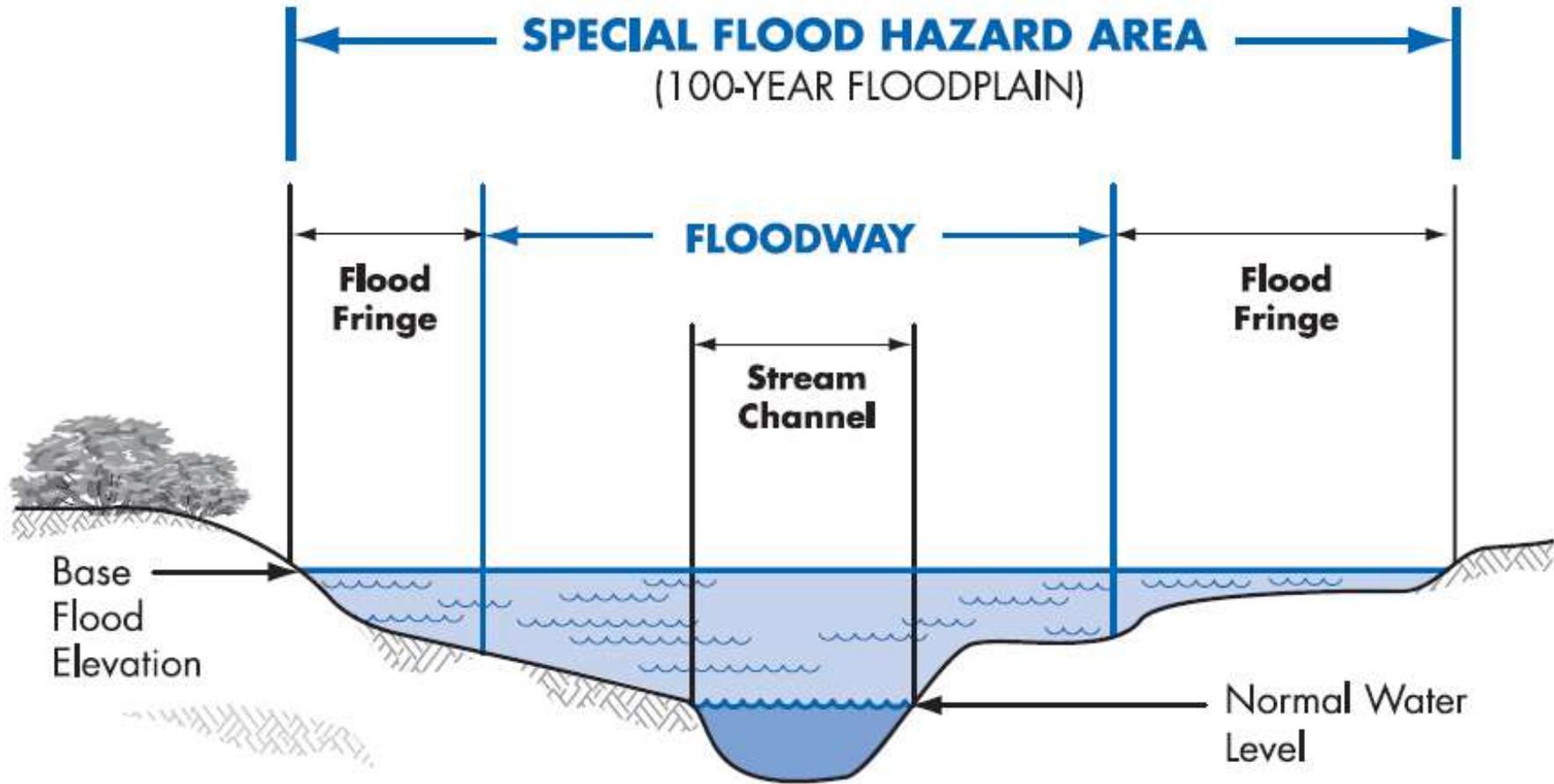


Base Flood Elevations and Floodways

Elements of Mapping Special Flood
Hazard Areas for the National Flood
Insurance Program

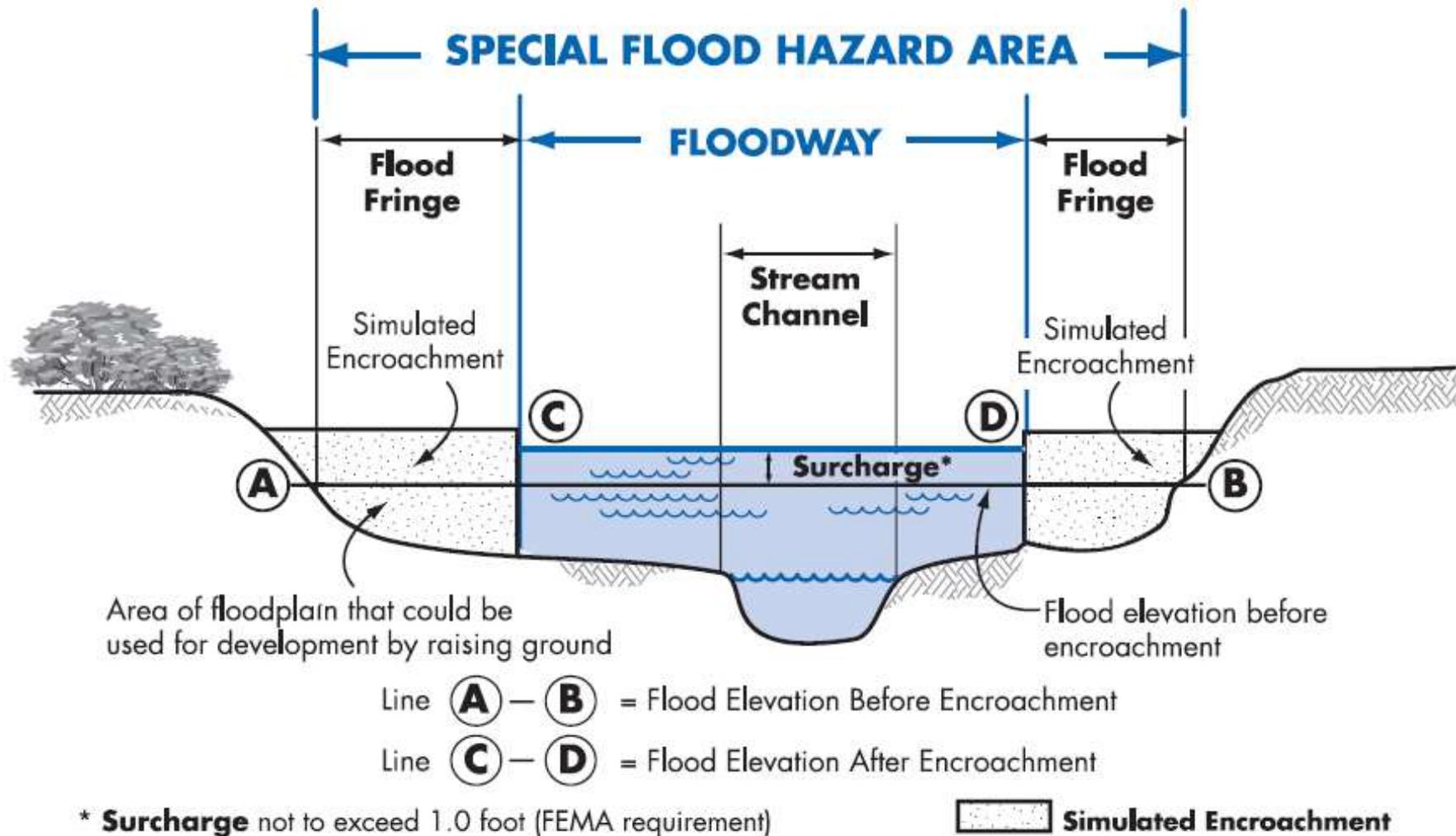
Christine Shirley, NFIP Coordinator, State of Oregon
April 24, 2014

Understanding the Riverine Floodplain



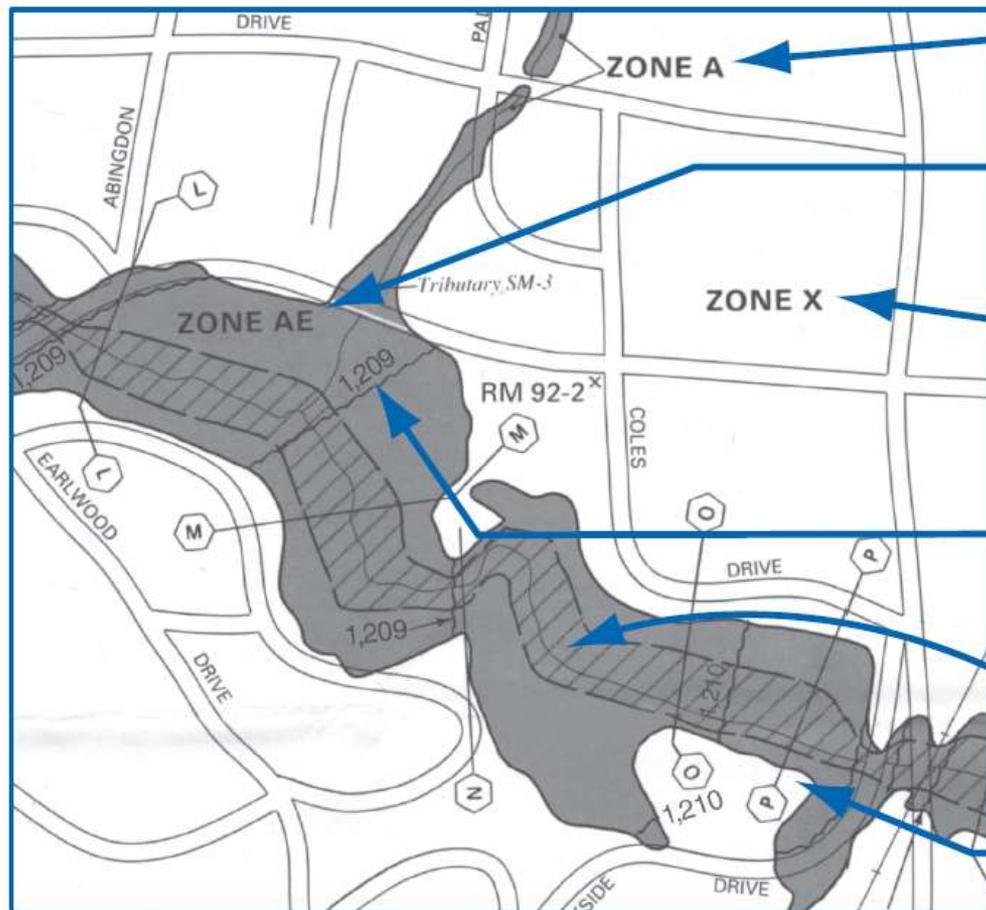
Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

Understanding the FEMA Floodway



Development in the established floodway could cause floodwaters to rise and spill onto the encroachment area thus causing damage to any buildings located there

FEMA Flood Insurance Rate Map (Riverine)



- 1 Zone A** (unnumbered) is the 1%-annual-chance flood hazard area without BFEs.
- 2 Zone AE** is the 100-year (1%-annual-chance) floodplain with BFEs (formerly called Zones A1- A30).
- 3 Zone X** (shaded or unshaded) is other areas considered moderate or low risk (formerly Zone B or C).
- 4 Base Flood Elevation (BFE)** is the water surface elevation of the base flood (rounded to whole feet).
- 5 The Floodway** is the cross-hatched area.
- 6 Cross Section** location

Floodways are associated with AE zones where a base flood elevation has been defined; the moratorium applies in these A Zones

Required Floodway "No Rise" Certification

- Floodways can be dangerous because water may flow very fast.
- Development is not allowed unless "no rise" in flood elevations, floodway elevations, and floodway widths is certified.
- An engineer must evaluate the hydraulic impact of proposed development.
- A "no rise" certification is required and must be signed, sealed, and dated by a registered professional engineer.
- Check with your community for guidance before you decide to work in a floodway.

ENGINEERING "NO RISE" CERTIFICATION (example)

This is to certify that I am a duly qualified engineer licensed to practice in the State of California. I further certify that the attached technical data support the finding that the proposed (Name of Development) will not cause a rise in the Base Flood Elevations in the floodway Of (Name of Stream).

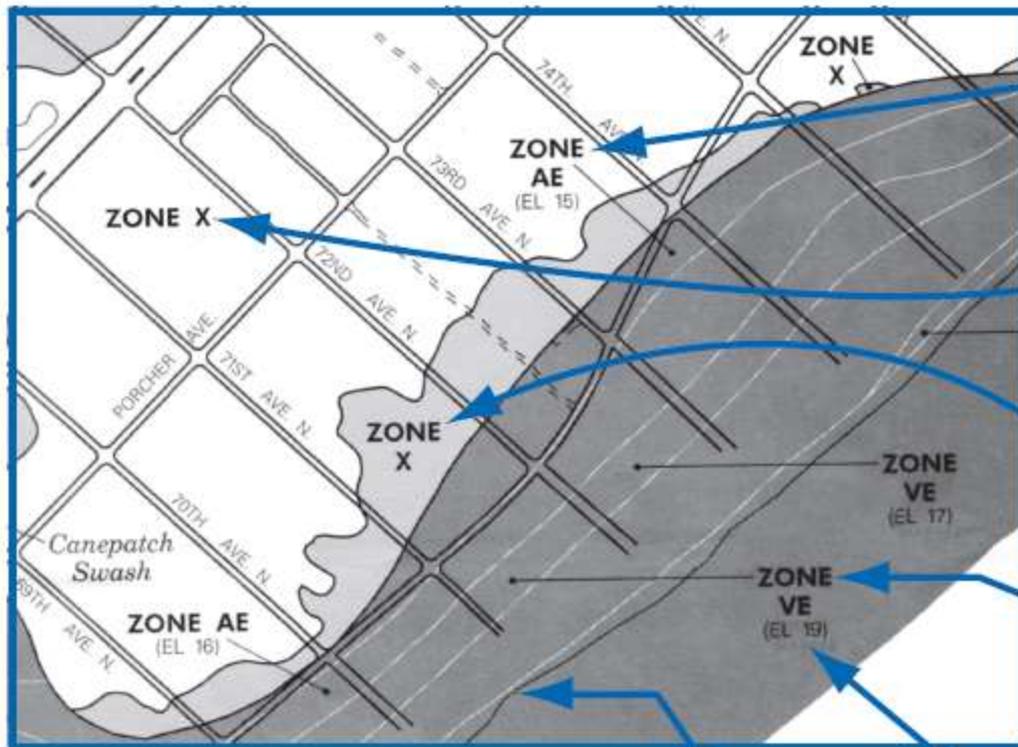
Signature _____ Seal _____



**National Flood
Insurance
Program**

FEMA contends that development has been allowed in the floodways of the Nestucca and the Nehalem Rivers without this required "no-rise" analysis. As a result, FEMA believes, the base flood elevation or the width of the floodway may have increased over that shown on the Flood Insurance Rate Map.

FEMA Flood Insurance Rate Map (Coastal)



COASTAL FLOOD HAZARD ZONES

- 1 Zone A and Zone AE** are subject to flooding by the base or 100-year flood (1%-annual-chance), and waves less than 3 feet (formerly called Zones A1-A30).
- 2 Unshaded Zone X** is the area of minimal flood risk outside the 500-year floodplain, formerly called Zone C.
- 3 Shaded Zone X** is subject to flooding by the 500-year flood (0.2% annual chance), formerly called Zone B.
- 4 Zone V and Zone VE** are where waves are expected to be 3 feet or more.
- 5 Base Flood Elevation (BFE)** is the estimated water surface elevation (in feet above datum).
- 6 Shoreline**

Floodways are not associated with V-zones (ocean source flooding) or in tidally-influenced A Zones; therefore the moratorium does not apply in these areas.

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

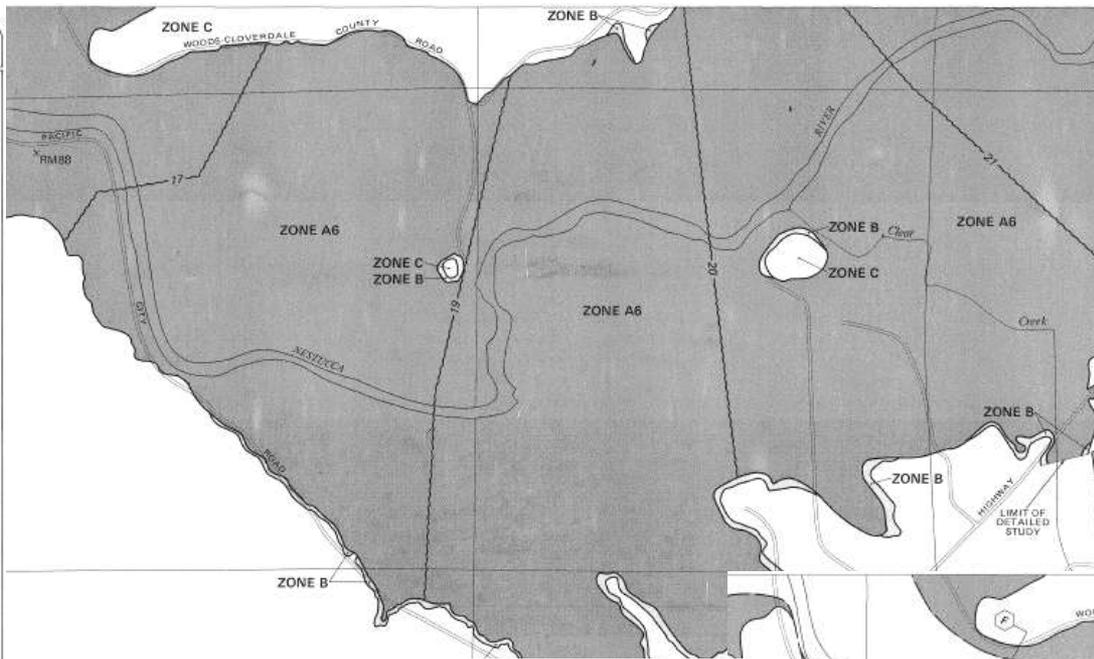
TILLAMOOK COUNTY,
OREGON
(UNINCORPORATED AREAS)

COMMUNITY-PANEL NUMBER
410196 0315 A

PAGE 315 OF 425
(SEE MAP INDEX FOR PAGES NOT PRINTED)

EFFECTIVE
AUGUST 1, 1978

U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION



In Tillamook County the Flood Insurance Rate Map is on a separate sheet from the Floodway Map

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD BOUNDARY AND FLOODWAY MAP

TILLAMOOK COUNTY,
OREGON
(UNINCORPORATED AREAS)

COMMUNITY-PANEL NUMBER
410196 0315

PAGE 315 OF 425
(SEE MAP INDEX FOR PAGES NOT PRINTED)

EFFECTIVE
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U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
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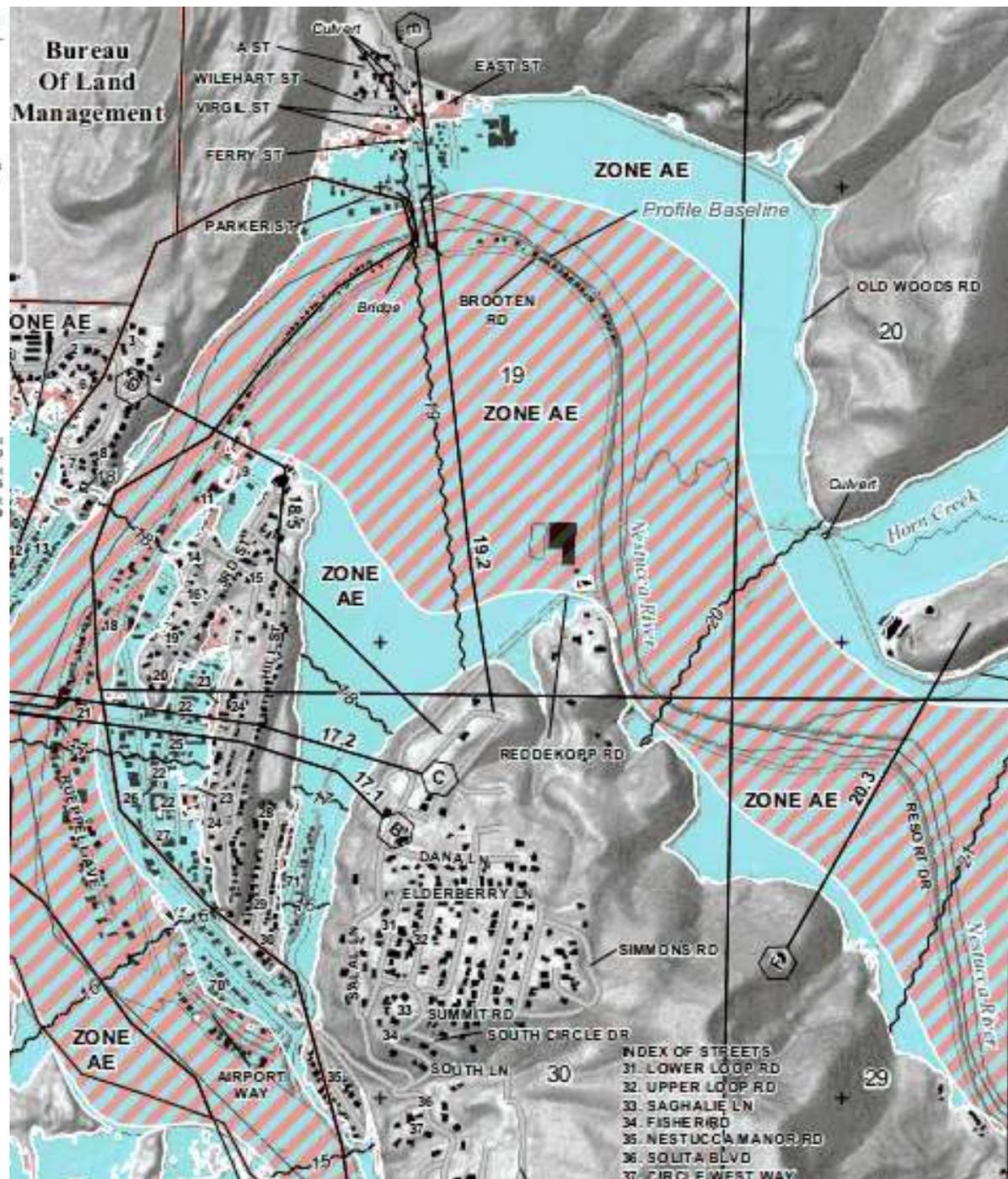
COMMUNITY	NUMBER	PANEL	SUFFIX
Tillamook County	432199	0855	A/A

DRAFT - WORK MAP
 March 17th, 2014

VERSION NUMBER
 3.0.0.0

MAP NUMBER
 41057C0855

EFFECTIVE DATE
 September 09, 9999



- Forthcoming Flood Insurance Rate Maps will show flood insurance zones and Floodway on the same sheet of paper
- The draft maps you have already seen may change as a result of FEMA's demand that Tillamook County provide new flood models for portions of the Nestucca and Nehalem Rivers

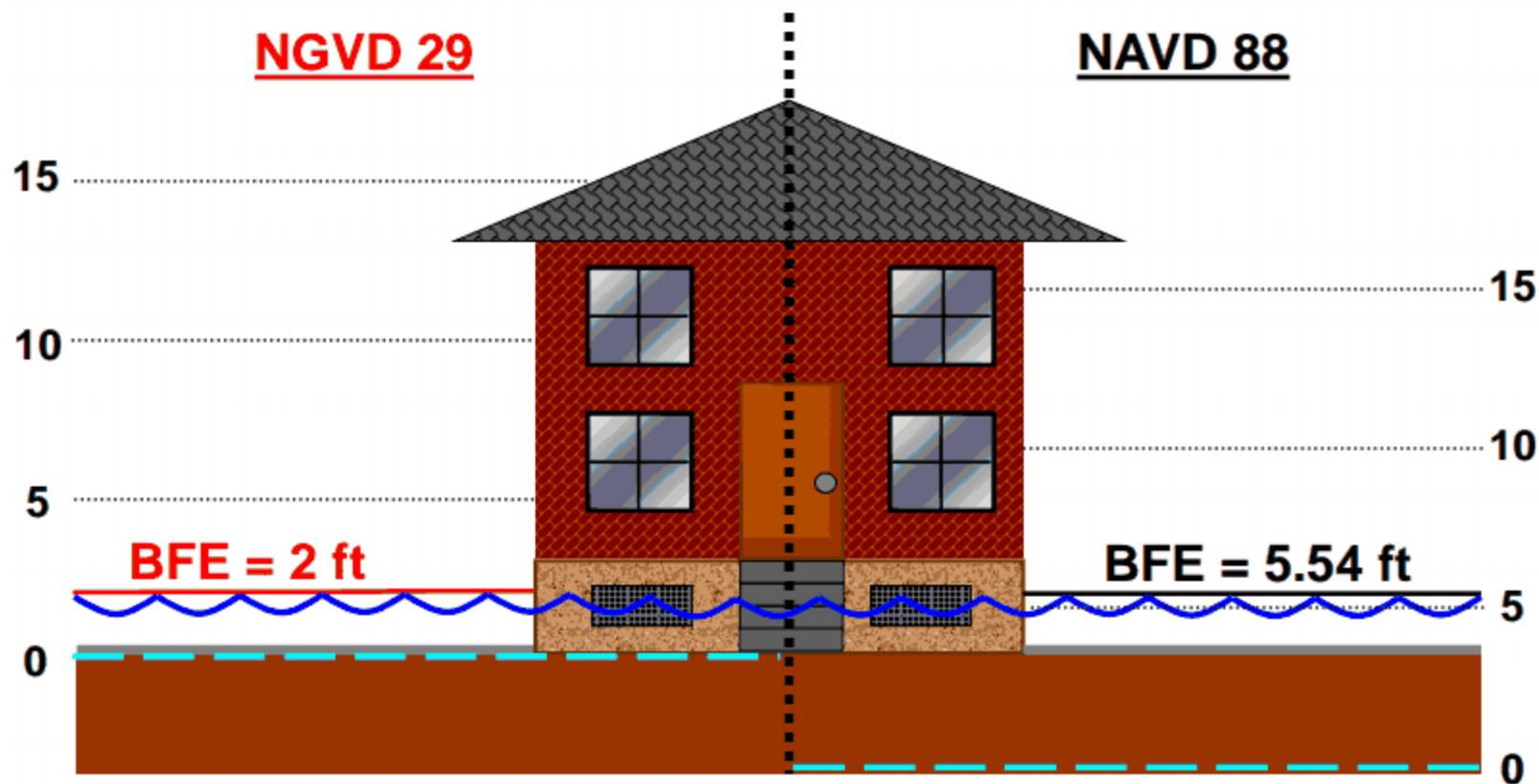
What's new

Vertical Datum Change

- **NGVD 29**
 - Based on a mean sea level from 21 tidal stations in the US & 5 stations in Canada
 - **NAVD 88**
 - Based on the density of the Earth instead of varying values of sea heights
 - More accurate
 - **Conversion for Tillamook County Varies**
 - $\text{NGVD} + (\text{vertical adjustment}') = \text{NAVD}$
 - Conversion factor for County for FIS is 3.54 feet
-

Digital Flood Insurance Rate Maps

Vertical Datum and FIRMs (e.g. uses 3.54' conversion)



County must adopt Floodway and implementing regulations

- To be a participant in the National Flood Insurance Program, the County was required to adopt a floodway and implementing regulations
- FEMA checks up on County implementation of regulations at “Community Assistance Visits”
- It was during a CAV that FEMA “discovered” incorrectly permitted development in the floodways of the Nesstuca and Nehalem Rivers
- This development was not reflected in the modeling associated with the new flood maps
- As a result, FEMA is requiring the County to remodel the floodways ; the new model will be included in the new flood maps

Adopt a regulatory floodway into local development code

Prohibit encroachments into the adopted floodway unless hydrologic and hydraulic study demonstrates no increase in flood levels within the community

Any encroachment that results in a rise must be reviewed by FEMA as a Conditional Letter of Map Revision

44 CFR Part 60.3(e)

(2) Select and adopt a regulatory floodway based on the principle that the area chosen for the regulatory floodway must be designed to carry the waters of the base flood, without increasing the water surface elevation of that flood more than one foot at any point;

(3) Prohibit encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge;

(4) Notwithstanding any other provisions of §60.3, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first applies for a conditional FIRM and floodway revision, fulfills the requirements for such revisions as established under the provisions of §65.12, and receives the approval of the Administrator.

In the meantime...

- Until new hydrologic and hydraulic modeling is complete, FEMA contends, Tillamook County does not have enough information to verify that development will be “reasonably safe from flooding” and that lowest floor elevations will be above base flood elevation
- As a result, Tillamook County imposed a development moratorium until modeling is complete

What happens if Tillamook County ignores FEMA's CAV requirement?

- County would be put on one-year probation resulting in a \$50 surcharge on every flood insurance policy in the County.
- If County takes no action during probation, FEMA will suspend Tillamook from the National Flood Insurance Program:
 - No NFIP flood insurance will be available ; mortgages will be difficult to obtain
 - No Federal grants can be made to make repairs to infrastructure and buildings in flood zones