

STATE OF NEW JERSEY
FLOOD HAZARD AREA
CONTROL ACT RULES

NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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February 2, 2009

HISTORY

1929: State stream encroachment program begins

1962: State begins mapping 100-year flood plains

1974: NJ Water Policy & Supply Council adopts resolutions establishing design storm as 100-year+25% and 0.2' floodway

1975: NJDEP adopts floodway rules

1977: 0% net-fill instituted in Central Passaic Basin

1984: 20% net-fill instituted Statewide

1995: 25-ft & 50-ft stream buffers adopted

Flooding in New Jersey

➤ **Between 1994 and 2003:**

- New Jersey residents filed more than 19,000 flood insurance claims
- New Jersey residents received nearly 1/4 billion dollars in flood insurance payments

➤ **Between 1996 and 2006:**

- Nine Major Disaster Declarations by FEMA in NJ related to flooding

**“Flooding is
New Jersey's
#1 Natural Hazard”**

(FEMA, August 4, 2004)

Flood Mitigation Task Force

- **April 18, 2005:** Acting Governor Codey forms Flood Mitigation Task Force
- **August 22, 2006:** Governor Corzine releases final task force report
 - Recommended sweeping changes to New Jersey's policies regarding development in flood hazard areas and riparian corridors
- **November 5, 2007:** Stringent new regulations adopted

Theme

- **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

Jurisdiction

THREE STEPS

1. Determine if you are along a **regulated water** (N.J.A.C. 7:13-2.2)
2. Determine if you are within a **regulated area** along this water (N.J.A.C. 7:13-2.3)
3. Determine if you are proposing a **regulated activity** (N.J.A.C. 7:13-2.4)

Step 1: Regulated Waters

All waters are regulated except:

- 1. Manmade canals: N.J.A.C. 7:13-2.2(a)1**
- 2. Coastal wetlands: N.J.A.C. 7:13-2.2(a)2**
- 3. Waters that drain less than 50 acres in three particular cases described at N.J.A.C. 7:13-2.2(a)3**

SEE N.J.A.C. 7:13-2.2(a)

Step 1: Regulated Waters

A water is not regulated if it drains less than 50 acres and meets one or more of the following:

- 1. The water has no discernible channel - such as a freshwater wetlands swale**

Step 1: Regulated Waters

- 2. The water is confined within a lawfully existing, manmade conveyance structure or drainage feature, such as a pipe, culvert, ditch, channel or basin (not including any water that historically possessed a naturally-occurring, discernible channel, which has been piped, culverted, ditched or similarly modified)**

SEE N.J.A.C. 7:13-2.2(a) 3ii

Step 1: Regulated Waters

- 3. The water is not connected to a regulated water by a channel or pipe, such as an isolated pond or depression that has no outlet.**

Step 2: Regulated Areas

- **Along regulated waters there are two distinct and overlapping areas of jurisdiction:**

1. The flood hazard area
2. The riparian zone

Flood Hazard Area

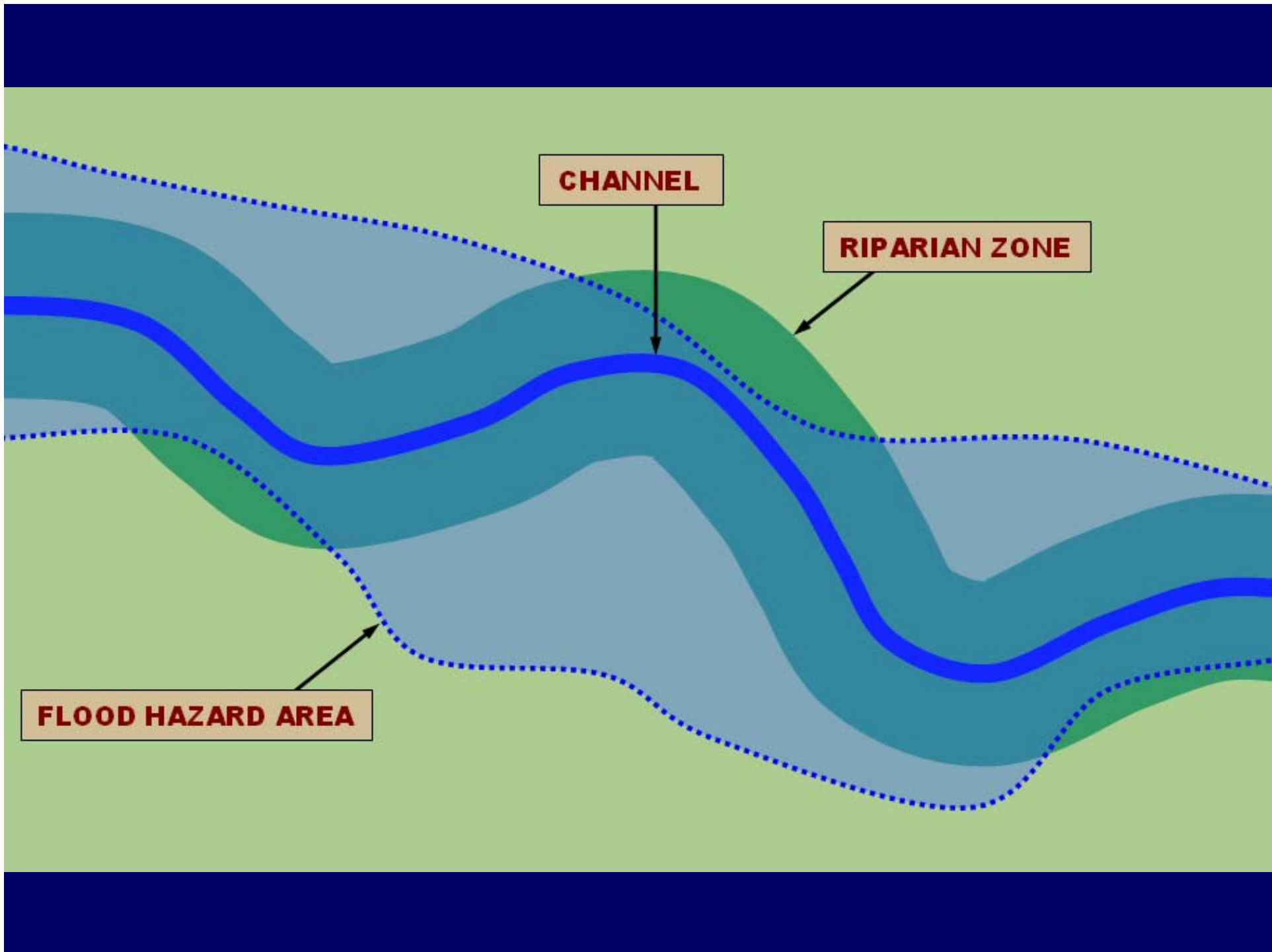
- A **flood hazard area** exists along every regulated water that has a drainage area of 50 acres or more

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

Riparian Zone

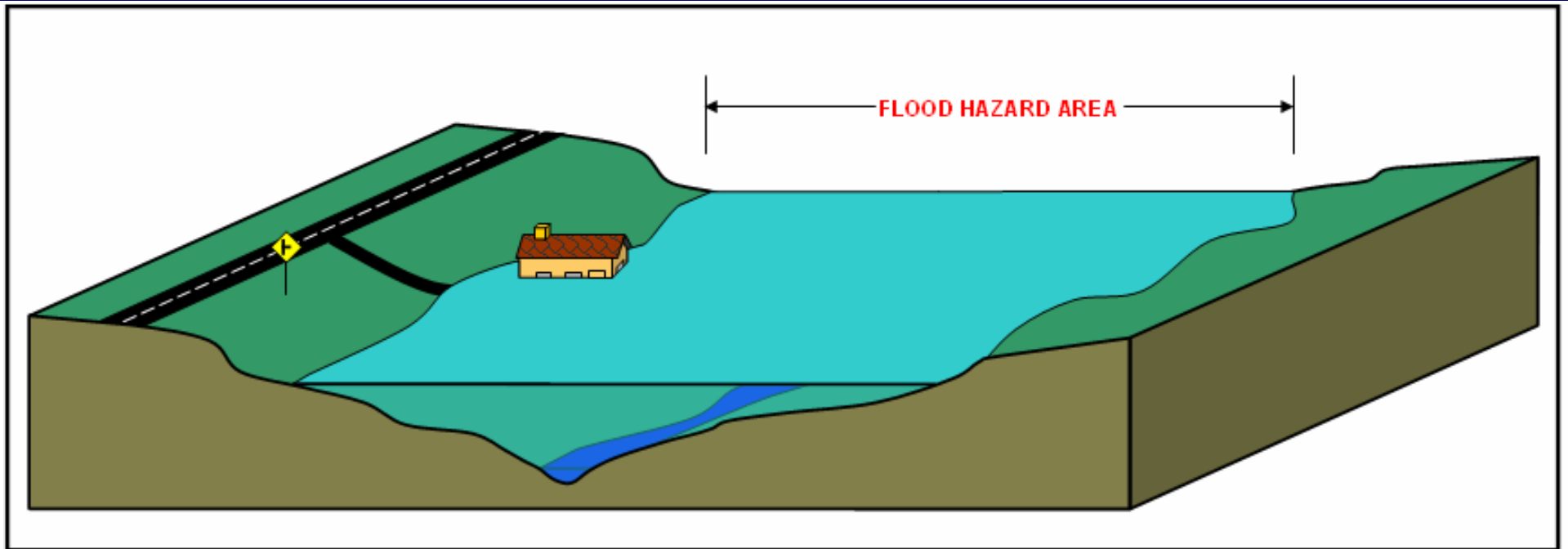
- A **riparian zone** exists along every regulated water, except there is no riparian zone along:
 - **The Atlantic Ocean**
 - **Any manmade lagoon or stormwater management basin**
 - **Any oceanfront barrier island, spit or peninsula**
 - **Any piped section of an otherwise regulated water**

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



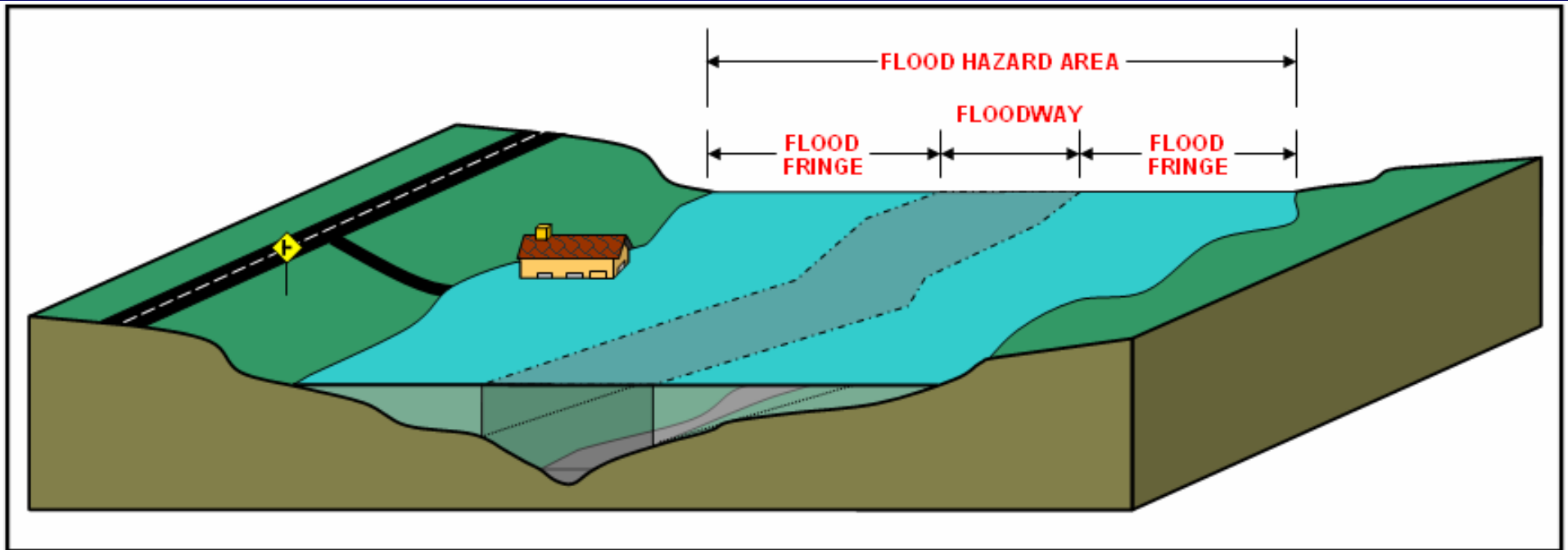
Flood Hazard Area

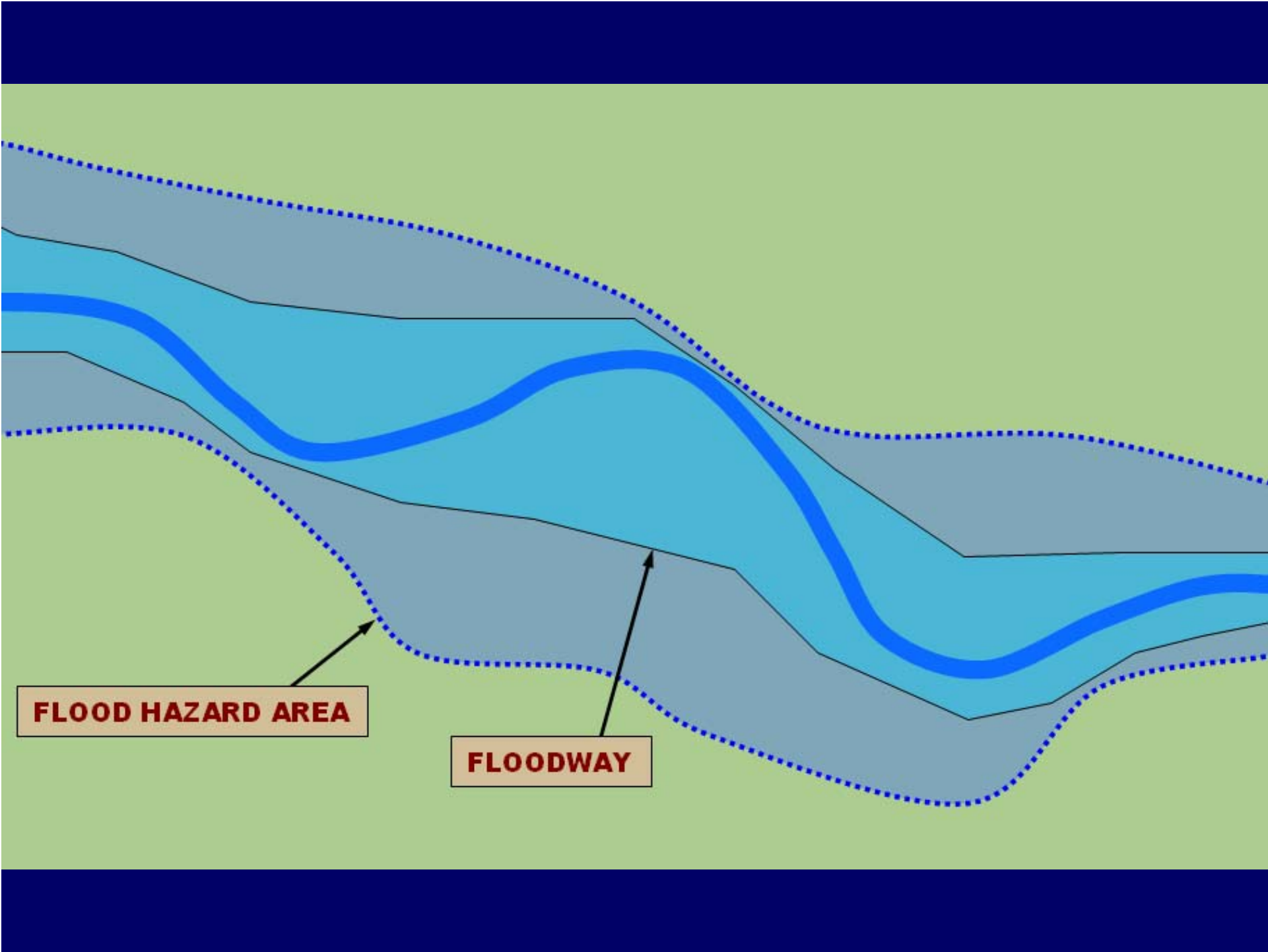
- Approximately 35% of New Jersey lies in a flood hazard area



Flood Hazard Area

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





FLOOD HAZARD AREA

FLOODWAY

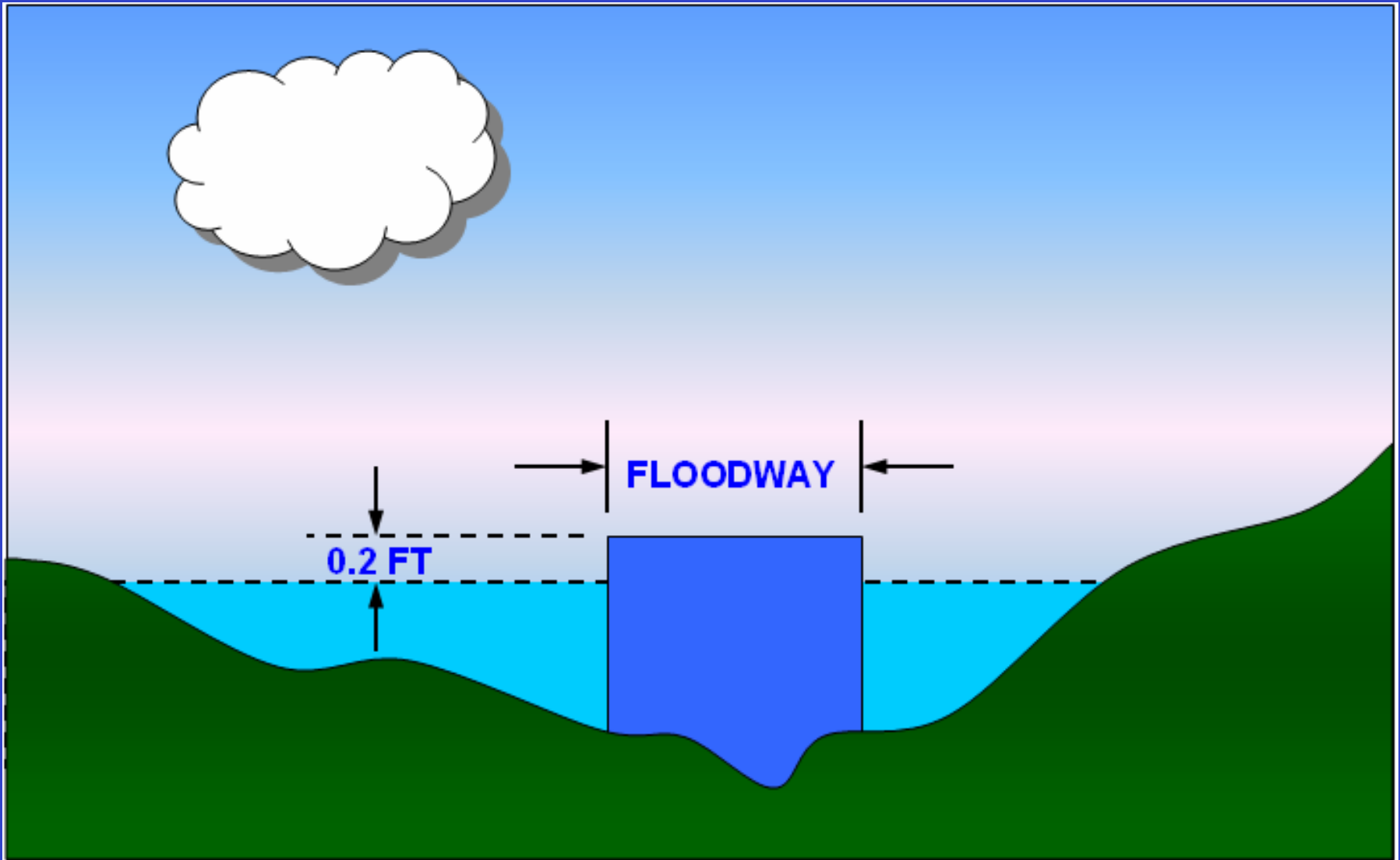
Flood Hazard Area

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

Floodway

- Construction in floodway is **prohibited**, except for dams, roadways and other unavoidable impacts to channels.
 - In such cases, hydraulic calculations must be submitted to prove that flooding will not increase
- Calculated using a 0.2-ft rise in the 100-year flood elevation

Floodway



Flood Fringe

- The portion of the flood hazard area outside the floodway
- In non-tidal areas, construction cannot displace any floodwater: 0% net-fill

Flood Hazard Area

- **THERE ARE 6 METHODS FOR DETERMINING THE FLOOD HAZARD AREA**
 - Method 1 (Department delineation method)
 - Method 2 (FEMA tidal method)
 - Method 3 (FEMA fluvial method)
 - Method 4 (FEMA hydraulic method)
 - Method 5 (Approximation method)
 - Method 6 (Calculation method)

Method 1

N.J.A.C. 7:13-3.3

Department Delineation Method

- Based on State flood hazard area mapping
- Must use this method if State mapping exists for a given area
- Flood elevation and floodway limits as shown on adopted maps and profiles

Method 2

N.J.A.C. 7:13-3.4(d)

FEMA Tidal Method

- Based on FEMA mapping in tidal areas (must provide flood elevation)
- Flood elevation equal to FEMA 100-year elevation
- Floodway limits as shown on FEMA maps

Method 3

N.J.A.C. 7:13-3.4(e)

FEMA Fluvial Method

- Based on FEMA mapping in fluvial areas (must provide flood elevation)
- Flood elevation equal to **one foot above** FEMA 100-year elevation
- Floodway limits as shown on FEMA maps

Method 4

N.J.A.C. 7:13-3.4(f)

FEMA Hydraulic Method

- Used only if hydraulic calculations are necessary to demonstrate compliance with rules (bridge, channel modification, etc.)
- Flood elevation calculated using **125%** of FEMA 100-year flow rate
- Floodway limits calculated using FEMA 100-year flow rate (based on 0.2 ft rise)

Method 5

N.J.A.C. 7:13-3.5

Approximation Method

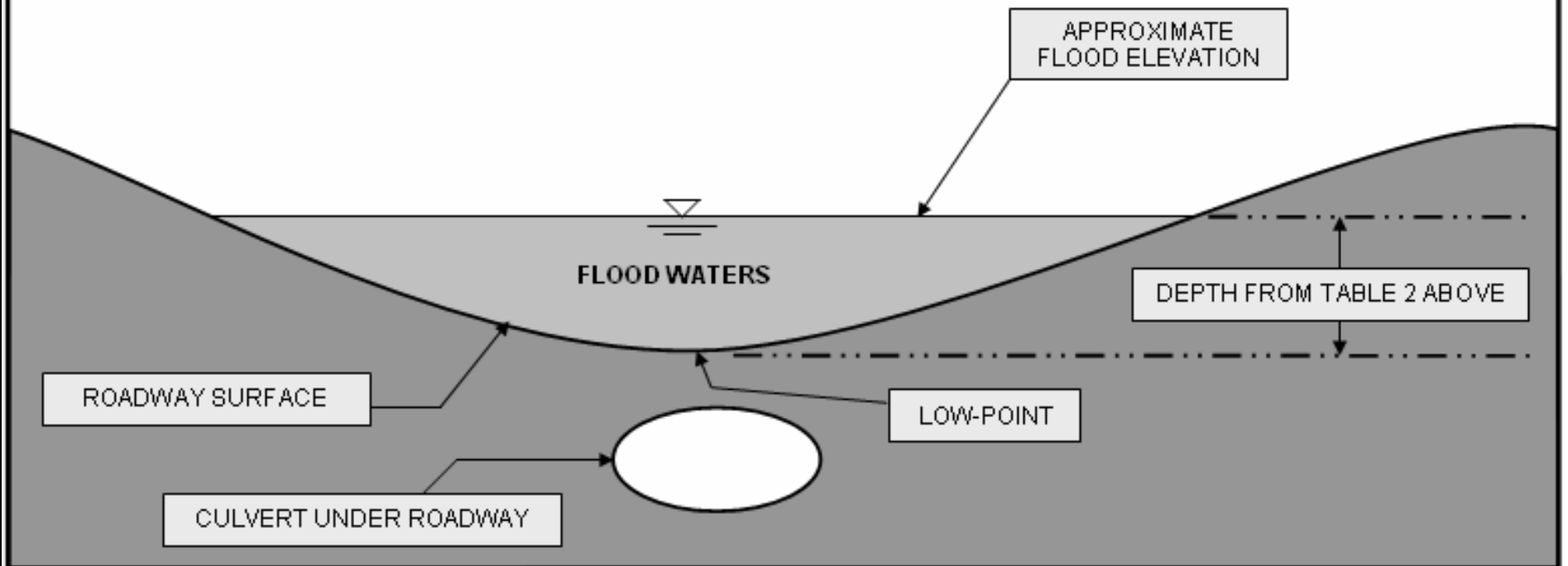
- Used only if no State or FEMA mapping is available
- Based on FEMA data (flood depth vs. drainage area) throughout State
- Approximate flood depth determined using charts in Appendix 1

WMA ¹	CONTRIBUTORY DRAINAGE AREA ²														
	Shaded box indicates area in acres. Unshaded box indicates area in square miles.														
↓	FOR DRAINAGE AREAS UP TO							THE FLOOD DEPTH IS SHOWN ↓							
1		80	195	495	1.9	4.8	12.1	30.0							
2		80	195	495	1.9	4.8	12.1	30.0							
3			80	150	290	550	1.7	3.2	6.1	11.8	22.6	30.0			
4		70	130	235	430	1.2	2.3	4.1	7.6	13.9	25.4	30.0			
5		95	255	1.0	2.8	7.3	19.2	30.0							
6				85	280	1.4	4.7	15.3	30.0						
7							115	245	510	1.7	3.5	7.4	15.6	30.0	
8			60	115	210	395	1.2	2.2	4.0	7.5	14.1	26.3	30.0		
9		80	130	200	310	485	1.2	1.8	2.9	4.5	7.0	11	17.1	26.7	30.0
10	70	110	165	255	390	605	1.5	2.2	3.4	5.3	8.2	12.6	19.4	30.0	
11		80	145	265	490	1.4	2.6	4.8	8.8	16.1	30.0				
12				115	280	1.1	2.6	6.2	15.0	30.0					
13		85	210	530	2.1	5.1	12.7	30.0							
14		85	210	530	2.1	5.1	12.7	30.0							
15		85	210	530	2.1	5.1	12.7	30.0							
16		85	210	530	2.1	5.1	12.7	30.0							
17		85	210	530	2.1	5.1	12.7	30.0							
18	75	125	205	350	590	1.6	2.6	4.4	7.5	12.6	21.3	30.0			
19	60	115	225	440	1.3	2.6	5.1	9.9	19.2	30.0					
20	60	115	225	440	1.3	2.6	5.1	9.9	19.2	30.0					
DEPTH ³ (feet)	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

EXAMPLE
↓

TABLE 2: DEPTH OF FLOOD OVER ROADWAY

FOR A CONTRIBUTORY DRAINAGE AREA OF NO MORE THAN:	200 ACRES	1 MI ²	3 MI ²	10 MI ²	30 MI ²
THE DEPTH OF FLOODING OVER THE LOW POINT OF THE ROADWAY IS:	1.0 FEET	1.5 FEET	2.0 FEET	2.5 FEET	3.0 FEET



Method 5

N.J.A.C. 7:13-3.5

Approximation Method

- Approximates flood elevation not floodway
- Cannot be used if net-fill or hydraulic calculations are necessary to demonstrate compliance with rules
- Useful when you want to stay outside flood hazard area or when proposing minor activities that do not need calculations

Method 6

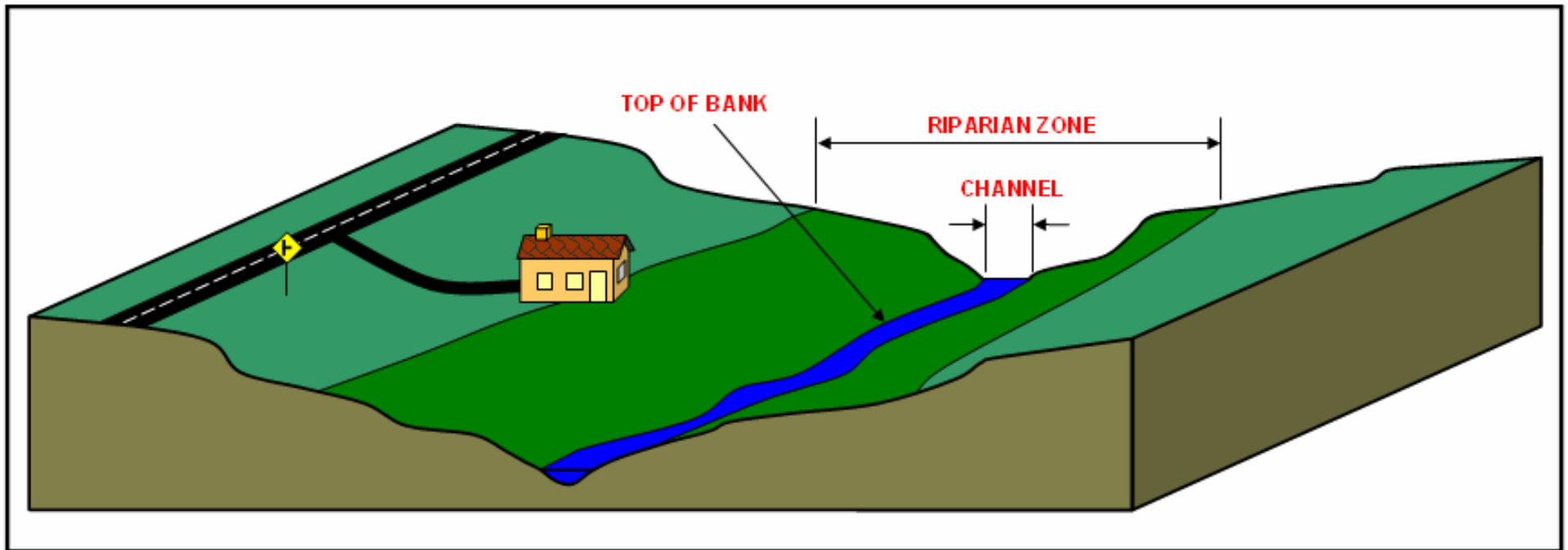
N.J.A.C. 7:13-3.6

Calculation Method

- Can be used in any case where no State delineation is available
- Flood elevation calculated using **125%** of calculated 100-year flow rate
- Floodway limits calculated using 100-year flow rate (based on 0.2 ft rise)

Riparian Zone

- Measures 50, 150 or 300 ft outward from top of bank along both sides of waterway



Riparian Zone

- **300 ft along**: Category One waters and upstream tributaries within the same HUC-14 watershed

SEE N.J.A.C. 7:13-4.1

150-ft Riparian Zone

1. **Trout production** waters and all tributaries
2. **Trout maintenance** waters and all tributaries within one mile
3. Waters that flow through an area that contains documented **T&E habitat** (if plant/animal is critically dependent on the regulated water for survival) and all tributaries within one mile
4. Waters that flow through an area that contains **acid producing soils**

SEE N.J.A.C. 7:13-4.1

50-ft Riparian Zone

- **Along all other waters**
- **Most common riparian zone width, especially in urbanized areas (except where acid producing soils exist)**

SEE N.J.A.C. 7:13-4.1

Step 3: Jurisdiction

THREE STEPS

1. Determine if you are along a **regulated water**
2. Determine if you are within a **regulated area** along this water
3. Determine if you are proposing a **regulated activity**

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)

Permit Requirement

- Before undertaking a **regulated activity** in a **regulated area**, you must first obtain **one** of the following for the work:
 - A permit-by-rule (N.J.A.C. 7:13-7)
 - A general permit (N.J.A.C. 7:13-8)
 - An individual permit (N.J.A.C. 7:13-9,10 & 11)
 - An emergency permit (N.J.A.C. 7:13-12)
 - A coastal permit (N.J.A.C. 7:7 and 7:7E)

Applicability Determination

N.J.A.C. 7:13-5.1

- Free application to NJDEP to verify whether a permit is needed for a particular activity
- Sometimes the exact limits of the flood hazard area and riparian zone must be known before NJDEP can determine whether an activity requires a permit
- In such cases, applicants may need to obtain a **verification** first before NJDEP can issue an applicability determination

Verification

N.J.A.C. 7:13-6.1

- Application to NJDEP to verify the extent of a flood hazard area and riparian zone on a given site
- Separate from a permit application (can be obtained with a permit or prior to a permit)

Verification

N.J.A.C. 7:13-6.1

- 90-day review (Fees: \$500 and up)
- In most cases, a verification is needed before NJDEP can issue an individual permit (except as noted at 7:13-9.6)
- Establishes flood hazard area, floodway and riparian zone limits

Permits-by-rule

N.J.A.C. 7:13-7

- 46 permits-by-rule
 - No fee or application required
 - Projects that NJDEP has determined will cause no adverse impacts to flooding or the environment if undertaken correctly
 - Minor repair and maintenance activities
 - Activities associated with an existing home or business
 - Other minor construction activities

General permits

N.J.A.C. 7:13-8

- 16 general permits
 - \$500 fee & 45-day review
 - Minor repair and maintenance activities by local governments (sediment removal, bridge scour protection, etc.)
 - Agricultural activities under NRCS oversight
 - Minor construction activities along waters that drain less than 50 acres

Individual permits

N.J.A.C. 7:13-9, 10 and 11

- For all activities not covered by a permit-by-rule or general permit
- **Most** applications are **individual permits**
- **Hardship exceptions** – for projects where strict compliance would create a hardship – N.J.A.C. 7:13-9.8

Individual permits

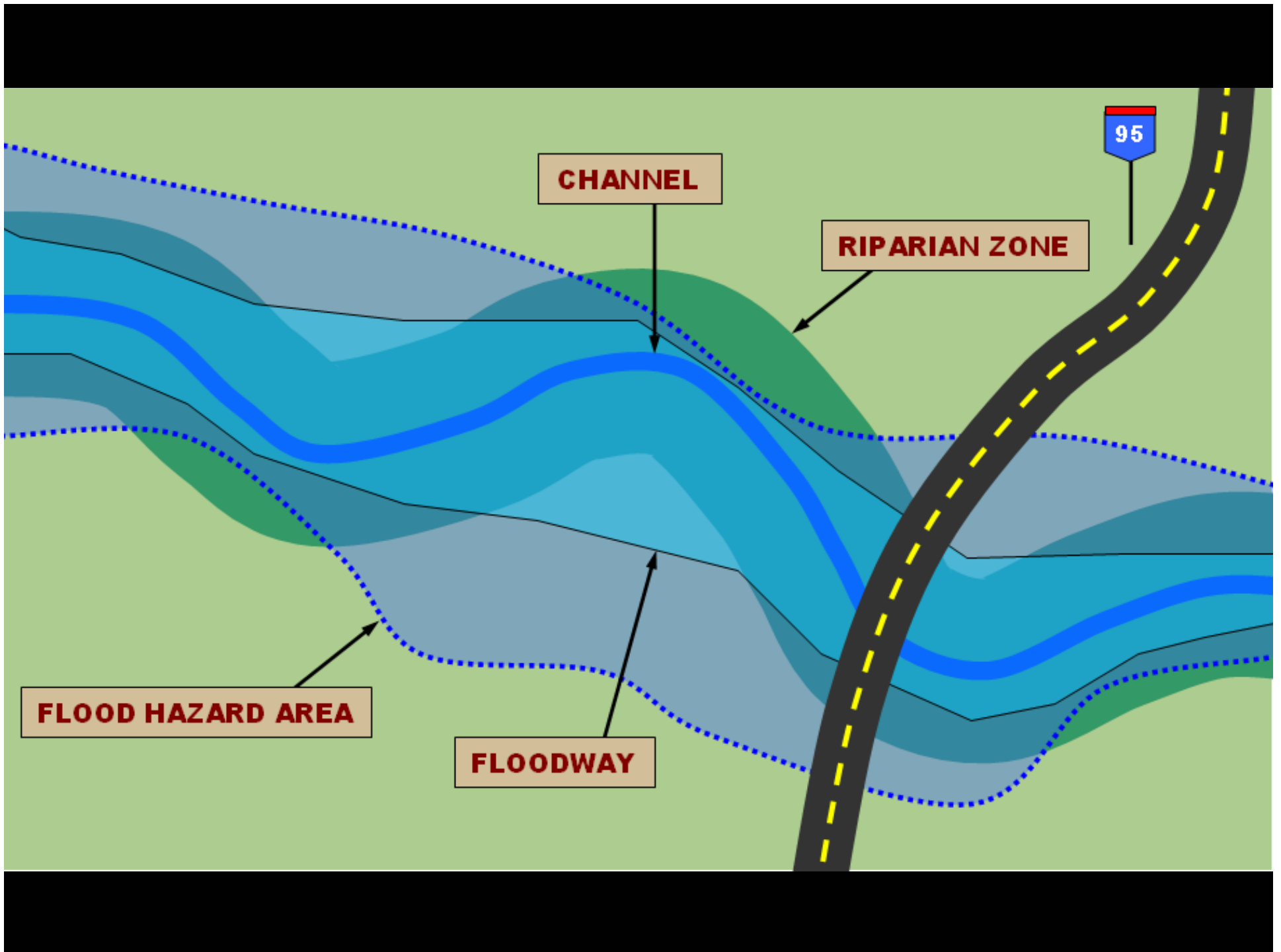
N.J.A.C. 7:13-9, 10 and 11

- **Application review standards** and **general conditions** in **sub 9**
- **Area-specific** standards in **sub 10**
 - Based on **where** a project is located (channel, flood fringe, riparian zone, etc.)
- **Activity-specific** standards in **sub 11**
 - Based on the **type** of project (bridge, building, road, bank stabilization, etc.)

Area-Specific Standards

N.J.A.C. 7:13-10

- 10.1 – Channel
- 10.2 – Riparian zone
- 10.3 – Floodway
- 10.4 – Flood fringe
- 10.5 – Fishery resources
- 10.6 – T&E species
- 10.7 – Acid producing soils



Project-Specific Standards

N.J.A.C. 7:13-11

- 11.1 – General standards
- 11.2 – Stormwater management
- 11.3 – Excavation, fill & grading
- 11.4 – Structures
- 11.5 – Buildings
- 11.6 – Railroads, roads & parking

Project-Specific Standards

N.J.A.C. 7:13-11

- 11.7 – Bridges & culverts
- 11.8 – Footbridges
- 11.9 – Utility lines
- 11.10 – Stormwater outfalls
- 11.11 – Dams & low dams
- 11.12 – Flood control projects

Project-Specific Standards

N.J.A.C. 7:13-11

- 11.13 – Retaining walls & bulkheads
- 11.14 – Bank stabilization
- 11.15 – Sediment removal
- 11.16 – Storing unsecured material
- 11.17 – Hazardous substances
- 11.18 – Solid waste
- 11.19 – Removing fill & structures

Riparian Zone Disturbance

N.J.A.C. 7:13-10.2

- Not a prohibition on construction
 - Disturbance must be justified
 - Each activity has limits on disturbance
- Designed to preserve vegetation
 - Redevelopment of lawfully non-vegetated areas is not hindered, except that it should be pulled back at least 25 feet from bank where possible

Riparian Zone Disturbance

N.J.A.C. 7:13-10.2(c)

- All temporary and permanent disturbance to vegetation in the riparian zone counts
- All vegetation counts (trees, grass, weeds, etc.)

Riparian Zone Disturbance

N.J.A.C. 7:13-10.2(d)

- **All work must meet 3 basic criteria:**
 1. The basic purpose of the project cannot be accomplished onsite without disturbing vegetation in the riparian zone;

Riparian Zone Disturbance

N.J.A.C. 7:13-10.2(d)

2. Disturbance to the riparian zone is eliminated where possible; where not possible to eliminate, disturbance is minimized through methods including relocating the project, reducing the size or scope of the project and/or situating the project in portions of the riparian zone where previous development or disturbance has occurred;

Riparian Zone Disturbance

N.J.A.C. 7:13-10.2(d)

3. All temporarily cleared, cut or removed vegetation within a riparian zone is replanted with indigenous, non-invasive vegetation upon completion of the project.
- **Plus, additional criteria must be met for each specific activity in 10.2(e) through (r)**

Proposed Regulated Activity	See Paragraph Below for Further Detail	Maximum Area of Vegetation Disturbance Based on the Width of the Riparian Zone			
		50-foot Riparian Zone	150-foot Riparian Zone	300-foot Riparian Zone	
• Railroad or public roadway					
New	Crossing a water	(e)	5,000 ft ²	15,000 ft ²	30,000 ft ²
	Not crossing a water		2,000 ft ²	6,000 ft ²	12,000 ft ²
Reconstructed	Crossing a water	(f)	2,500 ft ²	7,500 ft ²	15,000 ft ²
	Not crossing a water		1,000 ft ²	3,000 ft ²	6,000 ft ²
• Private roadway that serves as a driveway to one private residence					
New	Crossing a water	(g)	1,500 ft ²	4,500 ft ²	9,000 ft ²
	Not crossing a water		600 ft ²	1,800 ft ²	3,600 ft ²
Reconstructed	Crossing a water	(h)	750 ft ²	2,250 ft ²	4,500 ft ²
	Not crossing a water		300 ft ²	900 ft ²	1,800 ft ²
• All other private roadways					
New	Crossing a water	(g)	3,000 ft ²	9,000 ft ²	18,000 ft ²
	Not crossing a water		1,200 ft ²	3,600 ft ²	7,200 ft ²
Reconstructed	Crossing a water	(h)	1,500 ft ²	4,500 ft ²	9,000 ft ²
	Not crossing a water		600 ft ²	1,800 ft ²	3,600 ft ²
• Bank stabilization or channel restoration					
Accomplished with vegetation alone		(i)	No limit if disturbance is justified		
Other permanent disturbance			2,000 ft ²	2,000 ft ²	2,000 ft ²
Other temporary disturbance			1,000 ft ²	3,000 ft ²	6,000 ft ²
• Stormwater discharge (including pipe and conduit outlet protection)					
Permanent disturbance		(j)	1,000 ft ²	1,000 ft ²	1,000 ft ²
Temporary disturbance			1,000 ft ²	3,000 ft ²	6,000 ft ²
• Utility line (temporary disturbance only)					
Crossing a water		(k)	2,000 ft ²	6,000 ft ²	12,000 ft ²
Not crossing a water		(l)	800 ft ²	2,400 ft ²	4,800 ft ²
• Other projects					
Private residence		(m)	2,500 ft ²	5,000 ft ²	5,000 ft ²
Addition, garage, barn or shed		(n)	1,000 ft ²	2,000 ft ²	2,000 ft ²
Flood control project		(o)	3,000 ft ²	9,000 ft ²	18,000 ft ²
Public accessway or public access area		(p)	No limit if disturbance is justified		
Water dependent development		(q)	No limit if disturbance is justified		
All other regulated activities		(r)	1,000 ft ²	3,000 ft ²	6,000 ft ²

Example

Table C
MAXIMUM ALLOWABLE DISTURBANCE TO RIPARIAN ZONE VEGETATION

Proposed Regulated Activity		See Paragraph Below for Further Detail	Maximum Area of Vegetation Disturbance Based on the Width of the Riparian Zone		
			50-foot Riparian Zone	150-foot Riparian Zone	300-foot Riparian Zone
• Railroad or public roadway					
New	Crossing a water	(e)	5,000 ft ²	15,000 ft ²	30,000 ft ²
	Not crossing a water		2,000 ft ²	6,000 ft ²	12,000 ft ²
Reconstructed	Crossing a water	(f)	2,500 ft ²	7,500 ft ²	15,000 ft ²
	Not crossing a water		1,000 ft ²	3,000 ft ²	6,000 ft ²
• Private roadway that serves as a driveway to one private residence					
New	Crossing a water	(g)	1,500 ft ²	4,500 ft ²	9,000 ft ²
	Not crossing a water		600 ft ²	1,800 ft ²	3,600 ft ²
Reconstructed	Crossing a water	(h)	750 ft ²	2,250 ft ²	4,500 ft ²
	Not crossing a water		300 ft ²	900 ft ²	1,800 ft ²

2:1 Compensation: N.J.A.C. 7:13-10.2(t)

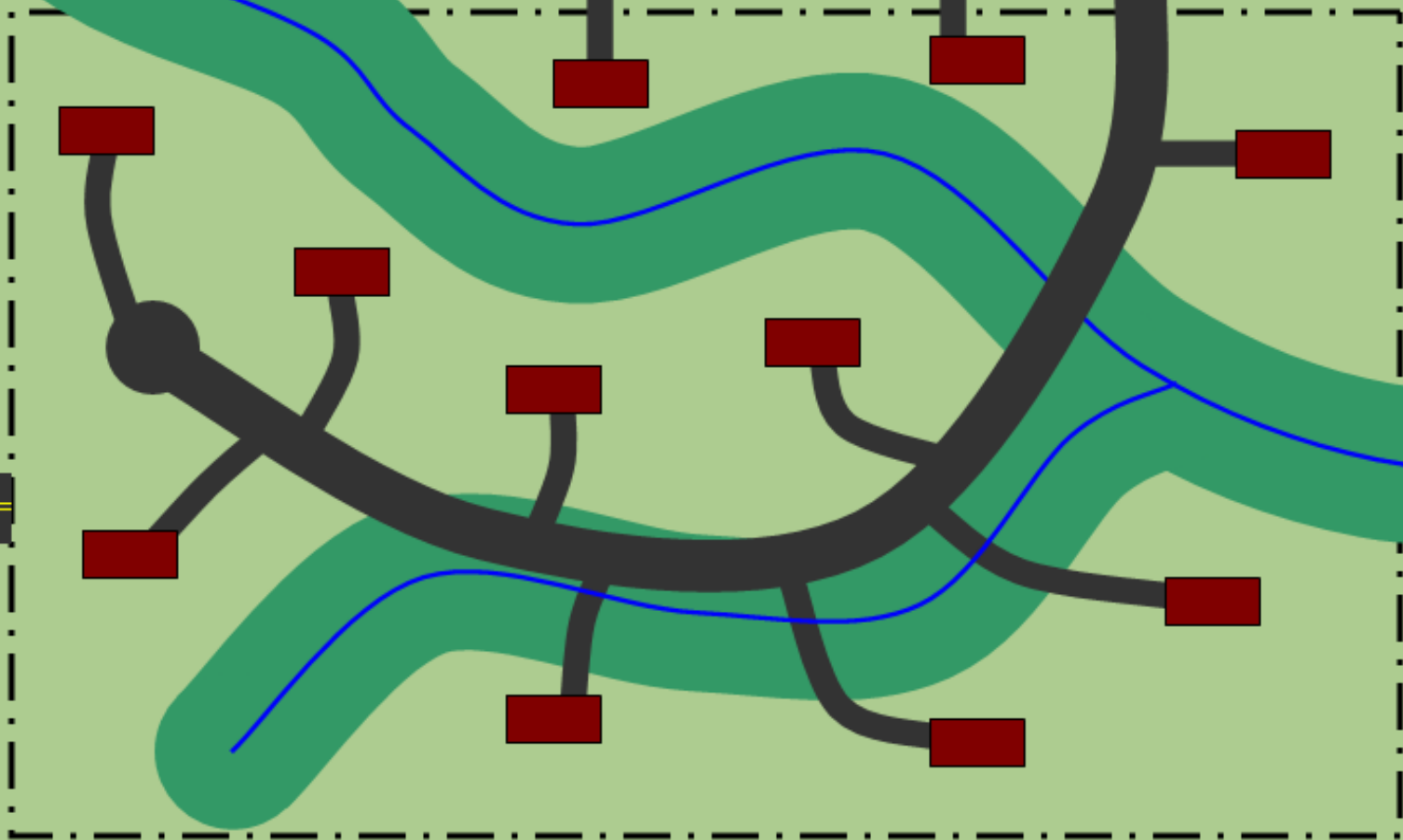
- Allowed in certain cases for:
 - Necessary improvements to existing public roadway or railroads - 10.2(f)
 - Bank stabilization and channel restoration – 10.2(i)
 - Flood control projects - 10.2(o)
 - Other small projects – 10.2(r)
 - Hardship waivers – 10.2(s)

2:1 Compensation: N.J.A.C. 7:13-10.2(t)

- Can be accomplished in two ways:
 - Removing lawfully existing structures and/or impervious surfaces in the riparian zone, and replanting the area with vegetation, or
 - Planting new trees in the riparian zone in an area that is substantially devoid of trees at the time of application because the trees were removed due to previous, lawful development.

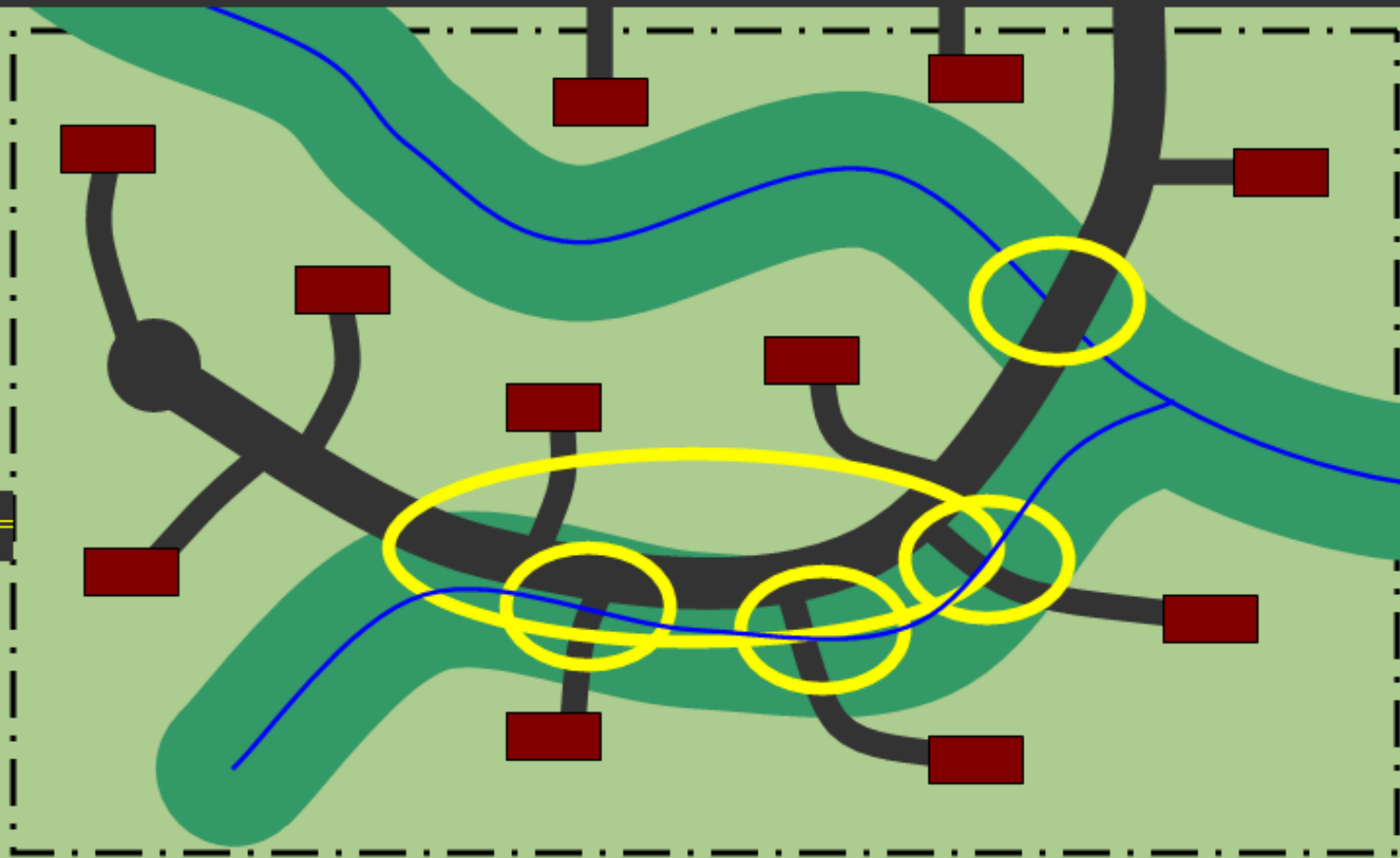
REILLY ROAD

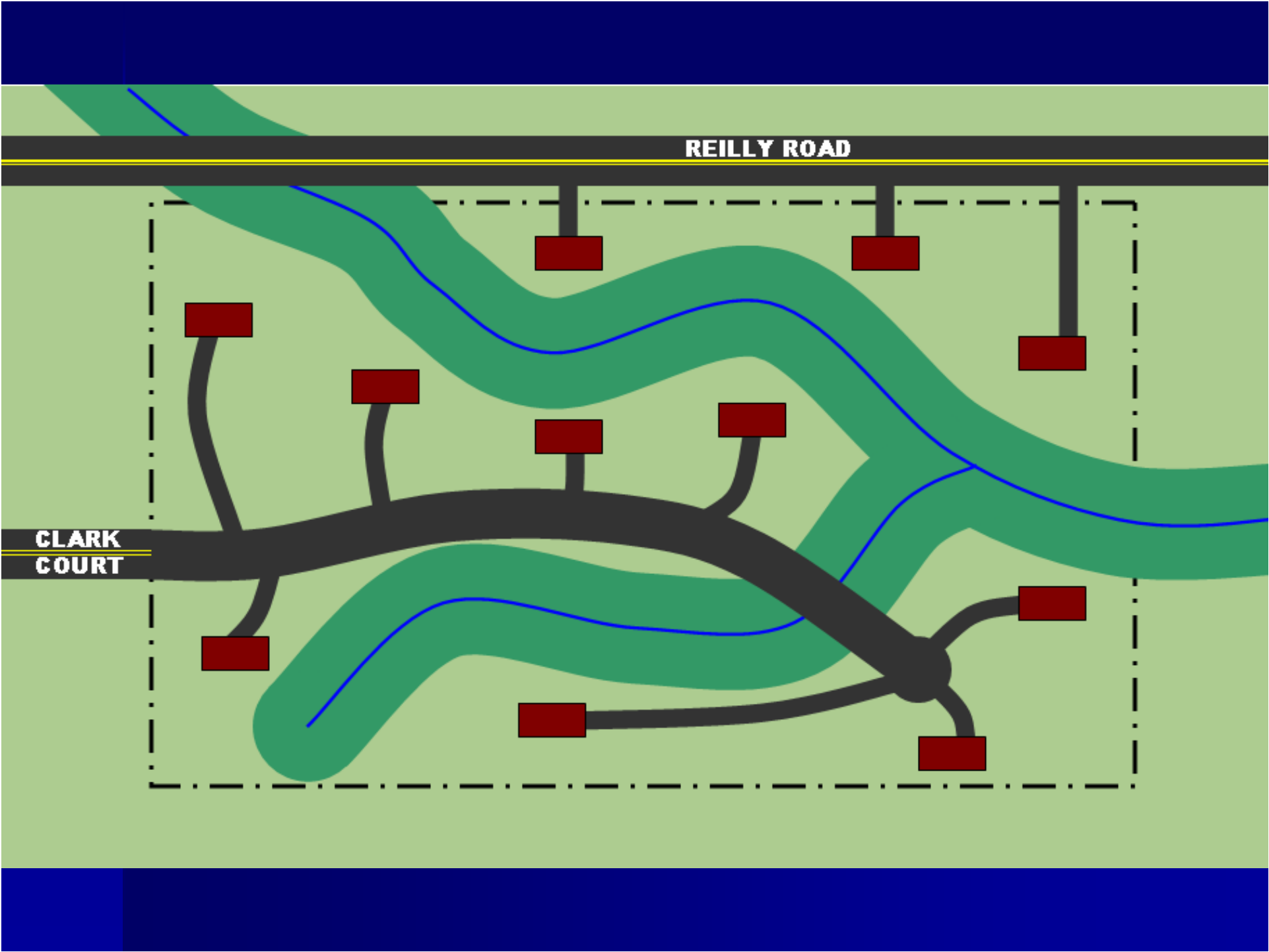
CLARK COURT

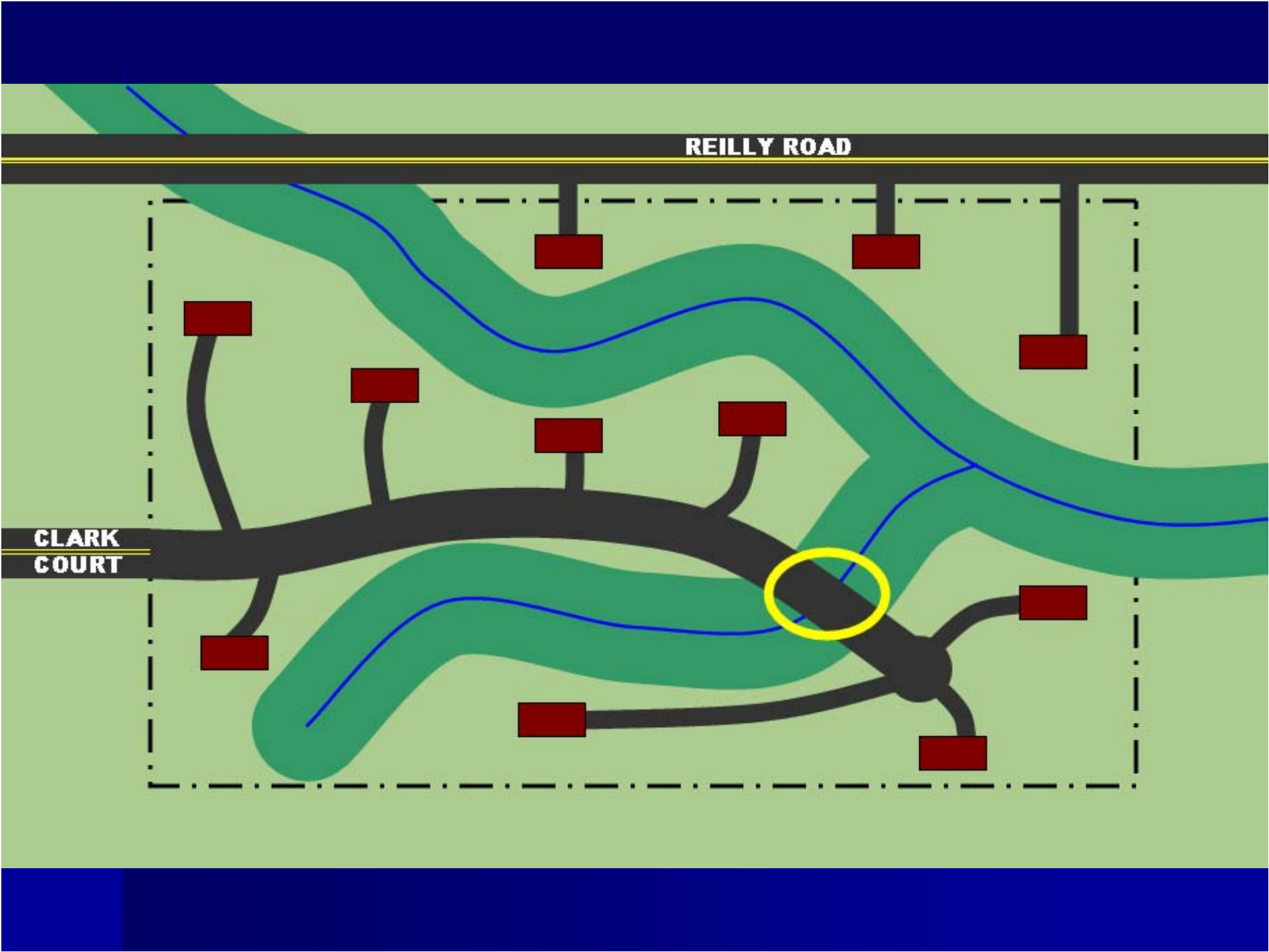


REILLY ROAD

CLARK COURT







FLOOD STORAGE DISPLACEMENT

(A.K.A. NET-FILL) N.J.A.C. 7:13-10.4

- 0% net-fill overall
- Up to 20% net-fill allowed onsite provided all fill is compensated by an equal cut in same floodplain offsite
- Note: net-fill only applies in **non-tidal** areas

FLOOD STORAGE DISPLACEMENT

(A.K.A. NET-FILL) N.J.A.C. 7:13-10.4

- Compensatory flood storage **cannot**:
 - Be in a floodway
 - Be separated from the fill by a water control structure (bridge, dam, etc.) in most cases
 - Be in an undisturbed riparian zone, SWRPA or Highlands Preservation Area buffer
 - Be in a different HUC14 watershed as the fill
 - Cause significant adverse environmental consequences

FLOOD STORAGE DISPLACEMENT

Certain activities are exempt - see 10.4(d):

1. Any activity in a tidal flood hazard area
2. Any activity that displaces no more than 5 cubic yards of flood storage volume
3. The reconstruction of a lawfully existing railroad or public roadway, including any improvement or enlargement, provided flood storage volume displacement is minimized
4. The construction or improvement of a driveway across a regulated water (in certain cases)
5. The construction of one private residence (in certain cases)
6. The construction of a flood control project, provided flood storage volume displacement is minimized
7. The deposition of sediment removed from a channel

FLOOD STORAGE DISPLACEMENT

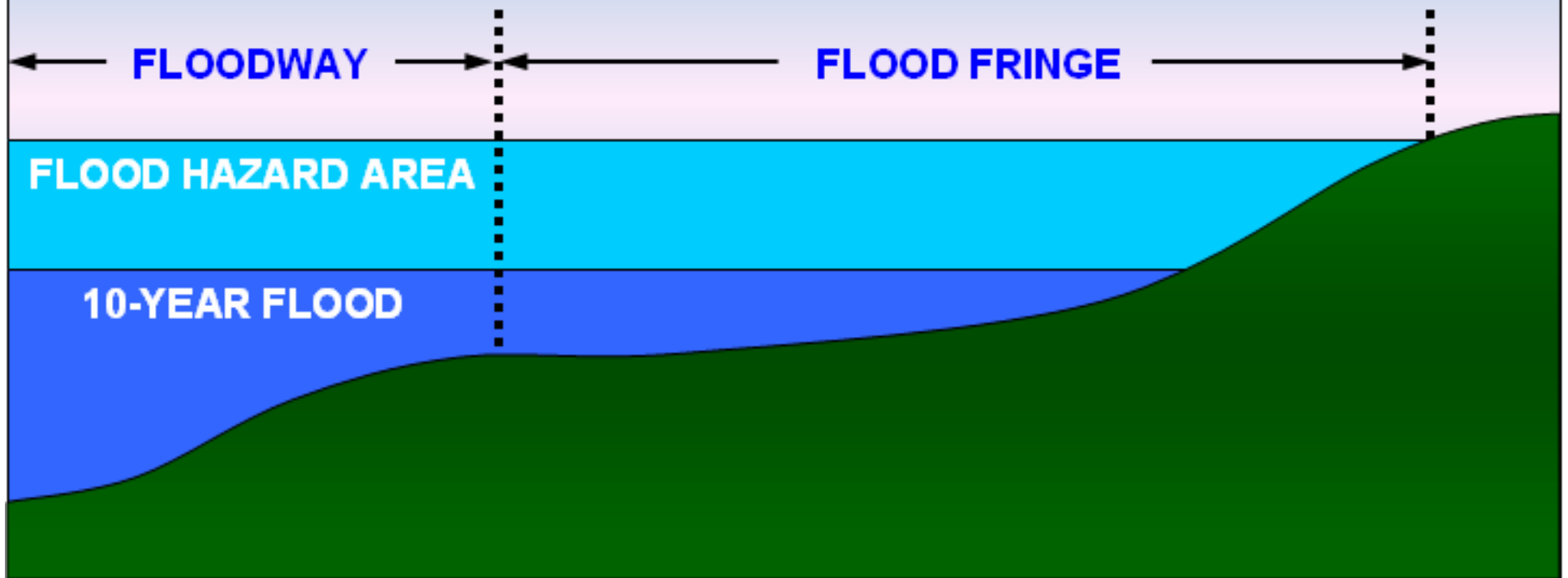
0% NET-FILL STANDARD APPLIES TO BOTH:

- 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

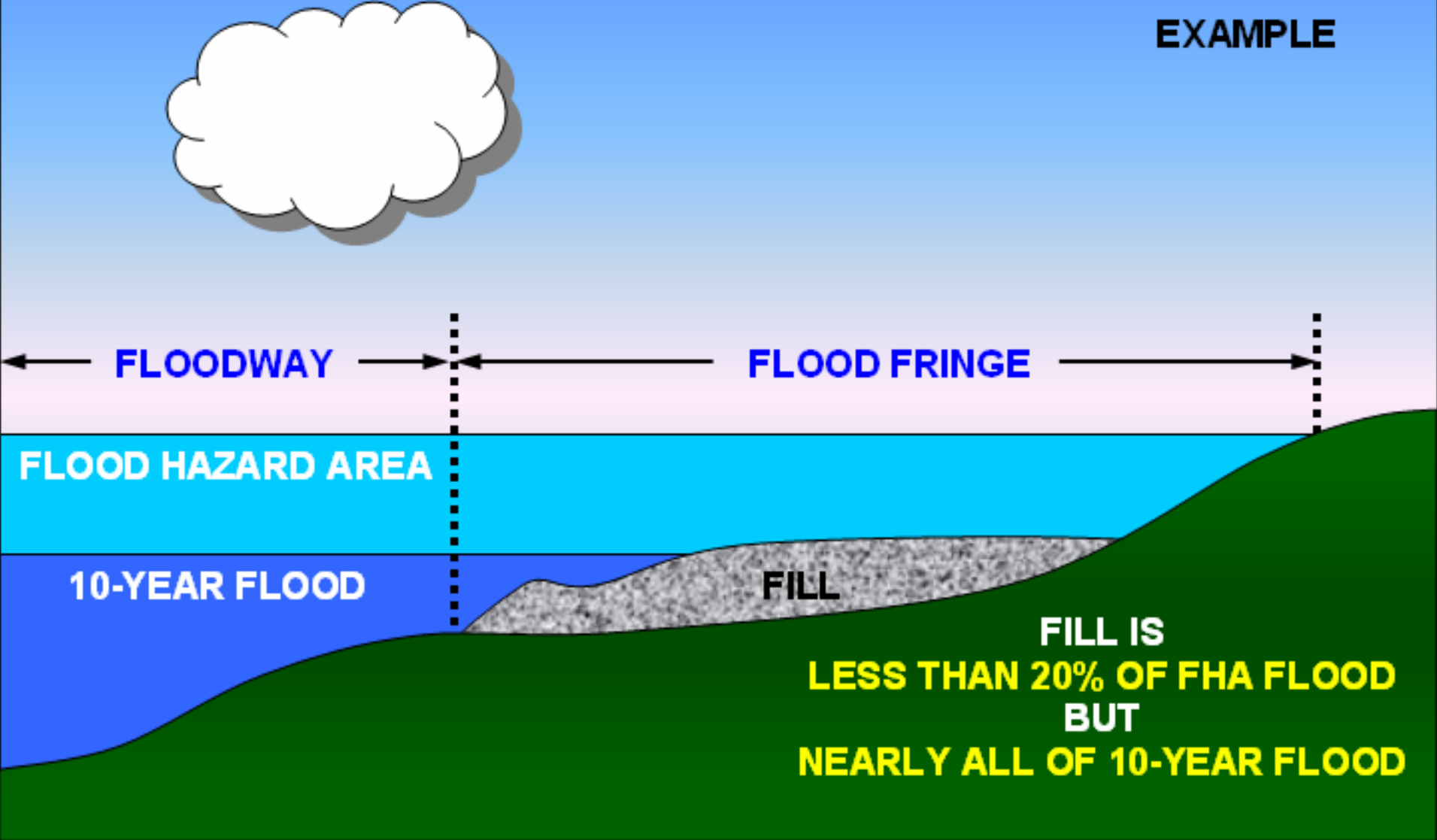


**FLOOD STORAGE CALCULATIONS MUST
BE DONE FOR:**

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



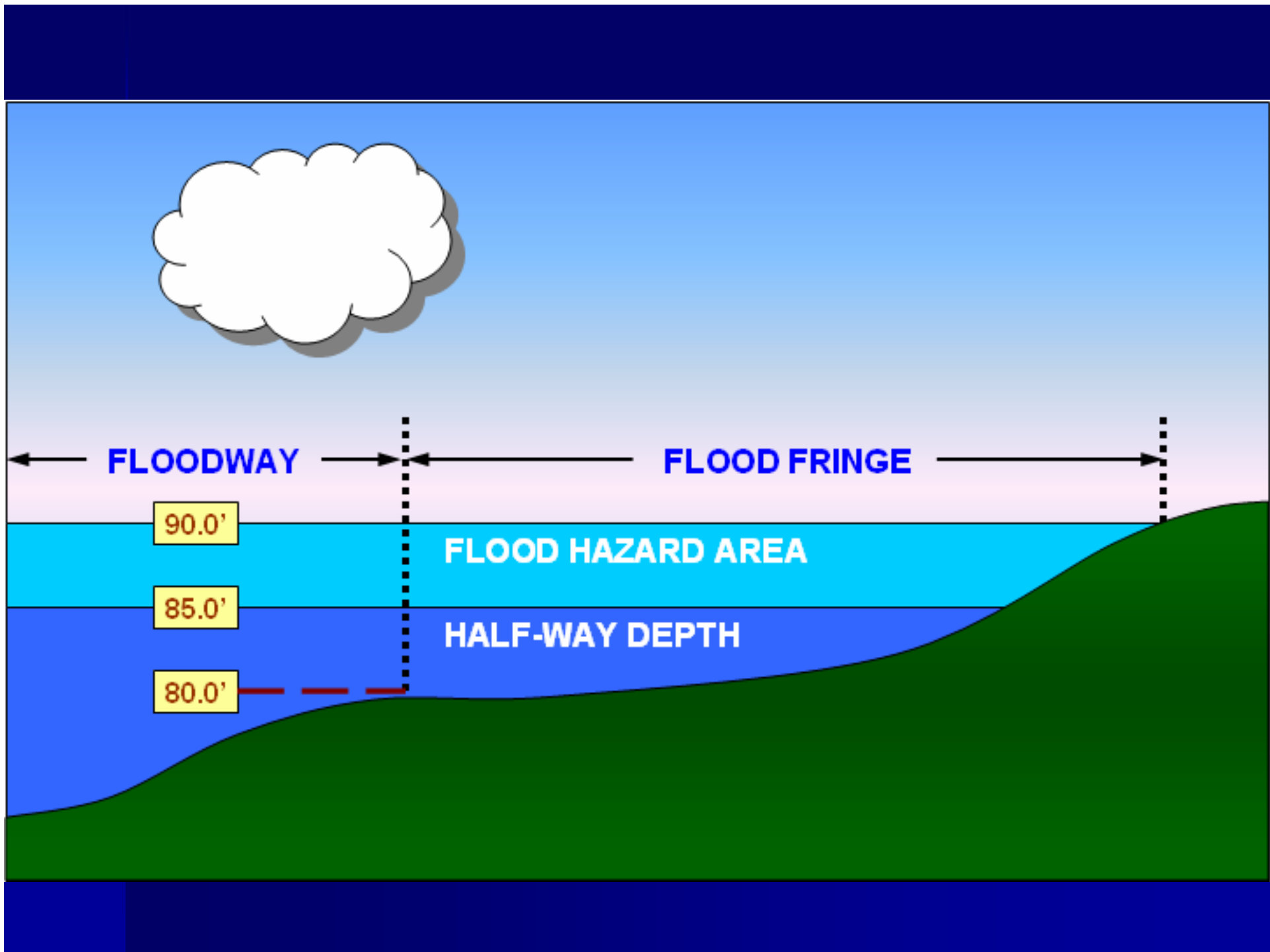
EXAMPLE



**FILL IS
LESS THAN 20% OF FHA FLOOD
BUT
NEARLY ALL OF 10-YEAR FLOOD**

IF 10-YEAR FLOOD IS UNKNOWN:

- If NJDEP or FEMA mapping does not provide the 10-year flood elevation, you can:
 - Calculate the 10-year flood elevation **OR**
 - Use a flood depth halfway between the flood hazard area design flood elevation and the lowest ground elevation within the flood fringe onsite (at each given cross-section).



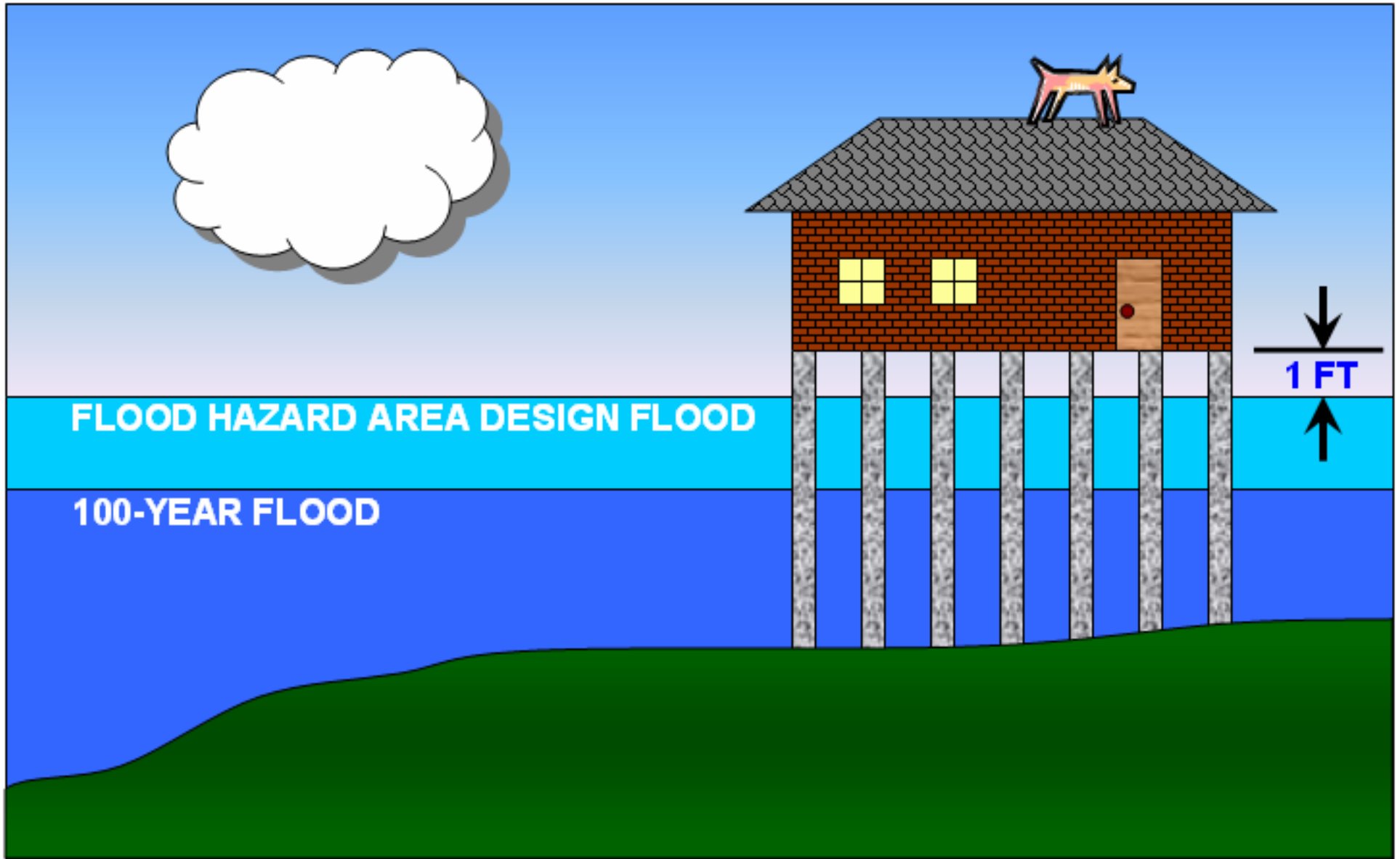
Elevating structures

N.J.A.C. 7:13-11.5

- Lowest habitable floor of buildings must be constructed at least 1 foot above the flood hazard area design flood elevation
- Note: when FEMA maps are used, the flood hazard area design flood is 1 foot above the FEMA 100-year flood in non-tidal areas. So lowest floor must be constructed 2 feet above FEMA 100-year elevation.

Elevating structures

N.J.A.C. 7:13-11.5



Elevating structures

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- Open area beneath a structure must be:
 - A garage under 625 square feet in footprint
 - OR**
 - A crawl space that is not more than 6 feet in height measured from floor to floor

- If the above is not possible, then at least 25% of the exterior walls of the enclosed area must remain permanently open

Any Questions?

- **For more information contact:**

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