FLOODPLAIN 101
IAFSM 2019

Tuesday March 12, 2019
East Peoria, IL
Housekeeping

➢ Restrooms
➢ Phones, PDAs, Pagers, etc.
➢ Breaks & Lunch
➢ Attendance - CECs
➢ Ability to Hear / See
➢ Pacing– Too Fast, Slow
➢ Questions???
Course Topics

- Part 1  Flooding and Floodplain Management
- Part 2  Flood Studies, Maps and Map Changes
- Part 3  Regulations
- Part 4  Ordinance Administration
- Part 5  Flood Insurance & CRS
- Part 6  Mitigation and Disaster Operations
- Questions
- Exercises
- CFM exam help (coastal, etc..)
Part 1
Flooding and Floodplain Management
Part 1 - Topics

- Basic Abbreviations & Terms
- Floodplain vs Floodway
- Minimum Standards of the NFIP
Common Acronyms...

BFE = Base Flood Elevation
FIRM = Flood Insurance Rate Map
NFIP = National Flood Insurance Program
SFHA = Special Flood Hazard Area
Floodplain Basics
Illinois is a VERY Wet State!

Floods are **BY FAR** the most common and the most costly disasters in Illinois.

Floods happen **EVERY YEAR** in Illinois.

Illinois has the nation’s largest **inland** system of floodplains.

Declared Disasters 1993 - 2015
1993 & 1995 MIDWEST FLOODS
2011 MIDWEST FLOODS
Worldwide Evolution of Catastrophes
Insured Losses, 1970-2007

(Property and business interruption (BI); in U.S.$ billon indexed to 2007)
Sources: Wharton Risk Center (2008) - data from Swiss Re and Insurance Information Institute
Climate Change

In Illinois, It’s Happening
No Doubt

Consider higher standards!!
People and Property Are at Risk in the Floodplain

Many Floodplain Residents Don’t Understand the Risk

Many Structures Unnecessarily Located in Floodplain
Engineered Structures Have Provided Protection to Millions

But flood control is not always the answer.
The Hydro ILLOGICAL Cycle

Rain

Flood Amnesia

Panic

Recovery & Reconstruction

Flooding

Concern

Devastation
To join the National Flood Insurance Program (NFIP), a community must adopt local floodplain management regulations.

In Illinois:
89 of 102 Counties have joined the NFIP.
Approx. 900 communities have also joined the NFIP.
Makes Available:

- flood insurance
- disaster assistance
- grants and loans

In Exchange For:

- Local floodplain ordinance and permits which:
  - Prevent increased damages
  - Protect new buildings
  - Keep flooding from getting worse
Three related program areas support the NFIP:

- Flood Hazard Identification (mapping)
- Floodplain Management (regulations, building codes, and zoning)
- Flood Insurance (coverage for residents in NFIP communities)
NFIP
Shared Responsibilities

Federal
State
Local
Definition: “Flood”

General and temporary condition of partial or complete inundation of:

- 2 or more acres of normally dry land
- or
- 2 or more properties...
Overflow of inland or tidal waters
Or From:

Unusual and rapid accumulation or runoff of surface waters from any source.

by Danny J. Higgins
Or from:

Mudflow

river of liquid or flowing mud over normally dry land

(not a landslide)
Or from:

Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood.
Primary Types of Flooding

- Riverine
- Coastal
- Shallow
  - Sheet flow (AO Zones)
  - Ponding (AH Zones)
The floodplain is the land that is subject to a 1% or greater chance of flooding in any given year.
What is a Special Flood Hazard Area (SFHA)?

- Land areas that are at High Risk for flooding are called Special Flood Hazard Areas (SFHA), or floodplains.

- These areas are indicated on Flood Insurance Rate Maps (FIRMS)
Understanding the Floodplain

Natural Stream Flow
Understanding the Floodplain

Base Flood

A flood that has a one-percent chance of being equaled or exceeded in any given year. It often is referred to as the

- “100-year” flood.

“1% chance flood”
Understanding the Floodplain

Base (or 100-year Flood)
A ‘Regulatory Floodway’ means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without increasing the water surface elevation more than a designated height (IL = 0.1’).
Understanding the Floodway

\[ \text{FLOODWAY} + \text{FLOODWAY FRINGE} = \text{100 YEAR FLOODPLAIN} \]

\[ \text{SURCHARGE \ NOT TO EXCEED DESIGNATED HEIGHT} \]

\[ \text{IL- 0.1 FOOT} \]
Understanding the Floodway
Understanding the Floodway

Obstructed Floodway
Base Flood Is Higher
Part 1 Summary Review

Where did we confuse you?

- Basic terms and abbreviations
- NFIP goals
- Floodplain vs Floodway
- Federal, state and local roles
Chris
MAPPING START
9:30 – 10:30
Part 2 - Topics

- Basic Terms
- Types of FEMA Maps
- Flood Insurance Studies (FIS)
- Locate flood elevation on FIRMs
- Updating Maps (LOMCs)
- Levees
Common Acronyms...

BFE = Base Flood Elevation
FHBM = Flood Hazard Boundary Map
FIRM = Flood Insurance Rate Map
FIS = Flood Insurance Study
LOMC = Letter of Map Change
LOMA = Letter of Map Amendment
LOMR = Letter of Map Revisions
NFIP = National Flood Insurance Program
SFHA = Special Flood Hazard Area
Types of FEMA Maps

- Flood Hazard Boundary Maps (FHBM)
- Flood Insurance Rate Map (FIRM)
- Flood Boundary Floodway Map
- Digital Flood Insurance Rate map (DFIRM)
How Do They Make Those EXCELLENT Floodplain Maps?
FIRM Detailed Delineations
3 Mapping Elements

➢ #1 Land Elevations = Topography
    Shape and surface of the floodplain
➢ #2 Flow = Hydrology
    How much rain runs off and how fast it collects
➢ #3 Flow Height = Hydraulics
    How does the water move downstream

Note: Special methods used for coastal flood studies
Cross-sections show how water flows in channels.

**Topography**

1st Mapping Element

Channel Geometry are points in a straight line, each point having distance and elevation.

Channel roughness is given by segments called Manning’s “n”.

- Sta. 0 Elev. 500
- Sta. 1100 Elev. 475
- Sta. 2100 Elev. 475
- Sta. 3100 Elev. 475
- Sta. 4000 Elev. 510
- Sta. 2600 Elev. 450

- $n = 0.19$ (tall grass)
- $n = 0.013$ (concrete)
- $n = 0.15$ (grass)
BM or RM = Carefully measured elevation points from which other elevations are surveyed. These are a surveyor’s starting elevation.

Datums (Not all elevations are equally accurate!)

- MSL = Mean Sea level
- NGVD 29 = National Vertical Datum 1929
- NAVD 88* = Earth’s geoid or mass
- Local datum = Usually very confusing
  * this datum is used for most DFIRMS

Read text of FIS Report for explanation of datum used. Reference marks (RM) are identified on older FIRMS.
Hydrology how rainfall runs-off on different land types
- Flood Discharge (flow), cubic feet per second typically
- Flood Frequency (how often), % chance every year
- Climatology (Global Warming), esp. coastal areas

Calibration check computer model with real flows
- Computer modeling
- Gaged streams – statistical analysis
- Ungaged streams - regression equations
- Coastal storm modeling
Hydraulics 3rd Mapping Element

Hydraulics how runoff flows in lakes, creeks and structures

Lakes and Wetlands store water, releasing overflows

Rivers and Creeks water slowly moves down hill / slopes

Bridges and Culverts force water into smaller openings, increases upstream water levels

Computer Models estimate flows and water levels
  Flood elevation and Floodway determinations
  Coastal Storms surge oceans causing wave run-up
Approximate A Zones

➢ Also called “unnumbered A zones”
➢ Unique – no BFES
➢ Permits still required
➢ Vital reference: FEMA publication 265
  Managing Floodplain Development in Approximate A Zones
Flood Insurance Rate Map (FIRM) Flood Zones

Base Flood Elevation (BFE) Water
Surface elevation (in feet) of the base flood at specific locations

Elevation Reference Marks (RM) Points for which ground elevation data have been established and recorded on the FIRM

Flood Hazard Zones

Zone A, Zone A1–A30, and Zone AE – 100-year or base flood

Zone B - 500 – year flood

Zone C - All other areas
Flood Insurance Rate Map (DFIRM) Flood Zones

Base Flood Elevation (BFE) Water Surface elevation (in feet) of the base flood at specific locations

Bench Marks: Points for which ground elevation data have been established. To obtain information, the FIRM directs you to the National Geodetic Survey

Flood Hazard Zones

Zone A, AE, AH, AO, AR, A99
— 100-year or base flood

Zone X shaded
— 500-year flood

Zone X unshaded
— All other areas
Flood Zones

Zone AR – SFHAs from the decertification of a previously accredited flood protection system that is being restored to provide at least 100 year protection.

Zones AR/A1-30, AR/AE, AR/AH, AR/AO, and AR/A - After restoration is complete, these areas will still experience residual flooding from other flooding sources.

Zone A99 - SFHAs inundated by the 100-year flood to be protected by a Federal flood protection system under construction; no BFEs.

Zone D - Areas in which flood hazards are undetermined. Used with levee protected areas.
Flood Zones

**Zone V** - SFHAs inundated by the 1% annual chance (100-year) flood; coastal floods with velocity hazards (wave action); no base flood elevations are determined.

**Zone B and X (shaded)** - 0.2% annual chance (500-year) area; areas subject to the 100-year flood with average depths of less than 1 foot or with contributing drainage area less than 1 square mile; and areas protected by levees from the base flood.

**Zone C and X (unshaded)** - Areas determined to be outside the 500-year floodplain.
Flood Insurance Rate Map (DFIRM) Flood Zones - V

Base Flood Elevation (BFE) Water Surface elevation (in feet) of the base flood at specific locations

Bench Marks Points for which ground elevation data have been established. To obtain information, the FIRM directs you to the National Geodetic Survey

Flood Hazard Zones

Zone X unshaded - All other areas

Zone X shaded - 500 – year flood

Zone V, VE – Coastal flood zone with velocity hazard (wave action)
Flood Zones

**Zone AO** - Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths are shown, but no floodway

**Zone AH** - Flood depths of 1 to 3 feet (usually areas of ponding; BFEs are shown, but no floodway
AO and AH Floodplain Zones

Shallow flooding
AO – sheet flow - depth
AH – ponding - elevation
100 Year Storm

The 1% chance flood is the basis for the NFIP program

- 100-year flood, also known as “Base Flood”
- Base Flood Elevation also known as “BFE”
- Flood area, also known as “Special Flood Hazard Area” “SFHA”

Detailed maps show 0.2% annual chance “500-year” flood

FIS profiles include: 10-year 50-year 100-year 500-year
Annual Chance: 10% 2% 1% 0.2%
1970s FEMA needed a **beginning regulatory map** to get communities into the NFIP.

Some maps were flooding area recollections by the Public Works Director.
Pre-1988 FIRMS and FBFM
Flood Insurance Rate Map (new format)

Un-shaded X Zone
Zone AE
Floodway
Floodway fringe
Cross section
Base flood elevation
Shaded X Zone
Zone boundary
Approximate A Zone
Digital Flood Insurance Rate Maps
The Next Generation
Use same 100-yr. flow ($Q_{100}$)

Fringe

Normal Stream

Level

Floodway

Use same 100-yr. flow ($Q_{100}$)

Fringe

Flood Level With Fringe Filled (BFE with Floodway)

Total allowable surcharge

BFE

Normal Stream Level
How are floodways delineated?

- Encroachment limits are adjusted to an allowable surcharge of 0.1 foot surcharge in Illinois.

- The allowable surcharge (one foot by FEMA) must not be exceeded at any point along the reach.
Advantages of DFIRMs

- Map revisions will be faster and easier – months instead of years

- Communities will be able to use the digital flood map data with their local data, such as parcel data

- The new flood risk maps will cover entire counties

- If a community is located in more than one county, it will be mapped only to the county border
FEMA Flood Map Service Center: Welcome!

Looking for a Flood Map? 🎨

Enter an address, a place, or longitude/latitude coordinates:

Enter an address, a place, or longitude/latitude coordinates:  

Looking for more than just a current flood map?
Visit Search All Products to access the full range of flood risk products for your community.

About Flood Map Service Center

The FEMA Flood Map Service Center (MSC) is the official public source for flood hazard information produced in support of the National Flood Insurance Program (NFIP). Use the MSC to find your official flood map, access a range of other flood hazard products, and take advantage of tools for better understanding flood risk.

FEMA flood maps are continually updated through a variety of processes. Effective information that you download or print from this site may change or become superseded by new maps over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet.
FEMA’s Map Service Center

➢ Online Digital Maps and FIS
  • Scanned images of older maps
  • DFIRMS of newer maps
  • Option to create FIRMette

➢ Records of letters of map change

➢ Create FIRMettes, FIRMette Tutorial

http://www.msc.fema.gov

Flood Map Help “FMIX” 800 - FEMA MAP
National Flood Hazard Layer (NFHL)

- Online Interactive Map of All DFIRM data


- Can be loaded into Google Earth

- Displays Letters of Map Change (LOMCs) Information
The “FIRMette”

➢ Available online
➢ Scaled to use as regulatory map
➢ Printable
➢ [www.msc.fema.gov](http://www.msc.fema.gov)
➢ Useful for map determination
Paper Maps?
A thing of the past....... 

As of October 1, 2008, customers may ONLY order Digital maps:

- New DFIRM in GIS
- Old non-converted maps will simply be scanned pdfs.
- Existing paper maps in the warehouse will not be distributed. They have been recycled!
Flood Insurance Study (FIS)

Search Results for Lisle, Village of

Click subscribe to receive email notifications when products are updated.

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

- Effective Products (39)
  - FIRM Panels (9)
  - FIS Reports (4)

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<thead>
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<th>Product ID</th>
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- LOMC (25)
- NFHL Data-State (1)
- NFHL Data-County (0)
Components of a Flood Insurance Study (FIS) Narrative

- Appraises a community’s flood problems
- Establishes insurance risk zones
- Community flood history
- Study information
- Plots floodplain boundaries
- Flood elevation profiles
- Provides data to delineate floodways in some communities
Components of a Flood Insurance Study (FIS)

Flood Profile

Water surface profiles
Survey cross-sections
Roads
# Floodway Data Table

<table>
<thead>
<tr>
<th>FLOODING SOURCE</th>
<th>FLOODWAY</th>
<th>BASE FLOOD WATER SURFACE ELEVATION</th>
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<tr>
<td></td>
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<td>REGULATORY</td>
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<tr>
<td>CROSS SECTION</td>
<td>DISTANCE¹</td>
<td>WIDTH (FEET)</td>
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<tr>
<td>A</td>
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<tr>
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<tr>
<td>M</td>
<td>5,370</td>
<td>113</td>
</tr>
</tbody>
</table>

¹ Feet Above Confluence With Lake Highwater
2 Elevation Computed Without Consideration of Backwater From Lake Highwater

TABLE 1: FEDERAL EMERGENCY MANAGEMENT AGENCY
City of Floodville, CA

GREEN RIVER

FLOODWAY DATA
Mapping Level Of Detail

- **Approximate study**—
  - Draws flood floodplain boundaries;
  - no base flood elevations or depths

- **Limited Detail study** –
  - Draws rough flood elevations to low degree of accuracy;
  - BFEs not displayed on FIRM;
  - more accurate than approximate study,
  - less accurate than detailed study

- **Detailed study**—
  - Draws flood elevations (BFEs) or depths on FIRM;
  - often includes floodway and coastal high hazard areas
Accuracy Precedence in riverine flood areas

#1 Floodway Data Table (Most Accurate)

#2 Plotted Profiles (Second Most Accurate)

#3 BFE on FIRM Panel (Least Accurate)
BREAK
10:15 – 10:30
Chris
Map Changes
START
10:30 to 11
Sometimes the maps are just plain wrong!

Sometimes the floodplains are modified.

There is a process to correct them.
Types of Map Changes

MT-EZ Map Changes
- Letter of Map Amendment (LOMA)

MT-1 Map Changes
- Conditional letter of Map Amendment (CLOMA)
- Letter of Map Revision Based on Fill (LOMR-F)
- Conditional Letter of Map Revision Based on Fill (CLOMR-F)

MT-2 Map Changes
- Letter of Map Revision (LOMR)
- Conditional Letter of Map Revision (CLOMR)
- Physical Map Revisions (PMR)
Letter of Map Amendment (LOMA)

House is shown in the floodplain

But NATURAL ground elevations prove it to be higher than the flood elevation
Situation:
Structure is located on NATURALLY high ground

Information needed by FEMA:
Completed MT-1 Form 1 (or MT-EZ)

Cost: “free”
MT-EZ

LOMA: A letter from DHS-FEMA stating that an existing structure or parcel of land that has not been elevated by fill would not be inundated by the base flood.

A – This section may be completed by the property owner or by the property owner’s agent. In order to process your request, all information on this form must be completed in its entirety, unless stated as optional. Incomplete submissions will result in processing delays.

1. Has fill been placed on your property to raise ground that was previously below the BFE?

☐ No  ☐ Yes – If Yes, STOP!! – You must complete the MT-1 application forms; visit http://www.fema.gov/plan/prevent/fhm/dl_mt-1.shtm or call the FEMA Map Information eXchange toll free: (877-FEMA MAP) (877-336-2627)

2. Legal description of Property (Lot, Block, Subdivision or abbreviated description from the Deed) and street address of the Property (required):

First Question: Is there fill??
LOMAs are shown on the NFHL

Example – Oswego, Illinois
Even w/o the DFIRM – LOMAs are shown!

Scores of LOMAs in Downers Grove area!
The E-LOMA

- Internet based system to process simple LOMA requests
- Only available to licensed land surveyors and professional engineers
- Allows determinations to be printed out locally by the user
- Random audits to be completed to verify accurate determinations
Two houses just one block away from each other with drastically different outcomes.
Letter of Map Revision (LOMR)

Floodplain as shown on the floodplain map

New floodplain based on PHYSICAL modification

Base (or 100-year Flood)

Fill

New stream location
Letter of Map Revision (LOMR)

**Situation:**

Physical changes to the floodplain, the floodway, or flood elevations.

**Information needed by FEMA:**

Detailed engineering and MT-2 Form

**Cost:** not cheap $8000+
FMIX (Map and LOMC Help)  
TOLL-FREE HOTLINE  
1-877-FEMA MAP (366-2627)

- Inundated with calls about changing the maps from residents, insurance companies, or appraisers, etc?
- Need to know the status of a current LOMA /LOMR?
# LOMC Fee Schedule

<table>
<thead>
<tr>
<th>Requests for Single-Lot, Single-Structure Map Change</th>
<th>Paper Form Fee</th>
<th>Online LOMC Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Lot or Single-Structure LOMA</td>
<td>Free</td>
<td>Free</td>
</tr>
<tr>
<td>Single-Lot/Single-Structure CLOMA and CLOMR-F</td>
<td>$600</td>
<td>$500</td>
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<tr>
<td>Single-Lot/Single-Structure LOMR-F</td>
<td>$525</td>
<td>$425</td>
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<tr>
<td>Single-Lot/Single-Structure LOMR-F Based on As-Built Information (CLOMR-F previously issued by FEMA)</td>
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<table>
<thead>
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<th>Requests for Multiple-Lot/Multiple-Structure Map Changes</th>
<th>Paper Form Fee</th>
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<tr>
<td>Multiple-Lot/Multiple-Structure LOMA</td>
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<td>Multiple-Lot/Multiple-Structure CLOMA</td>
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<td>$6,500</td>
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<tr>
<td>CLOMR Based on Levee, Berm or Other Structural Measures</td>
<td>$7,250 (plus $60/hr)</td>
<td>$7,000 (plus $60/hr)</td>
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<tr>
<td>LOMR Based on Bridge, Culvert, Channel, Hydrology, or Combination Thereof</td>
<td>$8,250</td>
<td>$8,000</td>
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<tr>
<td>LOMR Based on Levee, Berm or Other Structural Measures</td>
<td>$9,250 (plus $60/hr)</td>
<td>$9,000 (plus $60/hr)</td>
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<tr>
<td>LOMR Based on As-Built Information Submitted as a Follow-up to a CLOMR</td>
<td>$8,250</td>
<td>$8,000</td>
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<tr>
<td>LOMR Based Solely on Submission of More Detailed Data</td>
<td>Free</td>
<td>Free</td>
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<tr>
<td>LOMR/CLOMR Based on Structural Measures on Alluvial Fans</td>
<td>$7,250 (plus $60/hr)</td>
<td>$7,000 (plus $60/hr)</td>
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</table>
Levees In Illinois

Failures somewhere in Illinois with every major flood!
“Accredited” Levees In Illinois

Alorton
Alton
Andalusia
Beardstown
Bethalto
Brooklyn
Brookport
Cahokia
Cairo
Caseyville
Centreville
Collinsville
Creve Coeur
Dupo
East Alton
East Carondelet
East Dubuque
East Moline
East Peoria
East St. Louis
Elmhurst
Fairmont City
Fulton
Galena
Golconda
Granite City
Gulfport
Hartford
Harrisburg
Hull
Karnak
Kaskaskia
Keithsburg
Madison
Meredosia
Milan
Moline
Mound City
Mt. Carmel
North Pekin
Oquawka
Ottawa
Peoria
Pleasant Hill
Ponoon Beach
Prairie du Rocher
Quincy
Rock Island
Rosiclare
Roxana
Sauget
Silvis
South Roxana
Venice
Washington Park
Wood River

yellow font = levee certification in question
What is a FEMA “Accredited Levee”?

- Freeboard (3 ft. +++)
- Closures
- Embankment protection
- Foundation stability
- Settlement
- Interior Drainage
- Operation & Maintenance plan

In lieu of these structural requirements, a Federal agency with responsibility for levee design may certify that the levee meets these standards.
FEMA Levee Responsibilities

- Determine and establish appropriate risk zone designations in areas behind levees
- Reflect those determinations on maps
- **FEMA ACCREDIT** levees
  - Establish mapping standards
  - Design, operations, and maintenance
  - Vast Involvement: Public and Local Government
  - Provide at least 1-percent-annual-chance flood protection
- **FEMA DOES NOT** certify levees
Community/Levee owners Responsibilities

If a community or levee owner wants the floodplain maps to recognize protection from the 100-year flood...

*The levee owner* must provide the documentation to show that the levee meets design, construction, and operation & maintenance standards for 100-year flood protection.
Residual Risk Awareness?

There are about 1 million residents behind levees

YET only 1% are covered by a Flood Insurance!!

Floodplain Manager just became aware of his residual levee risk.
Part 2 Summary Review

Where did we confuse you in covering:

• Types of flood maps
• Flood insurance studies (FIS)
• Using maps
• Working with Approximate A zones
• Letters of Map Change (LOMC)?
• Levee accreditation
Part 3
Regulations
Part 3 - Topics

➢ Regulations:
  ➢ State floodway permits
  ➢ Dams
  ➢ Public Waters
  ➢ NFIP Building Protection (elevation/floodproofing)
  ➢ Utilities
  ➢ RVs
State Regulatory Involvement

- Passage of State Legislation
- Adoption of State Model Floodplain Ordinances
- Six Northeastern Illinois Counties
- “Downstate” Counties
Questions ?????

STATE PERMITS
START
11 – 11:30
Heather
IL. DEPT. OF NATURAL RESOURCES
OFFICE OF WATER RESOURCES
PERMITTING

IDNR/OWR (Northeast)
2050 West Stearns Road
Bartlett, IL 60103
(847) 608-3116

IDNR/OWR (Downstate)
One Natural Resources Way
Springfield, IL 62702
(217) 782-0900
IDNR/OWR Permit Programs
Adm. Rules

- Construction in Floodways of Rivers, Lakes and Streams: Part 3700 Rules
- Rules for Construction and Maintenance of Dams: Part 3702 Rules
- Regulation of Public Waters: Part 3704 Rules
- Floodway Construction in Northeastern Illinois: Part 3708 Rules
- Allocation of Water from Lake Michigan: Part 3730 Rules
Floodway Encroachments

Fill at corner Edward & Naquin
State Permit required in a:

- Mapped Floodway

Or

- Floodplain with no identified Floodway
IDNR/OWR Floodway Permit Program (Part 3700 Rules)

The IDNR/OWR exercises jurisdiction over construction in the floodway of watercourses which have a drainage area of:

- 1 square mile or more (640 acres) in an urban area, or
- 10 square miles or more (6400 acres) in a rural area.
- Consult with IDNR/OWR for assistance with determining jurisdiction
IDNR/OWR Floodway Permit Program
(Part 3700 Rules)

The Part 3700 Rule are applicable to:

- All jurisdictional streams in downstate counties regardless of the floodway/floodplain mapping
- Jurisdictional streams in NE IL which do not have regulatory (designated) floodways
IDNR/OWR Floodway Permit Program (Part 3700 Rules)

Two types of Permits are currently offered:

1. **Statewide Permit**
   
   Statewide Permits are pre-authorizations of certain minor projects which are permissible per the Part 3700 rules.

   **A permit application submittal is usually not needed.**

2. **Formal Permit**

   Formal Permits are needed for significant projects which do not meet a Statewide Permit. These projects generally require an extensive project review of engineering data.

   **Examples: New Bridges and Culverts, Levees**
IDNR/OWR Floodway Permit Program
(Part 3700 Rules)

Current Active Statewide Permits

SWP 2 - Bridge and Culvert Crossings of Streams in Rural Areas
SWP 3 - Mooring Facilities Used Exclusively for Barge Floating Purposes
SWP 4 - Aerial Utility Crossings
SWP 5 - Minor Boat Docks
SWP 6 - Minor Non-Obstructive Floodway Construction
SWP 7 - Outfalls
SWP 8 - Underground Pipeline and Utility Crossings
SWP 9 - Minor Shoreline, Stream Bank, and Channel Protection activities
SWP 10 - Accessory Structures and Additions to Existing Residential Structures
SWP 11 - Minor Maintenance Dredging
SWP 12 - Bridge and Culvert Replacement Structures
SWP 13 - Temporary Construction Activities
SWP 14 - Special Uses of Public Waters
IDNR/OWR Floodway Permit Program
(Part 3708 Rules)

The IDNR/OWR exercises jurisdiction over construction in the regulatory floodway of watercourses in Cook, DuPage, Kane, Lake, McHenry and Will counties (excluding the City of Chicago) if the watercourse has a drainage area of:

- 1 square miles or more (640 acres) in an urban area
- 10 square miles or more (6400 acres) in a rural area
- Consult with IDNR/OWR for assistance with determining jurisdiction
Two types of Permits are offered:

1. Regional Permit No. 3
   Regional Permit No. 3 is a pre-authorizations of certain minor projects which are considered permissible per the Part 3708 rules. A permit application submittal is usually not needed.

2. Formal Permit
   Formal Permits are needed for significant projects which do not meet Regional Permit No. 3. These projects generally require an extensive project review of engineering data.
   Examples: Bridges and Culverts, Channel Modification Projects, Flood Control Projects
IDNR/OWR Floodway Permit Program
(Part 3708 Rules)

Current Active Regional Permit

Regional Permit No. 3 - Authorizes underground and overhead utilities, storm and sanitary sewer outfalls, sidewalks, patios, athletic fields, playground equipment and streambank protection activities.

RP1 and RP2 are administered by IDOT

RP3 can be found at https://www.dnr.illinois.gov/WaterResources/Pages/PermitsStatewideRegionalGeneral.aspx
IDNR/OWR Floodway Permit Program (Part 3708 Rules)

- Appropriate Uses
- Floodway Map Revisions
- Delegation
  - Municipalities/Counties
  - IDOT Agreement
IDNR/OWR Floodway Permit Program (Parts 3700 and 3708 Rules)

- Permit Application Review Fees
- Check or Electronic Payment
- Fee Schedule and FAQ

can be found at http://www.dnr.illinois.gov/WaterResources/Pages/default.aspx
IDNR/OWR Permit Program Process

Joint Application Form

Complete and Submit Joint Application Form
When to Submit…

- An application submittal is only needed for jurisdictional construction activities that require a formal permit.
When not to Submit…

- An application submittal is **not** needed for construction activities that:
  - are not jurisdictional.
  - are authorized by a regional or statewide permit.
  - are an exempted activity per administrative rules.
  - can be authorized by IDOT/DOH per MOA.

* a permit application submittal is **needed** for work in a delegated community
What to Submit…

- Permit application package that is tailored to obtaining an IDNR/OWR permit.
  - One size does **not** fit all.
- Properly completed IDNR/OWR copy of application form.
1. Application number.
2. Date Received (day/month/year).
3. Applicant’s name with contact person.
4. Agent’s name.
6. Adjacent Property Owners Information.
7. Project Location.
10. Purpose of Project.
11. For Dredging Projects Only
12. Start Date of Project
13. Projected Date of Completion.
14. Signature.

[https://www.dnr.illinois.gov/WaterResources/Pages/PermitApplicationandInstructions.aspx](https://www.dnr.illinois.gov/WaterResources/Pages/PermitApplicationandInstructions.aspx)
Support Information

- Narrative
- Location Map
- FIRM
- Site Plan
- Grading Plan
- Plotted Cross Sections
- Design Drawings
- Computations/H&H Analyses
- Engineering Report
Do Not Submit…

- More than one copy of the application form, engineering report, drawings, etc.
- Corps of Engineers, IEPA, and Applicant’s copy of the application form.
- Wetland reports needed by COE.
- Full sets of engineering drawings.
- Soil boring reports.*
- Contract documents. *

* May be needed for a dam safety submittal.
Proposed Updates to the Part 3700 Rules

- **Definitions**
  - Adds New Definitions
  - Expands Definitions for Worst Case Analyses

- **Jurisdiction**
  - Expands Explanation for Exempted Activities (converted from some statewide permits)

- **Permit Application**
  - Update Website reference
  - Timetable for OWR Response to applications
  - Technical Guidance for Applications on website
Proposed Updates to the Part 3700 Rules

- Fees
- General Construction
- Bridge/Culvert Crossings
  - New Construction
  - Reconstruction
  - Modification
- Streambank Stabilization
- Boat Docks
Proposed Updates to the Part 3700 Rules

- New Levees/Floodwalls
- Modified Levees/Floodwalls
- Floodplain Construction Without Floodways
- Violations and Enforcement
Dam Safety Permit Program

Part 3702 Rules
Regulation of Dams
Definition

“Dam” – All obstructions, walls, embankments, or barriers, together with their abutments and appurtenant works, if any, constructed for the purpose of storing or diverting water or creating a pool.
Part 3702 Rules
Dam Categorization

➢ Size (small, intermediate or large)
➢ Hazard (Class I, II or III)
When is a dam safety permit required?

- Construction of a new dam (Class I, Class II, or jurisdictional Class III)
- Major Modification to an existing or new dam (Major Structural Change)
- Breach or remove an existing or new dam

An existing dam is defined as a dam which was constructed prior to September 2, 1980.
Class I High Hazard Dam
Part 3702 Rules
Class II Dam with Pedestrian Bridge
Part 3702 Rules
Class III Low Hazard Dam
Part 3702 Rules
IDNR/OWR Public Waters Permits
(Part 3704 Rules)

- Activities in Public Waters
- Navigation impacts
- Encroachments
- Impairment of Public’s rights, interests and uses
- Impairment of Natural Resources
IDNR/OWR Public Waters Permits (Part 3704 Rules)

- Natural Waterways
- Waterways Improved for Navigation
- Man-Made Waterways
- Appendix A
Public Notices

Needed for:

- Projects that involve revisions to the regulatory floodway or flood profile.
- Projects in public waters that are not authorized by a regional, statewide or general permit.
- Formal permits for dams.
Public Waters Park Project & Floodway
Parts 3704 & 3708 Rules
IDNR-OWR Offices

- Northeastern Illinois
  Regulatory Programs Section
  2050 W. Stearns Road
  Bartlett, IL 60103
  Phone 847/608-3116
  Fax 847/931-2037

- Downstate Illinois
  Regulatory Programs Section
  One Natural Resource Way
  Springfield, IL 62702-1271
  Phone 217/782-0900
  Fax 217/785-8100

- Web Site:
  https://www.dnr.illinois.gov/WaterResources/Pages/default.aspx
Questions
Dallas
LOCAL REGS.
START
11:30 – 12:00
Development is ..... 

- Construction of new buildings
- Addition or substantial improvements to existing buildings
- Manufactured (mobile) homes and RVs
- Subdivisions or commercial developments
- Storage of materials
- Filling, grading, & excavating
- Fences, culverts, bridges & roads
- ANYTHING else that changes the floodplain
Any Floodplain “Development” (fences, fills, grading, etc.) Cannot Block or Obstruct the Flow of Water

Holy Crap!
Methods to Elevate Buildings in an A Zone

- Elevation on Fill
- Elevation on flow-thru walls
- Elevation by poles, piers, or columns
Get a Site Plan with elevations

BFE 332

Well

Gas

Septic

333.1 x

333.9 x

329.1 x

x 332.6
Slab on Fill
Criteria for Elevation on Fill

- Usually limited to three or four feet in height
- Fill placed in 6’ layers and compacted (95% proctor)
- Extend fill 10’ around structure
- Side slopes 1’ vertical to 1.5’ horizontal
- Erosion control
House built on fill above the flood elevation
Perimeter Wall Foundation

Opening (typical)
Criteria for Elevation on Perimeter Wall Foundations

- Usually limited to three or four feet in height above grade
- Enclosed areas below the lowest floor must have openings to equalize hydrostatic pressures (1” per 1 sq. ft.).
- Openings no more than one foot above grade.
- Flood resistant materials
- NO HVAC, electric, utilities, etc.
Elevation on Solid Perimeter Walls

- Interior ground level at or above outside grade
- Lowest floor
- BFE
- At least two flood openings on different sides
- No more than 12" above ground
Any enclosed area **must** be flow thru

- Elevated lowest floor
- BFE
- Each opening no more than 1 foot above grade
- Interior grade must be at or above the exterior grade along the entire length of the lowest side to prevent being a basement
NOTE:
ALL DUCT WORK MUST BE ABOVE THE BFE

FLOOD OPENING

HEADER DEPTH PER BUILDING CODE
Crawlspace Rules

➢ Total height no more than 4 feet.
➢ No more than 2’ below grade.
➢ Flow through openings Ratio = 1” per 1’
➢ Interior drainage controls
➢ Flood resistant materials
Crawlspaces – TB 11

Interior above grade?
or
Interior below grade?

Figure 2. Limitations on below-grade crawlspaces in shallow flood hazard areas (TB 11)
Openings in Foundation Walls and Walls of Enclosures

Below Elevated Buildings in Special Flood Hazard Areas in accordance with the National Flood Insurance Program

Technical Bulletin 1 / August 2008
Watch the vents!

“Standard vents” are only 42 sq. in.

Must account for any obstruction due to grates or screening
Engineered Flood Vents

Each is rated differently.

Get the ICC Evaluation Report!
House built on elevated foundation walls

Flow through lower area
What do you notice about the vents?
Non conversion Agreements essential when permitting elevated structures.

Allows for annual inspections with 48 hours notice of a visit.

Recorded with the deed with the County Recorder
NONCONVERSION AGREEMENT FOR CERTAIN STRUCTURES IN THE FLOODPLAIN

Whereas, Permit #___________________ has been issued to construct, improve, or repair the property at ___________________________[address] in the City of _____________________________, _______ [state], and

Whereas, the permitted building has the lowest floor elevated above the [design flood elevation/base flood elevation plus ___ feet] and the design and construction of the building meets current building code and flood damage prevention ordinance requirements, and

Whereas, as a condition of a Certificate of Occupancy, the owner must agree to not alter the building at a later date so as to violate the building code or flood damage prevention ordinance requirements,

Now, therefore, the undersigned owner of said property hereby agrees to the following:

1. That the enclosed area below the lowest floor shall be used solely for parking of vehicles, limited storage, or access to the building and will never be used for human habitation without first becoming fully compliant with the flood damage prevention ordinance in effect at the time of conversion.

2. That all interior walls, ceilings, and floors below the [design flood elevation/base flood elevation plus ___ feet] shall be unfinished or constructed of flood-resistant materials.

3. That mechanical, electrical, or plumbing devices that service the building shall not be installed below the [design flood elevation/base flood elevation plus ___ feet].

4. That the openings in the walls of the enclosed area below the lowest floor shall not be blocked, obstructed, or otherwise altered to reduce the size of the openings or restrict the automatic entry and exit of floodwater.

5. That any variation in construction beyond what is permitted shall constitute a violation of this agreement and Section ___ of Ordinance #_______.

6. That the owner and subsequent owners agree to allow a representative of the City of _____________________________ in the premises to verify compliance with this agreement at least once each year. The City representative will provide at least 48 hours notice of such visit.

7. That this Agreement shall be recorded with the deed to the above property so that subsequent owners are made aware of these restrictions.

_________________________ ___________________________
Signature of Property Owner Witness

Printed name: ___________________________ Printed name: ___________________________

Date: ___________________________ Date: ___________________________

This space reserved for deed recording notations.
Post or Pile Foundation
Post or Pile Foundation

- Should be used in areas of deep flooding and/or high velocities (floodways)
- Properly anchored to resist wind and water forces
- Lower area must remain open (not enclosed later). Get non-conversion agreement.
House built on piers or poles above the flood elevation.
Manufactured homes must be anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act (77 IL Administrative Code 870, IL Dept. of Public Health).

Experience shows that manufactured homes are easily damaged. As little as one foot of water can cause substantial damage.

Dry stacked blocks are not acceptable — they will NOT withstand a flood.
Why Anchor?
Standards for Utilities and Building Systems

- All new construction and improvement shall be constructed with electrical, HVAC, plumbing and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
All utilities, appliances, and equipment must be elevated above the BFE or protected. Utilities include plumbing, electrical, gas lines, heating, and air conditioning.
Above ground tanks
Utilities

Vented area below elevated floor.

Power Outlet

Base Flood Elevation
Recreational Vehicles & Travel Trailers

1. Self propelled or towable by a light duty truck
2. No porch or deck
3. No permanent dwelling. Only seasonal use.
4. No more than 400 sq. ft.
5. Wheels on axles and inflated
6. Quick disconnect utilities
7. Licensed and titled as an RV
8. Supported by wheels or jacks. No blocks.
If an RV is on-site for more than 180 days, it must:
Wet Floodproofing / Minor Accessory Structures

“Permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to enter the structure.”
Wet Floodproofing / Minor Accessory Structures

When to Use Wet Floodproofing

- Enclosed areas below the BFE that are used for parking, building access, or limited storage
- Attached or detached garages
- Minimal value storage sheds and garages
Wet Floodproofing Garages and sheds

- Non-habitable
- Use only for storage and parking & no later modification
- Accessory to an existing structure on same lot
- Flood resistant materials
- No HVAC
- Flow-thru openings
- Less than $15,000 in value and less than 500 sq. ft.
Accessory Structure
Wet Floodproofing Standards

Openings to allow floodwaters to flow in & out
Agricultural Structures

**Variances are allowed for:**
- Pole frame buildings
- Steel grain bins
- Steel frame corn cribs
- General purpose feeding barns open on one side

**Variances are not allowed for:**
- Livestock confinement buildings
- Poultry houses
- Dairy operations
- Similar livestock operations

**Important Information**
Farm houses are not agricultural structures.
Contact IDNR/OWR for additional guidance on variances for agricultural structures.

**State Specific Guidance**
Non-elevated agricultural structures must be considered on a site-specific basis and may be permitted only by a variance. Applicants must show that sites are in “wide, expansive floodplain areas” and no other alternative location outside of the Floodplain exists.

The best flood protection is to elevate agricultural buildings, but certain types can be approved by variance if they are “wet floodproofed.”
ONLY NON-RESIDENTIAL STRUCTURES MAY BE FLOODPROOFED IN LIEU OF ELEVATION.
Floodproofing Requirements

1. Non-residential construction may be floodproofed below the BFE so that the structure is watertight with walls substantially impermeable to the passage of water.

2. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
Floodproofing Certificate

➢ A Floodproofing Certificate is required for all floodproofed structures
➢ The Floodproofing Certificate must be signed by an Engineer
➢ The form can be obtained at: www.FEMA.gov/library/floodproof
The Floodproofing Certificate must be signed by an engineer and on file for EVERY floodproofed structure.
Substantial Improvement
“Improvement” Triggers

✓ Reconstruction
✓ Rehabilitation
✓ Addition
✓ Other improvements
Substantial Improvement

➢ Lateral additions or vertical additions

● 50% increase in market value or
● 20% increase in floor area*

(*Illinois specific ordinance)
Substantial Improvement

The Formula

\[
\frac{\text{Cost of improvement project}}{\text{Market value of the building}} \geq 50\%
\]

Example:

\[
\frac{\$75,000 \text{ project}}{\$140,000 \text{ house}} = 54\%
\]
“Market Value”

- Independent professional appraisal
- NFIP claims data
- Tax or building department estimates
- Detailed Actual Cash Value estimates
- Uniform Residential Appraisal Report (URAR): value depreciation by age/quality
“Improvement or Damage Cost”

Repair or improvement cost data:
- Qualified contractors’ estimates
- NFIP data
- Standard Building Code/Marshall & Swift

Related data:
- Tax assessments
- Surveys
- Other local agencies or departments
Excludable Costs

➢ Repairing existing health/safety violations
➢ Preparation – specifications, surveys, building permit fees, plans
➢ Site work – septic systems, wells, water supplies, landscaping
➢ Items separate from / incidental to improvement
Existing House

FPE

Original Ground
Substantial Improvement
Existing House + Garage/FR/BR Addition

- Raise Existing House & Build Addition above FPE
Vertical Addition Compliant With NFIP Criteria (Zone A)

Existing Pre-FIRM Residential Structure

Before Substantial Improvement

Utility Box

Elevate on fill or crawl required

After Substantial Improvement

Vertical Addition
Substantial Damage
(The 50% Rule)
Substantial Damage

“The 50% Rule”:
If damages from ANY source (flood, fire, tornado, etc..) exceed 50%.
The structure must be brought into compliance with floodplain regulations (elevated or floodproofed).

THE Illinois state model ordinance tracks CUMULATIVE substantial damage
Existing House with Floor Below FPE
Substantially Damaged House Raised & Rebuilt above FPE
Non-Triggers

Correcting existing violations of codes that are minimum necessary for safe living conditions, including:

- Health codes
- Sanitary codes
- Safety codes

Alteration of registered “historic structure” that maintains its historic character
Post-Flood Requirements

- Perfect time to reconstruct the RIGHT WAY!
- Available mitigation funds???
- Flood Insurance help???
- Obtain state or cooperative assistance

- ALL RED TAGGED (substantially damaged) buildings must be brought into compliance regardless of insurance or mitigation availability.
Post Flood Responsibilities

➢ MOVE FAST! Don’t wait for FEMA!

➢ Identify, tag, and document flooded structures

➢ Post information for the public on permit requirements. Use media sources.

➢ Provide technical information

➢ Contact State or FEMA for assistance and guidance if needed.
Field Inspections During FloodCrest
Post Flood – Survey

- Document high water marks
- Digital photos
- Mark locations on map
- Post notices on properties
- Follow up letters
Substantial Damage Regs Work!

Flooded 2008

Red Tagged!

Not Flooded 2013
FEMA Technical Bulletins and References

TB 1 - Openings in Foundation Walls and Walls of Enclosures

TB 2 - Flood Damage-Resistant Materials Requirements

TB 3 - Non-Residential Floodproofing -- Requirements and Certification

TB 4 - Elevator Installation

TB 6 - Below-Grade Parking Requirements

TB 7 - Wet Floodproofing Requirements

TB 10 - Ensuring that Structures Built on Fill In or Near Special Flood Hazard Areas are Reasonably Safe From Flooding

TB 11 - Crawlspace Construction for Buildings Located in Special Flood Hazard Areas
Critical Facilities

Critical Facility- Any facility which is critical to the health and welfare of the population and, if flooded, would create an added dimension to the disaster. Damage to these critical facilities can impact the delivery of vital services, can cause greater damage to other sectors of the community, or can put special populations at risk.

Examples:
✓ Fire and police stations,
✓ schools,
✓ Hospitals,
✓ retirement homes,
✓ major roads and bridges,
✓ critical utility sites,
✓ Hazardous material facilities.

Nursing Home under construction in the floodplain. Caseyville, IL
The last word..
Critical Facilities

If they can’t be located outside of the floodplain all together, make sure the facility and all ingress and egress is located above the 500-year flood elevation!

Snow Valley Nursing Home
Lisle, IL
State and Federal Executive Orders

**Illinois Executive Order V (2006)** – All state agencies must comply with State Regs and NFIP. Critical Facilities.

**Federal Executive Order 11990 (1977)** – Federal agencies, to consider alternatives to wetland sites.

**Federal Executive Order 11988 (1978)** – Federal agencies must protect against flooding. Written prior to NFIP. Vague.

**Federal Flood Risk Management Standards (2016)** – Added layer to EO11988. Fed agencies and funding must comply with FPM regs. Additional flood protection (freeboard, climate change, etc.). **RESCINDED**
LUNCH
12:00 – 12:30
Part 3 Summary Review

Where did we confuse you on regulations:

➢ State floodway permits
➢ Dams
➢ Public Waters
➢ NFIP Building Protection (elevation/floodproofing)
➢ Utilities
➢ RVs
➢ Sub Dam and Sub Imp
DALLAS A.
LOCAL ADMIN.
START
12:30 – 1:15
Part 4
Ordinance Administration
Part 4 - Topics

- Duties of Floodplain Administrators
- Variances
- Community Audits & Compliance
- Recordkeeping
- Elevation Certificates
To participate in the National Flood Insurance Program (NFIP) certain duties are required!!!!!
Everyday Activities

A. Review applications
B. Provide base flood data (where available)
C. Review plans and specifications
D. Ensure that other state and federal permits are obtained
E. Provide notice of water course alterations
F. Issue/deny permits
G. Inspect development
H. Look out for violations
I. Maintain records
A. Review Applications

- Review and evaluate development permit applications
  - Is development in flood *plain*?
  - Is development in flood *way*?

- Require a permit for any development in the floodplain
B. Provide Base Flood Data

- Interpret floodplain boundaries and provide BFE data when available
- If your community map has unnumbered A zones
  - Determine BFE or
  - Require that applicant hire engineer or
  - Make FEMA do it (by applying for a LOMA)
C. Review plans and specs

- Ensure conformance with NFIP floodplain management criteria

- Include review of
  - site plan
  - foundation design
  - thoroughly notated plans
D. Ensure other permits obtained

Advise applicant of other state or federal permits or approvals that may be necessary

Examples include:

- Wetland/404 permit – Corps of Engineers
- NPDES permit - IEPA
- Endangered Species Act *– USFWS/Nat’l Marine Fisheries Service
- State floodway permit requirements
- Other local permits such as storm water management permits, septic permits, etc.
County: LaSalle, Illinois

Need to contact a FWS field office about a species? Follow this link to find your local FWS Office.

<table>
<thead>
<tr>
<th>Group</th>
<th>Name</th>
<th>Population</th>
<th>Status</th>
<th>Lead Office</th>
<th>Recovery Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering</td>
<td>Decurrent false aster</td>
<td>Wherever found</td>
<td>Threatened</td>
<td>Illinois-Iowa Ecological Services Field Office</td>
<td>Decurrent False Aster</td>
</tr>
<tr>
<td>Plants</td>
<td>(Boltonia decurrens)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flowering</td>
<td>Leafy prairie-clover</td>
<td>Wherever found</td>
<td>Endangered</td>
<td>Tennessee Ecological Services Field Office</td>
<td>Leafy Prairie-clover</td>
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<tr>
<td>Plants</td>
<td>(Dalea foliosa)</td>
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<td></td>
</tr>
<tr>
<td>Flowering</td>
<td>Eastern prairie fringed orchid</td>
<td>Wherever found</td>
<td>Threatened</td>
<td>Chicago Ecological Service Field Office</td>
<td>Eastern Prairie Fringed Orchid</td>
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<tr>
<td>Plants</td>
<td>(Platanthera leucophaea)</td>
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<tr>
<td>Insects</td>
<td>Rusty patched bumble bee</td>
<td>Wherever found</td>
<td>Endangered</td>
<td>Minnesota-Wisconsin Ecological Services Field Office</td>
<td>Recovery Outline for the Rusty Patched Bumble Bee</td>
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<tr>
<td></td>
<td>(Bombus affinis)</td>
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</tr>
</tbody>
</table>
E. Notice of water course alterations

Provide required notification of changes in existing water courses to:

- FEMA
- State
- Adjacent communities
F. Issue or deny permits

Floodplain Administrator can:

➢ Issue floodplain development permit
➢ Conditionally approve permit
➢ Deny permit
G. Inspect development

➢ Check development location
➢ Verify construction according to plans

Inspect

✓ Setback from floodway
✓ Foundation construction
✓ Flood resistant material requirements
✓ Utilities and other building systems
✓ Anchoring, at/above BFE, floodproofing
H. Look out for violations

- Investigate potential violations
  ✓ Reported by citizens
  ✓ Reported by other officials
  ✓ Found by chance
- Implement enforcement provisions
- Retrofit to protect from future flooding
- EDUCATE to avoid future violations!
I. “Perfect” Set of Records

- Applications
- Permit and inspection records
- Compliance files – variances, ECs*
- LOMCs and other flood studies
- Old ordinances, old flood maps
- Back-up copies in secure location
- Logical filing system, i.e., by address

* Although not required by NFIP, helps community show compliance to state and FEMA and helps the future owner with flood insurance rating.
Got GIS? Risk Identification!
Variance

➢ Grant of relief from requirements of floodplain development ordinance
➢ Permits construction in a manner that would otherwise be prohibited
➢ Stays with property if sold
➢ Not relief from flood insurance!
➢ Granted by local governing body
Conditions for Variances

1. For a piece of property; not person owning, i.e. addition requested for elderly person in a wheelchair so owner doesn’t want to elevate
2. Is the minimum necessary to afford relief
3. If within designated regulatory floodway, cannot cause increase in flood levels during base flood
4. No extraordinary public expense
5. No increase in flood heights
Conditions for Variances

6. No fraud or victimization of public
7. No conflict with existing local laws or ordinances
8. No increased threat to public safety or creation of nuisance
Key to Valid Variance

“Unnecessary hardships”

➢ Loss of all beneficial or productive use
➢ Deprivation of reasonable return on property
➢ Rendering property valueless
➢ Inability to develop property in compliance with the regulations
➢ Reasonable use cannot be made consistent with regulations
Insufficient Reasons

- Less than drastic depreciation of property
- Convenience of property owner
- Circumstances of owner not the land
- To obtain better financial return
- Property similar to others in neighborhood
- Hardship created by owner’s own actions
If a Variance is Issued

A community must

- Maintain a record of all variance actions, including those denied, along with the justifications (findings of fact).
A Word of Advice...

**DO NOT GRANT VARIANCES!**

They place people and property at risk, and flood insurance costs sky-rocket.

If you’re going to grant a variance be sure to DOCUMENT!...

...This is the community’s only protection after the flood when damages have occurred.
If full compliance isn’t possible...

Corrective measures should be coordinated with state NFIP Coordinator and FEMA.
Last Resort: Section 1316

✓ All other means of enforcement exhausted
✓ Community officially declares the structure in violation with a notice to owner explaining prospective denial of flood insurance
✓ Declaration/request sent to FEMA
✓ Flood insurance denied until 1316 declaration rescinded by FEMA
Record Keeping

- Provides evidence of activity
- Supports decision-making
- Supports delivery of programs and services
- Demonstrates accountability of person and community
Compliance!

100+ community visits per year.

15+ workshops per year.

5,000 technical assistance per year.

Illinois leads the nation in communities on probation or suspended from the National Flood Insurance Program.

7 communities nationwide kicked out of NFIP. 5 are in Illinois! We (Paul) are serious!
Marilyn Community Visits and ELEV. CERT.
START
1:00 - 1:45
CAVs and CACs provide a way for the FEMA and the state to offer technical assistance to NFIP communities and a way of addressing deficiencies or violations.
Community Assistance Visit
Possible Violations

Examples of deficiencies and violations………

➢ Failure to require ANY permits;
➢ Failure to obtain state floodway permit;
➢ Failure to use proper flood elevation data;
➢ Non-compliant ordinance;
➢ Structures newly built below BFE;
➢ Substantial improvements without compliance
➢ Substantial damage repairs allowed without compliance
➢ HVAC or electric components not elevated;
➢ Failure to correct violations to practicable extent;
➢ Pattern & practice of issuing non-compliant variances;
➢ Allowing non-compliant lower enclosures or no vents;
➢ Fill and debris.
Community Assistance Visit
IF YOU CAN’T GET THE WHOLE THING, GET WHAT YOU CAN REASONABLY AND PRACTICALLY GET, to limit flood damage exposure to people and property. Save your community’s good standing in the National Flood Insurance Program!
WHO’S TO BLAME?

➢ The developer?
➢ The builder?
➢ The owner?
➢ The building official?
➢ The realtor?
➢ The prior administration?

WE DON’T CARE!!!!

Regardless of who is at fault, the violation must be corrected.
Probation

- Formal notification to the community that FEMA regards the community’s floodplain management program as not compliant with the minimum standards of the NFIP.
- An additional $50 dollar premium will be charged on policies sold or renewed during the probation period.
- The minimum probation period is one year.
Suspension

- A community is subject to suspension unless it corrects program deficiencies and remedies all violations by the compliance deadlines set during the probation period.
Effects of Suspension or Non-Participation in the NFIP

➢ No federally-backed flood insurance.

➢ No federal/state grants and loans.

➢ No federal flood disaster assistance.

➢ No federal mortgage insurance.
If your community has any Rep Loss properties...

➢ There is **NO, NO, NO, NO, NO, NO, NO, NO, NO** reason that you should not have adopted a cumulative substantial damage provision in your local ordinance!!!

**NO REASON!**
Illinois is ranked #1 in the nation:

1. Overall flood loss reduction
2. Fewest number of flood insurance claims occurring on newer post-FIRM structures (1%). *Some states have as much as 50% of flood claims taking place on newer post-FIRM buildings.
3. Mitigation of repetitive loss properties (50% no longer make damage claims)
FEMA Elevation Certificate

FEMA

NATIONAL FLOOD INSURANCE PROGRAM

ELEVATION CERTIFICATE

AND

INSTRUCTIONS

2015 EDITION
The Elevation Certificate

11/30/18 Expire Date

Now six pages long!!

At least 2 photos required if being used to obtain flood insurance.
Section A

- Attach a map to show building location if appropriate
- Identify whether the enclosure, crawlspace or garage has engineered flood openings.
- Carefully choose the correct Building Diagrams.
- 3 newer diagrams:
  1. Diagram 1B is for raised-slab-on-grade or slab-on-stem-wall-with-fill buildings.
  2. Diagram 2B shows a building with a basement that has an exterior entrance below ground level (sunken patio or stairway, not a true “walkout”)
  3. The new Diagram 9 is for all buildings (other than split-level) elevated on a below-grade crawlspace that is not a basement (not more than 2 feet below grade and not more than 5 feet below next floor).
**Section A – Property Information**

### ELEVATION CERTIFICATE

*Important: Follow the instructions on pages 1–9.*

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

<table>
<thead>
<tr>
<th>A1. Building Owner’s Name</th>
<th>Policy Number:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.</th>
<th>Company NAIC Number:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>City</th>
<th>State</th>
<th>ZIP Code</th>
</tr>
</thead>
</table>

| A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) |
|--------------------------------------------------------------------------------------------|---------------------|

<table>
<thead>
<tr>
<th>A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.)</th>
</tr>
</thead>
</table>

|-------------------------------|-------|-------------------------------|----------|

<table>
<thead>
<tr>
<th>A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>A7. Building Diagram Number</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>A8. For a building with a crawlspace or enclosure(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Square footage of crawlspace or enclosure(s) sq ft</td>
</tr>
<tr>
<td>b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade</td>
</tr>
<tr>
<td>c) Total net area of flood openings in A8.b sq in</td>
</tr>
<tr>
<td>d) Engineered flood openings? Yes</td>
</tr>
</tbody>
</table>

Background information on the property....NOT you.
Architect will use interior dimensions while EC requires outside dimensions. May mean a shortage in net area of openings. If yes, ICC ES form from manufacturer must be attached.

Must subtract any bars, louvers or grates. Provide notes on manufacturer in Comments area.
**Section A – Property Information**

**Building Diagrams (now 11)**

---

**ELEVATION CERTIFICATE**

*Important: Follow the instructions on pages 1-9.*

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

<table>
<thead>
<tr>
<th>SECTION A – PROPERTY INFORMATION</th>
<th>FOR INSURANCE COMPANY USE</th>
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<tbody>
<tr>
<td>A1. Building Owner’s Name</td>
<td>Policy Number:</td>
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<tr>
<td>A2. Building Street Address</td>
<td>Company NAIC Number:</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>and/or Bldg. No.) or P.O. Route</td>
<td></td>
</tr>
<tr>
<td>and Box No.</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>State</td>
</tr>
<tr>
<td></td>
<td>ZIP Code</td>
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<tr>
<td>A3. Property Description (Lot</td>
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<tr>
<td>and Block Numbers, Tax Parcel</td>
<td></td>
</tr>
<tr>
<td>Number, Legal Description, etc.)</td>
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<tr>
<td>A4. Building Use (e.g.,</td>
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<tr>
<td>Residential, Non-Residential,</td>
<td></td>
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<tr>
<td>Addition, Accessory, etc.)</td>
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<tr>
<td>A5. Latitude/Longitude:</td>
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<td>Long. ____________________</td>
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<tr>
<td>Horizontal Datum:</td>
<td></td>
</tr>
<tr>
<td>□ NAD 1927</td>
<td>□ NAD 1983</td>
</tr>
<tr>
<td>A6. Attach at least 2 photographs</td>
<td></td>
</tr>
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</tr>
<tr>
<td>crawlspace or enclosure(s):</td>
<td></td>
</tr>
<tr>
<td>a) Square footage of crawlspace</td>
<td></td>
</tr>
<tr>
<td>or enclosure(s)</td>
<td>sq ft</td>
</tr>
<tr>
<td>b) Number of permanent flood</td>
<td></td>
</tr>
<tr>
<td>openings in the crawlspace or</td>
<td></td>
</tr>
<tr>
<td>enclosure(s) within 1.0 foot</td>
<td></td>
</tr>
<tr>
<td>above adjacent grade</td>
<td></td>
</tr>
<tr>
<td>c) Total net area of flood</td>
<td></td>
</tr>
<tr>
<td>openings in A8.b</td>
<td></td>
</tr>
<tr>
<td>d) Engineered flood openings?</td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DIAGRAM 1A**

All slab-on-grade single- and multiple-floor buildings (other than split-level) and high-rise buildings, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor is at or above ground level (grade) on at least 1 side.*

---

**DIAGRAM 1B**

All raised-slab-on-grade or slab-on-stem-wall-with-fill single- and multiple-floor buildings (other than split-level), either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor is at or above ground level (grade) on at least 1 side.*

---

**DIAGRAM 2A**

All single- and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

---

**DIAGRAM 2B**

All single- and multiple-floor buildings with basement (other than split-level) and high-rise buildings with basement, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides; most of the height of the walls is below ground level on all sides; and the door and area of egress are also below ground level on all sides.*

---

* A floor that is below ground level (grade) on all sides is considered a basement even if the floor is used for living purposes, or as an office, garage, workshop, etc.
**Diagram 3**

All split-level buildings that are slab-on-grade, either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (excluding garage) is at or above ground level (grade) on at least 1 side.*

**Diagram 4**

All split-level buildings (other than slab-on-grade), either detached or row type (e.g., townhouses); with or without attached garage.

Distinguishing Feature – The bottom floor (basement or underground garage) is below ground level (grade) on all sides.*

**Diagram 5**

All buildings elevated on piers, posts, piles, columns, or parallel shear walls. No obstructions below the elevated floor.

Distinguishing Feature – For all zones, the area below the elevated floor is open, with no obstruction to flow of floodwaters (open lattice work and/or insect screening is permissible).

**Diagram 6**

All buildings elevated on piers, posts, piles, columns, or parallel shear walls with full or partial enclosure below the elevated floor.

Distinguishing Feature – For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings** present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A – Property Information.
All buildings elevated on full-story foundation walls with a partially or fully enclosed area below the elevated floor. This includes walkout levels, where at least 1 side is at or above grade. The principal use of this building is located in the elevated floors of the building.

**Distinguishing Feature** – For all zones, the area below the elevated floor is enclosed, either partially or fully. In A Zones, the partially or fully enclosed area below the elevated floor is with or without openings** present in the walls of the enclosure. Indicate information about enclosure size and openings in Section A – Property Information.

---

All buildings elevated on a crawlspace with the floor of the crawlspace at or above grade on at least 1 side, with or without an attached garage.

**Distinguishing Feature** – For all zones, the area below the first floor is enclosed by solid or partial perimeter walls. In all A zones, the crawlspace is with or without openings** present in the walls of the crawlspace. Indicate information about crawlspace size and openings in Section A – Property Information.

---

All buildings (other than split-level) elevated on a subgrade crawlspace, with or without attached garage.

**Distinguishing Feature** – The bottom (crawlspace) floor is below ground level (grade) on all sides.* (If the distance from the crawlspace floor to the top of the next higher floor is more than 5 feet, or the crawlspace floor is more than 2 feet below the grade [LAG] on all sides, use Diagram 2A or 2B.)
Diagram #1 and 1B – Slab or wall

Next higher floor?
Diagram # 7 - Fully enclosed lower area

Permanent Flow Thru openings are VERY important!
Diagram #8 and #9 – Crawlspaces
(above grade crawl and below grade crawls)
Section A - Property Information - Crawlspaces or enclosures

<table>
<thead>
<tr>
<th>A8. For a building with a crawlspace or enclosure(s):</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<tr>
<td>within 1.0 foot above adjacent grade</td>
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<tr>
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</tr>
<tr>
<td>d) Engineered flood openings?  □ Yes  □ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A9. For a building with an attached garage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Square footage of attached garage  sq ft</td>
</tr>
<tr>
<td>b) Number of permanent flood openings in the attached garage within</td>
</tr>
<tr>
<td>1.0 foot above adjacent grade</td>
</tr>
<tr>
<td>c) Total net area of flood openings in A9.b  sq in</td>
</tr>
<tr>
<td>d) Engineered flood openings?  □ Yes  □ No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION</th>
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<tbody>
<tr>
<td>B1. NFIP Community Name &amp; Community Number</td>
</tr>
<tr>
<td>B2. County Name</td>
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<tr>
<td>B3. State</td>
</tr>
<tr>
<td>B4. Map/Panel Number</td>
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<tr>
<td>B5. Suffix</td>
</tr>
<tr>
<td>B6. FIRM Index Date</td>
</tr>
<tr>
<td>B7. FIRM Panel Effective/Revised Date</td>
</tr>
<tr>
<td>B8. Flood Zone(s)</td>
</tr>
<tr>
<td>B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth)</td>
</tr>
</tbody>
</table>
Crawlspaces

Interior above grade? or Interior below grade?

If interior grade is used to comply with opening elevation must be noted in the Comment section as photos will not show compliance.
**Section A – Property Information**  

**Openings**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
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<tr>
<td>A8.</td>
<td>For a building with a crawlspace or enclosure(s):</td>
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</tr>
<tr>
<td>a)</td>
<td>Square footage of crawlspace or enclosure(s)</td>
<td>sq ft</td>
</tr>
<tr>
<td>b)</td>
<td>Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade</td>
<td>sq in</td>
</tr>
<tr>
<td>c)</td>
<td>Total net area of flood openings in A8.b</td>
<td></td>
</tr>
<tr>
<td>4)</td>
<td>Engineered flood openings?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

| A9.     | For a building with an attached garage: |  |
| a)      | Square footage of attached garage | sq ft |
| b)      | Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade |  |
| c)      | Total net area of flood openings in A9.b | sq in |
| d)      | Engineered flood openings? | Yes | No |
Openings in Foundation Walls and Walls of Enclosures

Below Elevated Buildings in Special Flood Hazard Areas in accordance with the National Flood Insurance Program

Technical Bulletin 1 / August 2008

FEMA
Any enclosed area **must** be flow thru and interior rooms must have openings, i.e. enclosed stairwell.
Watch the vents!

“standard vents” are only 42 sq. in.
Section B – Flood Insurance Rate Map (FIRM) Information

<table>
<thead>
<tr>
<th>B1. NFIP Community Name &amp; Community Number</th>
<th>B2. County Name</th>
<th>B3. State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>B4. Map/Panel Number</th>
<th>B5. Suffix</th>
<th>B6. FIRM Index Date</th>
<th>B7. FIRM Panel Effective/Revised Date</th>
<th>B8. Flood Zone(s)</th>
<th>B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:
- [ ] FIS Profile
- [ ] FIRM
- [ ] Community Determined
- [ ] Other/Source: ____________________________

B11. Indicate elevation datum used for BFE in Item B9:
- [ ] NGVD 1929
- [ ] NAVD 1988
- [ ] Other/Source: ____________________________

B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)?
- [ ] Yes
- [ ] No

Designation Date: ____________________________
- [ ] CBRS
- [ ] OPA

Don’t list map number for the community number
Section B

FEMA Map Service Center website

Map Index date could differ from panel date

<table>
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<th>Effective Date</th>
<th>LOMC</th>
<th>Size</th>
<th>Download</th>
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<td>DL/VIEW</td>
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</table>
Section B – Base Flood Elevation Information Sources

1. Flood Insurance Study
   Floodway data table
   Flood Profile

2. FIRM (least accurate)
What is the BFE at the northwest corner of this house about a quarter of the way between BFE line 688 and 686?

From FIRM – about 686.5

Do you think the private drives might make a difference?
Flood Insurance Study (FIS)

Search Results for LISLE, VILLAGE OF

Click subscribe to receive email notifications when products are updated.

Please Note: Searching All Products by county displays all products for all communities within the county. You can refine your search results by specifying your specific jurisdiction location using the drop-down menus above.

<table>
<thead>
<tr>
<th>Effective Products (39)</th>
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<tbody>
<tr>
<td>▶ FIRM Panels (9)</td>
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<tr>
<td>▶ FIS Reports (4)</td>
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<td>DL</td>
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▶ LOMC (25)
▶ NFHL Data-State (1)
▶ NFHL Data-County (0)
# FIS Floodway Data Table

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<th>CROSS SECTION</th>
<th>DISTANCE</th>
<th>WIDTH (FEET)</th>
<th>SECTION AREA (SQUARE FEET)</th>
<th>MEAN VELOCITY (FEET PER SECOND)</th>
<th>BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD)</th>
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<td>672</td>
<td>4.2</td>
<td>686.0</td>
</tr>
<tr>
<td>EBEB0050</td>
<td>1,754¹</td>
<td>57</td>
<td>126</td>
<td>2.6</td>
<td>686.1</td>
</tr>
<tr>
<td>EBEB0051</td>
<td>1,890¹</td>
<td>57</td>
<td>62</td>
<td>5.2</td>
<td>686.5</td>
</tr>
<tr>
<td>EBEB0052</td>
<td>2,613¹</td>
<td>125</td>
<td>264</td>
<td>1.2</td>
<td>699.1</td>
</tr>
<tr>
<td>EBEB0053</td>
<td>3,263¹</td>
<td>119</td>
<td>198</td>
<td>1.1</td>
<td>713.7</td>
</tr>
</tbody>
</table>

¹ In feet above confluence with East Branch DuPage River

² Actual floodway width cannot be shown on FIRM due to redelineation of floodplain

---

**TABLE 11**

FEDERAL EMERGENCY MANAGEMENT AGENCY

DUPAGE COUNTY AND INCORPORATED AREAS

FLOODWAY DATA

EAST BRANCH TRIBUTARY NO. 3 (EBEB)
FIS Flood Profile

BFE 686
BFEs in Unnumbered A Zones (unstudied floodplains)

- Illinois State Water Survey (?)
- LOMAs in the area – National Flood Hazard Layer
- Highway Engineer/IDOT bridge designs
- Engineering study - Required if development is greater than 5 acres or 50 lots, even if an IDNR permit is not required.
- BFEs in Approximate A Zones Booklet
- Apply for a LOMA--determination will be based on a (conservative) approximate BFE
- **DO NOT CALL Paul Osman!**
### Section C – Building Elevation Information

<table>
<thead>
<tr>
<th>Section C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1. Building elevations are based on:</td>
</tr>
<tr>
<td>*A new Elevation Certificate will be required when construction of the building is complete.</td>
</tr>
</tbody>
</table>

| Benchmark Utilized: | Vertical Datum: |
| Indicate elevation datum used for the elevations in items a) through h) below. | |
| ☐ NGVD 1929  ☐ NAVD 1988  ☐ Other/Source: |

Datum used for building elevations must be the same as that used for the BFE.

| a) Top of bottom floor (including basement, crawlspace, or enclosure floor) |
| b) Top of the next higher floor |
| c) Bottom of the lowest horizontal structural member (V Zones only) |
| d) Attached garage (top of slab) |
| e) Lowest elevation of machinery or equipment servicing the building (Describe type of equipment and location in Comments) |
| f) Lowest adjacent (finished) grade next to building (LAG) |
| g) Highest adjacent (finished) grade next to building (HAG) |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support |

Check the measurement used.  

| ☐ feet  | ☐ meters |

If any item does not apply to the building, enter "N/A" for not applicable.
Deck elevation?

- Section C(h) now captures the lowest adjacent grade at lowest elevation of deck or stairs, including structural support.
- This information is required if the EC is being used to support a request for a LOMA or LOMR-F.
- Is Deck connected to the structure? If standalone structure add details to Comments.
Only surveyors can do lat and long?
## Section E – Building Information (Zone AO and A)

### SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

**E1.** Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Meters</th>
<th>Above or Below HAG</th>
<th>Above or Below LAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Top of bottom floor (including basement, crawlspc, or enclosure) is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) Top of bottom floor (including basement, crawlspc, or enclosure) is</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**E2.** For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Meters</th>
<th>Above or Below HAG</th>
<th>Above or Below LAG</th>
</tr>
</thead>
</table>

**E3.** Attached garage (top of slab) is

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Meters</th>
<th>Above or Below HAG</th>
<th>Above or Below LAG</th>
</tr>
</thead>
</table>

**E4.** Top of platform of machinery and/or equipment servicing the building is

<table>
<thead>
<tr>
<th>Description</th>
<th>Feet</th>
<th>Meters</th>
<th>Above or Below HAG</th>
<th>Above or Below LAG</th>
</tr>
</thead>
</table>

**E5.** Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? [ ] Yes [ ] No [ ] Unknown. The local official must certify this information in Section G.

For insurance purposes or local ordinance compliance (zone AO) only: not for LOMA/LOMR-F purposes
### Section F
Property Owner’s Agent

#### SECTION F - PROPERTY OWNER (OR OWNER’S REPRESENTATIVE) CERTIFICATION

The property owner or owner’s authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

<table>
<thead>
<tr>
<th>Property Owner or Owner’s Authorized Representative’s Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address City State ZIP Code</td>
</tr>
<tr>
<td>Signature Date Telephone</td>
</tr>
<tr>
<td>Comments</td>
</tr>
</tbody>
</table>

Check here if attachments.
Section G
Community Authorization

SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community’s floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G6–G10. In Puerto Rico only, enter meters.

G1. □ The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)

G2. □ A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.

G3. □ The following information (items G4–G10) is provided for community floodplain management purposes.

<table>
<thead>
<tr>
<th>G4. Permit Number</th>
<th>G5. Date Permit Issued</th>
<th>G6. Date Certificate of Compliance/Occupancy Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

G7. This permit has been issued for: □ New Construction □ Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: ____________________________feet __________ meters Datum ____________________________

G9. BFE or (in Zone AO) depth of flooding at the building site: ____________________________feet __________ meters Datum ____________________________

G10. Community’s design flood elevation: ____________________________feet __________ meters Datum ____________________________

Local Official’s Name: ____________________________ Title: ____________________________

Community Name: ____________________________ Telephone: ____________________________

Signature: ____________________________ Date: ____________________________

Comments (including type of equipment and location, per C2(e), if applicable): ____________________________
Required for new insurance policies!!!
Elevation Certificates

Make sure you have the latest form

Download from:
http://www.fema.gov/

or

go to www.FEMA.gov and search “elevation certificate”
Questions?
Part 4 Summary Review

Where did we confuse you in covering:

➢ Duties of Floodplain Administrators
➢ Variances
➢ Substantial damage/improvement
➢ Community Audits & Compliance
➢ Recordkeeping
➢ Elevation Certificates
BREAK START
1:45 - 2:00
Frank
NFIP
START
2:00 – 2:30
Part 5
Flood Insurance
Part 5 - Topics

➢ Basic Terms & Abbreviations
➢ NFIP Insurance Overview
➢ Policy Types and Rating
➢ Increased Cost of Compliance
➢ Community Rating System
➢ Grandfathering
Common Acronyms...

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFE</td>
<td>Base Flood Elevation</td>
</tr>
<tr>
<td>CRS</td>
<td>Community Rating System</td>
</tr>
<tr>
<td>FIRM</td>
<td>Flood Insurance Rate Map</td>
</tr>
<tr>
<td>ICC</td>
<td>Increased Cost of Compliance</td>
</tr>
<tr>
<td>NFIP</td>
<td>National Flood Insurance Program</td>
</tr>
<tr>
<td>PRP</td>
<td>Preferred Risk Policies</td>
</tr>
<tr>
<td>WYO</td>
<td>Write Your Own</td>
</tr>
</tbody>
</table>
National Flood Insurance Program (NFIP)

- Now covers 5.1 million policies in 23,000+ communities.
- $1.3 trillion in risk exposure
- In floodplains - less than 50% coverage.
- In all risk zones – less than 10% coverage.
- Adverse selection – only those who need it buy it.
How Does Flood Insurance Work?
Who Can Buy Flood Insurance?

➢ Anybody in a community participating in the NFIP.

➢ Anywhere within that community (all zones)

➢ Not all flood insurance is NFIP

To purchase an NFIP policy:

▪ Call a licensed insurance agent

▪ If you can’t find an agent who sells flood insurance, call the NFIP helpline at 800-427-4661.

▪ [http://www.floodsmart.gov](http://www.floodsmart.gov)
Coverage Amounts

Buildings
- Up to $250,000 1-4 family residential
- Up to $500,000 other residential
- Up to $500,000 non-residential

Contents
- Up to $100,000 Residential
- Up to $500,000 Non-Residential

Less if community is in the Emergency phase of the program
NFIP Flood Insurance

Can be purchased for:

- a building under construction
- a finished structure
- contents inside an insurable bldg.
Insurable Property
Definition of an eligible building

- 2 or more outside rigid walls
- A fully secured roof
- Permanently affixed to a site
- At least 51% of ACV above ground
- Could be manufactured home or travel trailer if it meets above criteria
NFIP Does NOT Cover

- Basement improvements
- Most personal belongings in a basement
- Structures built over water
Limitations

Basements and enclosures beneath the lowest floor of elevated post-FIRM buildings – limited coverage
Waiting Period
- Generally 30 days, unless...it’s at the time of loan closing, mortgage review or map revision

Lenders
- Must have determination on file
- May require insurance even outside SFHA
Who Writes Flood Insurance?

NFIP flood insurance
- FEMA’s NFIP Servicing Agent
- Write Your Own (WYO) companies

Private flood insurance
- WYO Companies
- Other high-risk insurers, Lloyd’s of London
- Growing interest in some parts of the country
Who MUST buy Flood Insurance?

- Required for buildings in SFHA (floodplain) when:
  - Making
  - Increasing
  - Renewing
  - Extending a mortgage, home equity, improvement, construction, commercial or farm credit loan secured by the building
  OR, when lender becomes aware a building in the SFHA securing the loan is not insured

Remember MIRE
Who **MUST** Buy Flood Insurance?

**Community Status**
- Does the community participate in the NFIP?
- Is insurance available?

**Type of Loan**
- Is the lender Federally regulated?

**Type of Property**
- Is it an insurable structure?

**Location of Property**
- Is it located within a floodplain?
Lender’s Responsibility

Insurance is required when:

- A lender makes, renews, extends, or increases a loan.
- That loan is from a federally regulated lender.
- The loan collateral is a building insurable under the NFIP’s standard policy.
- The building is or will be located in an SFHA.
- The community participates in the NFIP.
- Insurance is also required when a lender learns that such a building is not insured (such as when a lender is notified by its flood hazard determination vendor of a map revision).
How Much Coverage is Required?

- Outstanding principal balance
- Maximum available through the NFIP
- Insurable value of building
- Whichever is less
When do flood insurance policies become effective?

30-Day Waiting Period

- Exceptions for:
  - Insurance in connection with a loan
  - Purchased within 13 months of a map change (1 day)

Good morning…
I’d like to find out about flood insurance.
Lenders Documentation

Lender must complete (or have a vendor complete) a Standard Flood Hazard Determination Form and maintain it in the loan file for the life of the loan.

Lender must notify borrower of the results and maintain documentation that the borrower received the notification.

Do lenders HAVE to hire a third-party determination company? NO!
Flood “Certification” Vendors

- Not FEMA endorsed
- Essentially unregulated industry
- Approx 150 firms but only 1/3 subscribe to NFDA standards and practices
- Quality control issues
- What are they *really* determining?
- Some perform 10,000+ determinations per day (mostly automated)
Flood Insurance Requirements For Typical Residential Sitings In FEMA/HUD Designated Special Flood Areas

PROPERTY IN FLOOD HAZARD STRUCTURE A IS NOT INSURANCE IS NOT REQUIRED.

STRUCTURE E IN SFHA ALTHOUGH ON HIGH BLUFF - [THIS SITUATION CAN RESULT FROM INADEQUATE BASE DATAMAPs].
LENDER MUST REQUIRE INSURANCE INITIALLY BUT BUYER [BUILDER] MAY REQUEST "LETTER OF MAP AMENDMENT" UNTIL APPROVAL. BUYER/BUILDER MAY RECEIVE REFUND.

STRUCTURE B IN SFHA - BUT SUBSTANTIALLY ELEVATED ON NATURAL KNOLL - TOO SMALL TO BE SHOWN ON MAP.
LENDER MUST INITIALLY REQUIRE INSURANCE. BUYER [OR BUILDER] CAN REQUEST "LETTER OF MAP AMENDMENT" - IF REQUEST IS GRANTED, INSURANCE MAY BE REFUNDED.

STRUCTURE C IN SFHA.
INSURANCE REQUIRED.

STRUCTURE [F] LOCATED IN SFHA.
SUBSTANTIALLY ELEVATED ON FILL - INSURANCE INITIALLY REQUIRED - BUT BUYER/BUILDER MAY REQUEST "LETTER OF MAP REVISION".
ELEVATED THROUGH MEANS OTHER THAN FILL [POSTS, PIERS, PILINGs, ETC.].
INSURANCE ALWAYS REQUIRED.

STRUCTURE D LOCATED IN SFHA, NOT ELEVATED.
INSURANCE REQUIRED.
Deductibles

Standard

- $1,000  Post FIRM
- $2,000  Pre FIRM

Higher deductibles available for lower premiums

Separate deductible for building and contents
Comparison Cost of Flood Insurance

Existing Pre-FIRM House
(“subsidized” rates)

1 FT ABOVE BFE

$887/year VS $887/year VS $887/year
$26,610 /loan $26,610/loan $26,610/loan

1 FT BELOW BFE

Based on $75,000 bldg. & $20,000 contents coverage. Single family, no basement, standard deductible
Comparison cost of Flood Insurance

Pre-FIRM House

+1 FT
$887/year  VS  $887/year  VS  $887/year
$26,610/loan

-1 FT
$887/year  VS  $887/year  VS  $887/year
$26,610/loan

-10 FT
$887/year  VS  $887/year  VS  $887/year
$26,610/loan

Post-FIRM House

$535/year  VS  $3,037/year  VS  $21,583/year
$16,050/loan  VS  $91,110/loan  VS  $647,490/loan
Risk-Rating Redesign

- NFIP rating methodology is undergoing significant redesign.
- More factors will be incorporated into the rating
- Will rely less on insurance agents’ inputs
- Elevation above or below BFE will still be an important component
- More detail coming in the next several months
The Preferred Risk Policy (PRP)

➢ Written only for areas located outside of the mapped floodplain (B, C and X Zones)

➢ Sold in “packaged” coverage amounts. Very cheap!

<table>
<thead>
<tr>
<th>Building Type</th>
<th>Building Coverage</th>
<th>Contents Coverage</th>
<th>Annual Premium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential w/o basement</td>
<td>$30,000</td>
<td>$12,000</td>
<td>$150</td>
</tr>
<tr>
<td>Residential with basement</td>
<td>$30,000</td>
<td>$12,000</td>
<td>$175</td>
</tr>
<tr>
<td>Non-Residential w/o basement</td>
<td>$50,000</td>
<td>$50,000</td>
<td>$557</td>
</tr>
</tbody>
</table>
“Newly mapped” (formerly the PRP Extension)

➢ Rating for “newly mapped” properties added to the SFHA by a subsequent Flood Insurance Rate Map start at a low price, which gradually increases each year.
“Newly mapped”:
Grandfathering

If homeowner:

- maintains continuous coverage or
- was built in compliance with an old FIRM, insurance can be rated using previous map if it benefits them.
“Old Maps” Rule

Keep old maps!!!

If old maps aren’t available, check for historical maps at: www.msc.fema.gov

Many, but not all, old maps are there.
How can Homeowners reduce the cost of their Flood Insurance?

- With lenders approval, increase the amount of deductible
- If location of the structure is a close call, apply for Letter of Map Amendment
- Mitigate to reduce vulnerability
Options & Actions

➢ Property Owners (and insurance agents)
  ● Identify what full-risk rate is; get an Elevation Cert.
  ● Look into map change (LOMA or LOMR)
  ● Look into effect of higher deductibles
  ● Look into rate-reducing mitigation actions
Options & Actions

Communities

- Join CRS/Increase CRS Rating
- Be aware of mitigation grants
- Work together!
- Provide technical advice
  - Elevation Certificates
  - Building/Rebuilding to reduce flood risk
  - Implement Higher Standards
FLOODPLAIN MANAGEMENT & ITS EFFECTS ON FLOOD INSURANCE

- Building Construction:
  - Get it right and insurance premiums will be affordable
  - Get it wrong and premiums will be very expensive
  - Exceed minimum standards and insurance will be relatively cheap
What is Increase Cost of Compliance (ICC)??

- Part of the standard Flood Insurance Policy.
- Not a grant—property must be substantially damaged by flood while insured to claim ICC.
- Up to $30,000 to assist with code compliance:
  - Floodproof
  - Relocate
  - Elevate
  - Demolish
ICC Details

ICC Claim Filed if Structure was:

- Damaged by flood.
- Substantially or repetitively damaged
ICC opens the Window of
How to Qualify for ICC??

Three conditions must be met to claim the ICC coverage:

- Building must be insured under the NFIP and have a paid claim for flood damage.

- Building must be substantially damaged by a flood or meet the definition of “repetitive loss” due to flood damage.

- The community must determine that the building is substantially damaged by flood and is required by the community’s ordinance to be elevated or removed from the SFHA (and *notify* the owner of this).
When ICC is Approved

➢ The insurance company MAY release up to ½ of the estimated amount to begin construction.

➢ The company will pay all (or the remaining portion) when an elevation certificate and local building permit showing compliance is provided.
QUICK Mitigation is the Key

One month after the flood!!!!
ICC Before and After
Ron CRS START
2:30 – 2:45
Community Rating System (CRS)

- Another way to reduce the cost of a flood policy!
- Community goes above-and-beyond NFIP minimums.
- Must pass a “clean” CAV first.
### Community Rating System in IL

69 Active Communities

<table>
<thead>
<tr>
<th>Community</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams County</td>
<td>8</td>
</tr>
<tr>
<td>Addison</td>
<td>6</td>
</tr>
<tr>
<td>Aurora</td>
<td>7</td>
</tr>
<tr>
<td>Bartlett</td>
<td>6</td>
</tr>
<tr>
<td>Calumet City</td>
<td>6</td>
</tr>
<tr>
<td>Carpentersville</td>
<td>6</td>
</tr>
<tr>
<td>Champaign</td>
<td>5</td>
</tr>
<tr>
<td>Country Club Hills</td>
<td>8</td>
</tr>
<tr>
<td>Crystal Lake</td>
<td>6</td>
</tr>
<tr>
<td>Deerfield</td>
<td>6</td>
</tr>
<tr>
<td>DeKalb City</td>
<td>7</td>
</tr>
<tr>
<td>Des Plaines</td>
<td>7</td>
</tr>
<tr>
<td>Downers Grove</td>
<td>6</td>
</tr>
<tr>
<td>DuPage County</td>
<td>6</td>
</tr>
<tr>
<td>Flossmoor</td>
<td>7</td>
</tr>
<tr>
<td>Glen Ellyn</td>
<td>7</td>
</tr>
<tr>
<td>Glendale Heights</td>
<td>7</td>
</tr>
<tr>
<td>Glenview</td>
<td>5</td>
</tr>
<tr>
<td>Gurnee</td>
<td>6</td>
</tr>
<tr>
<td>Hampshire</td>
<td>7</td>
</tr>
<tr>
<td>Highland Park</td>
<td>8</td>
</tr>
<tr>
<td>Hoffman Estates</td>
<td>6</td>
</tr>
<tr>
<td>Huntley</td>
<td>7</td>
</tr>
<tr>
<td>Jersey County</td>
<td>5</td>
</tr>
<tr>
<td>Lake County</td>
<td>6</td>
</tr>
<tr>
<td>Lake Forest</td>
<td>7</td>
</tr>
<tr>
<td>Lake in the Hills</td>
<td>6</td>
</tr>
<tr>
<td>Lansing</td>
<td>7</td>
</tr>
<tr>
<td>LaSalle County</td>
<td>8</td>
</tr>
<tr>
<td>Libertyville</td>
<td>6</td>
</tr>
<tr>
<td>Lincolnshire</td>
<td>5</td>
</tr>
<tr>
<td>Lisle</td>
<td>5</td>
</tr>
<tr>
<td>McHenry County</td>
<td>7</td>
</tr>
<tr>
<td>Melrose Park</td>
<td>8</td>
</tr>
<tr>
<td>Metropolis</td>
<td>8</td>
</tr>
<tr>
<td>Midlothian</td>
<td>7</td>
</tr>
<tr>
<td>Moline</td>
<td>8</td>
</tr>
<tr>
<td>Montgomery</td>
<td>5</td>
</tr>
<tr>
<td>Mount Prospect</td>
<td>6</td>
</tr>
<tr>
<td>Niles</td>
<td>6</td>
</tr>
<tr>
<td>Northbrook</td>
<td>7</td>
</tr>
<tr>
<td>Northfield</td>
<td>7</td>
</tr>
<tr>
<td>Oak Brook</td>
<td>7</td>
</tr>
<tr>
<td>Ogle County</td>
<td>7</td>
</tr>
<tr>
<td>Orland Hills</td>
<td>5</td>
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<tr>
<td>Ottawa</td>
<td>2</td>
</tr>
<tr>
<td>Palatine</td>
<td>7</td>
</tr>
<tr>
<td>Peoria County</td>
<td>5</td>
</tr>
<tr>
<td>Prospect Heights</td>
<td>7</td>
</tr>
<tr>
<td>River Forest</td>
<td>7</td>
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<tr>
<td>Riverwoods</td>
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<tr>
<td>Rock Island Co</td>
<td>7</td>
</tr>
<tr>
<td>Roxana</td>
<td>8</td>
</tr>
<tr>
<td>Sangamon County</td>
<td>7</td>
</tr>
<tr>
<td>South Elgin</td>
<td>5</td>
</tr>
<tr>
<td>South Holland</td>
<td>5</td>
</tr>
<tr>
<td>St. Charles</td>
<td>5</td>
</tr>
<tr>
<td>St. Clair County</td>
<td>6</td>
</tr>
<tr>
<td>Sugar Grove</td>
<td>6</td>
</tr>
<tr>
<td>Swansea</td>
<td>7</td>
</tr>
<tr>
<td>Sycamore</td>
<td>7</td>
</tr>
<tr>
<td>Tinley Park</td>
<td>7</td>
</tr>
<tr>
<td>Westchester</td>
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<tr>
<td>Wheaton</td>
<td>6</td>
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<td>Wheeling</td>
<td>6</td>
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<tr>
<td>Whiteside County</td>
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<tr>
<td>Willowbrook</td>
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<tr>
<td>Winnetka</td>
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<tr>
<td>Wood Dale</td>
<td>5</td>
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</tbody>
</table>

(As of Feb 2019)
CRS in Illinois

- Illinois is consistently one of the top states in the nation for CRS participation
- Thirteen communities are class 5 or better
- One CLASS 2 community only 7 in the nation
- 23 of top 50 policy communities enrolled
- 40% of all flood insurance policies in Illinois are in communities that receive CRS discounts.
Incentive

CRS provides an incentive for communities to initiate new flood protection activities.
CRS Activity Examples

Activity 300 - Elevation certificates, Outreach projects

Activity 400 - Higher standards, Open space preservation, Stormwater management

Activity 500 - Acquisition and relocation, Drainage system maintenance

Activity 600 - Flood warning program, levee safety, dam safety
CRS Activities

➢ 300 Public Information Activities
  • 310 Elevation Certificates
  • 320 Map Information
  • 330 Outreach Projects
  • 340 Hazard Disclosure
  • 350 Flood Protection Information
  • 360 Flood Protection Assistance
CRS Activities

- 400 Mapping & Regulatory Activities
  - 410 Additional Flood Data
  - 420 Open Space Preservation
  - 430 Higher Regulatory Standards
  - 440 Flood Data Maintenance
  - 450 Stormwater Management
CRS Activities

➢ 500 Flood Damage Reduction Activities

- 510 Floodplain Management Planning
- 520 Acquisition and Relocation
- 530 Flood Protection
- 540 Drainage System Maintenance

NFIP/CRS
CRS Activities

600 Flood Preparedness Activities

- 610 Flood Warning Program
- 620 Levee Safety
- 630 Dam Safety
# CRS Premium Discounts

<table>
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<th>Points</th>
<th>Discount</th>
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<tr>
<td>7</td>
<td>1500-1999</td>
<td>15%</td>
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<tr>
<td>6</td>
<td>2000-2499</td>
<td>20%</td>
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<tr>
<td>5</td>
<td>2500-2999</td>
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<td>40%</td>
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<tr>
<td>1</td>
<td>4500+</td>
<td>45%</td>
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</tbody>
</table>
CRS Representative for Illinois

Lou Ann Patellaro, CFM
ISO / CRS Specialist
ISO - Commercial Property
Cell – (954) 651-5021
Office/Fax – (708) 634-3040
Part 5 – Summary Review

Where did we confuse you in covering:

• NFIP Insurance Requirements
• Types of flood insurance and policies
• Increased Cost of Compliance (ICC)
• Community Rating System (CRS)
• Grandfathering
Part 6
Mitigation and Post-Disaster Assistance
RON D. MITIGATION START
2:45 – 3:00
You are NOT Supermen and Superwomen

Put a barricade in front of the cave entrance.
Small things can make a big difference
Mitigation Works!

5,000 Buyouts

Adams County 23
Aurora 25
Aurora Township 3
Bath 8
Belleville 52
Birds 67
Birds Bridge 15
Browning 54
Calhoun County 70
Carmi 32
Champaign County 1
Chatham 9
Cleveland 21
Clinton 38
Danville 23
DeKalb 6
DuPage County 49
East Dubuque 8
East St. Louis 572
Elizabethtown 2
Elsah 2
Evansville 18
Fults 25
Grafton 106
Greene County 113
Hamburg 3
Hancock County 54
Hardin 43
Havana 44
Hillview 15
Jersey County 93
JoDaviess County 2
Kampsville 13
Kaskaskia 6
Keithsburg 110
Kendall County 7
Kirkland 65
Knox County 17
LaSalle County 14
Lake County 53
Madison County 47
Marion 46
Mason County 28
McHenry County 1
Montgomery 39
Monroe County 1,400
Oquawka 32
Ottawa 57
Palos Hills 3
Pawnee 3
Pearl 4
Peoria 14
Peoria County 100
Peoria Heights 23
Petersburg 42
Pike County 33
Pontoosuc 20
Randolph County 24
Riverside 10
Riverton 6
Rock Island County 63
Rockwood 11
Rocky Run 12
Sangamon County 61
Shorewood 47
Sidney 10
St. Clair County 270
Thebes 1
Valmeyer 244
Villa Grove 15
Warsaw 5
West Frankfort 31
Whiteside County 8
Grafton, Illinois...
Flood? What flood?

1993

2008

1999

FEMA currently has 3 mitigation grant programs:
- Hazards Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Pre-Disaster Mitigation (PDM)

Other sources:
- IDNR/OWR
- DCEO (HUD funds)
- Metropolitan Water Reclamation District
- Counties and municipalities
Mitigation Funds will NOT Solve all of your Problems

- Limited amount of funds
- Some projects too big
- Some projects too small
- Some don’t qualify under the rules
IDNR Funds

- Acquisition and demolition
- No elevations, no Mobile Homes
- Funds are on a reimbursement basis
- No Cost share
- Can be used as Cost Share for FEMA
- Easier than the FEMA program
- Limited funding
Presidential Declaration

- If a disaster is large enough it can receive a Presidential Declaration
- Declaration can be for Individual Assistance, Public Assistance, and/or Mitigation
- Public Assistance has 406 Program funds that can be used for mitigation. They also have ability to do alternative projects.
- Small Business Administration has their own process.
- Mitigation funds can be used anywhere in the state for any type of project.
- Mitigation project does not have to relate to the disaster, i.e. flood buyouts after a tornado
- Projects need to be a part of the local hazard mitigation plan
Hazard Mitigation Grant Program (HMGP)

- FEMA allocates 15% of the total disaster assistance generated in response to a Presidential declaration toward HMGP.
- Program is administered by the State.
- 75% Federal /25% Local cost share.
- Voluntary and Competitive (No Guarantee).
- Projects must meet benefit-cost, environmental and other Federal, State and local criteria.
- Can fund acquisition, elevation, and small structural flood projects, wind and earthquake projects
- Retrofitting – Elevation, relocation, floodwalls, wet & dry floodproofing and demolition
- Priorities: Substantial damage and repetitive loss
- Voluntary for property owners
Flood Mitigation Assistance (FMA)

- Annual nationwide competitive program
- Yearly Allocation from Insurance Policy Base.
- Requires Flood Mitigation Plan.
- Administered by the State.
- Repetitive Loss properties are targeted.
- Community needs to be in good standing in the NFIP.
- Structures must be insured.
- Voluntary and Competitive (No Guarantee).
Pre-Disaster Mitigation Program (PDM)

- Annual nationwide competitive program.
- Funds projects for all natural hazards.
- Flood insurance is not a prerequisite.
- Mitigation plan is a prerequisite.
- Can fund plans.
- Changing emphasis – can now fund floodwalls, green infrastructure, floodplain and stream restoration.
- Potential for a LOT more money.
Repetitive Loss Structure

➢ Has incurred flood-related damage on 2 occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event (ICC)

➢ CRS defines as 2 or more claims over $1,000 in any 10-yr period

Severe Repetitive Loss Structure

➢ Has at least 4 claim payments (including building and contents) over $5,000 each, and the cumulative amount of such claims payments exceeds $20,000;

➢ For which at least 2 separate claims payments (building payments only) total exceeds the market value of the building.
Rep Loss in Illinois

- 3,814 rep loss properties (9.5% of 40,000 policies)
- $198.5 million in total losses (31% of our total claims)
- At least one property is located in 381 Illinois communities
- 1993 - #5 on the national list!
- 2007 - #15 on the national list!

Every state has frequently flooded properties, but 21 have a 1,000 or more.

Number of repeatedly flooded properties:
- 10,000-25,000
- 1,000-9,999
- 300-999
- 1-299

Mitigation Planning

- States and local communities are required to have plans
- States must use local plans is estimating losses and for establishing priorities for planning and project grants
- Communities must have mitigation plans to be eligible for federal mitigation funds (DMA 2000). HMGP, FMA, and PDM.
- Most plans are now done on a county-wide basis and a community must show participation
What is in a mitigation plan?

- Analyzing the communities risks
- What steps can be taken to mitigate them
- The Pro’s and Con’s of the methods
- Prioritizing the mitigation methods
- How will you accomplish them
- Uploads into the State Mitigation Plan
- Adopted by the local government
- Emphasis on the process – want involvement, dialogue
Don’t Plan for the Past; Plan for the Future

- Urban flooding is becoming more significant
- Increasing number of extreme events
Post Disaster Assistance

Depending on the declaration, federal assistance can include:

• Assistance to state and local governments to help pay for disaster response or damages to public infrastructure
• Money for relief agencies like Red Cross
• Grants and loans to individuals and households for temporary living or personal property damages
• Small Business Administration loans
• Federal tax relief via IRS
Public Assistance Program

States, territories, tribal, and local governments, as well as private nonprofits, can get reimbursed for emergency response activities. It is critical that organizations set up accounting systems in advance of a disaster to increase rates of reimbursement.

The list of activities is extensive and includes:

- Repairs to public infrastructure, i.e. water treatment plants, roadways, public buildings, etc.
- Police and public works overtime pay
- Flood and fire fighting activities
- Supplies and equipment
- Meals for emergency workers
- Evacuation and sheltering operations
Public Assistance Program

FEMA will require building repairs or replacements meet the most recent ICC codes and other hazard mitigation features and will provide funding for the eligible increase in cost.

If a jurisdiction doesn’t have sufficient flood insurance coverage on a damaged building the assistance will be reduced accordingly.

CRS communities must certify to having the necessary flood insurance coverage.
Following a presidential disaster declaration, FEMA will set up disaster centers in the area and set up a disaster number for people to use when requesting assistance.

Two options for residents and businesses, regardless of flood insurance coverage are:

- Small Business Administration low interest loans
- FEMA’s Individual and Household Assistance Program
  - Housing
  - Personal property
  - Real property

If federal assistance is received, flood insurance will be required in the future for the property, regardless of owner.
Part 6 – Summary Review

Where did we confuse you in covering:

• HMGP
• FMA
• PDM
• Mitigation Planning
• Post Disaster Assistance
MITIGATION

IEMA Point of Contact:
Sam Al-Basha
State Hazard Mitigation Officer
Illinois Emergency Management Agency
1035 Outer Park Drive
Springfield, IL  62704
217-785-9942    sam.m.al-basha@illinois.gov

IDNR-OWR Point of Contact
Ron Davis
217-524-7200
Ron.davis@illinois.gov
FEMA Point of Contact:

Frank Shockey
Natural Hazard Specialist
536 South Clark Street
Chicago, IL 60605

312-408-5321

Frank.shockey@fema.dhs.gov
IDNR/OWR Contacts:

Paul Osman
Statewide Programs Manager
(217) 782-4428
Paul.Osman@Illinois.gov

Ron Davis
Downstate Floodplain Manager
(217) 524-7200
Ron.Davis@Illinois.gov
THANK YOU
A great View! Look at all that GREEN in Grafton!
Mapping Example

- New Residential Development
- Site Description
- What is the Base Flood Elevation on Map
- What is the Base Flood Elevation on Study Profile
Mapping Example

➢ First step
➢ Select Correct FIRM Panel
A 150 ft by 150 ft corner lot on the North side of Butler Dr. and on the West side of Heyden Dr.
Mapping Example

➢ Identify Specific Location

A 150 ft by 150 ft corner lot on the North side of Butler Dr. and on the West side of Heyden Dr.
Mapping Example

➢ Identify Specific Lot

A 150 ft by 150 ft corner lot on the North side of Butler Dr. and on the West side of Heyden Dr.
What risk zone is this site located in?

Zone A3

Is this site in the 1% floodplain?

YES – Any risk zone beginning with the letter “A” is the 1% floodplain.
Mapping Example

➢ Is the Site in the Regulatory Floodway?

Map type is the new FIRM (no separate floodway map).

NO – If there was a regulatory floodway on Flat Creek it would have been represented by the “hatched” area.
Mapping Example

- Determine BFE Using FIRM

1. Determine flow direction.

2. Draw upstream BFE line for site.

BFE = 455.5 ft (by FIRM).
Determine BFE Using FIS Flood Profile

1. Still need to determine flow direction and draw BFE line.

Now determine nearest landmark to site

- A. Road crossings
- B. Cross Sections

What is the nearest landmark?
Cross Section “D”
Mapping Example

➢ Determine Distance to closest Landmark

Measure the distance to the nearest landmark along the centerline of the stream.

Distance between Cross Section “D” and site = 5 X 125 ft + 100 ft = 725 ft +/-
Mapping Example

➢ Determine BFE

1. Measure downstream from X-Section “D” 725 ft or 5.8 “squares” or “boxes”.

2. Extend measurement line up to the 1% water profile.

3. Measure horizontally over from the intersection of 1% profile to determine BFE.

\[ \text{BFE} = 454.6 \text{ ft (Nearly a foot lower than FIRM!)} \]
This Flood County, USA’s floodplain ordinance requires all development to be one-foot above the determined BFE, at what elevation could the lowest floor be at this site?

Lowest Floor Elevation = 455.6 feet (By FIS)

Or LFE = 456 feet (If rounding up)
Floodplain Exercise

Single family home located at 1212 Thornbrook Road (on the curve)

1. Floodplain?
2. Floodway?
3. Base Flood Elevation?
4. Construction method to use?
Floodplain Exercise

A single family home located at 512 Woodley Road (southeast corner of Woodley Road and Miller Avenue) has suffered fire damage. The owner wants to repair the home.

1. Floodplain?
2. Floodway?
3. Base Flood Elevation?
4. Construction method to be used?
A convenient store is proposed at 2207 E. College Avenue (northeast corner of College and Rolfe Road)

1. Floodplain?
2. Floodway?
3. Base Flood Elevation?
4. Construction method to be used?
5. Floodproofing?
Floodplain Exercise

A single family home is proposed at 1022 John Street (southwest corner of College Avenue and John Street)

1. Floodplain?
2. Floodway?
3. Base Flood Elevation?
4. Lender zone determination?
5. Filling on lot?
6. Nursing home w/ basement?
Ullin is getting a new Super Walmart on the corner of Ullin Road and East 2\textsuperscript{nd} Street!!!!

1. Floodplain?
2. Floodway?
3. Base Flood Elevation?
4. Construction methods to be used?
Floodplain Exercise

The Mayor of Ullin got a raise! He wants to do a $100,000 improvement to his double-wide trailer. He lives on the corner of Ohio and Cache Street.

1. Floodplain?
2. Floodway?
3. State permit required?
4. Local permit required?
5. Base flood elevation?
Coastal Regs
Coastal Floodplains

Definitions

- Coastal High Hazard Area: an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1 – V30, or VE or V.
Coastal Floodplains

Definitions

- Coastal A Zone: the portion of the SFHA landward of a V zone...which may be subject to wave effects, velocity flows, erosion, scour, or combinations of these forces and are treated as V zones.

Coastal transect
Coastal Floodplain

- Wave Runup Depth ≥ 3ft
- Wave Runup Depth < 3ft

100-Year Stillwater Elevation
100-Year Wave Crest Elevation

100-Year Wave Runup Elevation = BFE

Inland Extent of Wave Runup

Datum (e.g., NGVD, NAVD)
Coastal Floodplain Map

ZONE A10
(EL 11)

ZONE V13
(EL 15)

ZONE V13
(EL 17)

A#, AE, A, AO Zones

V#, VE Zones
Levels of Detail in Floodplain Delineations

**COASTAL FLOOD HAZARD ZONES.**

1. Zone A, Zones A1-A30, and Zone AE are subject to flooding by the base or 100-year flood (1% annual chance), and waves less than 3 feet.

2. Zone B (or shaded Zone X) is subject to flooding by the 500-year flood (0.2% annual chance).

3. Zone C (or Zone X) is all other areas.

4. Zone V, Zones V1-V30, and Zone VE are where waves are expected to be 3 feet or more.

5. **BASE FLOOD ELEVATION (BFE).**
   Water surface elevation (in feet above datum).

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**UNDEVELOPED COASTAL BARRIERS**

- Identified 1983
- Identified 1990
- Otherwise Protected Areas

---

In undeveloped Coastal Barrier Resource Areas (COBRA), NFIP insurance is not available for new or substantially improved structures built after November 16, 1990.
Coastal Barrier Resource Act (CoBRA) of 1982
Coastal Barrier Improvement Act of 1990

- Areas subject to certain flood coverage restrictions. The NFIP is prohibited from writing flood insurance policies on new or substantially improved buildings in these areas.

- There are no CBRS or OPA areas in Illinois.
Building Protection Standards
Coastal High Hazard or V Zone Construction

- Mean High Tide: All new construction in V Zones must be located landward of the reach of mean high tide.

Methods to Elevate Buildings in a V Zone

- New and substantially improved structures must have the bottom of the lowest horizontal member at or above the BFE.
Bottom of the lowest horizontal structural member supporting the lowest floor.
Building Protection Standards
Coastal High Hazard or V Zone Construction (cont.)

Methods to Elevate Buildings in a V Zone

• A certificate of the design foundations for buildings in V zones is required to be submitted prior to permit issuance.
Coastal High Hazard Areas or V Zones

- Structural Fill is prohibited to support buildings.

- Nonstructural fill, such as might be used for landscaping, should be placed so that it does not divert waves and surging floodwaters onto other structures.

Third Edition

FEMA Publication No. 55

This three-volume manual is intended for architects, engineers, building professionals, and community officials who need technical guidance concerning the proper methods of planning, siting, designing, constructing, and maintaining residential buildings in coastal areas subject to flood, wind, and seismic hazards. The manual includes a summary of past coastal hazard events, such as hurricanes, northeasters, and tsunamis; a discussion of coastal hazards and regulatory requirements that affect coastal construction; and detailed design guidance, including formulas and example problems.
Building Protection Standards
Coastal High Hazard or V Zone Construction (cont.)

Connecting the Load Path in the V Zone

- Continuous path from roof to wall to foundation
- Materials that resist deterioration
In V Zones, the applicant must include the V Zone Certificate and an engineer’s certification of design on a breakaway wall.
Building Protection Standards
Coastal High Hazard or V Zone Construction (cont.)

Breakaway Walls (V Zone)
- Minimum standard requires collapse after not less than 10 and no more than 20 pounds per square foot.
Pre-Event
Post-Event
Building Protection Standards
Coastal High Hazard or V Zone Construction (cont.)

Altering Sand Dunes

- Your flood damage prevention ordinance prohibits manmade alterations of sand dunes that will increase potential flood damage.

CoBRA

- NFIP insurance not available.
- You must still review and issue permits.
Permit Issuance (continued)

• Fill is not allowed as a method to elevate buildings in V Zones.

• FEMA does not allow placement of fill in V Zones as a method to remove a site from the mapped floodplain by means of a LOMR.

• Non-structural fill may be used for landscaping purposes and cannot divert waves and water toward any building.