



Successful Applications & Projects

FEMA / MEMA Hazard Mitigation Grant Program (HMGP)

Northampton, MA
Milford, MA

Tom Jenkins, P.E.
GZA GeoEnvironmental, Inc.

Proactive By Design.
Our Company Commitment



FEMA

Effective Crisis Leadership Conference
November 04, 2015





Cursory Review of Four Projects:

Northampton, MA

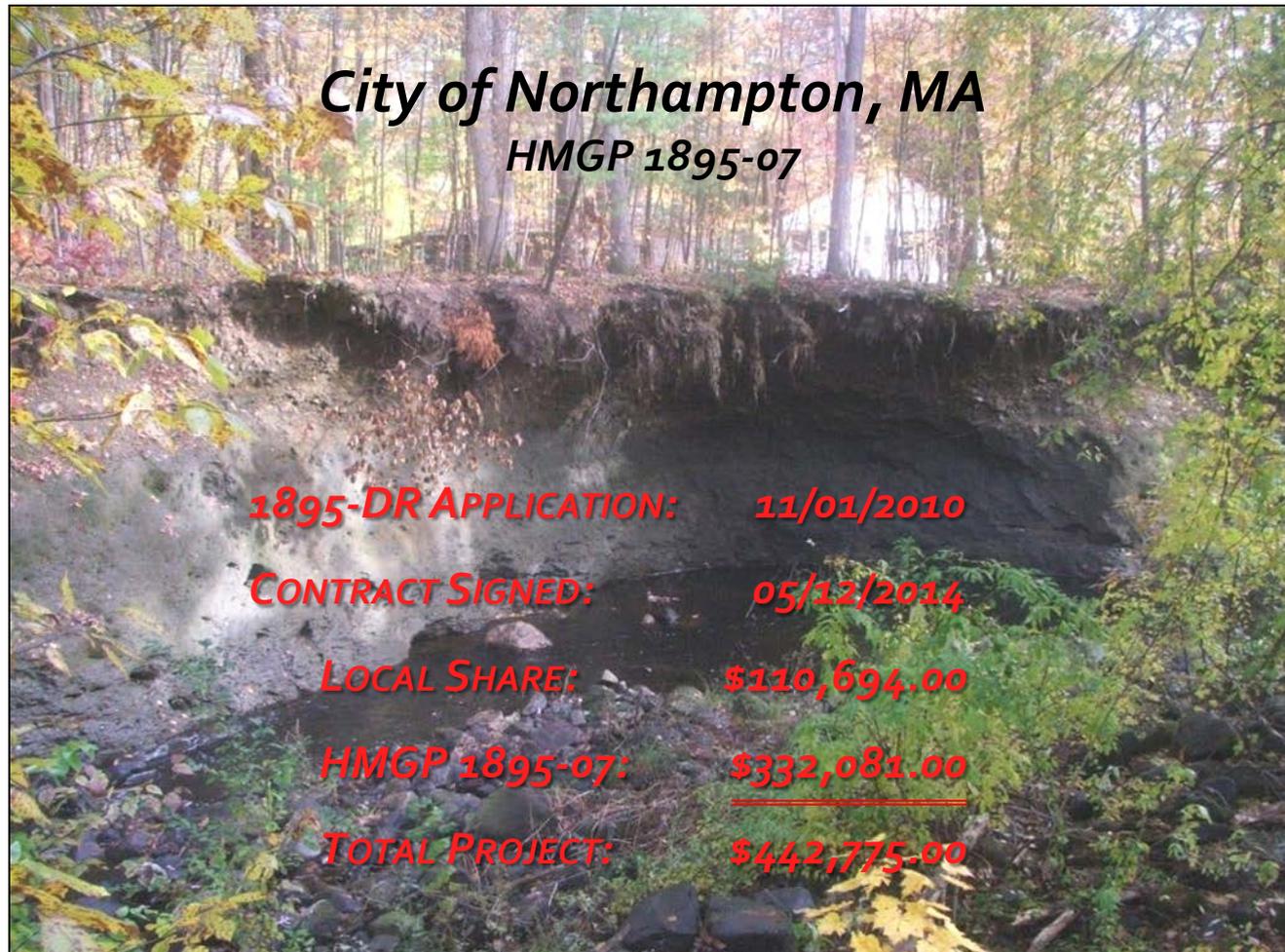
- *Channel Improvements at Roberts Meadow Brook
HMGP 1895-07*
- *River Road Retaining Wall / Floodwall Improvements
HMGP 1813-32*

Milford, MA

- *Godfrey Brook Improvements – Church Street to West Street
HMGP 1813-22*
- *Main Street Culvert Improvement at Godfrey Brook
HMGP 4028-22*
- *Godfrey Brook Improvements at Congress Terrace
HMGP 4051-42*

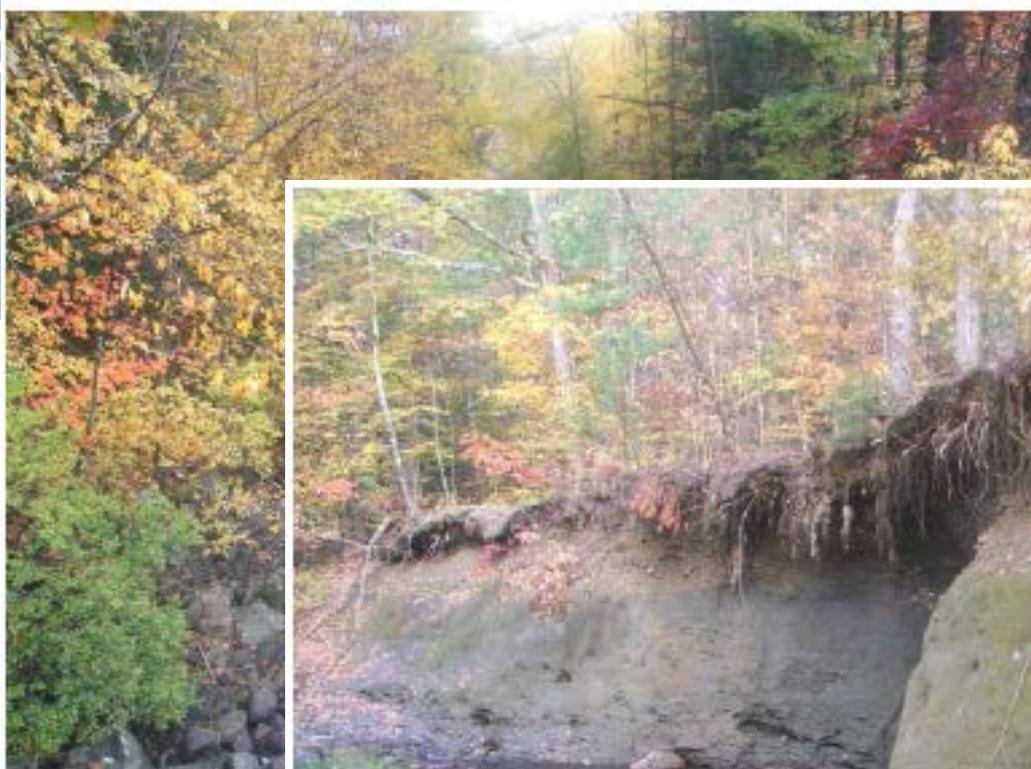


Channel Improvements at Roberts Meadow Brook



City of Northampton, MA
HMGP 1895-07

1895-DR APPLICATION:	11/01/2010
CONTRACT SIGNED:	05/12/2014
LOCAL SHARE:	\$110,694.00
HMGP 1895-07:	<u>\$332,081.00</u>
TOTAL PROJECT:	\$442,775.00



1.5



BASE IN

4

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FIGURE 2- EXISTING CONDITIONS

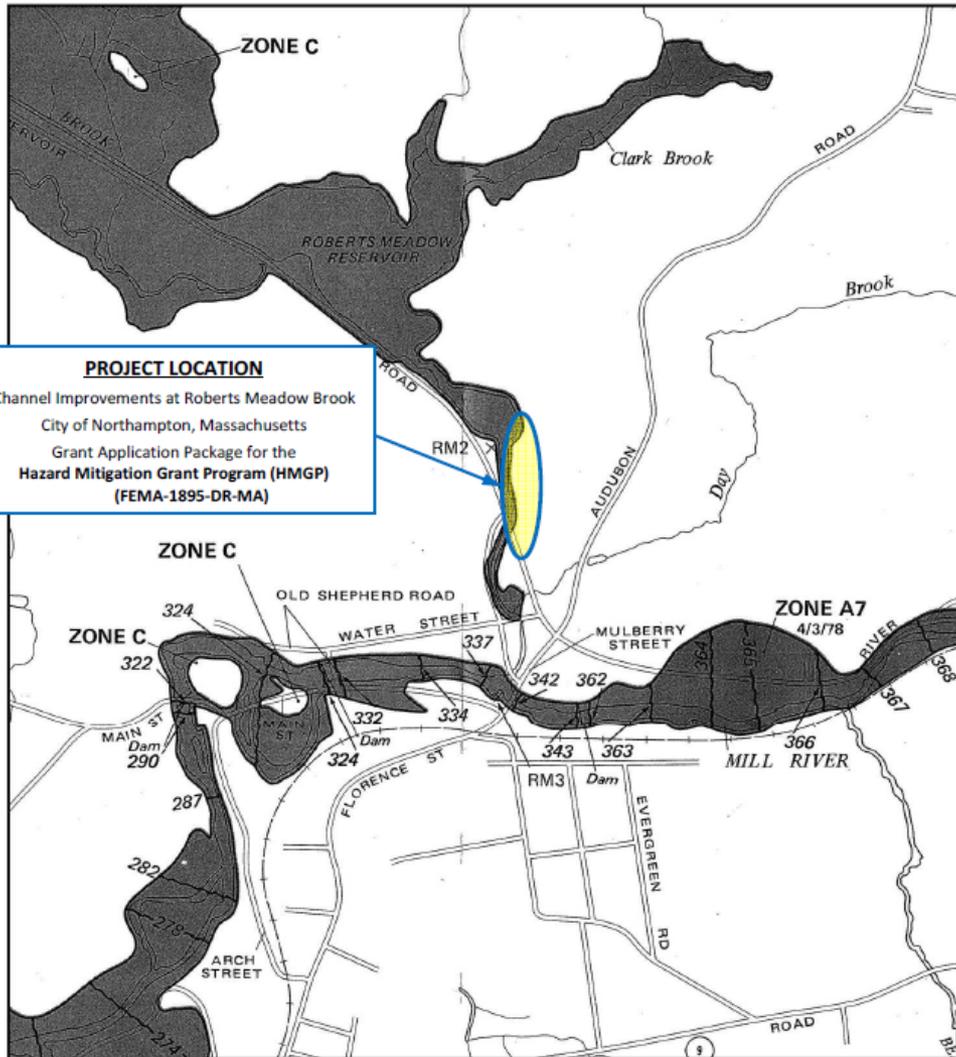
CHANNEL IMPROVEMENTS AT ROBERTS MEADOW BROOK NORTHAMPTON, MA

PROJECT NO.
15,0166221.00

DATE:
NOV., 2010



GZA GeoEnvironmental, Inc.
Engineers and Scientists
296 North Main Street
East Longmeadow, MA 01028
413-625-3822



PROJECT LOCATION
 Channel Improvements at Roberts Meadow Brook
 City of Northampton, Massachusetts
 Grant Application Package for the
 Hazard Mitigation Grant Program (HMGP)
 (FEMA-1895-DR-MA)

APPROXIMATE SCALE
 1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

CITY OF NORTHAMPTON, MASSACHUSETTS
HAMPSHIRE COUNTY

 COMMUNITY-PANEL NUMBER
250167 0001 A

PAGE 1 OF 2
(SEE MAP INDEX FOR PAGES NOT PRINTED)

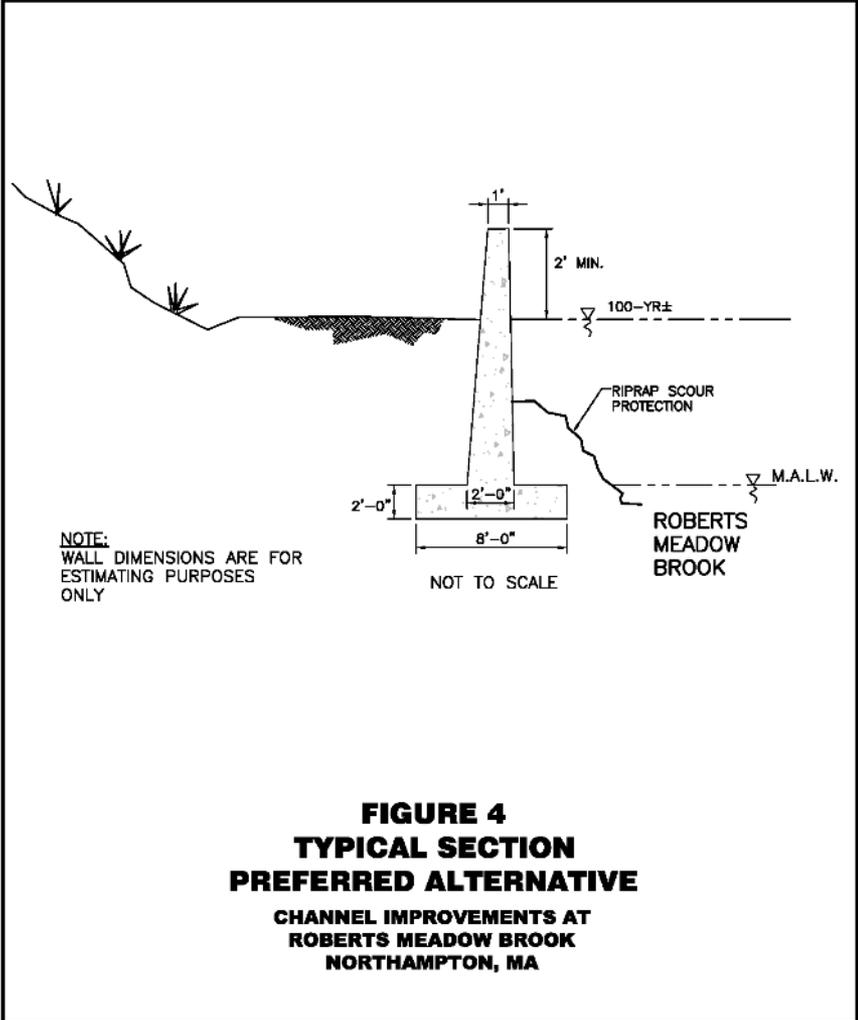
EFFECTIVE
APRIL 3, 1978

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

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

CHANNEL IMPROVEMENTS AT ROBERTS MEADOW BROOK					
Northampton, MA					
HMGP - FEMA-1895-DR-MA					
PROJECT COST ESTIMATE					
WALL LENGTH	350	FT			
AVG. WALL WIDTH	1.25	FT			
AVG. WALL HEIGHT	9.5	FT			
AVG. FOOTING WIDTH	6.5	FT			
AVG. FOOTING HEIGHT	2.0	FT			
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE**	EXTENSION	TASK TOTAL
SITE PREPARATION & SITE DEMOLITION					\$80,800
SITE PREP, SECURE SITE, ENG. LAYOUT	1	LS	\$5,000	\$5,000	
TRAFFIC CONTROL - AT PRIVATE PROPERTY	1	LS	\$2,000	\$2,000	
TRAFFIC CONTROL - POLICE DETAIL	40	HOURS	\$40	\$1,600	
CLEAR & GRUB TREES / VEGETATION	0.18	AC	\$15,000	\$2,400	
CONTROL & DIVERSION OF WATER	20	WEEKS	\$2,500	\$50,000	
EROSION & SEDIMENT CONTROL	1	LS	\$7,500	\$7,500	
EXISTING WALL DEMOLITION	410	CY	\$30	\$12,300	
EARTHWORK (Averaged earthwork is included in cost of utility work below)					\$24,800
EXCAVATION AND BACKFILL	520	CY	\$45	\$23,400	
CRUSHED STONE BEDDING	130	CY	\$40	\$5,200	
GRAVEL BORROW BACKFILL	310	CY	\$30	\$9,300	
LOAM BORROW	40	CY	\$35	\$1,400	
SITE UTILITIES (drainage at adjacent property)					\$5,300
NEW 12" RCP STORM DRAINS	30	LF	\$60	\$1,800	
NEW CATCH BASINS (Storm Drain, deep stamp)	1	EA	\$3,500	\$3,500	
SITE IMPROVEMENTS					\$233,000
WALLS - REINFORCED CONCRETE	320	CY	\$675	\$218,000	
RIPRAP SCOUR PROTECTION (at wall toe)	200	CY	\$45	\$9,000	
DRIVEWAY REPAIR	2,000	SF	\$4.00	\$8,000	
LANDSCAPE WORK					\$5,875
LAWNS (Hydroseeded)	3,500	SF	\$0.50	\$1,750	
SHRUBS, MISC. TREES (at adjacent property)	15	EA	\$275	\$4,125	
SUB-TOTAL =				\$348,775	
SUBSURFACE / SOIL BORINGS				\$8,500	
TOPO SURVEY				\$5,000	
ENGINEERING & DESIGN (12%)				\$42,000	
PERMITTING				\$25,000	
GRAND TOTAL =				\$428,275	
FEDERAL SHARE =				\$321,206	

** UNIT PRICES PROVIDED BY GZA GEOENVIRONMENTAL, INC. AND AREA BASED ON DIRECT EXPERIENCE WITH SIMILAR TYPES OF CONSTRUCTION IN MASSACHUSETTS





River Road Retaining Wall / Floodwall Improvements

City of Northampton, MA
HMGP 1813-32

1813-DR APPLICATION:	04/09/2010
1895-DR RE-APPLICATION:	03/04/2011
CONTRACT SIGNED:	08/08/2014
LOCAL SHARE:	\$401,787.00
HMGP 1813-32:	<u>\$1,205,363.00</u>
TOTAL PROJECT:	\$1,607,150.00

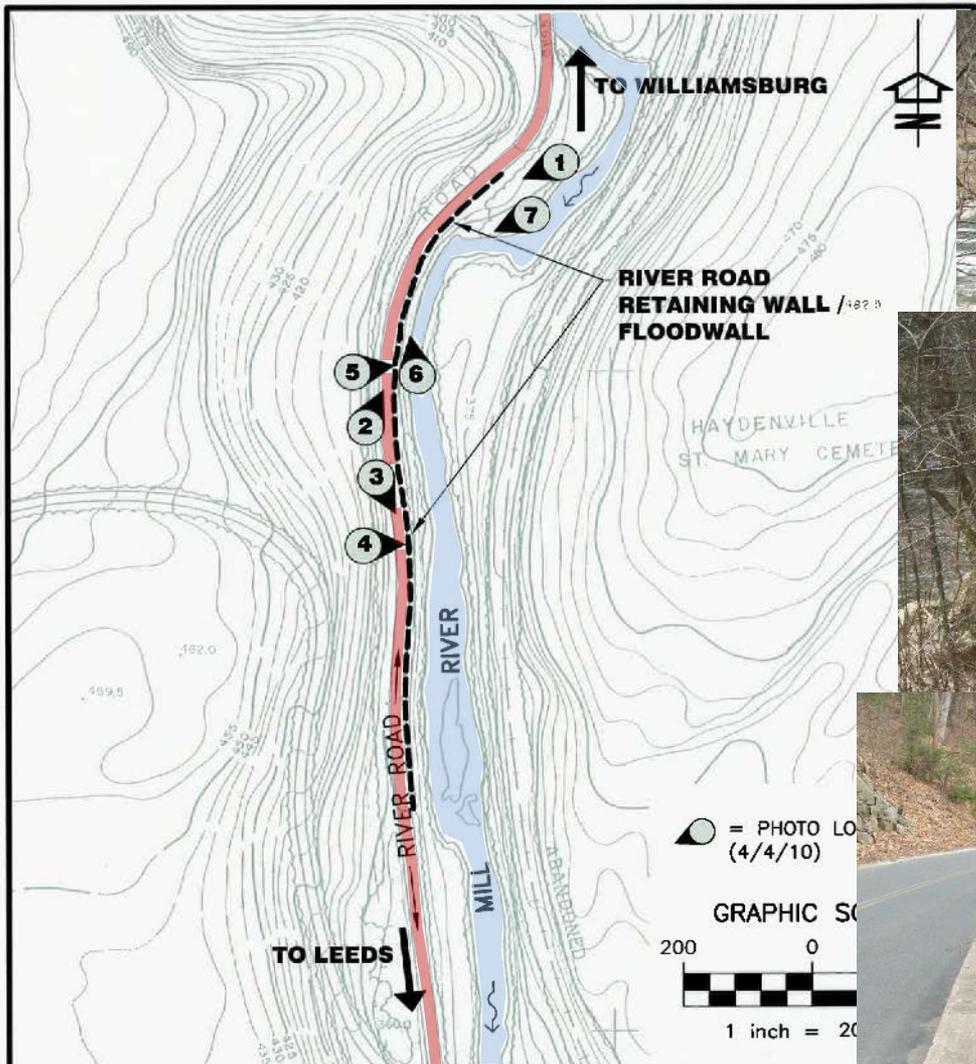
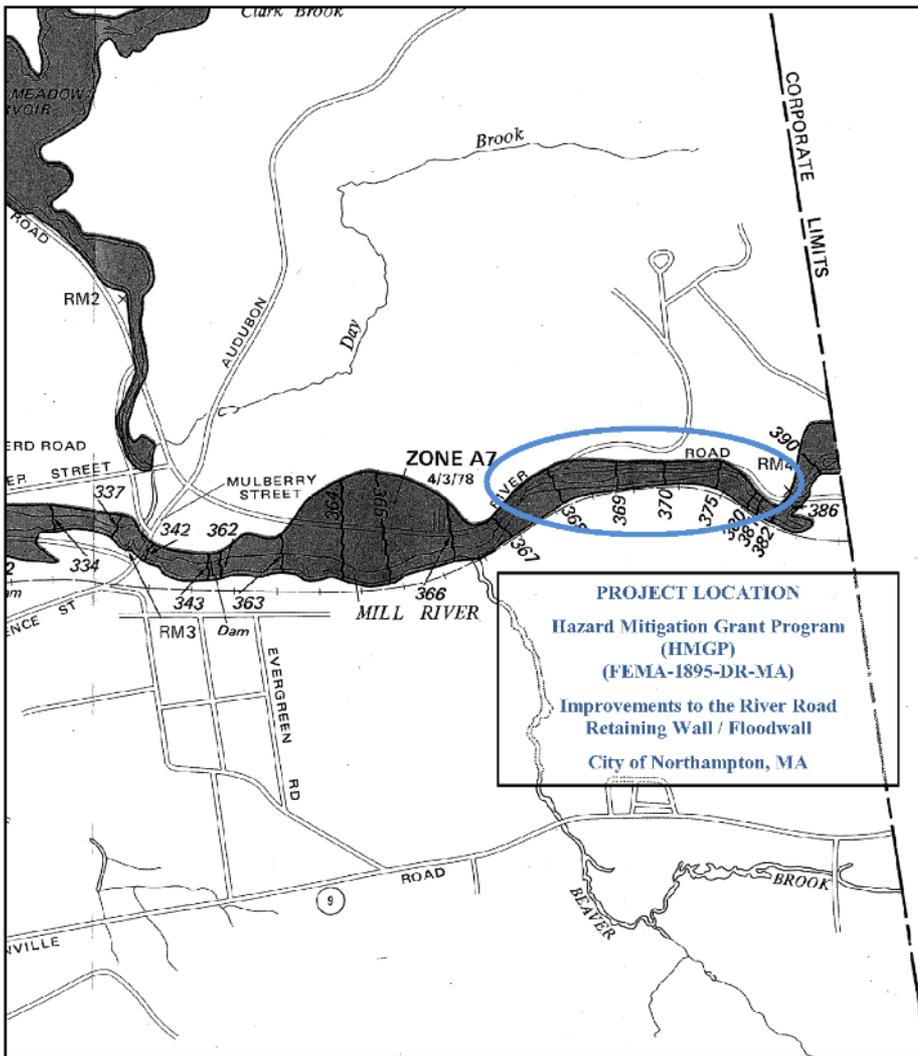


FIGURE 2- EXISTING CONDITIONS

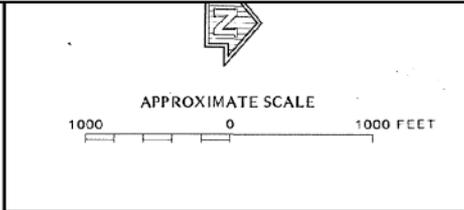
**RIVER ROAD RETAINING WALL / FLOODWALL IMPROVEMENTS
NORTHAMPTON, MA**

GZA GEOENVIRONMENTAL, INC.
 1350 Main Street, Suite 1400
 Springfield, MA 01103

PROJECT: 15.0
 DATE: MAF



PROJECT LOCATION
 Hazard Mitigation Grant Program
 (HMGP)
 (FEMA-1895-DR-MA)
 Improvements to the River Road
 Retaining Wall / Floodwall
 City of Northampton, MA



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

CITY OF NORTHAMPTON, MASSACHUSETTS HAMPSHIRE COUNTY

COMMUNITY-PANEL NUMBER 250167 0001 A

PAGE 1 OF 2
 (SEE MAP INDEX FOR PAGES NOT PRINTED)

EFFECTIVE APRIL 3, 1978

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

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RIVER ROAD RETAINING WALL / FLOODWALL IMPROVEMENTS					
Northampton, MA					
HMGP - FEMA-1895-DR-MA					
PROJECT COST ESTIMATE					
WALL LENGTH	950	FT			
AVG. WALL WIDTH	1.5	FT			
AVG. WALL HEIGHT	11.0	FT			
AVG. FOOTING WIDTH	8.0	FT			
AVG. FOOTING HEIGHT	2.0	FT			
DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION	TASK TOTAL
SITE PREPARATION & SITE DEMOLITION					\$212,100
MOBILIZATION, ENG. LAYOUT, DE-MOB	1	LS	\$5,000.00	\$5,000	
TRAFFIC CONTROL - DETOURS & TEMP. SIGNAGE	2	EA	\$5,000.00	\$10,000	
TRAFFIC CONTROL - POLICE DETAIL	1,280	HOURS	\$40.00	\$51,200	
CLEAR & GRUB TREES / VEGETATION	0.44	AC	\$15,000.00	\$6,600	
CONTROL & DIVERSION OF WATER	24	WEEKS	\$2,500.00	\$60,000	
EROSION & SEDIMENT CONTROL-SILT FENCE	1,000	LF	\$6.00	\$6,000	
EROSION & SEDIMENT CONTROL-STRAW BALES	400	LF	\$8.00	\$3,200	
EROSION & SEDIMENT CONTROL-TURBIDITY CURTAIN	200	LF	\$15.00	\$3,000	
PAVEMENT REMOVAL	12,000	SF	\$1.50	\$18,000	
EXISTING WALL DEMOLITION	1,550	CY	\$30.00	\$46,500	
CATCH BASIN REMOVAL	4	EA	\$400.00	\$1,600	
CULVERT REMOVAL	4	EA	\$250.00	\$1,000	
EARTHWORK (Associated earthwork is included in cost of utility work below)					\$151,750
EXCAVATION AND BACKFILL	3,100	CY	\$45.00	\$139,500	
GRUSHED STONE BEDDING	350	CY	\$35.00	\$12,250	
SITE UTILITIES					\$38,500
NEW 12" RCP STORM DRAINS	100	LF	\$80.00	\$8,000	
REINFORCE SANITARY SEWER	300	LF	\$50.00	\$15,000	
REPLACEMENT CATCH BASINS (Storm Drain, deep sump)	5	EA	\$2,000.00	\$10,000	
SITE IMPROVEMENTS					\$994,950
WALLS - REINFORCED CONCRETE	1,144	CY	\$675.00	\$772,200	
REFLECTING DELINEATORS AT NEW WALL	950	LF	\$5.00	\$4,750	
REPLACEMENT OF RIPRAP SCOUR PROTECTION	2,800	CY	\$45.00	\$126,000	
ROADWAY REPAIR	10,000	SF	\$6.50	\$65,000	
ROADWAY OVERLAY AND STRIPING	24,000	SF	\$1.50	\$36,000	
LANDSCAPE WORK					\$7,750
TURF (Hydroseeded)	10,000	SF	\$0.50	\$5,000	
SHRUBS, MISC. TREES (REPLACEMENTS)	10	EA	\$275.00	\$2,750	
SUB-TOTAL =				\$1,495,050	
SUBSURFACE / SOIL BORINGS				\$10,000	
TOPO SURVEY				\$7,500	
ENGINEERING & DESIGN (11%)				\$154,600	
PERMITTING				\$30,000	
GRAND TOTAL =				\$1,607,150	

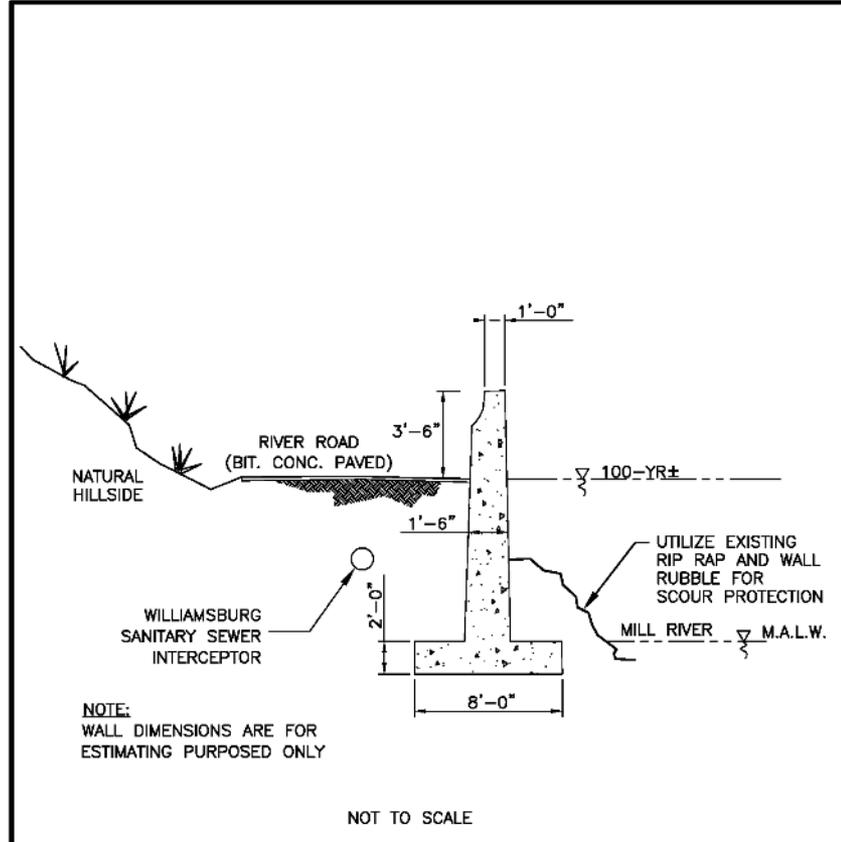


FIGURE 5- TYPICAL SECTION- PREFERRED ALTERNATIVE

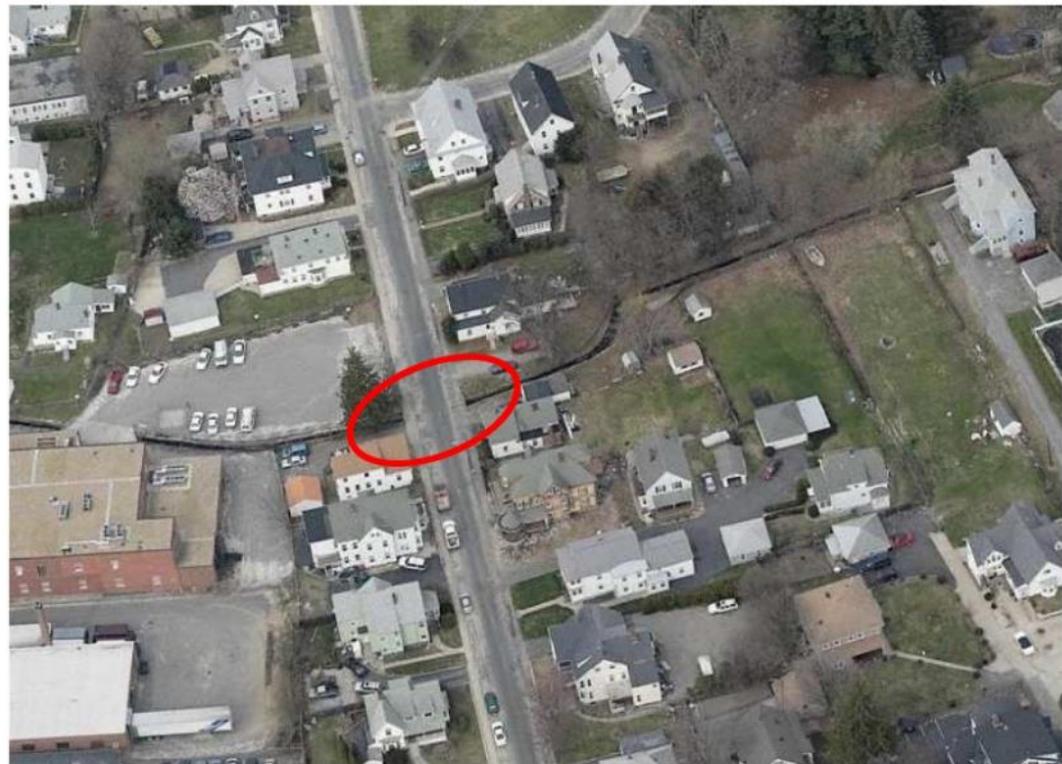
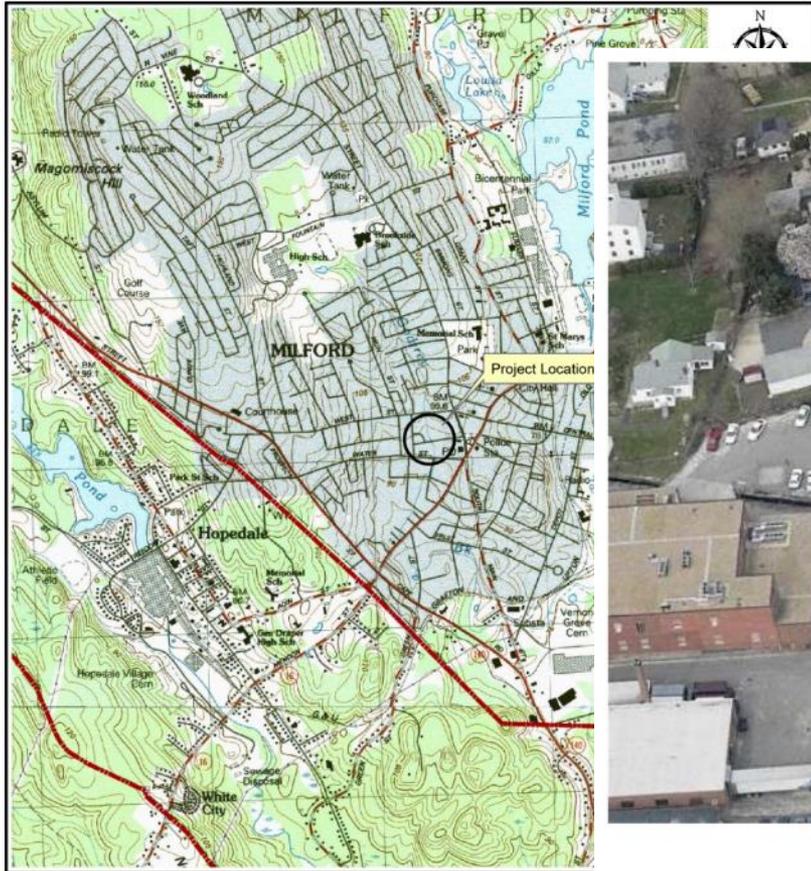
RIVER ROAD RETAINING WALL / FLOODWALL IMPROVEMENTS NORTHAMPTON, MA

Godfrey Brook Improvements – Church St. to West St.



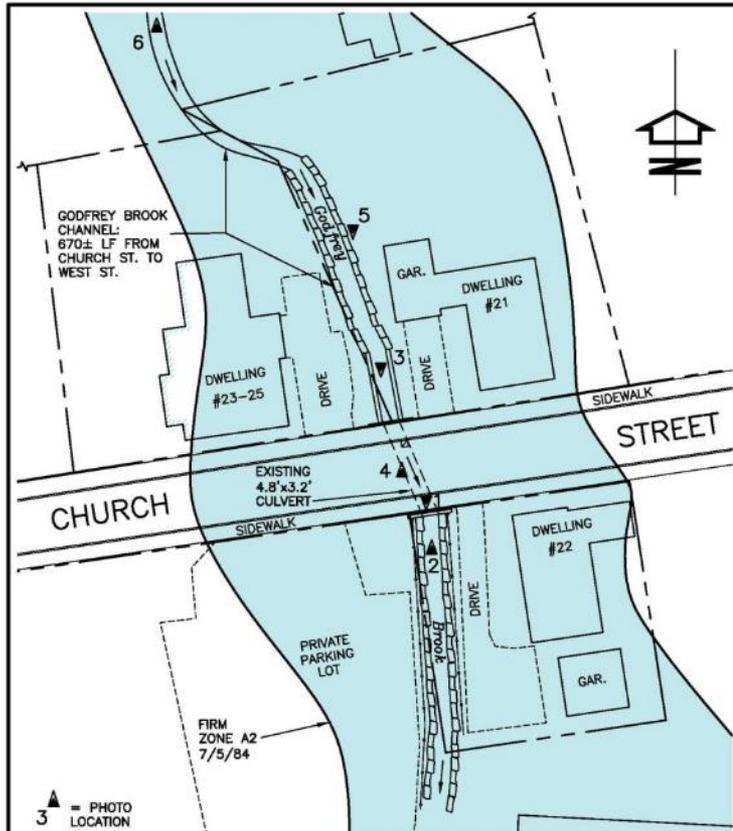
Town of Milford, MA
HMGP 1813-22

1813-DR APPLICATION:	10/30/2009
1813-DR RE-APPLICATION:	04/09/2010
CONTRACT SIGNED:	04/08/2011
LOCAL SHARE:	\$52,886.00
HMGP 1813-22:	\$158,659.00
TOTAL PROJECT:	\$211,545.00



Aerial Photo – looking west

	<p>Church Street Culvert Replacement at Godfrey Brook Milford, Massachusetts</p>		<p>Drawn by: SMR</p>
	<p>USGS TOPOGRAPHIC QUADRANGLE MAP MILFORD QUAD, 1982</p>		<p>Checked by: TEJ</p>
<p>Data obtained from MASS GIS, Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs (EEA)</p>		<p>Date: 10/29/2009</p>	
		<p>Figure No: 1</p>	



GODFREY BROOK CHANNEL AND CULVERT IMPROVEMENTS

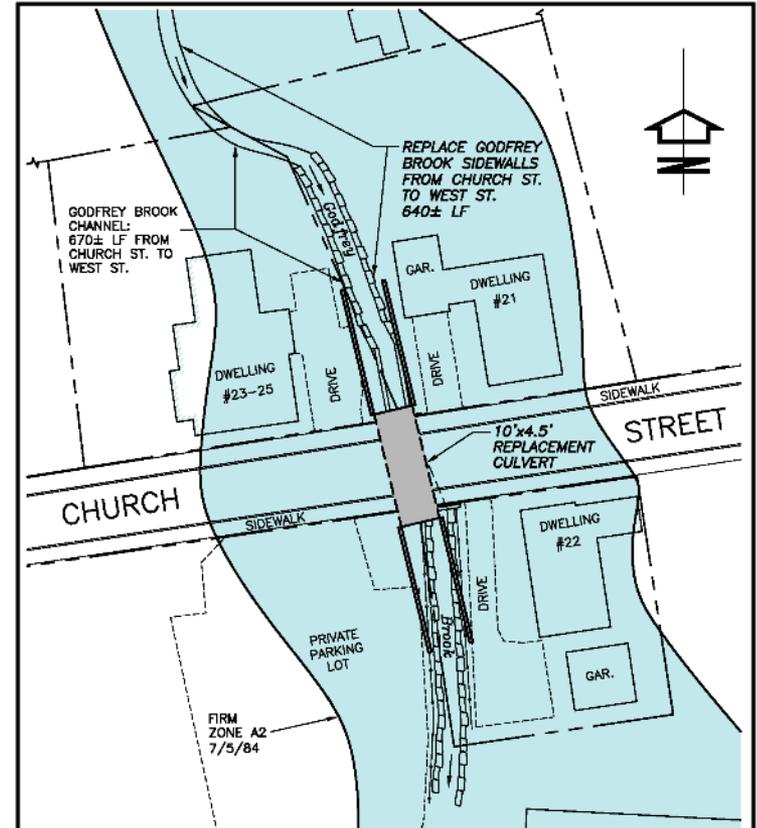
**FIGURE 2
EXISTING CONDITIONS**

GZA, Inc.

15.0166148.00

1"=30'±

OCT. 2009



GODFREY BROOK CHANNEL AND CULVERT IMPROVEMENTS

**FIGURE 4
ALTERNATIVE 1
25-YR DESIGN**

BEI BAYSTATE ENVIRONMENTAL CONSULTANTS, INC.
Civil Engineers - Planners - Environmental Scientists
200 North Main Street 100 Mainville Avenue
East Longmeadow, MA 01103 Westfield, MA 01095

15.0166148.00

1"=30'±

OCT. 2009

“Godfrey Brook Feasibility Study”



The Commonwealth of Massachusetts
 Executive Office of Energy and Environmental Affairs
 100 Cambridge Street, Suite 900
 Boston, MA 02114

Deval L. Patrick
 GOVERNOR

Timothy P. Murray
 LIEUTENANT GOVERNOR

Ian A. Bowles
 SECRETARY

Tel: (617) 626-1000
 Fax: (617) 626-1181
<http://www.mass.gov/envr>

September 11, 2009

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
 ON THE
 ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Godfrey Brook System Renovation
 PROJECT MUNICIPALITY : Milford
 PROJECT WATERSHED : Charles River
 HEA NUMBER : 14465
 PROJECT PROPONENT : Town of Milford
 DATE NOTICED IN MONITOR : August 12, 2009

Pursuant to the Massachusetts Environmental Policy Act (M.G. L. c. 30, ss. 61-62I) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **does not require** the preparation of an Environmental Impact Report (EIR).

As described in the Environmental Notification Form (ENF), the project involves the

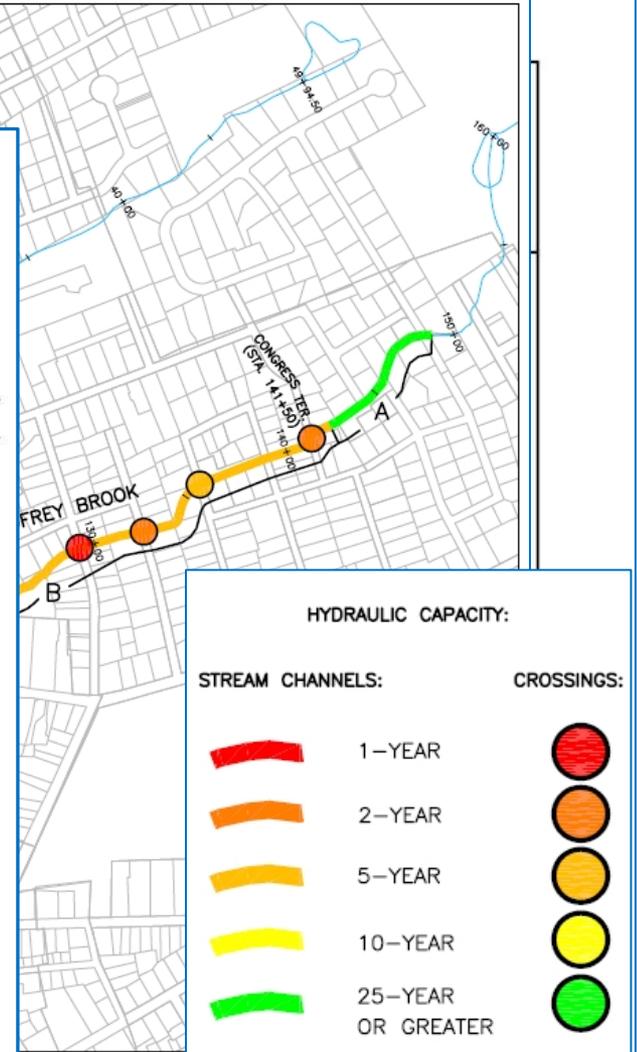




Photo 1: Looking downstream from existing culvert



Photo 3: Upstream end of existing culvert

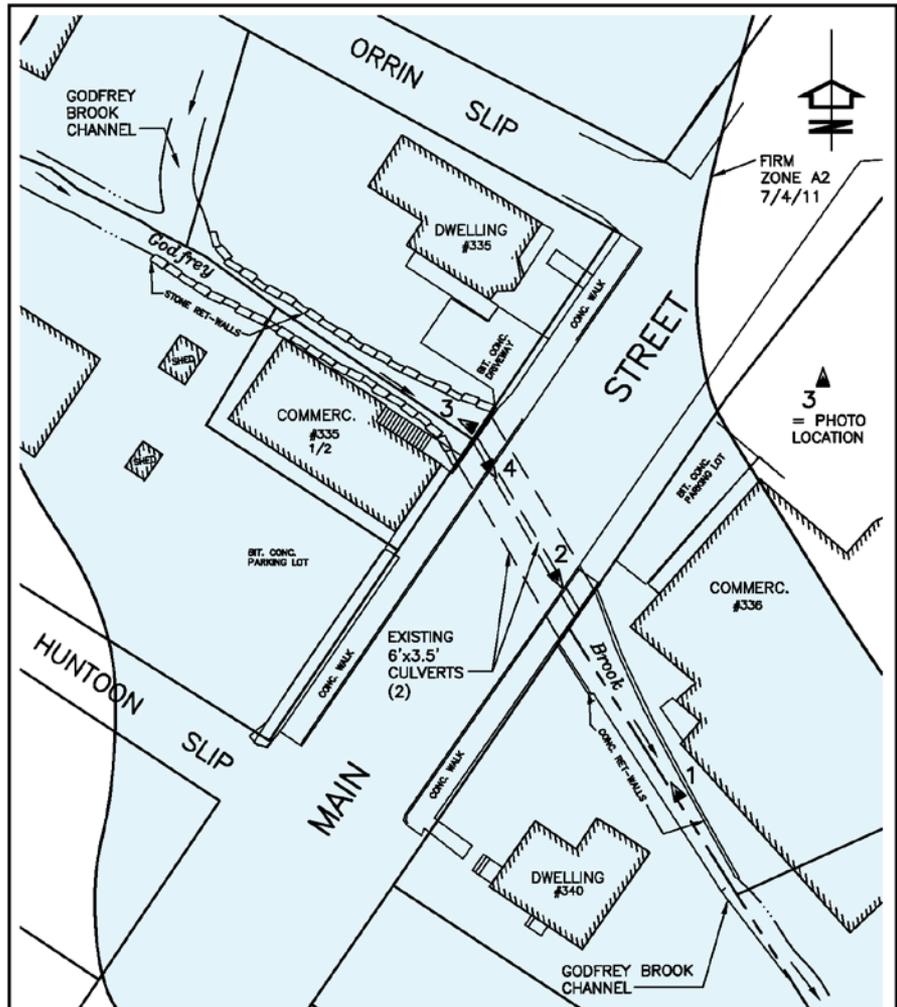




Main Street Culvert Improvement at Godfrey Brook



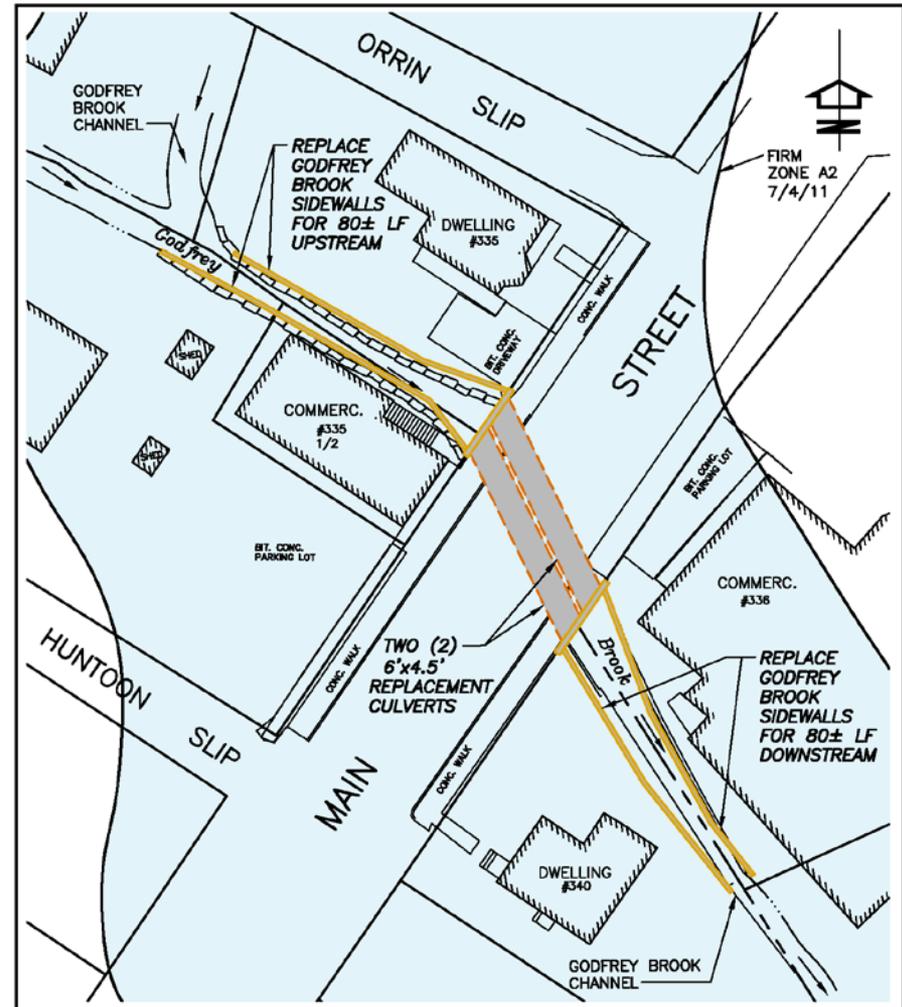




**MAIN STREET CULVERT IMPROVEMENTS
AT GODFREY BROOK
MILFORD, MA**

**FIGURE 2
EXISTING CONDITIONS**

15.0166148.10 1"=30'± APRIL, 2012



**MAIN STREET CULVERT IMPROVEMENTS
AT GODFREY BROOK
MILFORD, MA**

**FIGURE 4
PREFERRED ALTERNATIVE
50-YR DESIGN**

15.0166148.10 1"=30'± APRIL, 2012

Godfrey Brook Improvements at Congress Terrace



Town of Milford, MA
HMGP 4051-42

4051-DR APPLICATION:	03/15/2013
CONTRACT SIGNED:	04/22/2014
LOCAL SHARE:	\$134,955.00
HMGP 4051-42:	\$404,865.00
TOTAL PROJECT:	\$539,820.00



Benefit / Cost Analysis

? ? ?

based on:

Anticipated Benefits of the Project that may be realized by construction of the ...

- *Expected Damages Scenario*
- *Documentation of Expected Damages Scenario*
 - *Background*
 - *Setting*
 - *Assumed Failure Mechanism*
 - *Assumed Damages – Narrative and Estimated Cost of Damages*