



CITY OF MELROSE
DEPARTMENT OF PUBLIC WORKS

DRAFT FINDINGS OF LETTER OF MAP REVISION

Ell Pond, FEMA Special Flood Hazard Area

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P.E., BCEE
City Engineer
Ron Miner, P.E.
Derek Etkin, P.E.

November 14, 2017
6:30 PM



**CDM
Smith.**

Location: Melrose Veteran's Memorial Middle School Cafeteria

Agenda

- Background
- Approach
- Reevaluation of Base Flood Elevation
- Letter of Map Revision (LOMR)
- Draft Results
- Potential Impacts on Flood Insurance Requirements
- Schedule
- Next Steps
- Questions

Background

- Historically, area around Ell Pond subject to flooding (e.g., Mother's Day Storm 2006)
- Single Outlet—Ell Pond Brook (circa 1896)
- Effective Base Flood Elevation (BFE) based on 1981 study
- City conducted engineering studies in 2001, 2003
- 2007-08 Improvements— 48-in diameter drain and crest gate
- New Flood Maps June 4, 2010 – same BFE
- Why has the BFE not changed?
- City is reevaluating BFE
 - Two Phase Approach

Ell Pond Outlet Structure: 2007 Improvements



Before Improvements

After Improvements

- 2005 Hazard Mitigation Grant
 - \$2.3M Total Cost
 - \$1.75M FEMA Award
 - \$582,000 Local Share



Ell Pond Outlet Structure: 2007 Improvements



Effective FIS: June 4, 2009

FLOOD INSURANCE STUDY

VOLUME 1 OF 8



MIDDLESEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER
ACTON, TOWN OF	250176
ARLINGTON, TOWN OF	250177
ASHBY, TOWN OF	250178
ASHLAND, TOWN OF	250179
AYER, TOWN OF	250180
BEDFORD, TOWN OF	255209
BELMONT, TOWN OF	250182
BILLERICA, TOWN OF	250183
BOXBOROUGH, TOWN OF	250184
BURLINGTON, TOWN OF	250185
CAMBRIDGE, CITY OF	250186
CARLISLE, TOWN OF	250187
CHELMSFORD, TOWN OF	250188
CONCORD, TOWN OF	250189
DRACUT, TOWN OF	250190
DUNSTABLE, TOWN OF	250191
EVERETT, CITY OF	250192
FRAMINGHAM, TOWN OF	250193
GROTON, TOWN OF	250194
HOLLISTON, TOWN OF	250195
HOPKINTON, TOWN OF	250196
HUDSON, TOWN OF	250197
LEXINGTON, TOWN OF	250198
LINCOLN, TOWN OF	250199
LITTLETON, TOWN OF	250200
LOWELL, CITY OF	250201
MALDEN, CITY OF	250202
MARLBOROUGH, CITY OF	250203
MAYNARD, TOWN OF	250204
MEDFORD, CITY OF	250205

COMMUNITY NAME	COMMUNITY NUMBER
MELROSE, CITY OF	250206
NATICK, TOWN OF	250207
NEWTON, CITY OF	250208
NORTH READING, TOWN OF	250209
PEPPERELL, TOWN OF	250210
READING, TOWN OF	250211
SHERBORN, TOWN OF	250212
SHIRLEY, TOWN OF	250213
SOMERVILLE, CITY OF	250214
STONEHAM, TOWN OF	250215
STOW, TOWN OF	250216
SUDBURY, TOWN OF	250217
TEWKSBURY, TOWN OF	250218
TOWNSEND, TOWN OF	250219
TYNGSBOROUGH, TOWN OF	250220
WAKEFIELD, TOWN OF	250221
WALTHAM, CITY OF	250222
WATERTOWN, TOWN OF	250223
WAYLAND, TOWN OF	250224
WESTFORD, TOWN OF	250225
WESTON, TOWN OF	250226
WILMINGTON, TOWN OF	250227
WINCHESTER, TOWN OF	250228
WOBURN, CITY OF	250229

Stillwater elevations for the 10-, 2-, and 1-percent annual chance floods for Ell Pond were obtained from the Mystic River Comprehensive Hydrology Study (Camp, Dresser and McKee, Inc., 1981). The 0.2-percent annual chance flood elevation for Ell Pond was not calculated in that study. The 0.2-percent annual chance discharge splits between the Ell Pond Conduit and a broad-crested weir formed along the northeastern corner of Emerson Street and Main Street. The 0.2-percent annual chance elevation was determined considering flow through the conduit and over the roadway.

TABLE 6 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet NAVD*)			
	10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
ASSABET RIVER				
At Acton-Concord corporate limits	129.2	130.5	131.1	132.9
At Powder Mill Dam	143.1	144.4	145.0	145.9
ATLANTIC OCEAN				
Mystic River downstream of Amelia Earhart Dam	8.3	9.1	9.5	10.3
ELL POND				
Entire shoreline within Melrose	48.2	51.6	53.4	53.9
FORT POND BROOK				
At Acton/Concord corporate limits	122.5	123.4	123.9	124.6
At Merrimack Dam	148.3	149.3	149.8	150.6
At Cement Dam	174.7	175.2	175.3	175.6
At Erikson Dam	192.5	193.3	193.6	194.2

*North American Vertical Datum of 1988

EFFECTIVE:
JUNE 4, 2010



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
25017CV001A

Clips from Effective FIRM Panels 429E and 433E showing Special Flood Hazard Zone AE



Base Flood Elevation (BFE) 53.4 ft
1% Annual Chance Event (100 yr)



MAP NUMBER
25017C0429E

EFFECTIVE DATE
JUNE 4, 2010

Federal Emergency Management Agency

Approach

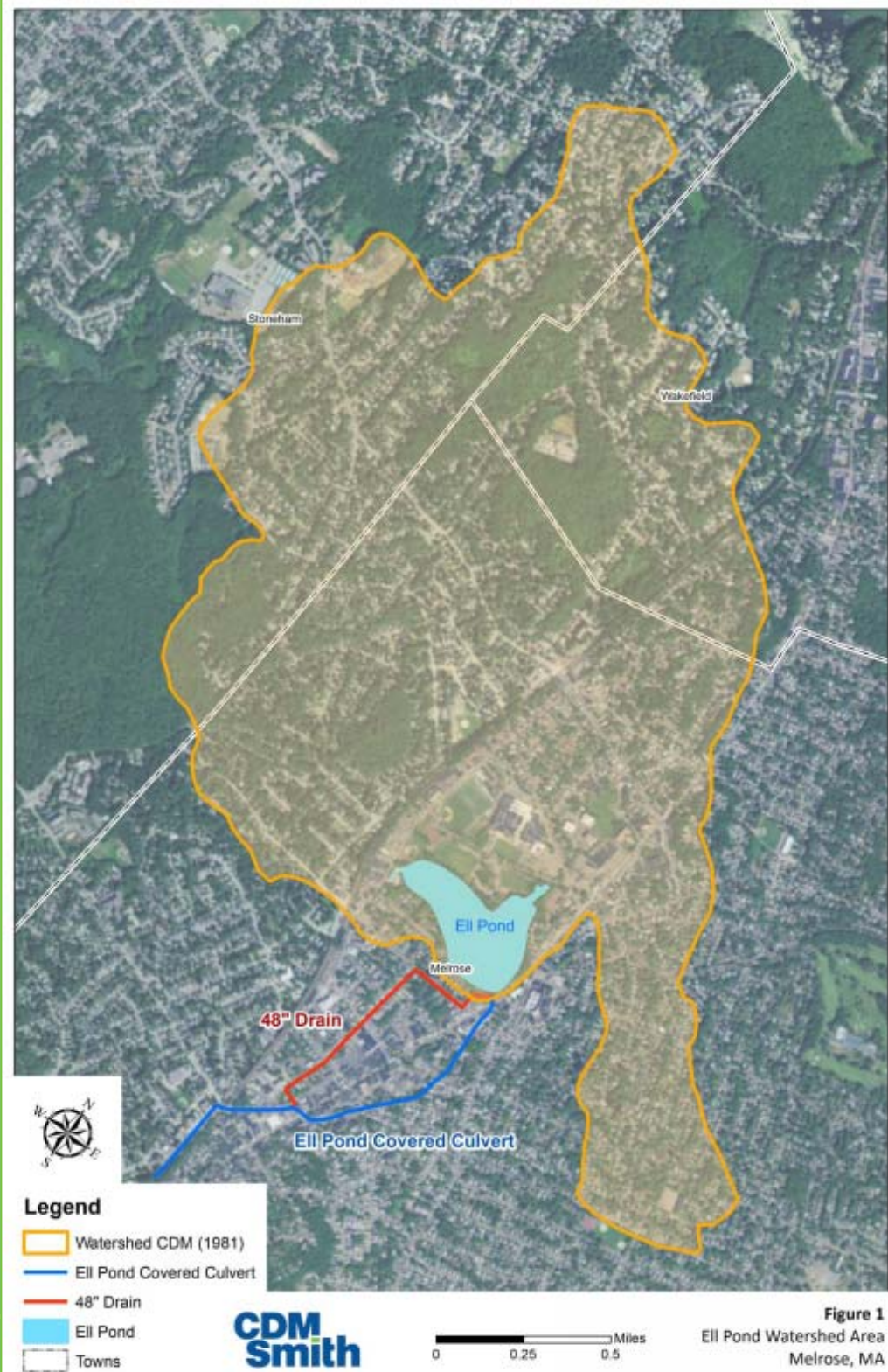
- Phase I—Estimate new BFE
 - Completed hydrologic and hydraulic evaluation
 - If beneficial change to BFE, recommend Phase II
- Phase II—Complete LOMR Application
 - Finalize hydrologic and hydraulic evaluation
 - Complete LOMR (MT-2) application to FEMA

Reevaluation of Base Flood Elevation

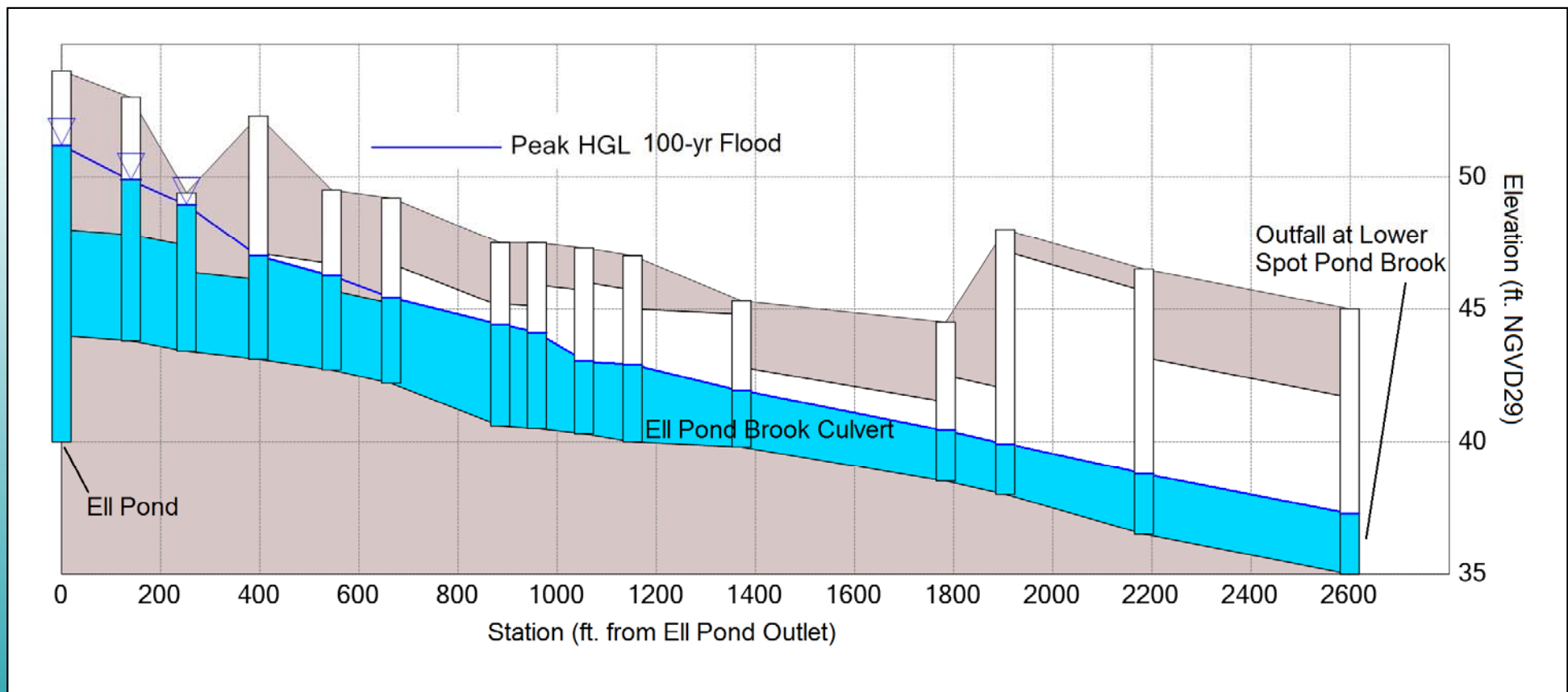
- Phase I—Estimate new BFE
- Hydrologic and Hydraulic Simulations
 - Rainfall—Runoff and Hydraulic Modeling
 - Duplicate Effective Model – to match 1981 analysis
 - Corrected Effective Model – before drainage improvements
 - Existing Conditions Model – with new 48-in drain
 - Recurrence Intervals
 - 10% Annual Chance (1 yr)
 - 2% Annual Chance (50 yr)
 - 1% Annual Chance (100 yr, basis for BFE)**
 - 0.2% Annual Chance (500 yr)

Reevaluation of Base Flood Elevation

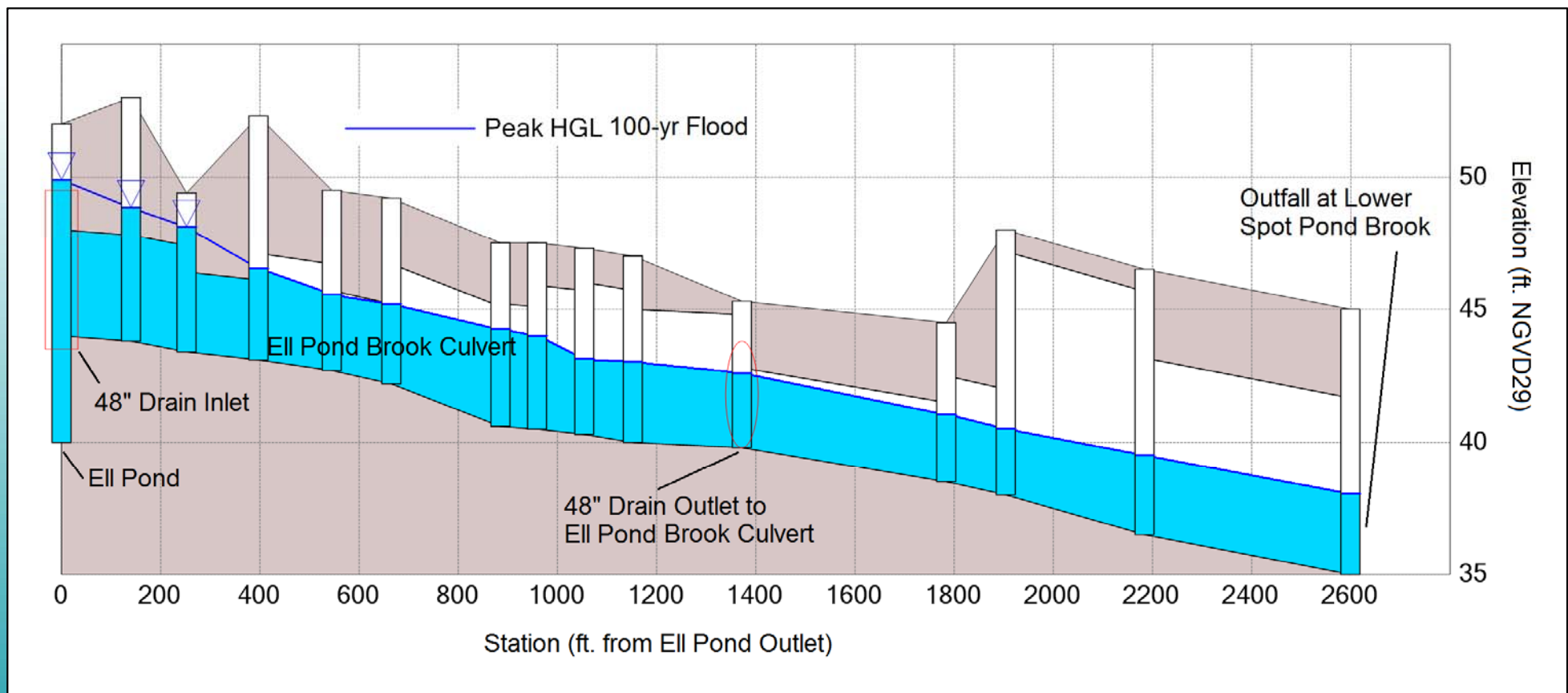
Eli Pond Watershed
Area—1,160 acres



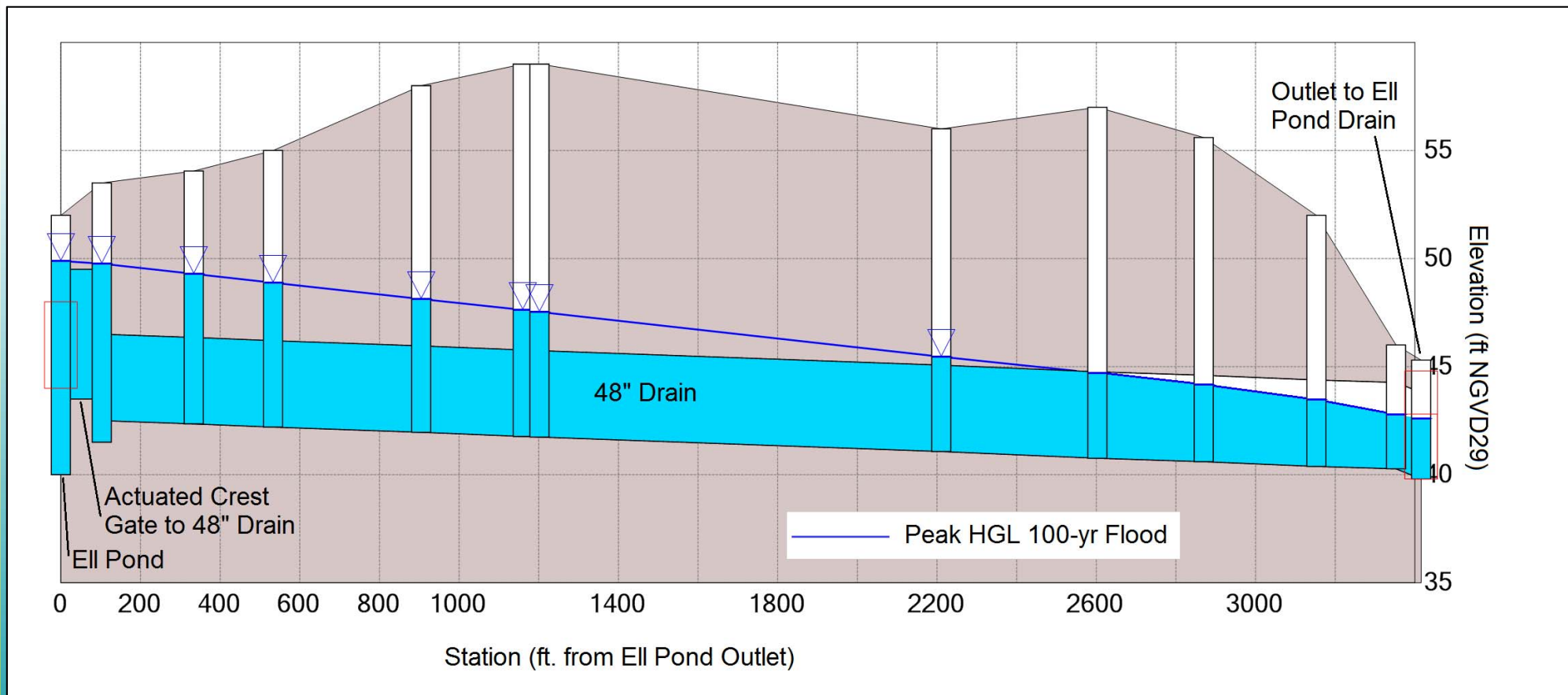
Peak 100-yr Profile (Corrected Effective) Ell Pond Brook Culvert



Peak 100-yr Profile (Existing Conditions) Ell Pond Brook Culvert



Peak 100-yr Profile (Corrected Effective) 48-in Ell Pond Drain Pipe



What is a LOMR

- A Letter of Map Revision (LOMR) is FEMA's modification to an effective Flood Insurance Rate Map (FIRM)
- The LOMR officially revises the FIRM and the Flood Insurance Study (FIS) report
- Once initiated, FEMA will process a request to revise the flood hazard maps
- LOMRs are primarily intended for small areas of change and areas where flood hazards are typically decreasing

What is a LOMR

- LOMR reviews take up to 90 days to process, are subject to a 90 day appeal period, and usually become effective within six months after they are issued.
- However, those affected by the map change can sign off as accepting the new maps. They will be contacted as part of the approval process. If this happens, there is no appeal process and the maps become effective.
- Once effective, individual owners outside of the new Special Flood Hazard Area will no longer be required by the National Flood Insurance Reform Act to carry flood insurance.

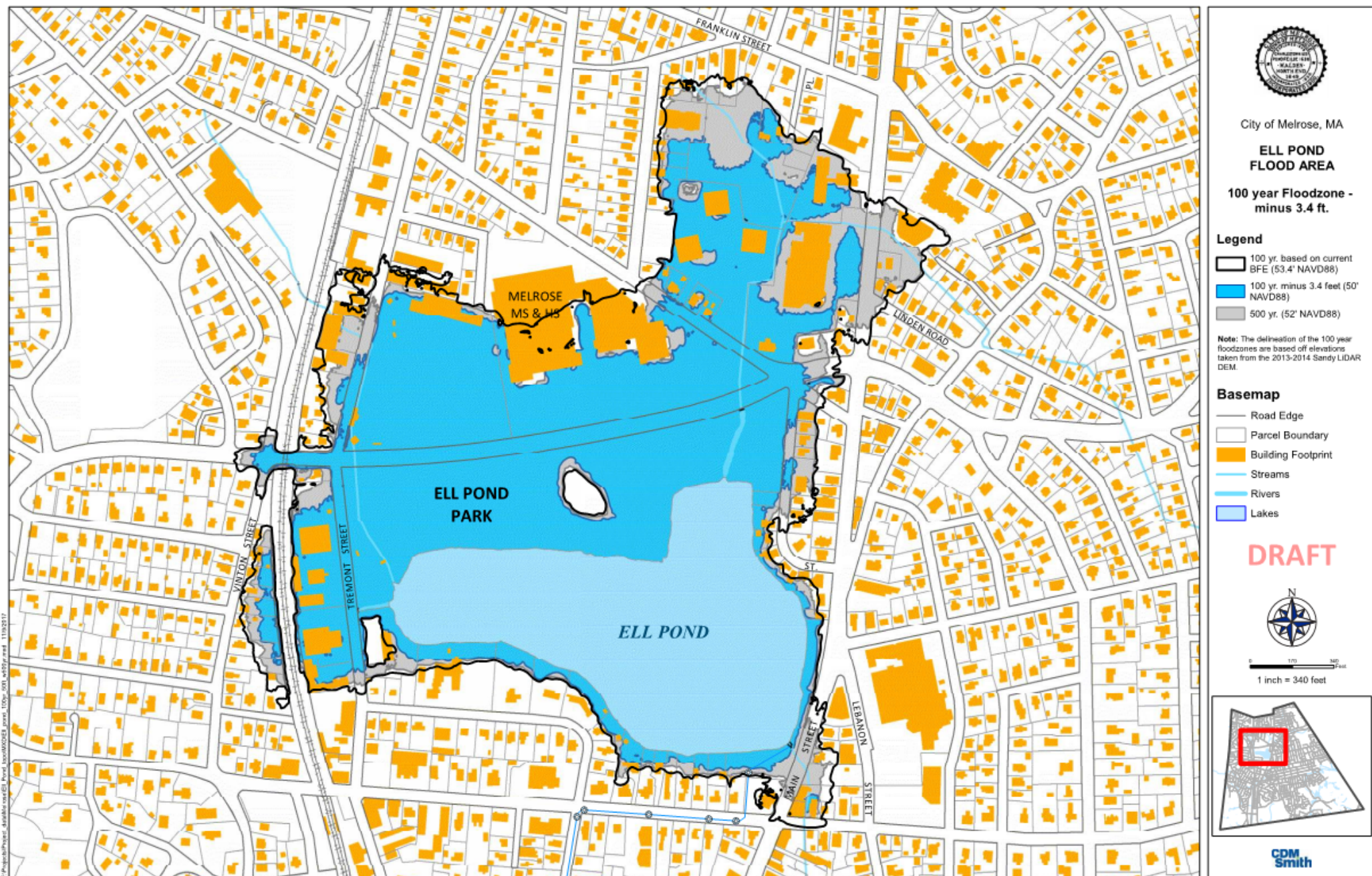
LOMR Documentation

- Completed application forms
- Narrative on project and submittal
- Hydrologic computations
- Hydraulic computations
- Certified topographic map
- Annotated FIRM to show changes
- Any documentation to satisfy NFIP requirements
- Review fee payment
- Endangered Species Act compliance documentation for CLOMRs only.

DRAFT Results

- The Updated Hydrologic and Hydraulic Evaluations result in a **3.4 ft decrease** for the BFE from 53.4 ft to 50.0 ft (NAVD88)
- The recommended 3.4 ft decrease is the result of
 - Improved data on the drainage area and existing Ell Pond Drainage Culvert,
 - New 48-in diameter Ell Pond Drain Pipe, and
 - Crest Gate operation.
- The final effective BFE is subject to FEMA review and approval

DRAFT Results Working Map



Potential Impacts on Flood Insurance Requirements—**Removed from SFHA**

- **A lower BFE means potential change from high flood risk to low or moderate risk (e.g., flood zone AE to X).**
- **Flood insurance is optional but recommended. The risk has only been reduced, not *removed*.** Flood insurance can still be obtained, and at lower rates. About 25 percent of all flood insurance claims come from moderate-to-low-risk areas.
- **Conversion offers savings.** An existing policy can be easily converted to a lower-cost **Preferred Risk Policy**, if the building qualifies. (Handout Available)

Potential Impacts on Flood Insurance-- Even if **Not Removed from SFHA**

- If the LOMR doesn't take property owners out of the SFHA but reduces their BFE significantly, it presents an opportunity for Pre-FIRM policyholders to get Elevation Certificates (EC). The elevation data may benefit in any one of four ways:
 - Show the Lowest Adjacent Grade (LAG) to be higher than the new BFE and open the door to a LOMA
 - Allow the policyholder to ask their agent to get a quote from the insurance company using the data on the EC. It may result in thousands of dollars in future premium savings even if the Lowest Floor is 4 or 5 feet below the BFE. The policyholder is always entitled to use the rating method (subsidized vs. EC data) that generates the lowest premium
 - Provide elevation data that will allow community officials to recommend mitigation to bring the building into compliance which will result in huge premium savings. Future buyers of the building won't be left to assume the worst case scenario.
 - The cost of ECs continue to be driven upward with supply and demand dynamics. It will probably be less expensive to get an EC now rather than later.

What's Your Situation?

Situation	Options
My house/building is shown out of the SFHA	<ul style="list-style-type: none">• You may cancel your flood insurance coverage, or• Convert to a Preferred Risk Policy at greatly reduced premiums
My house/building is shown inside the SFHA but <u>may</u> be above the BFE	<ul style="list-style-type: none">• Hire a licensed land surveyor to complete an Elevation Certificate and submit a LOMA
My property is below the BFE but my house/building <u>may</u> be above the BFE	<ul style="list-style-type: none">• Hire a licensed land surveyor to complete an Elevation Certificate and submit a LOMA
My house/building is below the BFE	<ul style="list-style-type: none">• Consider obtaining an Elevation Certificate and talk to your agent about rerating based on the EC• Consider mitigation measures to bring building into compliance
I don't currently carry flood insurance	<ul style="list-style-type: none">• Consider purchasing a low cost Preferred Risk Policy, see handout

Cancellation Rule 9 (October 2017 NFIP Manual)

- **Insurance No Longer Required** by Mortgagee Because Property Is No Longer Located in a Special Flood Hazard Area Because of a Physical Map Revision or LOMR (Letter of Map Revision)
- **Cancellation Effective Date:** The date the cancellation request, including all supporting documentation, is received by the insurer.
- **Type of Refund:** Pro rata premium refund, including ICC premium, Reserve Fund Assessment, and HFIAA Surcharge, will apply to the policy term in which the cancellation became effective. The refund does not include the Federal Policy Fee and Probation Surcharge.

(See the handout for more information)

Cancellation Rule 24 (October 2017 NFIP Manual)

- **Cancel and rewrite** a standard-rated flood insurance policy to a Preferred Risk Policy (PRP) based on a Letter of Map Revision (LOMR)
- **Cancellation Effective Date:** The effective date of the first eligible policy term.
- **Type of Refund:** Premium from the canceled policy will be applied to the PRP, with the difference refunded to the policyholder.

(See the handout for more information)

FEMA Insurance Specialist

Bob Desaulniers CPCU CFM ANFI AAI

Insurance Specialist

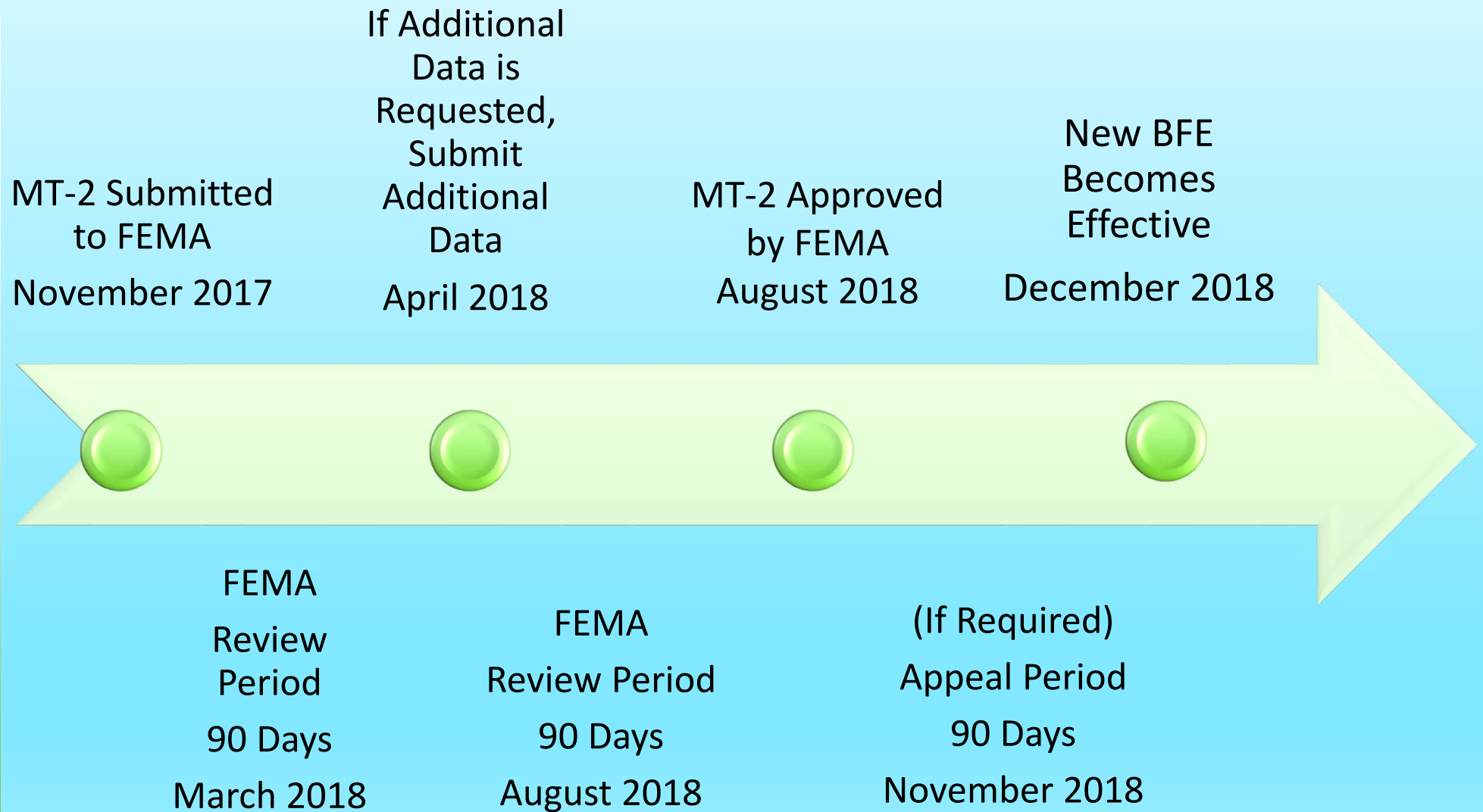
New England – Region I

617-832-4760 Direct

617-416-4034 Mobile

Robert.Desaulniers@fema.dhs.gov

LOMR Schedule



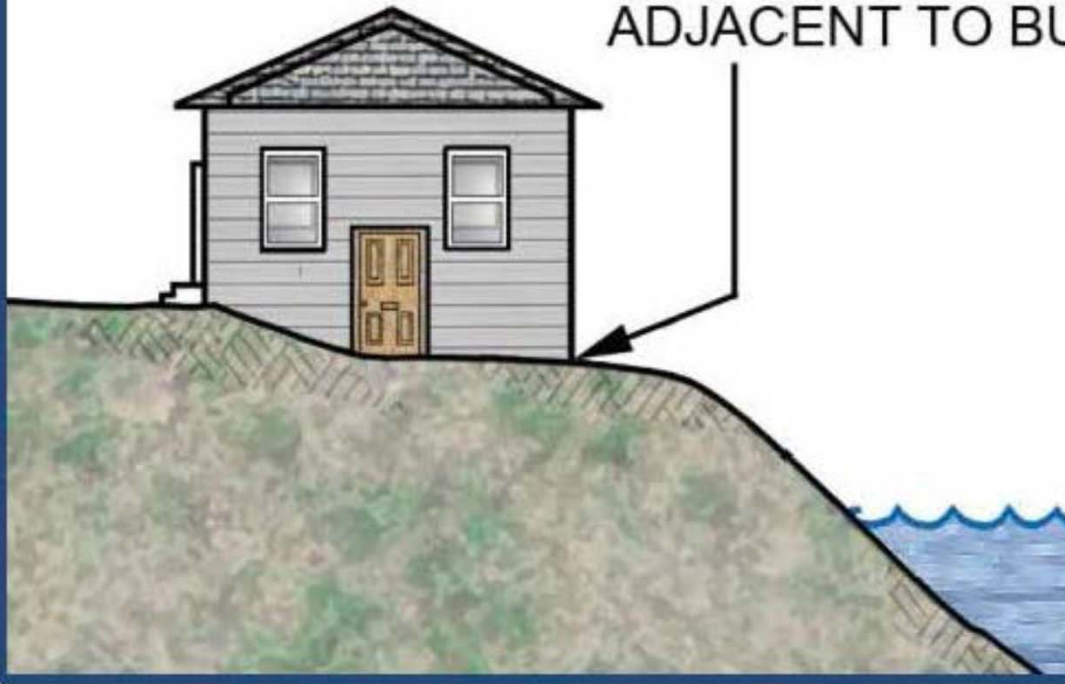
Next Steps

- Once the new BFE becomes effective
 - Attend public meeting with an insurance specialist
 - Obtain documentation for your insurance agent
 - Work with your insurance agent to reduce your premium



Questions and Answers


LOWEST GRADE
ADJACENT TO BUILDING



LAG



Example Letter of Map Amendment

Page 1 of 2		Date: March 29, 2011		Case No.: 11-01-1341A		LOMA-DEN		
		Federal Emergency Management Agency Washington, D.C. 20472						
		LETTER OF MAP AMENDMENT DETERMINATION DOCUMENT (NON-REMOVAL)						
COMMUNITY AND MAP PANEL INFORMATION				LEGAL PROPERTY DESCRIPTION				
COMMUNITY	CITY OF MELROSE, MIDDLESEX COUNTY, MASSACHUSETTS			Lot 18, as shown on the Plat, recorded as Plan No. 29, in Book 53, in the Office of the Registry of Deeds, Middlesex County, Massachusetts				
	COMMUNITY NO.: 250206							
AFFECTED MAP PANEL	NUMBER: 25017C0429E							
	DATE: 6/4/2010							
FLOODING SOURCE: ELL POND				APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 42.462, -71.063 SOURCE OF LAT & LONG: STREETS & TRIPS 2010 DATUM: WGS 84				
DETERMINATION								
LOT	BLOCK/SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS NOT REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
18	--	--	29 Crystal Street	Structure	AE	53.4 feet	53.0 feet	--
Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).								
ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)								
STUDY UNDERWAY								

Pre-FIRM Definition

Pre-FIRM Building. A building for which construction or substantial improvement occurred on or before December 31, 1974 or before the effective date of an initial Flood Insurance Rate Map (FIRM).

Schedule

Within 90 days following the receipt of the application materials and fee, FEMA will either approve the LOMR or contact the City requesting additional data. Another 90-day period begins with each additional data request. These are the maximum time periods and they may be shorter if the MT-2 application is in order and the LOMR review team is not extremely busy.

Approximately 120 days from the date the MT-2 application is approved and a LOMR is issued (including a 90 day appeal period) the new BFE will become the effective BFE for Ell Pond.