



May 23, 2016

Mr. Christopher Bonsignore, P.E.  
Principal Engineer  
Environmental Compliance Section  
Bureau of Engineering and Highway Operations  
State of Connecticut Department of Transportation  
2800 Berlin Turnpike, P.O. Box 317546  
Newington, CT 06131-7546

Attention: Adam Fox, P.E. / Denise A. Young

Subject: On-Call Asbestos, Lead, Air Quality & Demolition Compliance  
Agreement No. 04.27-01(15)  
HazMat Inspection - Bridge Nos. 03330/03331, Route 349 NB/SB over Amtrak, Groton, CT  
ConnDOT Assignment No. 514-5275  
ConnDOT Project No. 58-332  
TRC Project No. 222165.5275.0710

Dear Mr. Bonsignore:

TRC performed a limited survey for hazardous building materials associated with the rehabilitation of Bridge Nos. 03330/03331 in Groton, Connecticut. The concrete decking/support beams and metal railing (galvanized) of the two bridges were unpainted therefore no lead paint was identified. No detectable amounts of lead paint ( $0.0 \text{ mg/cm}^2/\text{ND} < 0.10\%$  by weight) were identified on the painted concrete abutments/piers of both bridges, therefore any paint waste stream from the concrete abutments/piers would be characterized as non-hazardous non-RCRA waste. Suspect asbestos containing material in the form of gray seam caulking around foot posts of the railings was sampled and found to contain asbestos. Suspect asbestos containing material in the form of black expansion joint coating found along road seams and black tar coating on abutments and embankments were sampled and found to contain no asbestos. Due to inaccessibility, potentially ACM transite paneling is presently presumed to be attached to the underside of the concrete deck on both bridges directly over the tracks. No bird/pigeon guano accumulations were observed around in accessible areas of the bridge. Associated laboratory data, project description, site map and site photos are attached.

If you have any questions, please call TRC at (860) 298-9692.

Very Truly Yours,

TRC

A handwritten signature in black ink, appearing to read "Erik R. Plimpton".

Erik R. Plimpton, P.E., CHMM, CMC  
Vice President - Program Manager

A handwritten signature in black ink, appearing to read "E. Burke".

E. Burke, P.E.  
Engineer in Charge



**Lead Based Paint Measurement Summary Table**

Device(s): Niton XLP301-A (Serial #24792) X Ray Fluorescence (XRF) Spectrum Analyzer  
 Site: DOT Bridge #03330/03331, Groton, CT  
 Project #: 222165.5275.00710  
 Date(s): 2/12/2016  
 Inspector: Dave Heelon (Lead Inspector #002188)

Number	Interior/ Exterior	Location	Bridge No.	Structure	Feature	Material	Color	Condition	Reading (mg/cm2)	Precision (mg/cm2)	Depth Index	Duration (sec)	Date/Time
1												217.1	2/12/2016 11:29
2									0.3	0.1	1.0	2.7	2/12/2016 11:31
3									1.4	0.3	1.1	3.1	2/12/2016 11:32
4									3.7	0.4	1.3	3.5	2/12/2016 11:32
5	Exterior	Groton	03330	Bridge Abutment		Concrete	Tan/Beige	Intact	0.0	0.0	1.2	4.4	2/12/2016 11:46
6	Exterior	Groton	03330	Bridge Abutment		Concrete	Tan/Beige	Intact	0.0	0.0	2.3	4.7	2/12/2016 11:47
7	Exterior	Groton	03330	Bridge Support Column		Concrete	Tan/Beige	Intact	0.0	0.0	2.7	3.4	2/12/2016 12:06
8	Exterior	Groton	03330	Bridge Support Column		Concrete	Tan/Beige	Intact	0.0	0.0	1.0	5.8	2/12/2016 12:07
9	Exterior	Groton	03331	Bridge Support Column	**VOID**	Concrete	Tan/Beige	Intact	0.0	0.0	1.1	4.2	2/12/2016 12:12
11	Exterior	Groton	03331	Bridge Support Column		Concrete	Tan/Beige	Intact	0.0	0.0	1.0	3.4	2/12/2016 12:14
12	Exterior	Groton	03331	Bridge Abutment		Concrete	Tan/Beige	Intact	0.0	0.0	1.0	4.0	2/12/2016 12:17
13	Exterior	Groton	03331	Bridge Abutment		Concrete	Tan/Beige	Intact	0.0	0.0	1.0	3.6	2/12/2016 12:18
14									0.4	0.1	1.2	3.6	2/12/2016 12:50
15									1.4	0.2	1.1	3.3	2/12/2016 12:51
16									3.7	0.7	1.3	3.3	2/12/2016 12:51

Lead paint includes paint found to contain any detectable amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF).

80 Lupes Drive  
Stratford, CT 06615



Tel: (203) 377-9984  
Fax: (203) 377-9952  
e-mail: cet1@cetlabs.com

Client: Mr. Stephen Arienti  
TRC Environmental Consultants  
21 Griffin Rd., North  
Windsor, CT 06095

# Analytical Report

## CET# 6020253

Report Date: February 16, 2016  
Project: CTDOT  
Project Number: Groton Bridges, 3330 & 3331  
PO Number: 222165.5275.0710

Connecticut Laboratory Certificate: PH 0116  
Massachusetts laboratory Certificate: M-CT903



New York Certification: 11982  
Rhode Island Certification: 199

CET # : 6020253

Project: CTDOT

Project Number: Groton Bridges, 3330 & 3331

**SAMPLE SUMMARY**

The sample(s) were received at 21.9°C.

This report contains analytical data associated with following samples only.

Sample ID	Laboratory ID	Matrix	Collection Date/Time	Receipt Date
02	6020253-01	Paint Chip	2/12/2016 10:45	02/15/2016

**Analyte: Total Lead [EPA 6010C]**

**Analyst: SS**

**Prep: EPA 3050B**

**Matrix: Paint Chip**

Laboratory ID	Client Sample ID	Result	RL	Units	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
6020253-01	02	ND	0.10	%	1	B6B1605	02/16/2016	02/16/2016 14:43	

CET # : 6020253

Project: CTDOT

Project Number: Groton Bridges, 3330 & 3331

Questions related to this report should be directed to David Ditta, Timothy Fusco, or Robert Blake at 203-377-9984.

Sincerely,



David Ditta  
Laboratory Director

Report Comments:

Sample Result Flags:

- E- The result is estimated, above the calibration range.
- H- The surrogate recovery is above the control limits.
- L- The surrogate recovery is below the control limits.
- B- The compound was detected in the laboratory blank.
- P- The Relative Percent Difference (RPD) of dual column analyses exceeds 40%.
- D- The RPD between the sample and the sample duplicate is high. Sample Homogeneity may be a problem.
- + - The Surrogate was diluted out.
- \*C1- The Continuing Calibration did not meet method specifications and was biased low for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased low.
- \*C2- The Continuing Calibration did not meet method specifications and was biased high for this analyte. Increased uncertainty is associated with the reported value which is likely to be biased high.
- \*F1- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the low side.
- \*F2- The Laboratory Control Sample recovery is outside of control limits. Reported value for this analyte is likely to be biased on the high side.
- I- The Analyte exceeds %RSD limits for the Initial Calibration. This is a non-directional bias.

All results met standard operating procedures unless indicated by a data qualifier next to a sample result, or a narration in the QC report.

Complete Environmental Testing is only responsible for the certified testing and is not directly responsible for the integrity of the sample before laboratory receipt.

ND is None Detected at the specified detection limit

All analyses were performed in house unless a Reference Laboratory is listed.

Samples will be disposed of 30 days after the report date.

CET # : 6020253

Project: CTDOT

Project Number: Groton Bridges, 3330 & 3331

**CERTIFICATIONS**

**Certified Analyses included in this Report**

Analyte	Certifications
<i>EPA 6010C in Solid</i>	
Lead	CT

Complete Environmental Testing operates under the following certifications and accreditations:

Code	Description	Number	Expires
CT	Connecticut Public Health	PH0116	09/30/2016





21 GRIFFIN ROAD NORTH  
 WINDSOR, CONNECTICUT 06095  
 TELEPHONE (860) 298-9692  
 FAX (860) 298-6380

# ASBESTOS BULK SAMPLING CHAIN OF CUSTODY

Edition: October 2009  
 Supersede Previous Edition

LAB ID #. 47535

PROJECT NUMBER	PROJECT NAME		PARAMETERS					TURNAROUND TIME				
	DATE	TIME	PLM EPA 600/R93/116 (POSITIVE STOP)	PLM EPA 600/R93/116 (GRAVIMETRIC REDUCTION) (w/ POSITIVE STOP)	ANALYZE BY LAYER	POINT COUNT (IF >1% & <10%)	TEM NY NOB 1984 (IF PLM SERIES NEG)	8hr	24hr	48hr	3day	5day
222165.5275	Groton Bridges # 3330 & 3331											
SIGNATURE			INSPECTOR					MATERIAL				
David Heelon			David Heelon									
FIELD SAMPLE NUMBER	DATE	TIME	TYPE	COMP	GRAB	SAMPLE LOCATION						
1	2/12/16	1030	✓			Bridge 3330. Under bridge	✓					
2		1045	✓			↓ Flairments	✓					Black Tar Coating on Flairment under Bridge (T1)
3		1145	✓			Bridge 3330. Top of bridge	✓					
4		1130	✓			↓	✓					Gray Caulk on Metal Railing Above Bridge (C1)
5		1205	✓			Bridge 3330 (in Road)	✓					
6		1150	✓			↓	✓					Black Expansion Joint Coating in road (T2)

Relinquished by: (Signature) David Heelon	Date: 2/12/16	Relinquished by: (Signature)	Date: 2/15/16
(Printed) David Heelon	Time: 1525	(Printed)	Time: 1000
Remarks: Results to Don L. + Erik P. Thanks.	Condition of Samples: Acceptable: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		



**BULK ASBESTOS ANALYSIS REPORT**

CLIENT: CT Department of Transportation

Lab Log #: 0047535  
 Project #: 222165.5275.0710  
 Date Received: 02/15/2016  
 Date Analyzed: 02/16/2016

Site: Bridges #3330 & 3331, Groton, CT

**POLARIZED LIGHT MICROSCOPY by EPA 600/R-93/116**

Sample No.	Color	Homogenous	Multi-Layered	Layer No.	Other Matrix Materials	Asbestos %	Asbestos Type
1	Black	Yes	No	--	---	ND	None
2	Black	Yes	No	--	---	ND	None
3	Grey	Yes	No	--	---	10%	Chrysotile
4	--	--	--	--	--	NA/PS	--
5	Black	Yes	No	--	---	ND	None
6	Black	Yes	No	--	---	ND	None

Reporting limit- asbestos present at 1%  
 ND - asbestos was not detected  
 Trace - asbestos was observed at level of less than 1%  
 NA/PS - Not Analyzed / Positive Stop  
 SNA- Sample Not Analyzed- See Chain of Custody for details

Note: Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. In those cases, EPA recommends, and certain states (e.g. NY) require, that negative results be confirmed by quantitative transmission electron microscopy.

The Laboratory at TRC follows the EPA's Interim Method for the Determination of Asbestos in Bulk Insulation (1982), and the EPA recommended Method for the Determination of Asbestos in Bulk Building Materials (EPA/600/R-93/116), July 1993, R.L. Perkins and B.W. Harvey which utilizes polarized light microscopy (PLM). Our analysts have completed an accredited course in asbestos identification. TRC's Laboratory is accredited under the National Voluntary Laboratory Accreditation Program (NVLAP), for Bulk Asbestos Fiber Analysis, NVLAP Code 18/A01, effective through June 30, 2016. TRC is an American Industrial Hygiene Association (AIHA) accredited lab for PLM effective through October 1, 2016. Asbestos content is determined by visual estimate unless otherwise indicated. Quality Control is performed in-house on at least 10% of samples and the QC data related to the samples is available upon written request from the client.

This report shall not be reproduced, except in full, without the written approval of TRC. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report relates only to the items tested.

Analyzed by: K. Williamson Reviewed by: Margaret Flanagan Date Issued: 02/16/2016  
 Kathleen Williamson, Laboratory Manager Margaret Flanagan, Approved Signatory

**TRC LABORATORY ASBESTOS ANALYTICAL ACCREDITATIONS**

NVLAP Lab Code 101424-0 AIHA-LAP,LLC #100122 CT #PH-0426 ME LA-0075, LB-0071 MA #AA000052 NY #10980 WV# LT000411  
 RI #AAL-007 TX #300354 VT #AL014538 LA#05011 VA #3333 000283 AZ #A20944 HI #L-09-004 NJ #CT004 CA #2907  
 CO# AL-15020 PHIL# 461 PA#68-03387



# ProScience Analytical Services, Inc.

22 Cummings Park, Woburn, Massachusetts 01801  
 781-935-3212 ~ Fax: 781-932-4857 ~ E-Mail: general@proscience.net

## Laboratory Report

**Batch:** NT 15616  
**Method:** NOB  
**Date Received:** 2/17/2016  
**Date Analyzed:** 2/19/2016  
**Date of Report:** 2/19/2016

**Client Project #:** 222165.5275.0710  
**Client Reference:** CT DOT - Bridge 3330 & 3331, Groton, CT  
**PO #:** C222165  
**Client #:** 297  
**Client Name:** TRC Environmental Corp. (CT)

LAB ID	Field ID	Description:	Color	Initial Weight	% Asbestos Types				% Other Non-asb.	% Organic	% Carb.	Total % Asbestos	Analyzed / Charged	Preped / Charged
					CHR	AMO	ACT	CRO						
NT119101	2	Black Tar Coating		.4413	.00	.00	.00	.00	.70	89.78	9.52	ND	Yes	No
NT119102	6	Black Expansion Joint		.4211	.00	.00	.00	.00	4.47	78.98	16.55	ND	Yes	No

**Comments:**

Key: CHR = Chrysotile AMO = Amosite CRO = Crocidolite ACT = Actinolite TRE = Tremolite ANT = Anthophyllite TR = Trace = < 1% ND = None Detected

  
 Mark Derosier, Analyst



**PHOTO 1**  
Bridge 03331 - Roadside



**PHOTO 2**  
Bridge 03330/03331 - Sideview



**PHOTO 3**  
Bridge 03331 – Underside (presumed transite panels)



**PHOTO 4**  
Bridge 03331 – Underside (abutment)



SUBJECT

Bridge 03330

SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

DATE 2/12/16

BY RB + DH

CHK'D \_\_\_\_\_

- Concrete decking with concrete support beams
- Possible transite (or metal) plank attached to concrete decking directly above tracks.
  - ↳ \* No safe way to inspect \*
- PVC drainage pipe from road surface (RT 39A)
- Concrete beams sit on rubber pads at bridge abutments

- Lots of graffiti on all abutments

- T<sub>1</sub> (Black Tar coating) on both abutments @ embankments (~15-20 LF @ 2" wide)

\* Tar paint used to cover graffiti

Bridge 03331

\* Same as Bridge 03330 \*

- T<sub>1</sub> (~30 LF @ 2" wide)

- Same tar paint used to cover graffiti

- C<sub>1</sub> on Metal Railing base → 2 LF per rail  
Total = ~115 LF

Bridge 03331-Topside

- Silicone caulk on exterior sloped walls of both bridges

- T<sub>2</sub> on expansion joints in Road (~1000 SF)  
Total on both sides (500 SF per side)

PROJECT NO. 58-332  
BRIDGE NO. 03330 AND 03331  
ROUTE 349 NB7SB OVER AMTRAK  
TOWN OF GROTON

PROJECT BACKGROUND

Bridge Nos. 03330 and 03331 are three span structures which carry Route 349 SB and NB respectively over AMTRAK in the Town of Groton. They are located at mile mark 125.10 and 125.13 respectively along the tracks, and approximately 1 mile south of Interstate I-95. The structures were built in 1973. Both structures consist of 45 inch deep pre-stressed concrete AASHTO I beams carrying a 7 ¾ to 8 inch thick reinforced concrete deck with a bituminous concrete overlay. The beams are supported on cast-in-place concrete abutments and piers. Both structures are approximately 164 feet in total length with a middle span of approximately 73 feet. The total width of Bridge No. 03330 is 52.5 feet and 51.5 feet for Bridge No. 03331; they both have a curb to curb roadway width of 48 feet and each bridge carries a 2012 Average Daily Traffic (ADT) of 11, 850 vehicles.

EXISTING CONDITIONS

The Connecticut Department of Transportation (CTDOT) performs a biennial inspection of these bridges to establish physical and functional conditions of the various bridge components to ascertain deterioration extent and other defects. These conditions are given a numerical rating in accordance with the Department's Bridge Inspection Manual and the FHWA Coding Guide. These ratings form the basis for maintenance and rehabilitation programs by the CTDOT.

The latest inspection of these bridges have revealed that the overall condition of the concrete decks is satisfactory (Rating = 6) exhibiting minor deterioration on the underside. The superstructures of both bridges are in overall poor condition (Rating = 4); the beams have areas of honeycombing, hairline map cracking, longitudinal hairline cracking in the webs and flanges. There is rust bleeding in the areas of previous spall repairs, the girder ends at the supports have hollow areas, spalls, rust stains, exposed steel tendons and vertical cracks at the beam webs. The deterioration at the beam ends has resulted in loss of bearing over the elastomeric bearings. These bearings are bulging and splitting or tearing along the front and sides.

The substructures are in overall satisfactory conditions (Rating = 6). The abutments have random transverse and vertical cracks with some hollow areas and some spalls. The piers have some random cracking and efflorescence on the caps along with random hairline cracking and a few hollow areas on the columns. The crash walls have map cracking, hollow areas, random spalls and graffiti. There is some erosion in front of the abutments. The existing vertical clearance occurs along the middle track on both structures, it has been measured as 18 feet – 9 inches under Bridge No. 03331 and 18 feet – 10 inches under Bridge No. 03330. There are catenary support towers below each bridge between beams.

PROPOSED SCOPE OF REHABILITATION

Based upon an engineering analysis and thorough discussion with the CTDOT representatives it has been determined that the proper rehabilitation of these structures will entail replacement of the superstructures and repairs to the existing substructures.

The replacement superstructures will consist of precast pre-stressed concrete box beams transversely tied together along with a shear cast-in-place concrete slab on top protected with a liquid membrane waterproofing and bituminous overlay. The box beams will allow for a thinner superstructure which in turn will facilitate increase of the minimum vertical clearance above the middle track to 20 feet – 7 inches at Bridge No. 03331 and 20 feet – 9 inches at Bridge No. 03330.

The substructure units will be modified on top to receive the higher superstructure and they will be patched as necessary to repair the deteriorated areas.

There will be no other work in, or around the track areas as part of this rehabilitation project.

Protective measures such as debris shields and possible protective timber mats will be used to protect the tracks along with shielding to protect the catenary wires and towers. Work shall proceed in close coordination with AMTRAK as track outages are allowed.

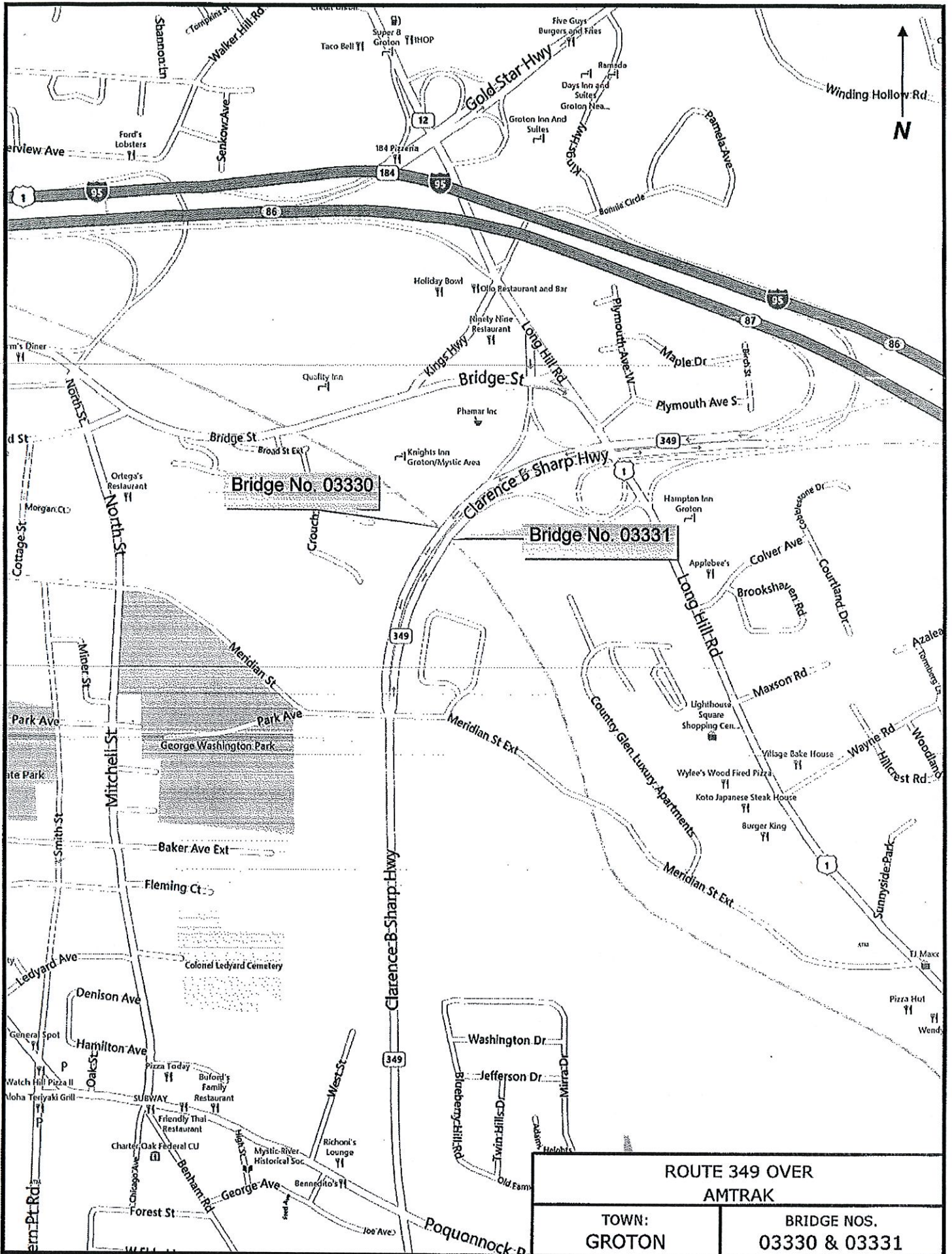
Access onto AMTRAK property will be required but no permanent impacts to the railroad property are anticipated.

We estimate that the majority of the work will require track outages during construction, thereby extending the construction time for these two bridges. We anticipate working both structures simultaneously to take advantage of the track outages. Based on the above the preliminary estimate for construction time is approximately 560 days. We anticipate the need and the use of flagmen and railroad protective services, throughout the duration of construction over the railroad tracks and property.

The preliminary estimated cost of rehabilitation for these two bridges is approximately \$ 11,500,000 at this time. Federal funding will be utilized for construction utilizing NHPP funding.

It is anticipated that this project will be advertised for construction in December of 2015 with construction beginning in April of 2016.





<b>ROUTE 349 OVER AMTRAK</b>	
<b>TOWN: GROTON</b>	<b>BRIDGE NOS. 03330 &amp; 03331</b>