WESTFIELD FLOOD CONTROL COMMISSION
Little River Levee Special Report 2020-2021

THE CITY OF WESTFIELD
HAMPDEN COUNTY, MASSACHUSETTS

Submitted to:
The Honorable Mayor Donald F. Humason Jr. and the Westfield City Council
United States Army Corps of Engineers; Kevin DiRocco, P.E. Levee Safety Manager

Revised:
2/22/21

Prepared by:
Albert G. Giguere Jr.
Chairman
Westfield Flood Control Commission
59 Court Street
Westfield, MA

Overview

"The mission of the Flood Control Commission has been defined as monitoring and reporting on levees and waterways vital to the city's interest. Construction of Arm Brook and Powdermill Brook Flood Control Dams broadened this mission to include routine maintenance and essential improvements. It is therefore the mission of the Flood Control Commission to perform these duties to the fullest extent possible."

The municipal flood control infrastructure is identified as follows:

- **Little River Levee LCA PL 84-99 - United States Army Corps of Engineers (USACE)**

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Little River Levee General Report

Little River Levee was originally built as part of a Presidentially Declared Natural Disaster Relief Effort, in the aftermath of Hurricane Diane. The United States Army Corps of Engineers (USACE) constructed an approx. 2500-foot Levee that was tied-in between the NY NH & Hartford Railroad embankment (now: Columbia Greenway Trail) and an embanked railroad spur that served the Strathmore (now: Sullivan) & Steven's Papermills (now: The Mill @ Crane Pond).

In 1983, Little River Levee was damaged by a storm, and at City-request, the USACE undertook repairs of a 550-foot segment, via the US Flood Control Act of 1936, Public Law 74 -738. The City signed a Local Cooperation Agreement (LCA), under Public Law 84-99 USACE Rehabilitation & Inspection Program, which requires the sponsor to acquire, operate, and maintain to the USACE Regulatory & Safety Standards. Unfortunately, this repaired segment was never fully acquired, nor maintained to those standards.

Currently, the USACE rates the 550-foot segment as "**UNACCEPTABLE**" due to a number of unresolved USACE-identified issues, including but not limited to:

- **Serious deteriorations of two 36-inch Corrugated Metal Pipes (CMPs) that pose a risk for seepage, internal levee erosion, & the potential failure of the levee during a flood event.**
- **Ineffective backflow prevention as the flap gate valves are bypassed via CMP deteriorations.**
- **Large trees & brush growing on the 550-foot levee segment & within 15 feet of levee toe.**
- **Logs and other woody debris obstructing the CMP intakes, internal passages, & outfalls.**
- **The failure to acquire right-of-way for the regulatory footprint of a USACE levee structure.**
- **Installation of a trash rack (obstruction prevention) be installed at the intakes of the CMPs.**

Continual failures to correct the identified issues has resulted in the 550-foot segment becoming "Inactive" and thus, ineligible for federally assisted repairs, if damages are incurred due to a flood event, under the PL 84-99 LCA.

The remaining 2000-feet of levee are bisected by the 550-foot segment noted above. These 2 other segments have not been maintained for decades. They fail to meet any USACE levee safety criteria & lack a USACE PL 84-99 LCA. These segments are not routinely inspected by the USACE, but all 3 segments are regarded as the totality of the Little River Levee's design. According to USACE, this design is intended to help protect approximately 70 acres from flooding, including: Westfield DPW Headquarters & Fuel Depot, nearby Industrial Areas, South Middle School, Boys and Girls Club, United States Post Office, Big Y, & nearby residences, as indicated by USACE.

As a matter of Public Safety and Duty, it is the Flood Control Commission's desire & recommendation that the entirety of Little River Levee, be Acquired and Rehabilitated to USACE Regulatory Requirements.

Short-Term Capital Plan – Little River Levee

In order to reduce the federally-identified risks of property loss, infrastructure damage, contamination, and loss of life produced by a serious flood event, **Immediate Measures** need to be taken to correct the longstanding issues at Little River Levee, as a Point of Public Safety.

It is the Commission's PRIORITY to regain a "Minimally Acceptable" rating for the 550-foot levee segment, on all 18-line items of the United States Army Corps of Engineers (USACE) Flood Damage Reduction System Inspection Report. The USACE has identified the corrective measures required to attain "ACTIVE" Status, under the PL 84-99 Rehabilitation and Inspection Program. "ACTIVE" Status permits eligibility for federal assistance on repairs if damages are incurred due to a flood event, and a potential savings in millions for the City of Westfield. Public Safety Investments into our City's Flood Control Infrastructure improves the valuations of flood-protected properties, making these areas much more attractive in the real estate market for prospective businesses and redevelopment opportunities.

The Flood Control Commission has been attempting to correct the longstanding issues regarding the City's PL 84-99 Local Cooperation Agreement for Little River Levee: **"To acquire the regulatory footprint & begin repairs, as directed by the USACE**."

Outstanding property issues severely limit the Commission's ability to perform maintenance & repairs on the levee. The City Engineer submitted a proposal for $120,000 to acquire 6 identified parcels to make the original 2500-foot Levee whole again, with limitations along a section of the Sullivan property, so as not to negatively impact that business. Additional to this, the Flood Control Commission had committed $10,000 to Tighe & Bond, for Evaluation of CMP Relining Designs, Topographic & Bathymetric Surveys, and Wetland Delineations, but this was put on hold by the City Engineer to recalculate the EEA endeavor. This amount was part of a larger $65,413 proposal for Design & Permitting work. The remaining $55,413 amount is beyond the limitations of the Flood Control Commission's FY2021 budget and was planned to be included in the FY2022 Budget request and is needed to obtain an estimated cost for repairs.

Very recently, a Cost Saving Opportunity was presented, by Mr. Steve Sroka of Tighe & Bond: Mass EEA Grant monies, available under the "Dam and Seawall Repair or Removal Program Design and Permit RFR". This program's application deadline is Friday, February 26, 2021. The program offers a State 75/25 City cost share. Mr. Sroka is created a revised proposal surrounding a **$70,000** amount and the City Engineer, Mark Cressotti submitted the EEA Grant on 2/22/21. If the EEA Grant is approved, the result would be: **$52,500 State /**$**17,500 municipal cost share.**

The Flood Control Commission would like to request an amount of $**137,500 to facilitate the $120,000 cost of acquisition and the approximate $17,500 amount for Tighe and Bond, should the EEA Grant be approved towards the full $70,000 amount noted above.**

Long-Term Capital Plan – Little River Levee

In order to reduce the federally-identified risks of property loss, infrastructure damage, contamination, and loss of life produced by a serious flood event, **Public Safety Investments** are necessary to bring The Whole of Little River Levee up to the safety standards set by the USACE.

It is the Commission's Long-Term PRIORITY for the Whole of Little River Levee to be fully rehabilitated and enrolled in the USACE PL 84-99 Rehabilitation and Inspection Program. Accomplishing this would also allow the City to apply for Federal Emergency Management Agency (FEMA) Accreditation for Little River Levee, under the National Flood Insurance Program (NFIP), Title 44, Chapter 1, Section 65.10. Residents, businesses, and property owners in the levee's zone of protection, would receive sizable reductions in NFIP Insurance Rates. Public Safety Investments into our City's Flood Control Infrastructure improves the valuations of those flood-protected properties, making these areas much more attractive in the real estate market for home buyers, prospective businesses, and development opportunities.

Akin to the Short-Term Capital Plan for Little River Levee, the Eastern and Western Segments of Little River Levee would first need to meet the "Minimally Acceptable" rating, on all 18-line items of the USACE Flood Damage Reduction System Inspection Report and attain "ACTIVE" Status.

To begin this process, the City must first acquire the Whole of the Little River Levee and fulfill the items outlined in the Short-Term Capital Plan. In consultations with the USACE and Tighe & Bond, the next step required would be to remove all brush, trees, & their root systems from the entirety of the levee, including the Regulatory 15-foot Vegetation-Free Zones. Only then could a full evaluation be undertaken to establish the list of priorities and costs for complete rehabilitation. Estimates for the clearing and grubbing of Little River Levee are currently being gathered by Tighe & Bond for the Flood Control Commission.

Additionally, the City could pursue the USACE System-Wide Improvement Framework (SWIF). It would temporarily allow eligibility for PL 84-99 assistance while we work to correct the "Unacceptable"-rated deficiencies as part of a broad, system-wide improvement of Little River Levee.

"*SWIF provides committed sponsors the opportunity to transition their levees over time to USACE standards. By using a SWIF, sponsors can prioritize deficiencies to address the highest risk first to achieve system-wide risk reduction*."

The City would need to submit a Letter of Intent to the USACE, develop a SWIF Plan within a 2-year allowance period, and **MUST** commit to USACE requirements and requires dedicated funding.

Public Safety Investments into our City's Flood Control Infrastructure improves the valuations of those flood-protected properties, making these areas much more attractive in the real estate market for home buyers, prospective businesses, and development opportunities….

Substantial cost-share grants are offered annually, for funded flood control projects.

Serious consideration should be given to a Little River Levee Rehabilitation effort, alongside ongoing efforts to fund Arm Brook & Powdermill Brook Flood Control Dams.

Little River Levee History

In August 1955, Hurricane Connie (6" rainfall) & Hurricane Diane (19.75" of rainfall), brought a combined total of nearly 26 inches of rain for the month. During Hurricane Diane, a significant risk for overtopping became apparent at Cobble Mountain Reservoir. To prevent a dam failure, it necessitated an uncontrolled emergency release of water from the reservoir, by the City of Springfield. This produced a 21,000 cubic-feet-per-second of flow in Little River, (USACE-calculated), resulting in substantial flooding and damage all along Little River. The "Little River Dike" was completed by the USACE as part of disaster recovery immediately following flood. The "Little River Dike" project was authorized under Federal Disaster Relief Assistance, in accordance with Public Law 875, 81st Congress. Its original design was intended to protect approximately 70 acres of public, commercial, and industrial buildings & infrastructure, located along Ponders Hollow Road and other nearby areas. The construction also included work to restore Little River's easterly course of flow, due to river course changes, log jams, and other debris clogging the adjacent river channel.

In March 1983, a monthly total of 9.15 inches of rain brought flooding, with almost 4 inches falling in a 4-day span. The USACE noted a peak flow of 6,800 cubic-feet-per-second on Little River. This led to serious erosion damage upon a 550-foot section of the "Little River Dike". The City of Westfield filed a request with the USACE, to assist and facilitate repairs on the damaged segment. The repair project was authorized by the USACE Chief of Engineers on November 8, 1983, through the 1941 Flood Control Act, as amended by Public Law 99, 84th Congress. The repair consisted of rebuilding & reshaping the damaged segment, using pervious fill on the landside, impervious fill on the riverside with the placement of riprap upon it to armor against future erosion. In compliance with the Flood Control Act of 1936, Public Laws 74 -738 and Public Law 84-99 USACE Rehabilitation & Inspection Program, the City of Westfield signed an Local Cooperation Agreement (LCA), agreeing to provide all lands, easements, & rights-of-way necessary for project's construction; to accomplish or bear the cost of clearing & grubbing the damaged segment, prior to rehabilitation; and to operate, maintain, and repair the 550-foot segment of Little River Levee to USACE Regulatory Specifications. The repair and rehabilitation project was completed in September 1984, for a total of $185,000, with $182,000 coming from USACE.

TOP: 2019 Loomis **(Photo Credit Google)**

BELOW: Fall 1955 **(Photo Credit USACE)**

USACE Levee Federal Status and 9/24/20 USACE Inspection Report

USACE - New England District
Westfield, Hampden County, Massachusetts
USACE Districts New England
FEMA Regions 1
City of Westfield, MA
Levee System Status on Effective FIRM: Non-Accredited

Federal Emergency Management Agency (FEMA) - National Flood Insurance Program (NFIP)/Flood Insurance Rate Map Information (FIRM)
FEMA/NFIP Non-Accredited Levee System: A levee system that does not meet the requirements in the NFIP regulations at Title 44, Chapter 1, Section 65.10 of the Code of Federal Regulations (44CFR§65.10), Mapping of Areas Protected by Levee Systems, and is not shown on a FIRM as reducing the base flood hazards.

FIRM Panels: 25013C0376F 17-Sep-2014, 25013C0360F 17-Sep-2014
Congressional District 01, Massachusetts
County State Hampden, Massachusetts
FEMA Community Westfield City, Massachusetts
FEMA Region 1
HUC2 New England Region
HUC4 Connecticut
HUC6 Lower Connecticut
HUC8 Westfield
State Massachusetts
USACE District New England District
USACE Division North Atlantic Division
Little River Left Bank - Westfield, MA
Project ID: 4305000022 Segment ID: 4304000025
People at Risk 315
Structures at Risk 57
Property Value $70.6M

Project consists of a random fill, with a pervious fill landside layer, to which impervious fill with a gravel base was added on the riverside, and then the embankment was protected with riprap.

In 2015, USACE performed an evaluation of the levee system aimed at understanding the risk to those living and working behind the system. Results of that analysis show that the levee is likely to withstand water to the top of the levee without breaching. However, there has not been a flood event that has loaded the system more than 50% of its capacity. It is important to note that breach is possible. A breach in the system could result in inundation depths of over 15 feet and could result in over $5 million in damages and loss of life. There are uncertainties with the performance of the levee embankment during flood events due to the collapsed corrugated metal pipes and corroded flap gates. There are also uncertainties with possible seepage through the levee embankment during flood events due to heavy vegetation and trees along levee riverside toe.
As a result, there are some uncertainties with how the system will perform during a flood event.

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD MA 01742-2751

September 24, 2020

Engineering Division

Mr. Donald F. Humason
Mayor of Westfield
59 Court Street
Westfield, MA 01085

Dear Mr. Humason

The purpose of this letter is to provide the results of our FY2020 inspection of the Little River Left Bank – Westfield, MA Flood Damage Reduction (FDR) System.

The Levee Safety Program mission is to ensure levee systems provide benefit to the Nation by working with sponsors and stakeholders to assess, communicate, and manage the flood risks to people, property, and the environment from inundation associated with the presence of levee systems. As a result, the U.S. Army Corps of Engineers (USACE) Levee Safety Program (LSP) has moved towards a more comprehensive framework to managing the risks associated with living/working behind a levee system. The risk framework encompasses three key steps: Risk Assessment, Risk Communication, and Risk Management. Below is a summary of the fundamental elements of each step in the risk framework:

RISK ASSESSMENT – The assessment of the risk involves two components, identification and estimation of the risk. USACE's inspection (routine and periodic) program is primarily used to identify the risks to the levee systems. USACE's levee risk assessment program is used to preliminarily screen and assess the key risk drivers for each levee system.

RISK MANAGEMENT – Risk management is the activity in which risk management measures are identified, evaluated, implemented, and monitored. The purpose of risk management is to take actions to effectively and efficiently manage risks by optimizing funding and resources. It encompasses activities related to making risk-informed decisions, prioritizing evaluations of risk, prioritizing risk reduction activities, and making program decisions associated with managing a portfolio of levee systems. The risk management process emphasizes an ongoing and iterative process and the necessity of adapting to new information.

RISK COMMUNICATION – The risk of living behind a levee system involves all stakeholders and risk communication focuses on communicating the nature of the risk, the uncertainties in the risk assessment, and the risk management options.

Please find below a detailed summary of all levee safety activities related to the Little River Left Bank (LB) - Westfield, Massachusetts Flood Damage Reduction (FDR) System in the city of Westfield, Massachusetts.

RISK ASSESSMENT

USACE plans to use risk assessments and risk-informed decision making to prioritize life safety risks for its own levee safety activities and to use risk assessments as a basis for communicating risk so levee sponsors and other stakeholders can make more informed decisions. Putting levees in a risk context is a consistent and credible way to prioritize actions in a time of constrained resources. In order to place levee systems in a risk-informed context, it is important to know how levees are expected to perform and what the potential consequences of non-performance would be.

Summarized below are the results of the key risk assessment activities performed during Fiscal Year (FY) 2020.

a. Risk Identification

The routine inspection (RI) of the Little River LB - Westfield, Massachusetts FDR System, was conducted on July 14, 2020. The FDR System components (e.g. levee embankments, interior drainage system) and associated items (e.g. rutting, encroachments) were evaluated based on the general criteria outlined in the USACE levee inspection checklist. Each of the rated items are rated “Acceptable”, “Minimally Acceptable”, or “Unacceptable”. The system rating is derived from the ratings of the individual system components.

The FDR System was rated as Unacceptable. The Unacceptable rating means that either deficiencies were identified that require immediate attention and may prevent the System from performing as intended during the next significant flood event or one or more serious deficiencies that were previously rated as minimally acceptable were not corrected within 2 years or other timeframe established by USACE. This rating is reflective of longstanding problems at the project and a lack of attention to previous identified deficiencies.

The Little River LB - Westfield, Massachusetts FDR System has been determined to be Ineligible in the Rehabilitation Program based on the results of this inspection. Please refer to the Interim Eligibility Checklist for the specific items used to make the determination.

The deficiencies that form the basis for the system rating are summarized below. The sponsor must review the report in its entirety to gain a proper appreciation of the

required work effort in order to formulate a realistic labor and cost schedule. Please note that the deficiencies reflect the condition of the system at the time of the inspection and may not reflect work that has been performed in the period between the inspection and the issue date of the report.

Items rated Unacceptable

- Interior Drainage: The culverts are completely corroded through at the inlet and discharge ends with sediment accumulation in the conduit inlets. Due to significant corrosion, flow can bypass the flap gates. The discharge ends of the culvert are blocked by significant debris with minor debris at the inlets. There is significant debris in the drainage canal leading to the culverts, and the culverts do not have a trash rack to prevent culvert blockage or debris getting lodged in the culverts. The culverts were video inspected in September 2019. The videos of the inspections were provided to USACE, but a condition summary was not provided. Have someone with expertise in structural assessment of corrugated metal piping (CMP) review the inspection videos and assess the overall condition of the culverts. Develop a repair or replacement plan and provide the plan to USACE for review. Regardless of the plan, USACE recommends the City consider including trash racks at the culvert intakes. Also, if repair of the conduits is selected in lieu of complete replacement, USACE recommends inclusion of filter blanket around the landside end of the conduits to prevent internal erosion around the conduit exterior during a flood event.
- Levee Embankments: Significant vegetation growth (brush, weeds, and trees larger than 2-inches in diameter) was noted along the levee toes and at the tie-ins to the existing levee. Remove all excess vegetative growth in accordance with Engineering Pamphlet (EP) 1110-2-18. USACE also recommends that the vegetation be cleared from the sections of the levee outside of the federal project area per the EP.

Additional Concerns

- Minimally Acceptable Rated Items: Please refer to the inspection report for all "minimally acceptable" rated items. Please note that failure to correct the noted deficiencies in the inspection report could lead to the item being rated "unacceptable".

- Semi-Annual Reports: Semi-annual reports have not been submitted. Start submitting semi-annual reports that include a summary of work performed, significant flood events and any other information pertinent to the operation and maintenance of the System over the reporting period. Reports should be submitted every February and August.

- System Performance: The original project (system) consists of an approximately 2,500-foot-long earthen embankment constructed along the left (north) bank of the Little River in response to flooding that occurred as a result of Hurricane Diane in August of 1955. The original project was authorized in 1955 under

disaster relief assistance in accordance with Public Law 875, 81st Congress. An approximately 550-foot-long section of the original levee embankment was damaged by a series of floods in March 1983, and repair of the damaged section of the levee was authorized by the Chief of Engineers on November 8, 1983, under the 1941 Flood Control Act as amended by Public Law 99, 84th Congress.

USACE only inspects the 550-foot-long section of the levee that was repaired in 1984. A signed Local Cooperation Agreement (LCA) assuring USACE that the City will maintain and operate a levee system after construction is completed is required for a project to be eligible for the Rehabilitation Program (RP) under Public Law (PL) 84-99. No LCA was signed for the original project built in 1955, so the structures constructed in 1955 are not eligible for PL 84-99, regardless of condition. However, the City did sign a LCA on February 21, 1984 for the damaged 550-foot-long section that was repaired by USACE in 1984. As a result, USACE has authority under the RP to repair the 550-foot-long section if it gets damaged during a flood, provided that it meets the eligibility criteria and is active in the program.

The entire 2,500-foot-long levee embankment is required to prevent flooding of the protected area, not just the 550-foot-long section routinely inspected by USACE under the RP. Failure of any part of the 2,500-foot-long embankment will result in flooding of the protected area, resulting in economic damages and potential life loss. USACE does not routinely inspect the entire levee embankment, but the entire 2,500-foot-long embankment was inspected during the USACE Periodic Inspection (PI) performed in October 2009. At the time of the 2009 PI, portions of the levee embankment were found to be in poor condition, with serious deficiencies.

We understand that the City is engaging an engineer to perform a detailed engineering evaluation of the entire levee embankment to identify deficiencies that need to be corrected to restore the levee embankment to the original design level of protection. As repair plans are developed, we recommend providing the plans to USACE for review.

b. Risk Estimation

There are potential life safety and economic risks associated with living and working behind any levee system (riverine or hurricane barrier), regardless of how well the system was designed, constructed, and maintained. For example, all levee systems have potential risks associated with overtopping. Unlike dams that are designed to not be overtopped, levee systems are designed for specific water levels associated with a design event. As a result, it is possible for a levee system to experience water levels above the design water level and be overtopped.

USACE assessed the Little River LB - Westfield, Massachusetts FDR System in 2015 using a screening level risk estimation tool. The purpose of the risk estimation

was to evaluate the magnitude of potential risk to the public associated with a number of potential failure modes commonly associated with levee systems and to identify any potential risk drivers that require action to mitigate the risk. The inspection program in combination with the risk estimation tool provide valuable information to all stakeholders involved in managing the flood risk of a levee system.

Overall, the Little River LB - Westfield, Massachusetts FDR System provides significant value to the city of Westfield with over 40 people living and working behind the system. There are also a middle school and community Christian school located behind the system. A potential failure of the system could result in economic damages over $5,000,000 and could involve significant loss of life. There has not been a flood event that has loaded the system to more than 50% of its capacity; and therefore, there is little performance history during a flood event. The screening level risk assessment identified the key risk drivers listed below that require action. The key risk drivers requiring action are grouped into the three key elements of risk:

Hazard (Little River):

- No risk driving failure modes requiring action were identified.

Performance (Levee System including all pertinent structures):

- There are uncertainties with possible seepage, stability, and bank erosion issues resulting from the historic lack of maintenance and overall poor condition of the levee embankment. Also, there is significant concern related to the corroded drainage culverts. Seepage issues and internal erosion issues could develop along the conduits during a flood event, and there is currently no backflow prevention, which could result in flooding of the leveed area through the culverts.

Consequences:

- Lack of community awareness relative to flood risk could lead to life loss.

- Lack of emergency evacuation effectiveness and operation and maintenance could lead to life loss and property damage.

RISK MANAGEMENT

Risk management involves the three key elements of risk: the hazard, performance, and consequences. Therefore, the reporting of the risk management activities will be grouped based on the element of risk in which they aim to manage.

Based on a review of the pre-inspection form and absence of semi-annual reports and maintenance records, the following risk management activities should be performed:

Management of the Hazard:

- Not Applicable

Management of Performance:

- Perform a detailed inspection of the entire levee embankment to identify deficiencies, and repair identified deficiencies. Perform engineering analyses to determine required repairs and system upgrades to prevent seepage, stability, or erosion problems from developing during a significant flood event, especially along portions of the system that were not upgraded during the 1984 repair. Replace or repair the drainage culverts.

- Develop an O&M manual for USACE review and approval and perform routine maintenance of the system in accordance with the O&M manual.

Management of Consequences:

- Improve community awareness of the flood risk by communicating to all stakeholders the risks and steps that can be taken to reduce their flood risk.

- Continue to update the Emergency Action Plan (EAP) on a regular basis and consider a tabletop exercise to test the effectiveness of the EAP.

RISK COMMUNICATION

The primary goal of the LSP risk communication efforts is to ensure the levee sponsor understands how information from inspections and risk assessments can best be used to support the development of risk management options and support the levee sponsor in communicating risk and involving other community decision-makers and stakeholders in risk management activities. Risk communication is the open, two-way exchange of information and opinion leading to a better understanding of the risks and improved risk management decisions.

The objective is to foster informed decision-making concerning levee risk. Summarized below are the key risk communication activities performed during FY 20.

- USACE is developing a risk communication strategy aimed at dissemination of the information obtained from the Risk Assessment activities to all stakeholders.

- USACE plans to discuss the results of the risk assessment with the city of Westfield.

CLOSING REMARKS

I wish to thank you, your staff, and the Westfield Flood Control Commission for their cooperation during the inspection. We understand that the Westfield Flood Control Commission is actively working with consultants to develop levee repair plans and to secure funding to restore the levee system to the original level of protection as

constructed in 1955. Unfortunately, USACE is not authorized to provide funding or design services for the levee repair effort. However, USACE is happy to assist with technical review and comment on proposed repair designs, details, and construction specifications. If you have any questions concerning the inspection, or other matters pertaining to the Little River LB - Westfield, Massachusetts FDR System, please call Jennifer Todd, Project Manager, at (978) 318-8792 or Kevin DiRocco, Levee Safety Program Manager, at (978) 318 - 8396.

Sincerely,

MARGOLIS.DAVID.I.1228573805
2020.09.25 08:05:56 -04'00'

David I. Margolis, P.E., PMP
Chief, Engineering Division
Levee Safety Officer

Digitally signed by SCHAFER.DAVID.WILLIAM.1193974720
Date: 2020.09.25 09:35:58 -04'00'

David W. Schafer
Chief, Emergency Management

Enclosures

Copy Furnished (with Enclosure):

Mark S. Cressotti, P.E.
City of Westfield
Engineering Department
59 Court Street
Westfield, MA 01085

Albert G. Giguire Jr.
Chairman
Westfield Flood Control Commission
59 Court Street
Westfield, MA 01085

Casey Berube
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59 Court Street
Westfield, MA 01085

USACE Levee Rehabilitation & Inspection Program

Enrollment in the Rehabilitation & Inspection Program under Public Law 84-99 (PL 84-99) provides reimbursement for specific damages to levees that result from high-water events.

The program is a partnered solution to flood damage similar to hazard insurance that you may have on your house. The levee sponsor enrolls in the program and provides levee maintenance to a standard level that is acceptable to the US Army Corps of Engineers (USACE). This maintenance and proper operation of the levee prevents routine damages and reduces the possibility of levee failure. In the case of severe flood-related levee damage to a properly maintained levee, the USACE provides post-damage assistance.

Levees are either federally constructed and enhanced in cooperation with a local sponsor then turned over to the local sponsor to own and operate or are non-federally constructed or enhanced and owned and operated by a local sponsor. Federally designed and constructed levees are enrolled at the end of construction; non-federally constructed levees have to apply and be accepted into the Public Law 84-99 Rehabilitation & Inspection Program.

Responsibilities of the sponsor and the USACE are set out in the programmatic guidance documents. Beginning in 2006, all Public Law 84-99 Levee sponsors received a copy of the **Levee Owner's Manual** that documents procedures for inspection and continued participation in the Public Law 84-99 Rehabilitation & Inspection Program.

Program eligibility

Levee systems that are eligible for rehabilitation assistance under Public Law 84-99 following flood or storm damage include those federally authorized, operated and maintained by a non-federal sponsor or non-federally built, operated and maintained by a non-federal sponsor. These levees remain eligible if operated and maintained to acceptable or minimally acceptable standards.

Federal government policy regarding repairs to levee systems and flood control projects damaged by floods is as follows:

- Federally constructed or enhanced; locally maintained systems in PL 84-99 program: Will be repaired by the federal government at 100 percent federal cost. Pending letter of request by maintaining authority and funding by Congress.
- Non-federally constructed; locally maintained systems in PL 84-99 program: Will be repaired by the federal government at 80 percent federal/20 percent local cost share. Pending letter of request by maintaining authority and funding by Congress.
- Systems NOT in the PL 84-99 program; Federally or non-federally constructed or enhanced; locally maintained systems: Will NOT be repaired by the federal government.

Note: Repairs can only be made to pre-event conditions.
No improvements or enhancements with federal funding are authorized.

Ratings and Inspections

Levee systems and/or flood control projects are authorized for repairs if damaged by a flood event when the levee system is within the USACE PL 84-99 Rehabilitation and Inspection Program. Ratings given to a levee system as a result of USACE inspections (sometimes referred to as continuing eligibility inspections) are used to determine if a project is **"ACTIVE"** in the program.

To be included in the PL 84-99 Rehabilitation and Inspection Program, a levee system or flood control project must be routinely inspected by the USACE and found to meet USACE construction standards & to be maintained in a fashion that does not deter from its structural integrity. A levee system must maintain an "**Acceptable"** or "**Minimally Acceptable"** rating on 18-line items to remain **"ACTIVE"**.

Examples of conditions that will lessen the integrity of a levee system and/or flood control project and may result in a USACE determination that the levee system/flood control project does not meet USACE standards: burrow holes (mammal or man-made), tree growth (roots degrade structure; tree weight causes undue stress), erosion, any other condition determined to be a detriment to the structure.

District Offices work closely with project sponsors if a levee system receives an overall rating of **"UNACCEPTIBLE"** to explain the deficiencies and help devise a plan to correct those deficiencies. The sponsor is placed in an inactive status until the corrections are made. The levee system remains eligible for flood fighting assistance, but not federal rehabilitation assistance. The USACE also will notify the appropriate Federal Emergency Management Agency (FEMA) region, as well as the relevant state & local emergency management agencies of the inspection results.

Criteria:

On March 21, 2014, the USACE released interim policy guidance for determining eligibility status of Flood Damage Reduction Systems in the Public Law 84-99 Rehabilitation and Inspection Program. This interim policy changes the way PL 84-99 eligibility is determined for flood damage reduction systems.

Eighteen-line items in the USACE Flood Damage Reduction System inspection report have been identified as the criteria that will be used to determine PL 84-99 eligibility. These line items are referred to as the interim eligibility inspection criteria.

Any line-item rating of **"UNACCEPTIBLE"** "**U**" on any one of the eighteen inspection items will generate an **"INACTIVE"** in the PL 84-99 Rehabilitation and Inspection Program.

Line-item ratings of **Minimally Acceptable** "**M**", **Acceptable** "**A**", or **Not Applicable** "**N/A**" on all the eighteen-line items will generate an **"ACTIVE"** status in PL 84-99.

The maintaining authority will be notified of failure to meet USACE standards and be provided ample time to correct deficiencies. If deficiencies are not corrected, the levee system/flood control project can be removed from the PL 84-99 program and become ineligible for federally assisted repairs if damages are incurred due to a flood event.

System-Wide Improvement Framework (SWIF)

The USACE now offers non-federal sponsors a process through the System-Wide Improvement Framework to remain temporarily eligible for PL 84-99 assistance while they correct **"UNACCEPTIBLE"** operation and maintenance deficiencies as part of a broader, system-wide improvement to their levee systems. Submitting a system-wide improvement framework plan is a two-step process. A Letter of Intent is submitted, followed by submission of a SWIF plan. The applicant has up to two years to develop the plan.

A SWIF provides committed sponsors the opportunity to transition their levees over time to USACE standards. By using a SWIF, sponsors can prioritize deficiencies to address the highest risk first to achieve system-wide risk reduction.

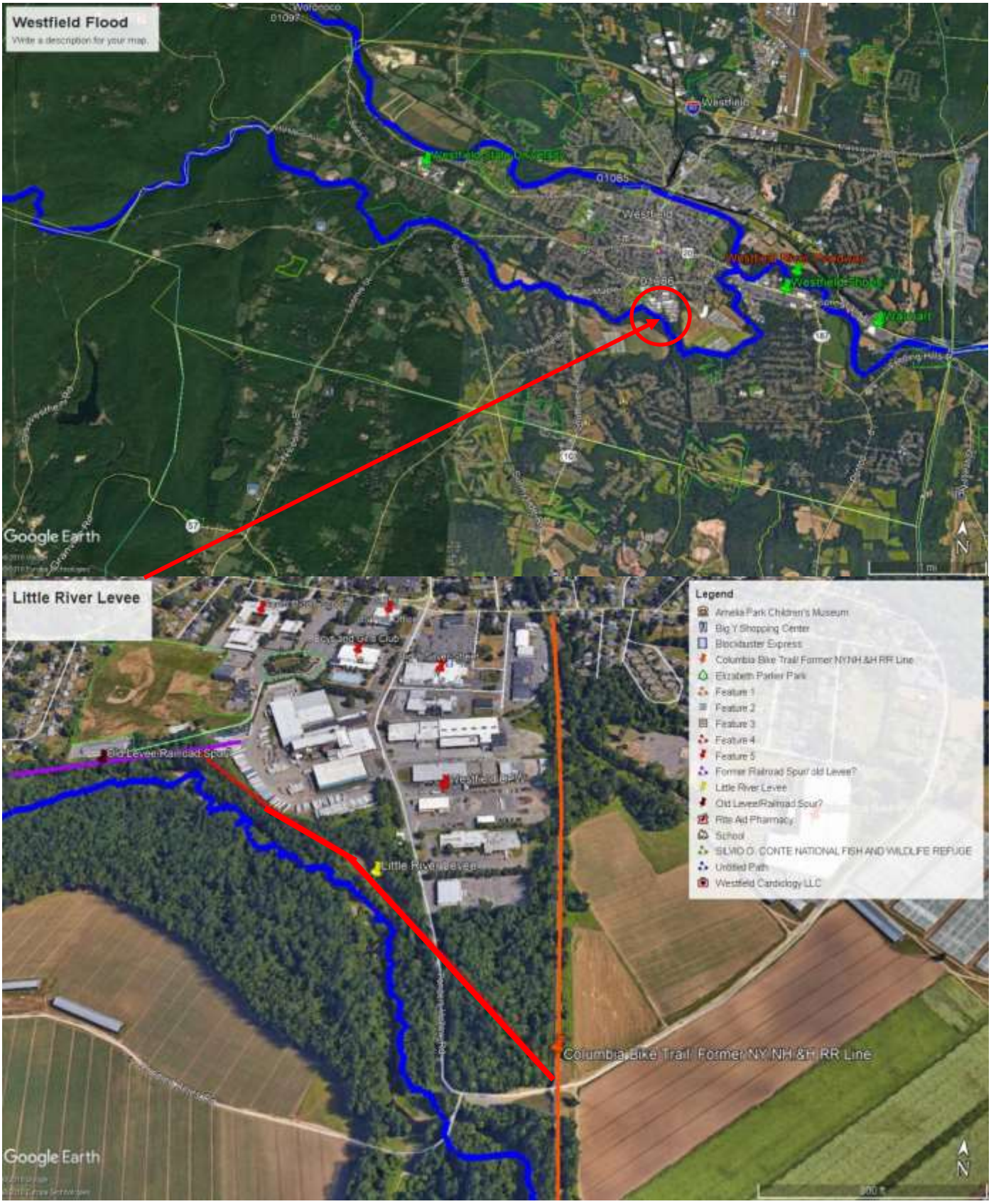
In preparing the requirements for a SWIF, the USACE recognized that sponsors may engage at the federal, state, and local levels to address complex levee system issues in a more long-term, comprehensive approach to identify solutions that optimize resources; prioritize improvements and corrective actions based on risk; and coordinate overlapping or competing programs and requirements.

Examples of situations where a SWIF is appropriate are when a longer-term, holistic approach may be necessary to address multiple engineering deficiencies AND operation and maintenance deficiencies; when broader improvements involve multiple levee segments/systems; or when additional time and coordination are needed to consider complex, endangered species habitat or Native American concerns while meeting requirements for levee safety.

Considerations prior to submitting a SWIF:

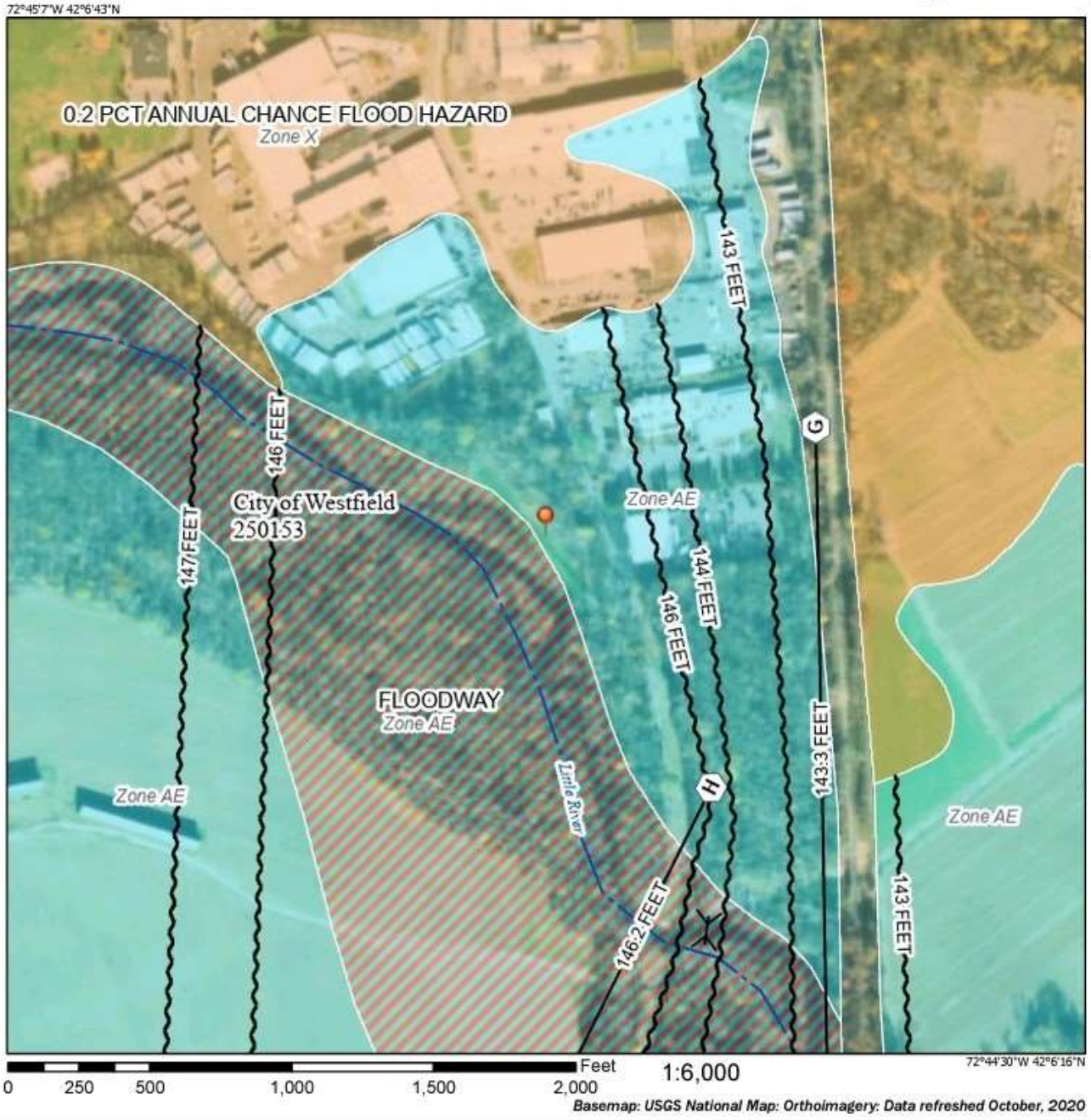
- May include corrective action for overarching operation and maintenance deficiencies, for example, a system-wide culvert replacement.
- Is not intended for correction only of individual operation and maintenance deficiencies, for example, a single culvert replacement.
- Is not a process for acceptance into the PL 84-99 Program.
- May include a vegetation variance request.
- Recognizes regional differences.
- Must be closely synchronized to align with other USACE levee policies.

Little River Levee



National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

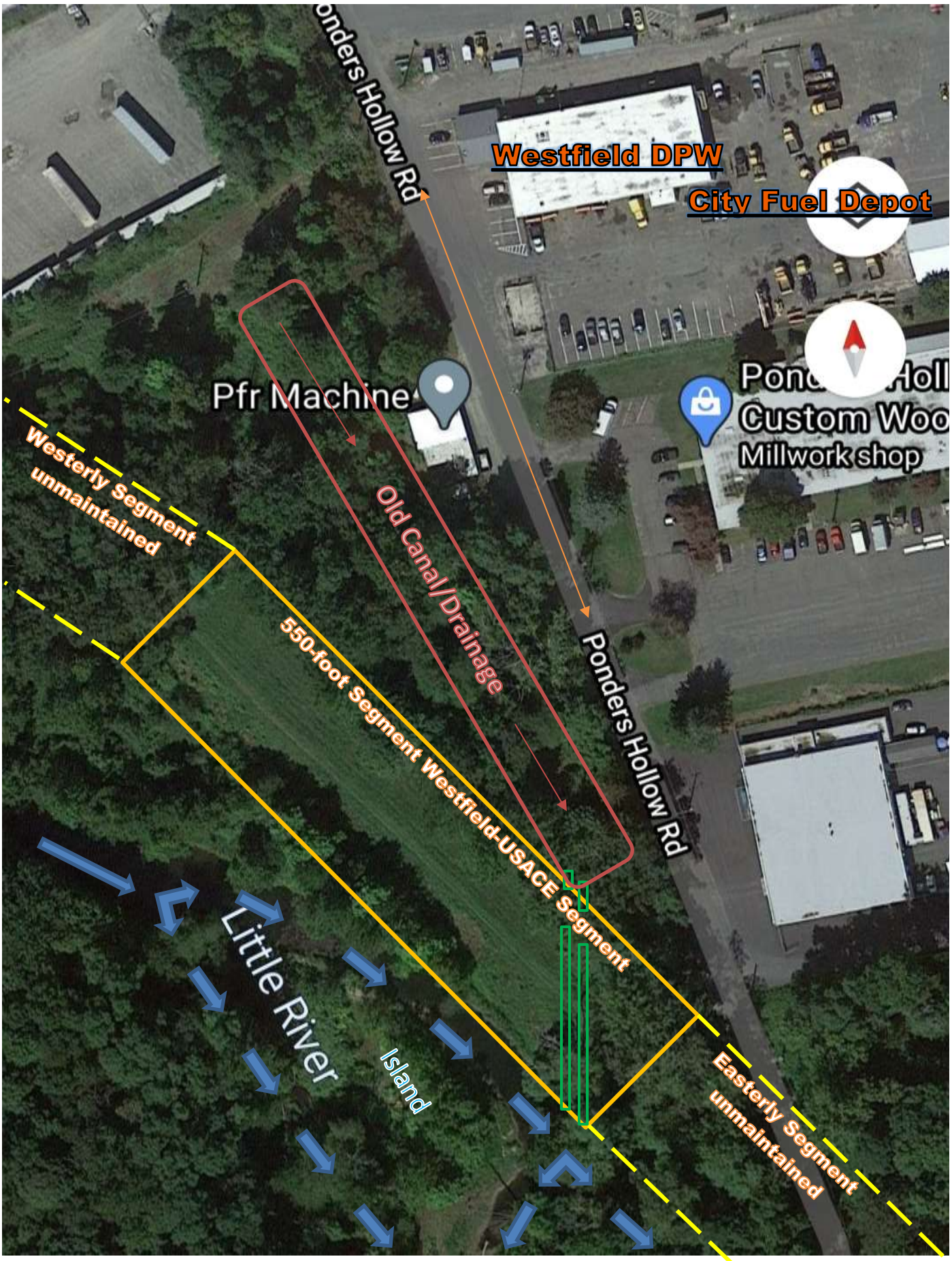
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

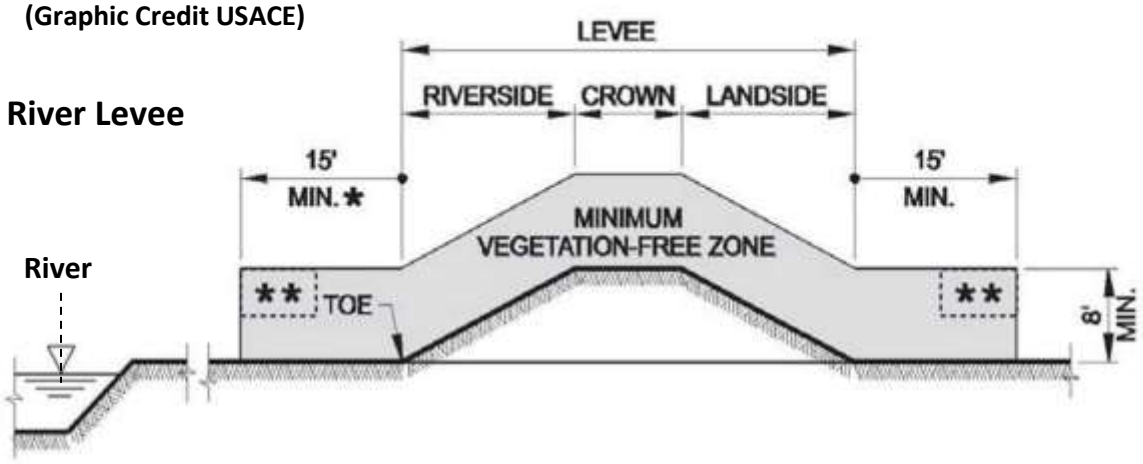
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/19/2021 at 1:43 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.


onders Hollow Rd
Westfield DPW
City Fuel Depot
Pfr Machine
Custom Woo
Millwork shop
Westerly Segment
unmaintained
Old Canal/Drainage
550-foot Segment Westfield-USACE Segment
Ponders Hollow Rd
Little River
Island
Easterly Segment
unmaintained

(Graphic Credit USACE)

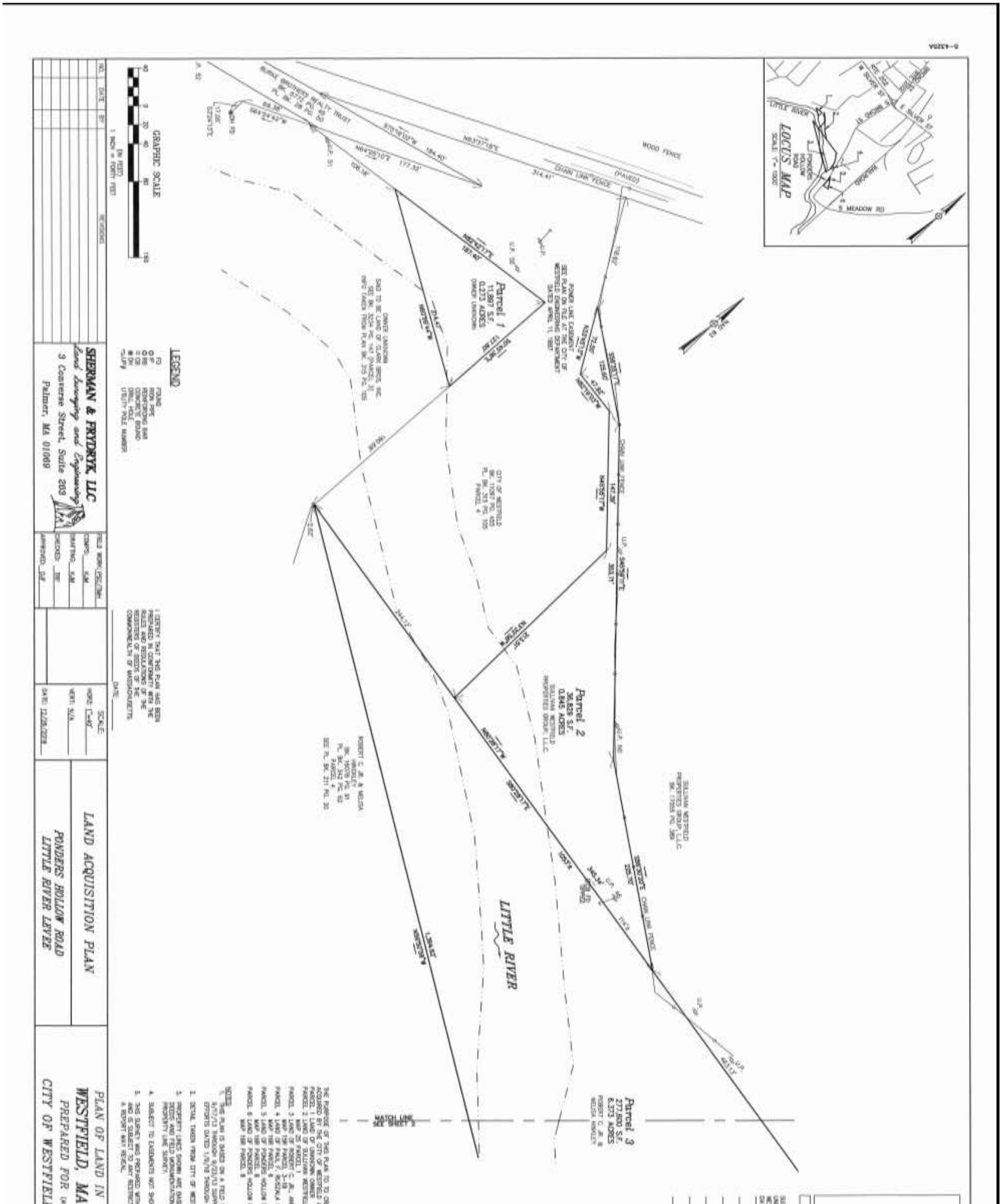
Little River Levee

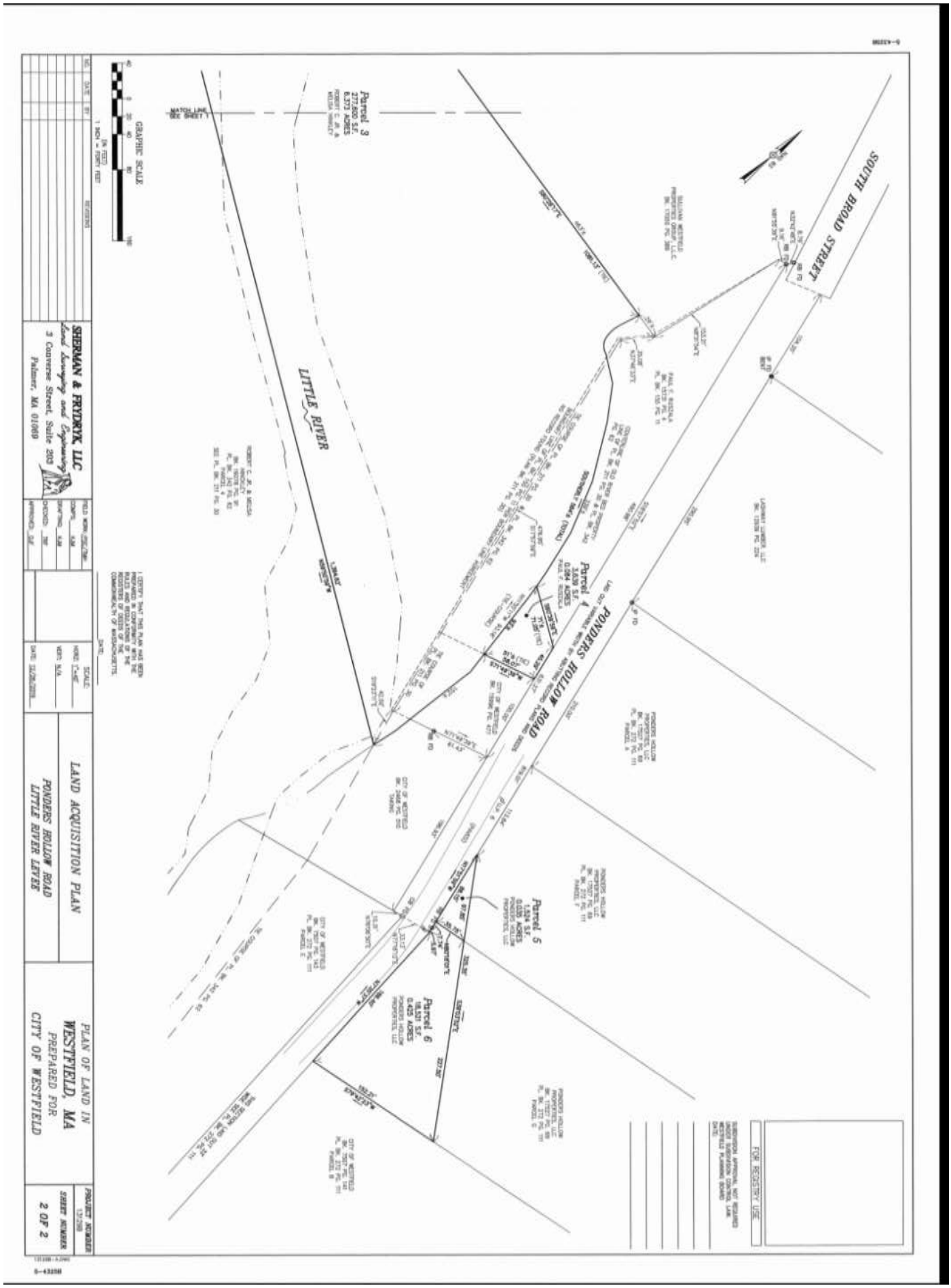


* 15' OR DISTANCE TO EDGE OF NORMAL WATER SURFACE, IF LESS

** IN THIS 4' X 7' TRANSITION ZONE, TEMPORARY OBSTRUCTION BY LIMBS AND CROWN IS ALLOWED DURING DEVELOPMENT OF NEW PLANTINGS, FOR UP TO 10 YEARS

▽ NORMAL WATER SURFACE


LOCUS MAP
LITTLE RIVER
LEGEND
GRAPHIC SCALE
Parcel 1
Parcel 2
Parcel 3
LITTLE RIVER
FOR REGISTRY USE
SHERMAN & FRYDRYK, LLC
Land Surveying and Engineering
3 Converse Street, Suite 203
Palmer, MA 01069
LAND ACQUISITION PLAN
PONDERS HOLLOW ROAD
LITTLE RIVER LEVEE
PLAN OF LAND IN
WESTFIELD, MA
PREPARED FOR
CITY OF WESTFIELD
1 OF 2
5-4325A


SOUTH BROAD STREET
LITTLE RIVER
PONDERS HOLLOW ROAD
Parcel 3
277,600 S.F.
6.373 ACRES
Parcel 4
3,439 S.F.
0.079 ACRES
Parcel 5
1,524 S.F.
0.035 ACRES
Parcel 6
18,531 S.F.
0.425 ACRES
GRAPHIC SCALE
1 INCH = FORTY FEET
SHERMAN & FRYDRYK, LLC
Land Surveying and Engineering
3 Converse Street, Suite 203
Palmer, MA 01069
LAND ACQUISITION PLAN
PONDERS HOLLOW ROAD
LITTLE RIVER LEVEE
PLAN OF LAND IN
WESTFIELD, MA
PREPARED FOR
CITY OF WESTFIELD
SHEET NUMBER
2 OF 2

Aug. 1, 2019, USACE Inspection: 36" CMP Outfalls, Bypass Gate Valve Flap open for inspection. Note: significant deteriorations similar in both CMPs, w/ debris, & logs in Westerly Outfall.
Andrew Catanno, USACE Civil Engineer & Levee Safety Manager in 2019, (Photo Credit: Albert G. Giguere Jr.)

Dec. 18, 2020, 36" CMP Easterly Outfall. Note: significant deterioration & soil erosion below it.
(Photo Credit: Albert G. Giguere Jr.)

Nov. 30, 2020, 36" CMP Outfalls
Nor' Easter w/ rain.
Silted discharge from outfalls
Note: Logs & Woody Debris
(Photo Credit: Albert G. Giguere Jr.)

Dec. 25, 2020, 36" CMP Outfalls
Heavy Rain + Snowmelt
approx. +4.5' rise on Little River

36" CMPs wholly-submerged river water backflowing past gate valve flaps, through the levee, & into the "Old Canal".

***(see page 29 & 30)**

(Photo Credit: Albert G. Giguere Jr.)

Jan. 1, 2020, 36" CMP Outfalls

Note: massive log jam against Easterly CMP Outfall.

(Photo Credit: Albert G. Giguere Jr.)

Dec. 25, 2020, 36" CMP Outfalls, Nor' Easter w/ heavy rain + snowmelt, approx. +4.5' rise Little River.
(Photo Credit: Albert G. Giguere Jr.)

Jan. 1, 2020, 36" CMP Outfalls, Little River @ Normal Level.

A= Log Jam @ Outfall B= Log Jam in River Blue = Flow Orange = Eddy Flow / Scouring

(Photo Credit: Albert G. Giguere Jr.)

Dec. 25, 2020, Little River Levee 550-Segment, Nor' Easter, heavy rain + snowmelt, approx. +4.5' rise.
(Photo Credits: Albert G. Giguere Jr.)

Jan. 31, 2021, Normal Flow – Note: River Level Contrast **(Photo Credits: Albert G. Giguere Jr.)**

Aug. 1, 2019, 36" CMP Intakes
USACE Inspection.
Note: Deterioration & Debris

(Photo Credit: Albert G. Giguere Jr.)

Dec. 25, 2020, 36" CMP Intakes
Nor' Easter w/ rain + snowmelt
approx. 4.5' rise on Little River

36" CMPs Wholly Submerged
River water backflowing past gate valve flaps, through the levee, & into the "Old Canal".
(see page 28)

(Photo Credit: Albert G. Giguere Jr.)

Oct. 16, 2020, 36" CMP Intakes
Note: Silted runoff/ Poor Flow

(Photo Credit: Albert G. Giguere Jr.)

Dec. 25, 2020, "Old Canal" Nor' Easter Flooding Combined Heavy Rain + Snowmelt. Note: debris.
(Photo Credit: Albert G. Giguere Jr.)

Jan. 31, 2021, "Old Canal" during Normal Conditions, Note: logs & debris, w/ no water.
(Photo Credit: Albert G. Giguere Jr.)

Jan. 1, 2021, Levee Embankment just upstream of CMP Outfalls along Eddy. Note: Erosion
(Photo Credit: Albert G. Giguere Jr.)

Western Tie-In of Little River Levee @ Sullivan/old railroad spur, looking Northwest.
(Photo Credit: Albert G. Giguere Jr.)

Little River Levee 15' Zone, Landside Toe along Sullivan & Utility ROW, looking Southeast.
(Photo Credit: Albert G. Giguere Jr.)

Ponder's Hollow Road Cross-Over @ Little River Levee, looking Southward. Note: trees on levee.
(Photo Credit: Albert G. Giguere Jr.)

Eastern Tie-In of Little River Levee @ Columbia Greenway. Note: damaged w/ materials removed.
(Photo Credit: Albert G. Giguere Jr.)

Ordinances: Westfield Flood Control Commission

ARTICLE III. Section 13: FLOOD CONTROL COMMISSION

- **Sec. 13-51. - Established.**
  There is hereby established in the city a commission to be known as the municipal flood control commission. (Code 1971, § 13-33)
- **Sec. 13-52. - Composition; terms of office. *(*Changed in 2015 to 5 Members, as below.)**
  The municipal flood control commission shall be composed of five members, who shall be appointed by the mayor, subject to city council confirmation. They shall serve from the first Monday in February following their appointment for terms for five years and until their successor is named.
  (Code 1971, § 13-34; Ord. No. 1628, 5-7-15)
- **Sec. 13-53. - Filling vacancies.**
  If there is of a vacancy in the municipal flood control commission, the mayor with the confirmation of council shall make an appointment to fill the unexpired term. (Code 1971, § 13-35)
- **Sec. 13-54. - Expenditure of moneys.**
  The municipal flood control commission shall have the power to expend such sums of money as may be appropriated by the mayor and city council for flood control promotion. (Code 1971, § 13-36)
- **Sec. 13-55. - Chairman; meeting date.**
  Members of the municipal flood control commission shall elect their own chairman and establish a regular meeting date. (Code 1971, § 13-37)
- **Sec. 13-56. - Annual report.**
  The municipal flood control commission shall file at least one report annually. (Code 1971, § 13-38)
- **Sec. 13-57. - Powers and duties generally.**
  The municipal flood control commission shall meet with county, state and federal agencies regarding flood control projects affecting the city. The commission shall study and submit their recommendations to the mayor and the city council. The commission shall regularly inspect any existing dikes and waterways and any future dikes or flood projects in which the city has a vital interest. In cooperation with the engineering department, recommendations on repairs and any other pertinent matters should be made to the mayor and city council by the commission. Any repairs or construction will be under the supervision of the engineering department. (Code 1971, § 13-39)
- **Sec. 13-58. - Inspection of dangerous conditions; correction.**
  If the municipal flood control commission shall be informed, or has reason to believe, that any refuse or obstruction shall endanger or be likely to endanger the flood control program of the city, then the commission shall make or cause to be made an investigation of the facts and inspect the property where the suspected danger may exist. If the commission shall find that such danger exists, it shall give notice thereof to the owner or his duly authorized agent and to the occupant of the premises, and shall order that such danger be corrected. (Code 1971, § 13-40)
- **Sec. 13-59. - Enforcement of article; injunction relief.**
  The municipal flood control commission is hereby empowered to enforce the provisions of this article and to institute appropriate legal proceedings to restrain by injunction the continuance of any danger to the flood control program of the city. (Code 1971, § 13-41)

ARTICLE III. Section 13: Conservation Commission – (As Pertaining to WFCC)

Sec. 13-183. - Notice of hearing.

Any person filing a notice of intent with the conservation commission shall provide a list of immediate abutters according to the most recent records of the city assessors, including those across a traveled way, or any other persons as the conservation commission shall require.

The conservation commission shall combine its hearing under this article with the hearing conducted under the Wetlands Protection Act, M.G.L.A. c. 131, § 40. Notice shall be given as for hearing under the Wetlands Protection Act, M.G.L.A. c. 131, § 40. The applicant shall pay for the notice to be published and mailed.

The Westfield Conservation Commission shall, no later than five days in advance of a public hearing, deliver copies of each notice of public hearing to the city department of public works, water department, health department, the planning board, the municipal flood control commission & the city engineer, and may deliver copies of same to such other city officers, departments, boards or commissions as it deems pertinent. Each said city officer, department, board or commission may participate in the public hearing in person or by submission of written material and the Westfield Conservation Commission shall take the information into account but shall not be bound thereby.

ARTICLE VIII. – Bikeways – (As Pertaining to WFCC)

Sec. 17-327. - Established.

The city council may from time-to-time designate areas within the city on municipally owned property as bikeways. The city council hereby authorizes the Flood Control Commission, the park and recreation department, and the school committee to designate areas as bikeways, subject to conditions set forth in this article. (Code 1971, § 16-201)

ARTICLE III, Section 3-160: Floodplain Management District

Section 3-160.1 Intent.

The Floodplain Management District is intended to promote the good health, safety and general welfare of all users of property within areas prone to flooding; to minimize the need for flood rescue and relief efforts generally undertaken at the expense of the general public; to minimize prolonged interruptions of business; to minimize damage to public facilities and utilities; to help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize future flood blight areas; and, to insure that all users of land within the flood prone areas are notified of the potential hazards that may be caused by flooding.

The Floodplain Management District is also intended to minimize public and private losses due to flood conditions in specific areas by special requirements designed to:

1.) **Restrict or prohibit uses which are dangerous to health, safety and property due to water, erosion, flood heights and velocities;**
2.) **Require that land uses vulnerable to floods be protected against flood damage at the time of initial construction;**
3.) **Control the alteration of natural floodplains, stream channels and natural protective barriers, which re-involved in the accommodation of flood waters;**
4.) **Control filling, grading, dredging and other development which may increase erosion or flood damage; and;**
5.) **Prevent or regulate the construction of flood barriers which unnaturally divert flood waters, or which may increase flood hazards to other lands.**

Section 3-160.2 General Provisions.

The Floodplain Management District is herein established as an overlay district, to include all special flood hazard areas within the City of Westfield designated as Zone A or AE on the Hampden County Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) for the administration of the National Flood Insurance Program. The map panels of the Hampden County FIRM that are wholly or partially within the City of Westfield are panel numbers 25013C0160E, 25013C0163E, 25013C0164E, 25013C0170E, 25013C0180E, 25013C0190E, 25013C0191E, 25013C0193E, 25013C0352E, 25013C0355E, 25013C0358E, 25013C0359E, 25013C0360E, 25013C0376E, 25013C0377E, 25013C0378E, and 25013C0379E dated July 16, 2013, and revisions thereto.

- **The exact boundaries of the District may be defined by the 100-year base flood elevations shown on the FIRM and further defined by the Hampden County Flood Insurance Study (FIS) report dated July 16, 2013. The FIRM and FIS report are incorporated herein by reference and are on file with the Engineering Department. The FIRM is also on file with the City Clerk, Planning Board, Building Department and Conservation Commission.**
- **The provisions and requirements of all underlying zoning districts, unless otherwise described by this Floodplain Management District, shall remain in effect as described elsewhere in the zoning ordinance and as shown, defined and bounded on the zoning map, as amended. Said zoning districts shall be subject also to the further requirements of this section.**
- **A Development Permit shall be required in conformance with the provisions of this ordinance for all improvements and changes made to the property including, but not limited to, new building construction; existing building reconstruction and substantial improvement made thereto; new, or substantial improvement made to, mobile home park or trailer park and existing mobile homes and trailer homes; other types of structures; all mining, dredging, filling, drilling, grading, paving or excavation operations.**
- **All provisions of this ordinance shall be considered as minimum requirements; liberally construed in favor of the governing body; and deemed neither to limit nor repeal any other powers granted under state statutes.**
- **The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes.**
- **This ordinance does not imply that land outside the district or uses permitted within such areas will be free from flooding or flood damage.**
- **This ordinance shall not create liability on the part of the City of Westfield or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.**

Section 3-160.3 Definitions.

Unless specifically defined below, words or phrases used herein shall be interpreted so as to give them the meaning they have in common usage.

1. **Appeal.** A request for a review of the administrator's interpretation of any provision of this ordinance or a request for a variance.

2. **Area of Special Flood Hazard.** The areas designated as A and AE and the Floodway on the "Flood Insurance Rate Map" are the specific areas of special flood hazard; generally, such land in a floodplain within the City and subject to a one-percent or greater chance of flooding in any given year.

3. **Base Flood.** The flood having a one- percent chance of being equaled or exceed in any given year.

4. Development. Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

5. **Development Permit.** A permit issued by the administrator of this ordinance for all development within the areas of special flood hazard. In the case of the requirement of a building permit for some or all of the work, the administrator may allow the Development Permit to be issued concurrently and in the form of the building permit, where the otherwise required information has been provided. In the case where no building permit is required, the administrator may allow a permit issued by the Conservation Commission to serve as the Development Permit where the applicant has provided satisfactory evidence to demonstrate compliance with this ordinance.

6. **Flood or Flooding.** A general and temporary condition of partial or complete inundation of normally dry land areas from the over-flow of inland waters and/or the unusually and rapid accumulation of runoff of surface waters from any source.

7. **Flood Barrier.** For the purpose of this ordinance, any building, wall, fence, embankment, dike or other structure constructed in an area, & any man-made change to the natural topography of any area, including grading, mounding, filling excavating, paving, mining, dredging, or drilling that creates an obstruction causing flood water to be unnaturally diverted away from the area to the detriment of other lands.

8. **Flood Insurance Rate Map (FIRM).** An official map of a community on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zoned applicable to the Community.

9. **Flood Insurance Study.** An examination, evaluation, and determination of flood hazards, &, if appropriate, corresponding water surface elevations, or an examination, evaluation & determination of flood-related erosion hazards.

10. **Floodway.** 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 cumulatively increasing the water surface elevation more than one foot.

11. **Mobile Home or Trailer.** A structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. It does not include recreational vehicles or camping trailers placed on a site for not more than 180 days.

12. **Structure**. A walled and roofed building, to also include a gas or liquid storage tank, mobile home and trailer home, that is principally above ground.

13. **Variance**. A grant of relief to a person from the requirements of this ordinance which permits construction in a manner otherwise prohibited by this ordinance where specific enforcement would result in substantial hardship.

Section 3-160.4 Administration

1.) Designation and Duties of the Administrator. The Superintendent of Buildings shall be the Administrator and implementer of the provisions of this ordinance and shall exercise the authority to require the submission of all reasonable information on which to base a determination. Duties of the Administrator shall include, but not be limited to:

a) Reviewing all development permits to assure that the permit requirements of this ordinance have been satisfied and to assure that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required.

***b) Notifying the Westfield Conservation Commission and the Westfield Flood Control Commission regarding an application for development permit within the Floodplain Management District.**

1) The Conservation Commission shall review the applications within the scope of its authority related to conservation matters and shall forward its recommendation to the Administrator within the allotted time designated by the General Laws of the Commonwealth of Massachusetts, Chapter 131, Section 40.

***2) The Flood Control Commission shall review the applications within the scope of its authority related to the Control of flooding and shall forward its recommendations to the Administrator within 20 days.**

c) Verifying and recording the actual elevation in relation to mean sea level of the lowest floor, including basement of all new or substantially improved structures.

d) Verifying and recording the actual elevation in relation to mean sea level to which the new or substantially improved structures have been flood proofed.

e) Obtaining certification from a registered professional engineer or architect when flood-proofing is utilized for a particular non-residential structure.

f) Making the necessary interpretation as to the exact location of the boundaries of the special flood hazard areas particularly where there appears to be a conflict between a mapped boundary & actual field conditions, notwithstanding a Letter of Map Amendment/Letter of Map Revision from FEMA may also be required.

g) Obtaining, reviewing and reasonably utilizing any base flood elevation data available from a federal, state, or other source when base flood elevation data has not been stipulated by the Flood Insurance Rate Maps (FIRM) and Flood Insurance Study, thereto provided by the Federal Emergency Management Agency (FEMA).

h) Maintaining all records pertaining to the provisions of this ordinance and assuring that said records shall be open for public inspection.

2.) Permit Procedures. Application for a Development Permit shall be made to the Administrator on forms furnished by same. The following shall be provided with the application:

a) The elevation in relation to mean sea level of the lowest floor including the basement of all structures. A declaration stating whether or not all structures contain a basement also shall be provided.

b) The elevation in relation to mean sea level to which any non-residential structure has been flood proofed.

c) A certificate from a registered professional engineer or architect that any non-residential flood-proofed structure meets the flood-proofing criteria of applicable codes.

d) A description of the extent to which any watercourse will be altered or relocated as a result of the proposed development.

e) In addition, the Administrator may require plans, in duplicate, drawn to scale showing the nature, location, dimensions & elevations of the area in question, existing or proposed structures, development, fill, storage of materials, drainage facilities and the location of the foregoing.

Section 3-160.4 Administration - Continued

3.) Appeals.

a) The Zoning Board of Appeals of the City of Westfield shall hear and decide petitions for variances from the requirements of this ordinance.

b) The Zoning Board of Appeals shall hear and decide appeals when it is alleged that there is an error in any requirement, decision, or determination made by the Administrator in the enforcement or administration of this ordinance, as provided by the General Laws of the Commonwealth of Massachusetts, Chapter 40A, Section 8.

c) Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places, without regard to the procedures set forth in the remainder of this subsection, provided a determination is made that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

d) In deciding upon such applications, the Zoning Board of Appeals shall consider all technical evaluations, all relevant factors, standards specified within this ordinance, and:

1) The danger that materials may be swept onto other land to the injury of others.
2) The danger to life and property due to flooding or erosion damage.
3) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
4) The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.
5) The safety of access to the property in times of flood by ordinary and emergency vehicles.
6) The expected heights, velocity, duration, rate of rise & sediment transport of the flood waters expected at the site.
7) The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.

e) Generally, variances may be issued for new construction and substantial improvements to be erected on a lot contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing that the aforementioned items **3.d.1** through **3.d.7** have been fully considered and that an enforcement of the provisions of this ordinance would involve substantial hardship, financial or otherwise to the variance petitioner and that desirable relief may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of this ordinance.

f) Variances shall not be issued within the designated floodplain if any increase in flood levels during the base flood discharge would result.

g) Conditions for Variances**.**

1) A variance shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief. Those granted within the floodplain all require adherence to all of the regulations of this ordinance pertaining to the base flood.
2) In addition to normal criteria on which decisions by the Zoning Board of Appeals are normally based as described elsewhere in this ordinance. A variance additionally shall only be issued upon a determination that the granting of the variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, creation of nuisances, or causing fraud on or victimization of the public.
3) Any applicant to whom a variance is granted by the Zoning Board of Appeals for a structure where the basement elevation is below the flood elevation shall be given written notice that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest flood elevation.

***h) The Zoning Board of Appeals shall notify the Westfield Conservation Commission & Westfield Flood Control Commission of variances applied for within the Floodplain Management District**.

Section 3-160.5 Provisions for Flood Hazard Reduction

1.) General Standards. In all areas of special flood hazards the following provisions are required:

a) In Zones A and AE, along watercourses that have not had a regulatory floodway designated, the best available Federal, State, local, or other floodway data shall be used to prohibit encroachments in floodways which would result in any increase in flood levels within the community during the occurrence of the base flood discharge.

b) Base flood elevation data is required for subdivision proposals or other developments greater than 50 lots or 5 acres, whichever is the lesser, within unnumbered A zones.

c) All subdivision proposals must be designed to assure that:
1) such proposals minimize flood damage.
2) all public utilities and facilities are located and constructed to minimize or eliminate flood damage; and
3) adequate drainage is provided to reduce exposure to flood hazards.

d) A certification by a professional engineer or architect, registered in Massachusetts, that the standards of this subsection are satisfied shall be provided to the Administrator.

2.) Dimensional Standards. For any new residential construction within the areas of special flood hazard, no lot shall have less than 21,780 square feet in area, nor less than 100 feet of frontage, unless the underlying or other overlay district requires a greater amount.

3.) Notification. In a riverine situation, the Administrator shall notify the following of any alteration or relocation of a watercourse:

1. Adjacent Municipalities.
Southampton, Holyoke, W. Springfield, Agawam, Southwick, Granville, Russell, Montgomery

2. NFIP State Coordinator, Massachusetts Department of Conservation and Recreation,
251 Causeway Street, Suite 600-700 Boston, MA 02114-2104

3. NFIP Program Specialist, Federal Emergency Management Agency, Region I,
99 High Street, 6th Floor, Boston, MA 02110

*Section 3-160.6 Floodways.

Since the floodway is an extremely hazardous area due to the velocity of flood water which carries debris, potential projectiles and causes erosion, in Zone AE, along watercourses within the City of Westfield that have a regulatory floodway designated on the Hampden County FIRM, all new structures and substantial improvement to existing structures, as well as other forms of development which may restrict or otherwise adversely affect the floodway, shall not be permitted.

7/8/2013 – Article 3, Section 3-160 FLOOD ZONE DISTRICT deleted in its entirety and replaced with 3-160 FLOODPLAIN MANAGEMENT DISTRICT
