
WATERLINES

News affecting the management and use of Indiana's water resources

DIVISION OF WATER
INDIANA DEPARTMENT OF NATURAL RESOURCES
SUMMER 2012

SPRING TORNADOES IN INDIANA

By Darren Pearson, IDNR

March 2, 2012, was a day that many people in southern Indiana will not soon forget. Tornadoes carved a destructive path through the state.

Gov. Daniels requested a disaster declaration the next day for the counties of Clark, Jefferson, Ripley, Scott, Warrick and Washington. A preliminary damage assessment (PDA) was conducted on March 6 and 7. The PDA indicated that 473 residences were impacted (187 were destroyed, 88 suffered major damage, 108 had minor damage, and 90 were affected).

On March 9 a federal disaster was declared to provide Individual Assistance to the impacted residents in Clark, Jefferson, Ripley, Scott, Warrick and Washington counties. Individual Assistance can include grants for temporary housing and home repairs, low-cost loans to cover uninsured property losses, and other programs to help individuals and business owners recover.

The Federal Emergency Management Agency (FEMA) reported that, as of May 3, \$1,504,212 had been approved to fund expenses not covered by insurance or other programs. Such expenses include temporary rental assistance, repair and replacement of es-

sential household items and disaster-related medical, dental or funeral costs. FEMA reports reported 1,447 registrations received and 639 inspections completed. The U.S. Small Business Administration (SBA) reported \$2,227,700 approvals for homeowners, renters, businesses and non-profits. Forty-five loans have been approved thus far. More approvals are anticipated.

Public Assistance was made available to Clark, Jefferson, Ripley, Scott and Washington counties on March 24. The Public Assistance Program provides grants to state and local governments and certain non-profit entities to assist their response to and recovery from disasters. Specifically, the program assists with debris removal, emergency protective measures and permanent restoration of infrastructure. By April 17, communities in the eligible counties had submitted 37 Requests for Public Assistance. As of May 16, \$414,315 in grants had been obligated.

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*Henryville, Ind., March 8, 2012 – Local officials walk the damaged neighborhood neighborhoods of Henryville that was struck by two deadly tornadoes on March 2 to talk with residents cleaning up and provide the latest recovery information. President Obama issued a major disaster declaration on March 9, two days after the Joint Preliminary Damage Assessments were completed in six counties.
(Photo by Gene Romano/FEMA)*

Tornado damage was not the only issue faced by residents of Henryville, one of the most heavily damaged communities. The Clark County town has two streams, Wolf Run and Miller Fork, that were crossed by the tornadoes. Both streams had Zone A (floodplain areas subject to inundation by the 1 percent annual chance flood event) published on the county's Flood Insurance Rate Map. Clark County floodplain regulations require structures that are substantially damaged by any means and located in the floodplain to be rebuilt with the lowest floor elevated 2 feet above the 1 percent annual-chance-flood elevation. The State Flood Control Act (IC 14-28-1-24(b) (2)) regulates substantially damaged abodes (residences) located in the floodway. In order for substantially damaged residential structures to be reconstructed in the floodway, property owners must first submit plans that show the reconstruction of the residential structure does not extend beyond the original foundation and meets the following conditions: (1) the lowest floor elevation of the abode or residence as reconstructed, including the basement, will be at least 2 feet above the 100-year (1 percent annual chance) flood elevation, (2) the abode or residence will be

designed or modified and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, (3) the abode or residence will be reconstructed with materials resistant to flood damage, (4) the abode or residence will be reconstructed by methods and practices that minimize flood damages, (5) the abode or residence will be

reconstructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and located to prevent water from entering or accumulating within the components during conditions of flooding, and (6) the abode or residence, as reconstructed, will comply with the minimum requirements for floodplain management set forth in 44 CFR Part 60, as in effect on Jan. 1, 1993. If the criteria are met, then a General License is issued by the DNR. If the criteria are not met, the property owner must apply for a formal permit.

To expedite the process, the DNR developed floodway and regulatory flood elevations (RFEs) for the two streams in Henryville. This eliminated the need for the local floodplain administrator to have each affected property owner submit a Request for Floodplain Analysis and Regulatory Assessment (FARA) to determine whether the structure is located in the floodway or fringe, and to obtain an RFE. In addition to the maps and profiles, DNR also provided a letter that explained the floodway requirements and the criteria that needed to be met to obtain a General License. The letter was provided

to residential property owners who suffered substantial damage and are located in the floodway. Example building plans and reference material was also provided to Clark County officials.

Tony Semones, Clark County building inspector, said a total of 45 structures located in the floodplain were damaged by the tornadoes. In the floodway, three structures were substantially damaged. In the fringe, 17 structures were substantially damaged.

Semones said: “The maps that DNR provided enabled me to make a floodway/fringe determination on the structures quickly. Then I could start (the owners) through the process with DNR or the local permit process.”

Debbie Smith, Floodplain Management section manager with DNR, said “This new, proactive approach prevents a delay in the state’s regulatory process that will speed up the community’s efforts in reconstructing damaged buildings.”

One area of concern after tornadoes hit a flood-

plain area is the elevation requirements for reconstruction. When structures are reconstructed 2 feet above the RFE, this often means loss of the basement that was used as shelter during the tornado. The FEMA publication “Taking Shelter from the Storm: Building a Safe Room for Your Home or Small Business” ([fema.gov/library/viewRecord.do?id=1536](https://www.fema.gov/library/viewRecord.do?id=1536)), can be provided to individuals who want to take additional precautions.

The stress of a tornado and its aftermath to those directly impacted is enormous. Adding floodplain requirements to an already stressful situation can cause a lot of frustration. Damage determinations for structures located in the floodplain must be made by the community’s floodplain administrator every time there is damage (tornado, fire, earthquake and flood). DNR has developed a Post-Flood Responsibilities Guide, dnr.IN.gov/water/files/407_all.pdf. The basic requirements apply to any type of damage in the floodplain.

Make sure you are prepared for the next disaster that impacts the floodplain in your community. ☞

STATE FAIR

Floodwaters will rise again in Wetville during the State Fair, Aug. 3-19. Come to the DNR Building, kids or no kids, and visit the floodplain model with its tiny towns, threatening thunderclaps,

occasional rainfall, flowing water, floating cars, animals, homes and earthen dams. It’s a low-tech display that has brought great enjoyment to young and old for more than 25 years. The DNR building is cool, both in temperature and aesthetics. It makes learning fun. ☞

CONGRATULATIONS TO NEW CFM



Kevin Breitzke, county surveyor for Porter County, recently passed the Certified Floodplain Manager (CFM) exam. He is now one of 84 Indiana CFMs.

The role of the nation’s floodplain managers is expanding because of increases in disaster losses, the emphasis being placed upon mitigation to alleviate the cycle of damage-rebuild-damage, and a recognized need for professionals to adequately address these issues. Floodplain

managers come from a variety of curricula and backgrounds. This certification program will lay the foundation for ensuring that highly qualified individuals are available to assist the public with wise floodplain management.

This national program for professional certification of floodplain managers was established by the Association of State Floodplain Managers. The program recognizes continuing education and professional development that enhance the knowledge and performance of local, state, federal and private-sector floodplain managers. For more information on the CFM program, visit [floods.org](https://www.floods.org). ☞

THE NFIP, CRAWLSPACES AND BASEMENTS – IT'S CONFUSING

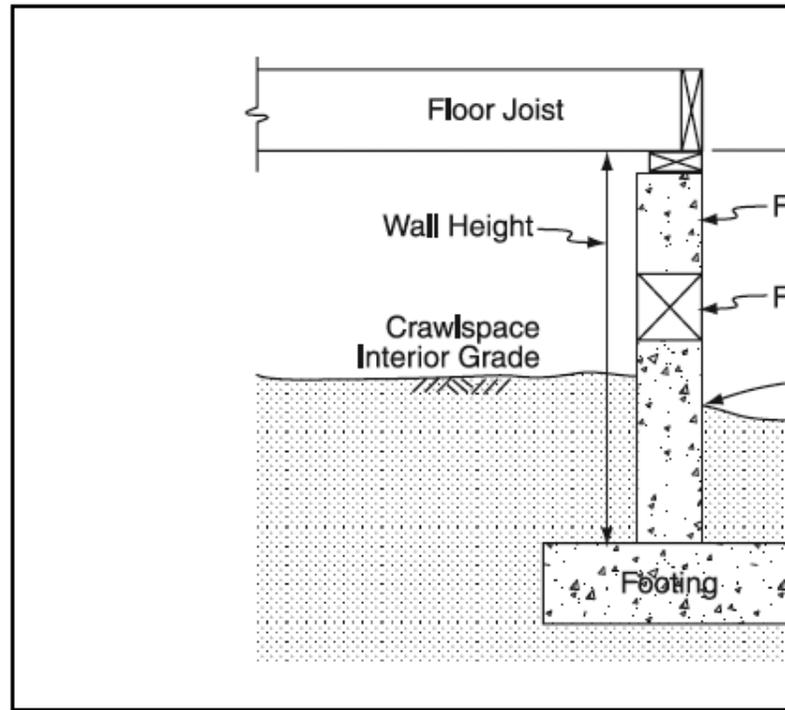
By Anita R. Nance, CFM, IDNR

Since the redesign of the Federal Emergency Management (FEMA) elevation certificate in 1999, it seems the spotlight has been on crawlspaces, sometimes defined as basements.

Even so, many are still trying to understand the confusing aspects of the National Flood Insurance Program (NFIP) rules on such areas.

Below-grade crawlspaces have been a common construction practice in this region, including floodplain areas, for decades. Before the redesign of the elevation certificate, the construction techniques and elevations related to the interior grade of crawlspaces generally were not well documented. Little attention was given to this element of the building protection standards, not until the perfect FEMA storm hit—a revamped elevation certificate with detailed elevation data combined with reports of FEMA having high numbers of flood insurance claims for flood-damaged mechanical equipment, such as duct work, located in crawlspaces. The combination drew focus to crawlspace construction; however, the overhauled elevation certificate provides data that reveal the compliance status for several construction components, regardless of the type of construction.

Confusingly, there is a difference between the technical and insurance components of the NFIP. Just because a building was built in accordance with the NFIP and local building protection standards, doesn't necessarily mean it will be exempt from mandatory flood insurance requirements. Meeting the building protection standards such as elevation to the base flood elevation (flood protection grade in Indiana), anchoring to resist flotation, and using flood resistant materials certainly makes the building safer; but these measures do not remove it from the Special Flood Hazard Area. These measures reduce the risk to the structure, which is the primary goal, and they result in cost savings in regard to flood insurance rates as com-

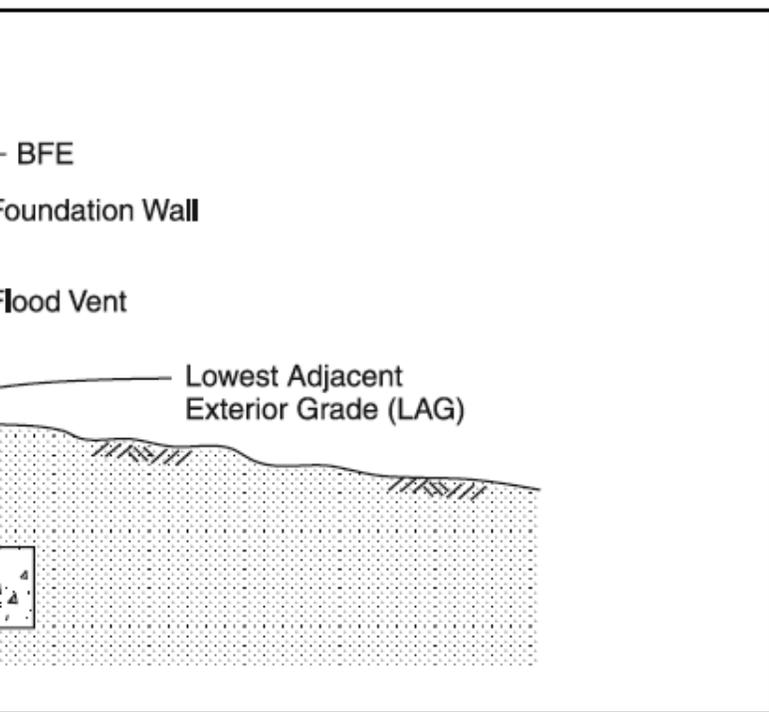


Preferred crawlspace construction.

pared with a noncompliant structure. To receive a complete waiver from the flood insurance requirements, the entire building must be removed from the 1% annual chance floodplain by placing compacted fill or altering the floodplain. This removal action must be documented with a Letter of Map Revision from FEMA.

Another source of confusion is the definition for basement in the Code of Federal Regulations, 44 CFR 59.1. In accordance with the Code of Federal Regulations, “Basement” means any areas of the building having its floor below grade (below ground level) on all sides.” This definition does not include information as to how far this has to be, only that it is below the adjacent grade. So, whether it's a floor that is 2 inches, 2 feet, or 10 feet below grade it would be considered to be a “basement” according to this definition. Adding to the confusion, Code of Federal Regulations has no definition for crawlspace. However, FEMA published Technical Bulletin 11 (TB-11) in November 2011 titled “Crawlspace Construction for Buildings Located in Special Flood Hazard Areas, National Flood Insurance Program Interim Guidance.”

This bulletin provides information on preferred



(TB-11)

crawl space construction and specific guidance regarding below-grade crawl space construction. A word of caution to individuals or communities who consider below-grade crawl space construction; there are additional requirements for below-grade crawl spaces that the community must incorporate into its floodplain management ordinances in addition to NFIP requirements.

The NFIP requirements for crawl spaces require the building to be designed and adequately anchored to resist flotation, collapse and lateral movement of the structure, resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Additionally, as an enclosed area below the base flood elevation (BFE), the crawl space must have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. (For guidance on flood openings, see Technical Bulletin 1, *Openings in Foundation Walls*.) NFIP regulations also require that portions of the building below the BFE be constructed with flood-resistant materials; and, any building utility systems within the crawl space be elevated above the BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. (For further guidance on the placement

of building utility systems in crawlspaces, see FEMA 348, *Protecting Building Utilities From Flood Damage*.) In Indiana all these requirements must be further strengthened by protecting to the Flood Protection Grade (FPG), which is 2 feet above the BFE.

If the community chooses to amend its floodplain ordinance to allow for the construction of below-grade crawlspaces, the ordinance must include these additional provisions:

- The interior grade of a crawl space below the BFE must not be more than 2 feet below the lowest adjacent exterior grade (LAG)
- The height of the below-grade crawl space, measured from the interior grade of the crawl space to the top of the crawl space foundation wall, must not exceed 4 feet at any point.
- There must be an adequate drainage system that removes floodwaters from the interior area of the crawl space.
- The velocity of floodwaters at the site should not exceed 5 feet per second for any crawl space.

See the TB-11 for more detailed information on the requirements, including diagrams.

In regard to flood insurance, note that the guidelines also warn that “rates for buildings with below-grade crawlspaces will be higher than rates for buildings that have the interior grade of the crawl space at or above the adjacent exterior grade, since the risk of flood damage is greater for the former type of construction.”

In the case of below-grade crawlspaces that are done in compliance with TB-11, a submit-to-rate may provide the best results. So, *before* anyone constructs any type of building in the floodplain, they should make certain they understand not only all the construction requirements specific to the proposed structure on the planned site, but also the flood insurance ramifications. ☞

CONFERENCE CORNER

INDIANA WATER RESOURCES ASSOCIATION (IWRA) 2012

The 33rd annual IWRA Spring Symposium will be held June 13-15, at Spring Mill State Park Inn in Mitchell. The theme is “Exploring the Lost River: Indiana’s Unique Water Resource.”

The Wednesday session will consist of talks in preparation for the Thursday field trip when conference attendees will visit many fascinating features, including Wesley Chapel Gulf and the Orangeville Rise. Friday will feature a boat tour of Blue Spring Caverns. For more information, visit iwra.info.

ANOTHER SUCCESSFUL OPERATION STAY AFLOAT

The presentations conducted at the fifth “Operation Stay Afloat” in mid-March have been posted under *featured topics* online at dnr.IN.gov/water.

CHANGE OF ADDRESS FOR LOMC SUBMISSIONS

Starting May, all new Letter of Map Change (LOMC) requests or additional data submittals for requests-in-progress should be sent to this address:

LOMC Clearinghouse
847 South Pickett Street
Alexandria, VA 22304-4605

To speed processing, please address your request to the attention of these processing specialists:

ATTENTION: LOMA MANAGER
Use for MT-1 requests, including Letters of

INDIANA ASSOCIATION FOR FLOOD- PLAIN AND STORMWATER MANAGE- MENT (INAFSM) 2012

The 16th Annual INAFSM Conference will take place in Brown County State Park at the Abe Martin Lodge on Sept.12-14. The conference committee is working to make this the best conference to date.

Registration, lodging and additional conference information will be posted at inafsm.net as it becomes available.

DAM SAFETY 2012

The annual conference of the Association of State Dam Safety Officials will be held Sept. 16-20, at the Colorado Convention Center in Denver. For more information, visit damsafety.org. ☞

Topics covered include the realities of flood-related hazards, new technology, engineering, mapping, flood insurance and mitigation opportunities. The DNR Division of Water and the Indiana Department of Homeland Security (IDHS) presented the event. ☞

Map Revision based on Fill (LOMR-Fs), Letters of Map Amendments (LOMAs), Conditional Letters of Map Revision based on fill (CLOMR-Fs) and Conditional Letters of Map Amendment (CLOMAs).

ATTENTION: LOMR MANAGER
Use for MT-2 requests, including Letters of Map Revision (LOMRs) and Conditional Letters of Map Revision (CLOMRs).

If you have any questions about your type of request, please contact the FEMA Map Information eXchange (FMIX) at 877 FEMA MAP (877-336-2627) or see fema.gov/hazard/map/lomc.shtm. ☞

Frequently Asked Questions



Q: I'd love to buy a house near a man-made lake. What concerns should I check?

A: A man-made lake can bring years of happiness, along with increased property values for homes, recreation, wildlife habitat, drinking water and occasionally hydropower or flood reduction. Buyers and their realtors should temper such dreams with caution, because maintenance and repair costs of man-made dams are the responsibility of their owners.

As you seek dam ownership and condition information, use contingency statements in purchase offers. A dam owner that is a well-funded homeowners association (HOA) or governmental unit, may best serve a buyer. Often dam ownership is private, meaning public funds are generally not available to repair the dam. Owners of the dam also bear the burden of liability if their dam fails. Many dams in the United States are more than 50 years old, have safety deficiencies or need repairs. Such costs are generally substantial. Homes and properties adjacent to the dam often include partial ownership of the dam. Through an HOA, dam ownership responsibilities may extend to homes around the lake.

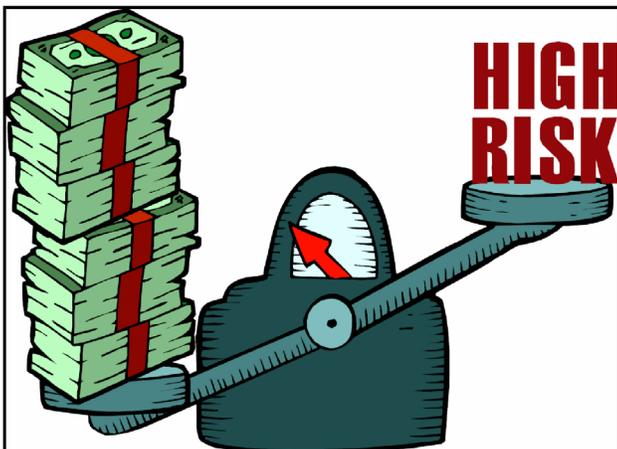


Figure 1-2 Dam ownership can become a high risk if an effective dam safety program is not implemented.

Indiana Dam Safety Inspection Manual

Potential buyers should consider seeking advice from an engineer with specific experience in dam safety, similar to the way they hire other professionals like realtors or home inspectors. Questions to consider:

- Could my family's lives and property be affected by the failure of a nearby dam?
- When was the dam built, or rebuilt?
- Do the home's property boundaries include part of the lake or the dam; who actually owns the dam?
- Is the home's lowest floor built below the elevation of the top of the dam, and thus flood prone?
- Is buying flood insurance advisable, even though it may not be required?
- Has routine maintenance, repairs or updates to structural features been done on the dam?
- Is there a pattern or history of incidents or emergencies with the dam?
- When was the dam last inspected by the owner's engineer, and what was its condition?
- Has the dam owner been responsive to fixing identified potential problems?
- When was the dam's Incident and Emergency Action Plan (IEAP) last updated and practiced?
- Is there a dam failure flood inundation map or an evacuation plan?
- Does the entity who owns the dam seem financially capable of dealing with the current and future responsibilities of the dam?

Potential local sources for answers:

- County emergency management coordinator
- Local building and zoning officials
- Local first responders
- Dam owner

Helpful general Indiana information is at **dnr.IN.gov/water**. The Association of State Dam Safety Officials website also is a great resource for nationwide information: **DamSafety.org**.

You may want to review available materials in Indiana's Dam Safety Section's files. To do so, call the DNR Division of Water's Administrative Section at (877) 928-3755 toll-free, or (317) 232-4160. ☞

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Editor – Anita Nance

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Waterlines is available free of charge to interested parties upon request. Call or write:

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***Waterlines* is also available on the Web at www.IN.gov/dnr/water**