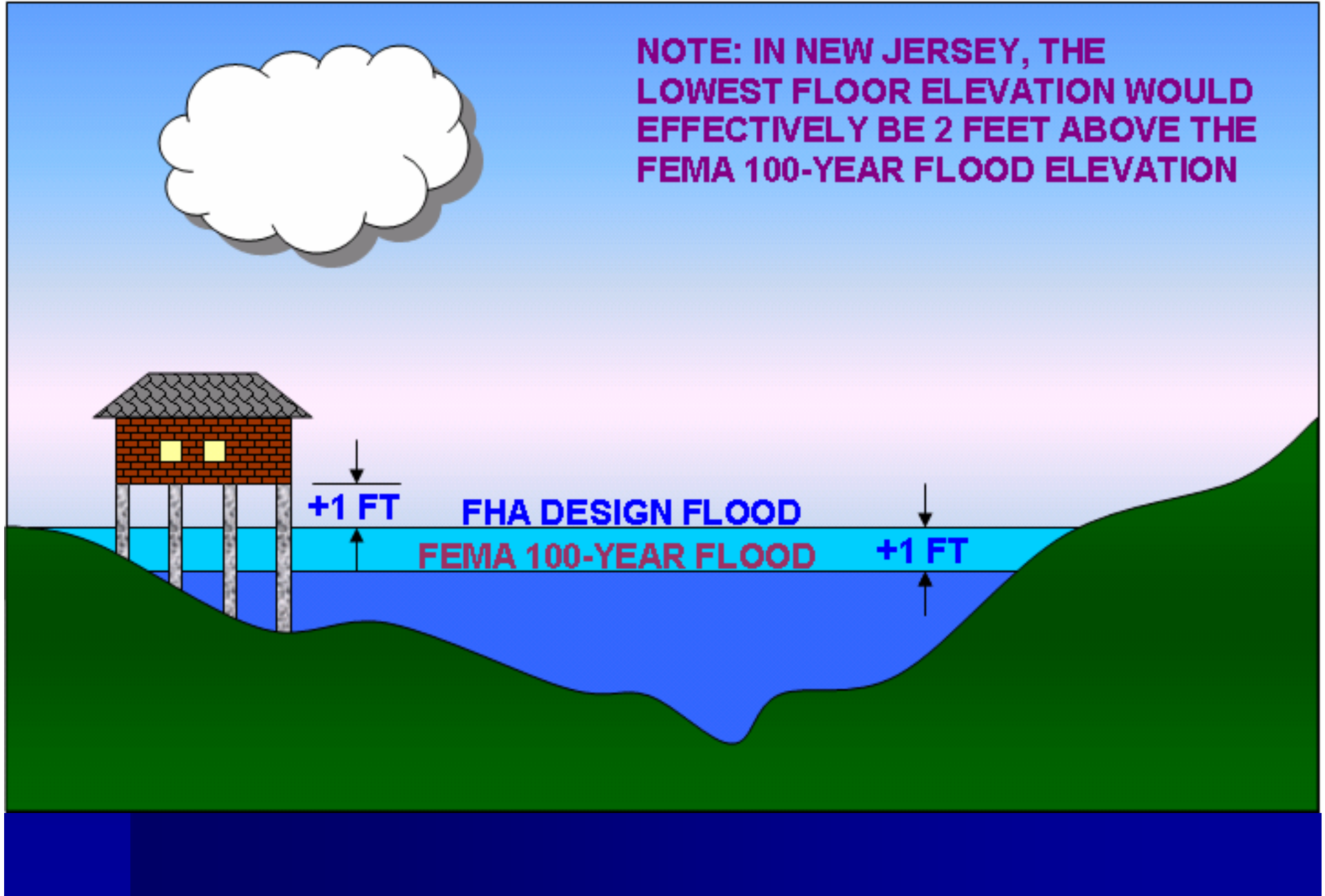
FHA DESIGN FLOOD

FEMA 100-YEAR FLOOD

+1 FT

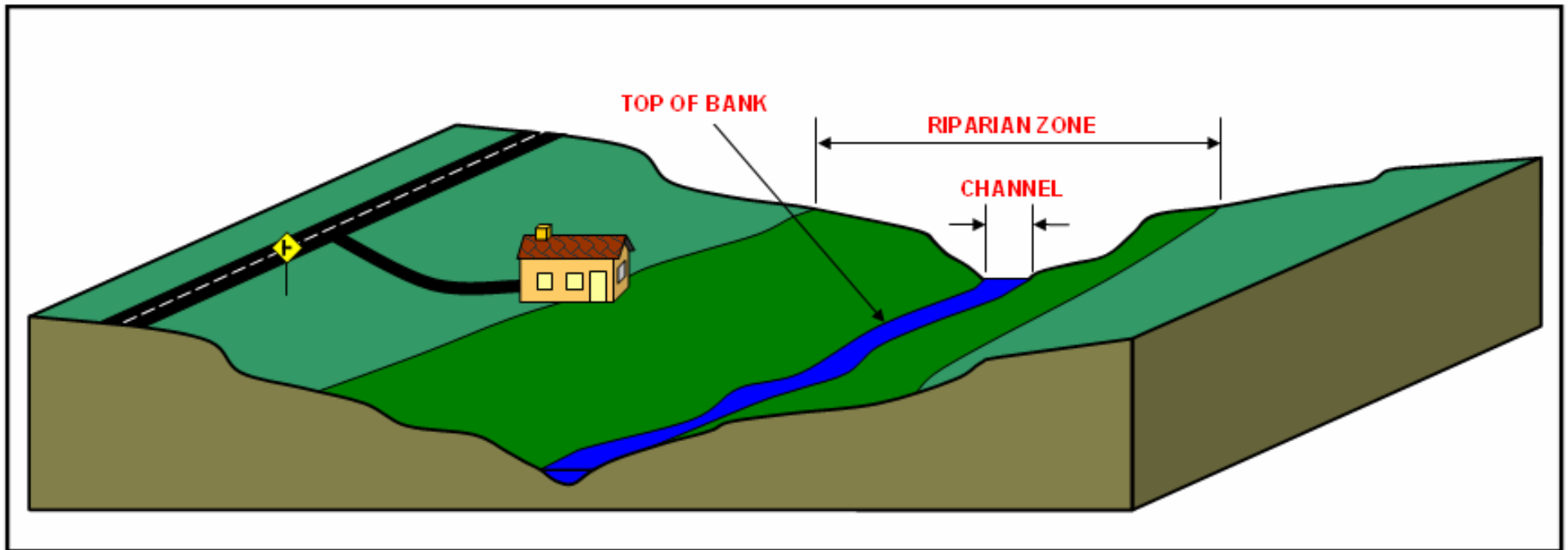


**NOTE: IN NEW JERSEY, THE
LOWEST FLOOR ELEVATION WOULD
EFFECTIVELY BE 2 FEET ABOVE THE
FEMA 100-YEAR FLOOD ELEVATION**

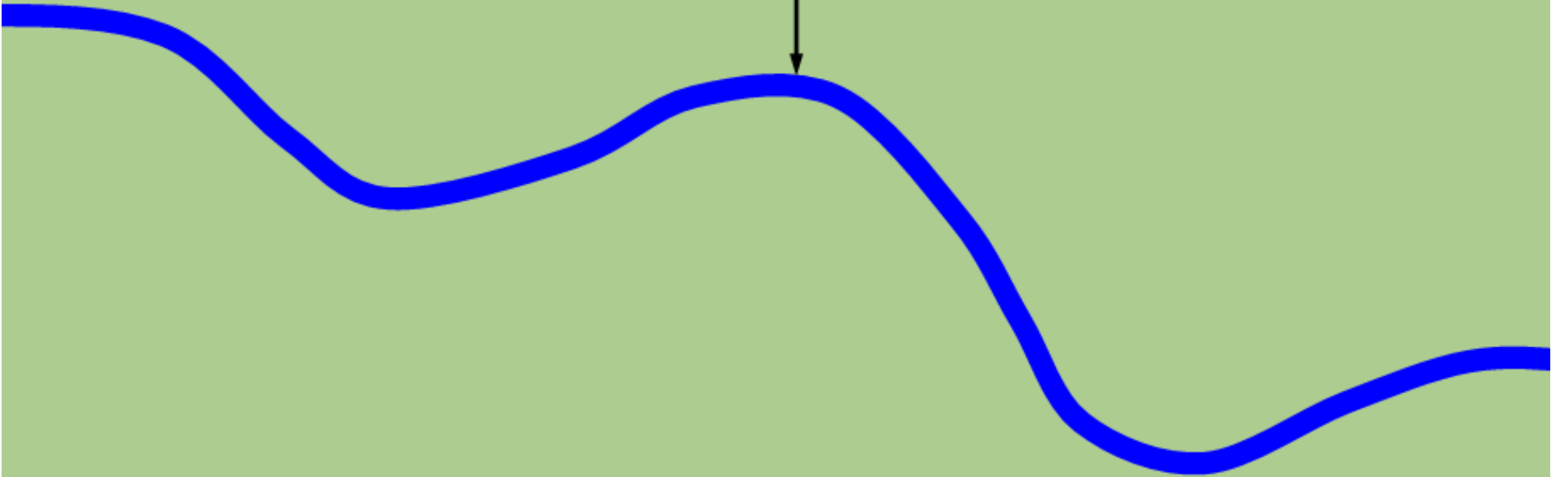


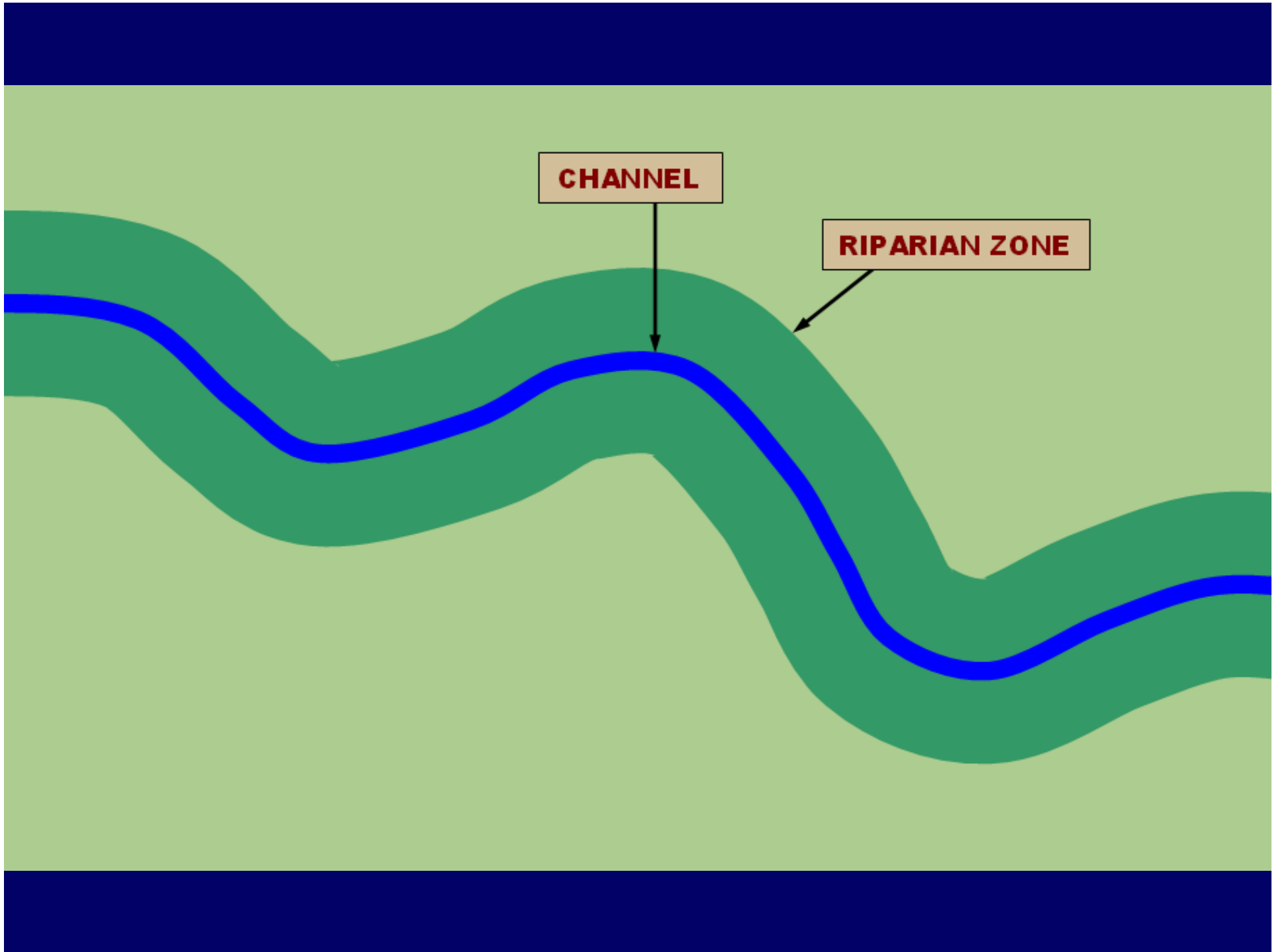
Riparian Zone

- Measures 50, 150 or 300 ft from a regulated water (previously 25 or 50 ft)



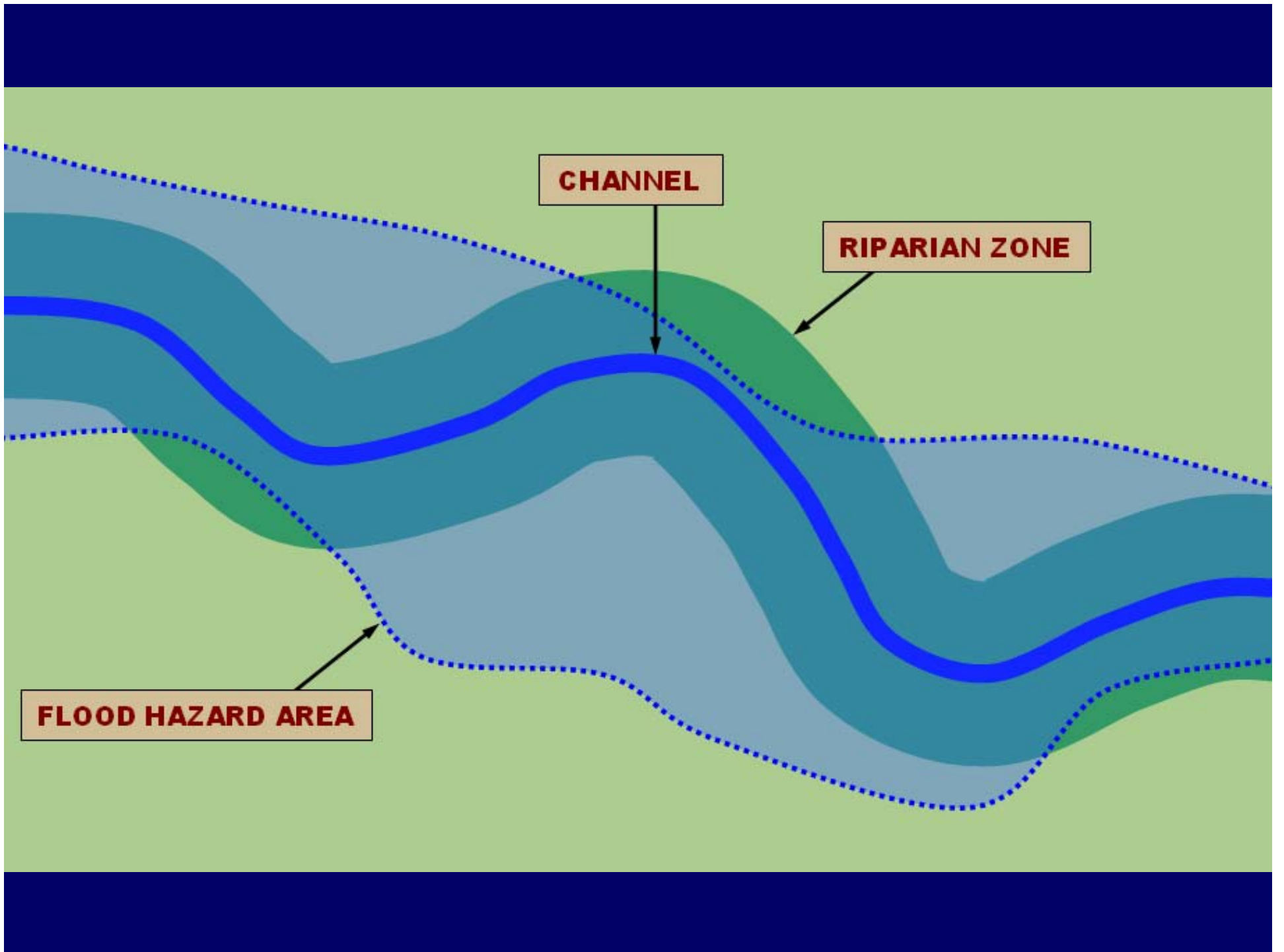
CHANNEL

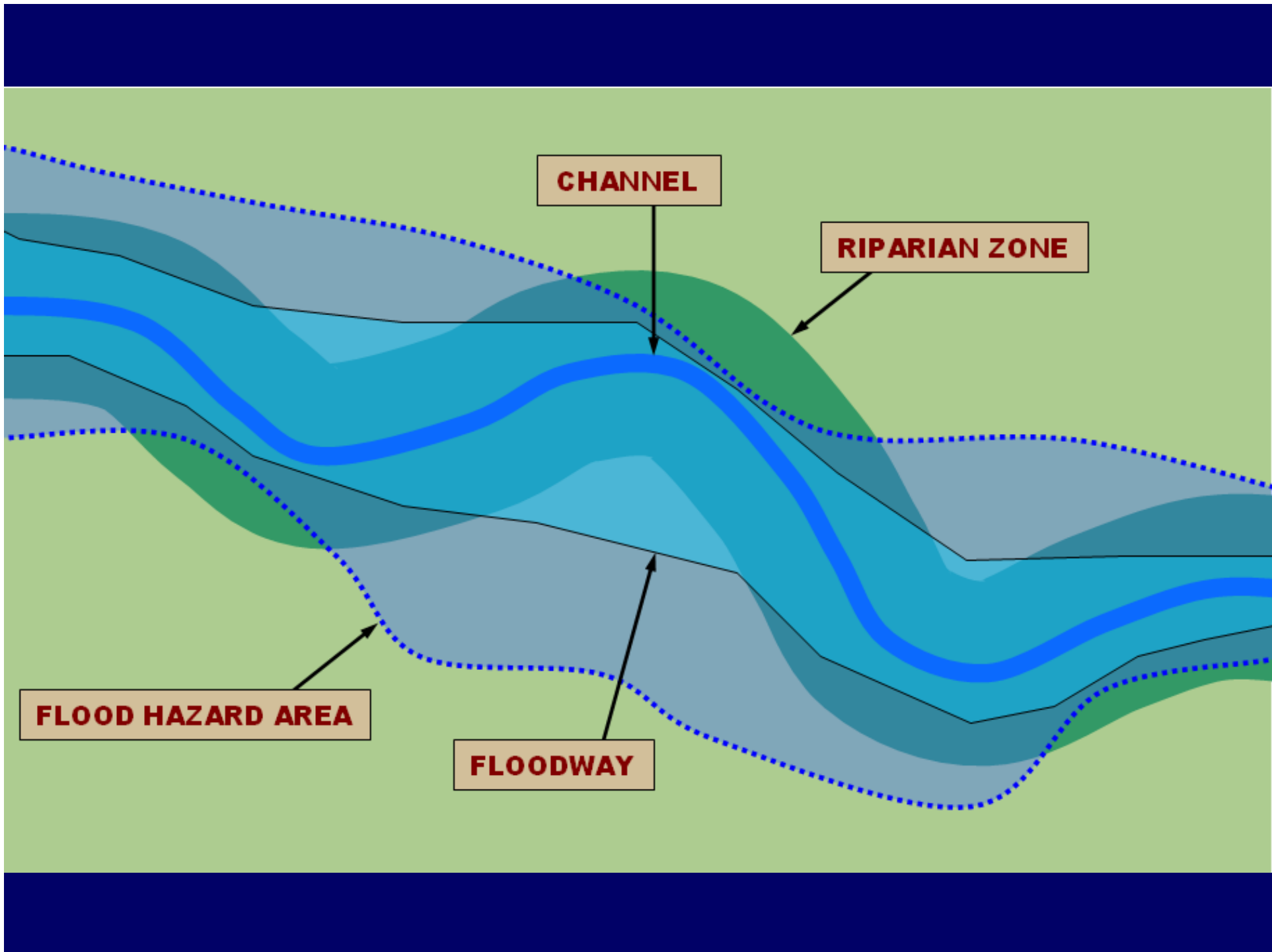




CHANNEL

RIPARIAN ZONE





CHANNEL

RIPARIAN ZONE

FLOOD HAZARD AREA

FLOODWAY



Any Questions?

- **For more information contact:**

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