

## BRIDGE NO.06840

15910 - COLCHESTER  
ROUTE 2  
over  
BROOK

Special Inspection

8/05/2019

Inspected by: Team 3



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**Form: Location**

**Inspection type:** Special

**Inspection Date:** 8/05/2019

**Inspected by:** Team 3

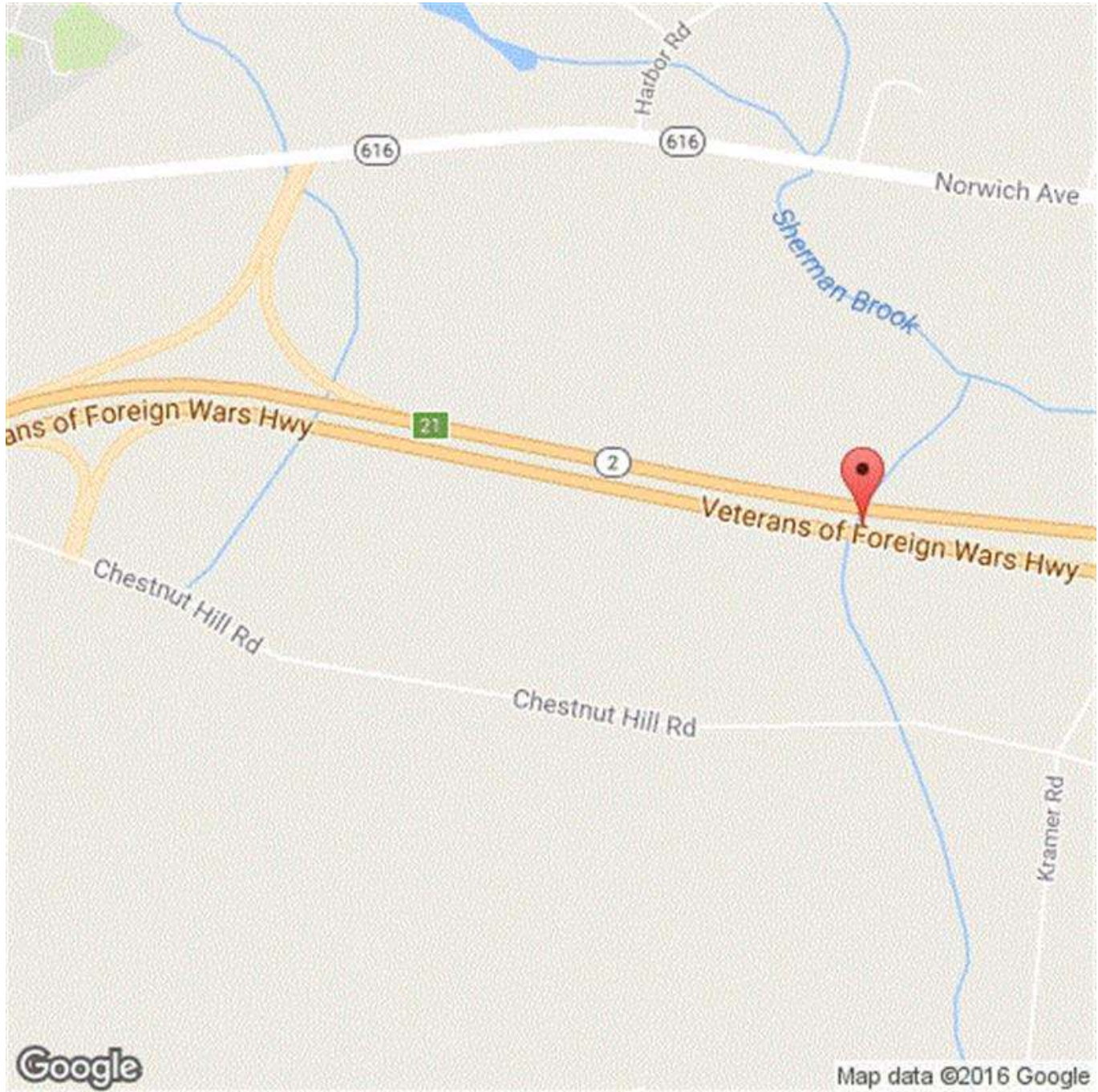
**:Bridge No 06840**

**Town:** COLCHESTER

**Carried:** ROUTE 2

**Crossed:** BROOK

**Inventory Route:** NHS



Location Map # 1

0.6 Miles East of Route 2 Exit#21  
3.9 Miles West of Scott Hill Road (Route 2  
Exit#22)

Form: BRI-19, Rev. 2/15  
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Inventory Route: NHS

## STRUCTURE INVENTORY & APPRAISAL

### INSPECTION

Structurally Deficient  Functionally Obsolete   
Sufficiency Rating   
(90) Inspection Date  (91) Frequency   
Indepth Insp  Proposed next Indepth Year   
Deck Survey Date  Class   
Access  Flagman   

	Frequency	Date	Type
Fracture	<input type="text"/>	<input type="text"/>	<input type="text"/>
Underwater	<input type="text"/>	<input type="text"/>	<input type="text"/>
Special	<input type="text" value="12"/>	<input type="text" value="08/05/2019"/>	<input type="text" value="J Corrosion / Section loss"/>

### IDENTIFICATION

Bridge Name   
Town Code - Name   
(5) Inventory Route  
(A) Record Type   
(B) Signing Prefix   
(C) Level of Service   
(D) Route Number.   
(E) Dir Suffix   
(6A) Featured Intersected   
(6B) Critical Facility Indicator   
(7) Facility Carried   
(9) Location   
(11) Mile Post  Miles  
(16) Latitude  Deg.  Min.  Sec.  
(17) Longitude  Deg.  Min.  Sec.  
(98) Border Bridge  
(A) State Code  (B) Percent Responsibility  %  
(C) Border Town Name   
(99) Border Bridge Structure No.

### STRUCTURE TYPE & MATERIALS

(43) Structure Type, Main  
A) Material   
B) Design Type   
(44) Structure Type, Approach  
A) Material   
B) Design Type   
(45) Number of Spans, Main Unit   
(46) Number of Approach Spans   
(107) Deck Structure Type   
(108) Wearing Surface/Protection Systems  
A) Type of Wearing Surface   
B) Type of Membrane   
C) Type of Deck Protection   
Substructure  
A) Material   
B) Design Type   
Paint  
Type   
Year   
Comment

### GEOMETRIC DATA

(48) Length of Maximum Span  ft.  
(49) Structure Length  ft.  
(50) Curb or Sidewalk Widths  
A) Left  ft.  in. B) Right  ft.  in.  
(51) Bridge Roadway Width Curb to Curb  ft.  in.  
(52) Deck Width, Out to Out  ft.  in.  
(32) Approach Roadway Width  ft.



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(33) Bridge Median

Deck Area  sq. ft.

(34) Skew Angle  deg.

(35) Structure Flared

(10) Inv. Rte. Min. Vert. Clearance  ft.  in.

(47) Inv. Rte. Total Horiz. Clr.  ft.  in.

Log Inv. Rte. Total Horiz. Clr.  ft.  in.

RLog Inv. Rte. Total Horiz. Clr.  ft.  in.

(53) Min. Vert. Clearance Over Bridge  ft.  in.

(54) Log-Min. Vert. Underclearance  ref.  ft.  in.

(55) Min. Lat Underclearance on Right  ref.  ft.  in.

(56) Min. Lat Underclearance on Left  ft.  in.

**CONDITION**

(58) Deck

(59) Superstructure

(60) Substructure

(61) Channel & Channel Protections

(62) Culverts

(36) Traffic Safety Features

A) Bridge Railings

B) Transitions

C) Approach Guardrail

D) Approach Guardrail Ends

**WATERWAY**

Drainage Basin Waterway

(38) Navigation Control

(39) Navigation Vertical Clearance  ft.

(40) Navigation Horiz. Clr.  ft.

(111) Pier/Abutment Navigation

(116) Vert-Lift Brg Nav Min  ft.  in.

**AGE AND SERVICE**

Year Built  (106) Year Reconstructed

(42) Type of Service

A) On

B) Under

(28) Number of Lanes

A) On  B) Under

(29) Average Daily Traffic

Is Above Half ADT?

(109) Percent Truck  %

(30) Years of ADT

(19) Bypass, Detour Length  Miles

**APPRAISALS**

(67) Structural Evaluation

(68) Deck Geometry

(69) Underclearances, Vert. & Horiz.

(71) Waterway Adequacy

(72) Approach Roadway Alignment

(113) Scour Critical

**COMMENTS**

Route 2 {Veterans of Foreign Wars Memorial Highway} - Inventory Route Log Direction - East..

**CLASSIFICATION**

(112) NBIS Bridge Length

(104) Highway System

(26) Functional Class

(100) Defense Highway

(101) Parallel Structure

(102) Direction of Traffic

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(103) Temporary Structure   
 (110) Designated National Network   
 (20) Toll   
 (21) Maintain   
 (22) Owner   
 Report Class   
 (37) Historical Significance

**POSTED SIGNS**

Other Posted Sign 1   
 Other Posted Sign 2

	Actual	Recomended	
Posted Load Single Unit Truck	<input type="text"/>	<input type="text"/>	tons
Posted Load Semi-Trailer Truck	<input type="text"/>	<input type="text"/>	tons
Posted Load 4 Axle Truck	<input type="text"/>	<input type="text"/>	tons
Posted Load 3S2 Truck	<input type="text"/>	<input type="text"/>	tons
All Vehicles	<input type="text"/>	<input type="text"/>	tons

Posted Vert. Clearance on Bridge  ft.  in.  
 Posted Vert. Underclearance  ft.  in.  
 Posted Speed Limit on Bridge  m.p.h.

**OTHER FEATURES**

Fence Required   
 Fence Present   
 Fence Type   
 Fence Height   
 Fence Material   
 Fence Top Type   
 Barrel Ladders   
 Stand Pipes   
 Catwalks   
 Moveable Inspection System   
 Haunches Present over Roadway   
 Utilities

**PROPOSED IMPROVEMENTS**

(75A) Type of Work Proposed   
 (75B) Work Done By   
 (76) Length of Structure Improvement  ft.  
 (94) Bridge Improvement Cost \$   
 (95) Roadway Improvement Cost \$   
 (96) Total Project Cost \$   
 (97) Year of Improvement Estimate   
 (114) Future ADT   
 (115) Year of Future ADT   
 DOT Bridge Program List No   
 Project No   
 Advertised Date

**LOAD RATING & POSTING**

(31) Design Load   
 (63) Operating Rating Type   
 (64) Operating Rating   
 (65) Inventory Rating Type   
 (66) Inventory Rating   
 Evaluation Code   
 Year of Evaluation   
 (70) Bridge Posting   
 (41) Structure Status

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**INSPECTOR'S SIGNATURES:**

1) \_\_\_\_\_ Date: 09/12/2019

*Dhwani Patel*

P.E. SIGNATURE: \_\_\_\_\_ Date: \_\_\_\_\_

2) \_\_\_\_\_ Date: \_\_\_\_\_

P.E. # \_\_\_\_\_

3) \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed By: \_\_\_\_\_ Date: 10/16/2019

*Stephen Keady*

4) \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_

**Form: BRI-20, Rev. 1/14**  
**Inspection type:** Special  
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## SPECIAL INSPECTION

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<b><u>Inspectors:</u></b>		<b><u>Visits:</u></b>			
Lead Inspector:	Stephen Keedy	Visit Date:	Temp:	Start Time:	End Time:
Inspector:	Task:	08/05/2019	80	10:30 AM	01:00 PM
Area, 03	BSE - Inspector				
Keedy, Stephen	BSE - Supervisor				
Patel, Dhvani	Administrator				
	BSE - TE3				

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**Special Inspection Type:** J Corrosion / Section loss  
**Inspection Description:** Checking section loss in culvert

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**Feature Inspected:** Culvert interior  
**Inspection Results:** Up to 2' x 18" perforations (at 197 feet from inlet) and heavy section loss in steel pipe. See sketch for details.  
**Action To Be Taken:** 12 month inspection frequency until culvert replacement under Project 0028-0202, advertise date 11/2019



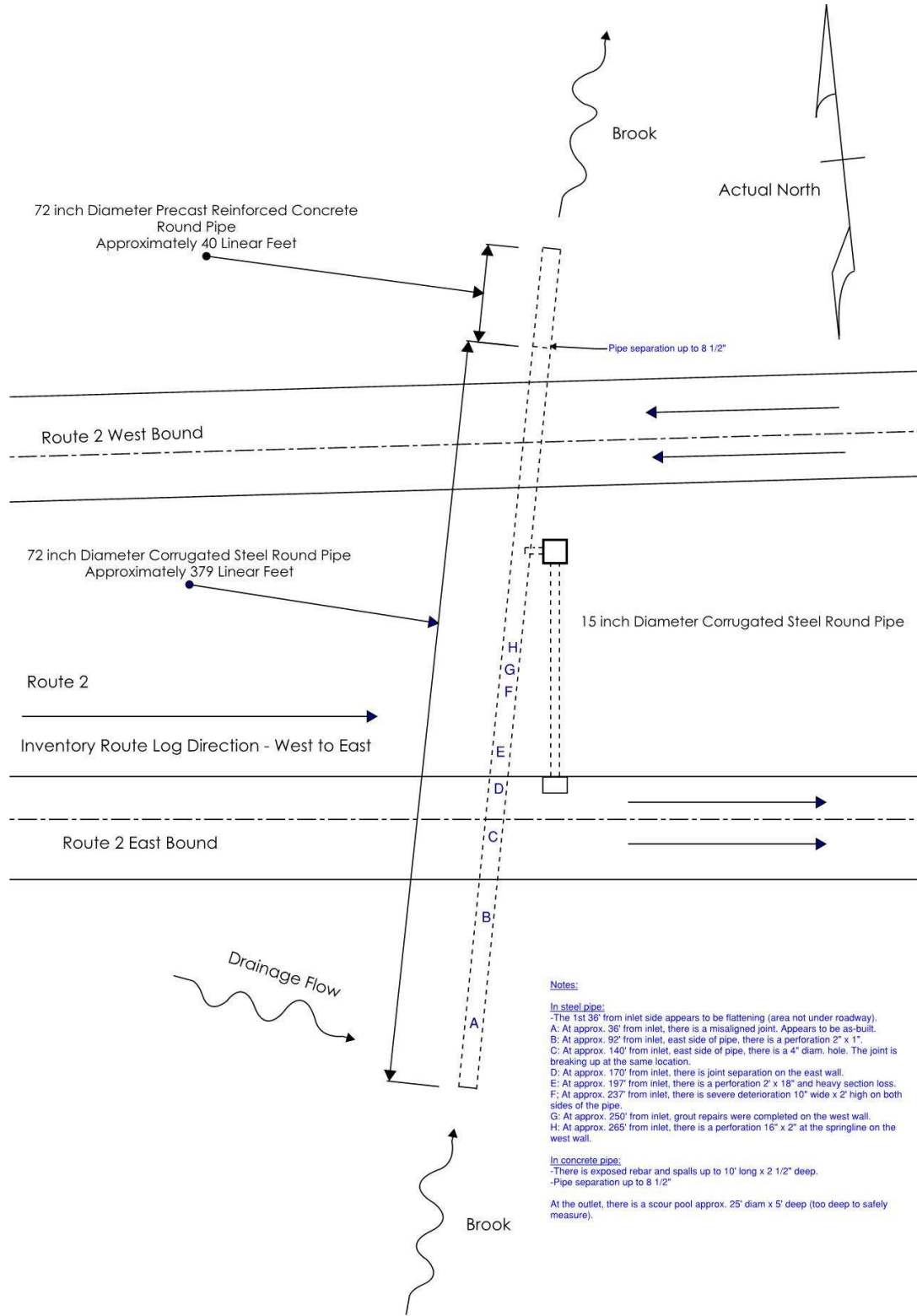
**Sketches**

**Inspection type:** Special  
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**:Bridge No 06840**

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**Inventory Route:** NHS

Bridge No. 0 6840 - Colchester  
Route 2 {Veterans of Foreign Wars Memorial Highway} over Brook



**Notes:**

In steel pipe:

- The 1st 36' from inlet side appears to be flattening (area not under roadway).
- A: At approx. 36' from inlet, there is a misaligned joint. Appears to be as-built.
- B: At approx. 92' from inlet, east side of pipe, there is a perforation 2" x 1".
- C: At approx. 140' from inlet, east side of pipe, there is a 4" diam. hole. The joint is breaking up at the same location.
- D: At approx. 170' from inlet, there is joint separation on the east wall.
- E: At approx. 197' from inlet, there is a perforation 2' x 18" and heavy section loss.
- F: At approx. 237' from inlet, there is severe deterioration 10" wide x 2' high on both sides of the pipe.
- G: At approx. 250' from inlet, grout repairs were completed on the west wall.
- H: At approx. 265' from inlet, there is a perforation 16" x 2" at the springline on the west wall.

In concrete pipe:

- There is exposed rebar and spalls up to 10' long x 2 1/2" deep.
- Pipe separation up to 8 1/2"

At the outlet, there is a scour pool approx. 25' diam x 5' deep (too deep to safety measure).

**Bridge No. 0 6840  
Town of Colchester  
Route 2 over Brook**

**Horizontal & Vertical Round Pipe Diameter Measurements  
Project No. 28 - 128 - Year 1968**

Date:	12-Dec-13	12-Dec-13	4-Mar-14	4-Mar-14	9-Jun-14	9-Sep-14	15-Sep-15	15-Sep-15	
Location	Horizontal Diameter	Vertical Diameter	Horizontal Diameter	Vertical Diameter	Horizontal Diameter	Vertical Diameter	Horizontal Diameter	Vertical Diameter	
Inlet	5' - 8"	6' - 1 1/2"	5' - 8"	6' - 1 1/2"	5' - 8"	6' - 1 1/2"	5' - 8 3/8"	6' - 1 1/2"	Inlet
50 feet	6' - 2"	5' - 6 1/2"	6' - 1 7/8"	5' - 6 1/4"	6' - 1 3/4"	5' - 6"	6' - 1 1/4"	5' - 6"	
100 feet	6' - 2"	5' - 7 1/2"	6' - 1 3/4"	5' - 7 1/4"	6' - 1 5/8"	5' - 7 1/4"	6' - 1 13/16"	5' - 7 3/16"	
150 feet	6' - 2 1/2"	5' - 7"	6' - 2 1/4"	5' - 6 3/8"	6' - 2 1/4"	5' - 6 5/8"	6' - 2 1/2"	5' - 6 3/4"	
200 feet	6' - 1"	5' - 9"	6' - 00 1/2"	5' - 8 15/16"	6' - 00 1/2"	5' - 8 7/8"	6 - 00 1/4"	5' - 8 9/16"	
250 feet	6' - 00"	5' - 7 3/4"	5' - 11 1/4"	5' - 7 1/8"	5' - 11 1/4"	5' - 7 5/8"	5' - 10 15/16"	5' - 5 15/16"	
300 feet	6' - 1"	5' - 9 1/2"	6' - 00 15/16"	5' - 9 1/4"	6' - 00 1/2"	5' - 9 3/8"	6' - 00 11/16"	5' - 9 5/32"	
350 feet	5' - 11"	5 - 10"	5' - 11"	5' - 9 1/2"	5' - 11"	5' - 9 3/8"	5' - 11 3/32"	5' - 9 1/2"	
379 feet	5' - 9 1/2"	5' - 11"	5' - 9 1/2"	5' - 10 1/2"	5' - 9 1/4"	5' - 10 7/8"	5' - 9 1/2"	5' - 11 1/16"	Outlet

- Notes:
- Corrugated Steel Round Pipe - 72 inch diameter by 379 feet - 00 inches {length}
  - Reinforced Concrete Round Pipe - 72 inch diameter by 40 feet 00 inches {length} - Outlet Section
  - Top Plates - Corrugation Size 2 2/3 inch by 1/2 inch by 12 gage {0.109 inch thickness}
  - Bottom Plates - Corrugation Size 2 2/3 inch by 1/2 inch by 10 gage {0.138 inch thickness}
  - Horizontal Diameter Measurements - Pipe Span Length {6 feet - 00 inches} {72 inches}
  - Vertical Diameter Measurements - Pipe Rise {6 feet - 00 inches} {72 inches}
  - Route 2 East Bound Ballast Depth - Approximately 24 feet 00 inches
  - Route 2 West Bound Ballast Depth - Approximately 9 feet 00 inches
  - Location - 50 feet from Inlet {South Side of Structure}; 100 feet from Inlet {South Side of Structure}; etc.

**Bridge No. 0 6840  
Town of Colchester  
Route 2 over Brook**

**Horizontal & Vertical Round Pipe Diameter Measurements  
Project No. 28 - 128 - Year 1968**

Date:	1-Nov-16	1-Nov-16	6-Mar-18	6-Mar-18	5-Aug-19	5-Aug-19		
Location	Horizontal Diameter	Vertical Diameter	Horizontal Diameter	Vertical Diameter	Horizontal Diameter	Vertical Diameter	Horizontal Diameter	Vertical Diameter
Inlet	5' - 8 1/4"	6' - 2 1/32"	5' - 9"	6' 0 2"	5' - 8"	6' - 1 1/2"		
50 feet	6' - 1 23/32"	5' - 6 3/32"	6' - 1"	5' - 6"	6' - 2 1/4"	5' - 6"		
100 feet	6' - 1 15/16"	5' - 7 13/32"	6' - 2"	5' - 7"	6' - 1 5/8"	5' - 7 1/2"		
150 feet	6' - 2 1/2"	5' - 6 27/32"	6' - 2"	5' - 7"	6' - 2 1/2"	5' - 6 1/2"		
200 feet	6' - 00 11/16"	5' - 8 15/16"	6' - 00"	5' - 9"	6' - 1/2"	5' - 8 1/2"		
250 feet	5' - 10 3/8"	5' - 5 5/8"	5' - 11"	5' - 6"	6' - 0"	5' - 8"		
300 feet	6' 00 27/32"	5' - 9 1/4"	6' - 00"	5' - 9"	6' - 0"	5' - 9"		
350 feet	5' - 11 1/32"	5' - 9 9/16"	5' - 11"	5' - 9"	5' - 11"	5' - 9 1/2"		
379 feet	5' - 9 1/2"	5' - 11 1/16"	5' - 9"	5' 11"				

Inlet

Outlet

- Notes:
- Corrugated Steel Round Pipe - 72 inch diameter by 379 feet - 00 inches {length}
  - Reinforced Concrete Round Pipe - 72 inch diameter by 40 feet 00 inches {length} - Outlet Section
  - Top Plates - Corrugation Size 2 2/3 inch by 1/2 inch by 12 gage {0.138 inch thickness}
  - Bottom Plates - Corrugation Size 2 2/3 inch by 1/2 inch by 10 gage {0.138 inch thickness}
  - Horizontal Diameter Measurements - Pipe Span Length {6 feet - 00 inches} {72 inches}
  - Vertical Diameter Measurements - Pipe Rise {6 feet - 00 inches} {72 inches}
  - Route 2 East Bound Ballast Depth - Approximately 24 feet 00 inches
  - Route 2 West Bound Ballast Depth - Approximately 9 feet 00 inches
  - Location - 50 feet from Inlet {South Side of Structure}; 100 feet from Inlet {South Side of Structure}; etc.

**Form: Asset Photos**  
**Inspection type:** Special  
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**Inspected by:** Team 3

**:Bridge No 06840**

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**Crossed:** BROOK  
**Inventory Route:** NHS

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Photo Number: 1

Looking west (on Rte. 2 East)

Photo Taken: 08/05/2019



Photo Number: 2

Looking east (on Rte. 2 East)

Photo Taken: 08/05/2019



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Photo Number: 3

Photo Taken: 08/05/2019

Pavement over structure (on Rte. 2 East)



Photo Number: 4

Photo Taken: 08/05/2019

Looking upstream



Photo Number: 5

Inlet (South elevation)

Photo Taken: 08/05/2019



Photo Number: 6

Inlet (South elevation)

Photo Taken: 08/05/2019





Photo Number: 7

Misaligned joint approximately 36' from inlet. Appears to be as-built.

Photo Taken: 08/05/2019



Photo Number: 8

Perforation 2" x 1" on east wall approximately 92 feet from inlet

Photo Taken: 08/05/2019

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Photo Number: 9

Photo Taken: 08/05/2019

4" diameter hole on the east wall approximately 140 feet from inlet (joint breaking up at same location).



Photo Number: 10

Photo Taken: 08/05/2019

Joint separation on east wall approximately 170 feet from inlet



Photo Number: 11

Photo Taken: 08/05/2019

Perforation 2' x 18" and heavy section loss on west wall approximately 197 feet from inlet.



Photo Number: 12

Photo Taken: 08/05/2019

Invert



**Form: Asset Photos**  
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Photo Number: 13

Photo Taken: 08/05/2019

Severe deterioration 10" wide x 2' high approximately 237 feet from inlet on east wall



Photo Number: 14

Photo Taken: 08/05/2019

Severe deterioration 10" wide x 2' high approximately 237 feet from inlet on west wall



Photo Number: 15

Photo Taken: 08/05/2019

Grout repairs on west wall at 250 feet from inlet



Photo Number: 16

Photo Taken: 08/05/2019

Drainage pipe on east wall



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Photo Number: 17

Photo Taken: 08/05/2019

Perforation 16" x 2" wide on west wall at springline at approximately 265 feet from inlet



Photo Number: 18

Photo Taken: 08/05/2019

Concrete pipe, looking downstream





Photo Number: 19

Photo Taken: 08/05/2019

Concrete interface at east wall



Photo Number: 20

Photo Taken: 08/05/2019

Invert of concrete pipe. Exposed rebar and spalls up to 2 1/2" deep x up to 10' long.

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Photo Number: 21

Looking downstream

Photo Taken: 08/05/2019



Photo Number: 22

Looking downstream

Photo Taken: 08/05/2019



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Photo Number: 23

Outlet (North elevation)

Photo Taken: 08/05/2019



Photo Number: 24

Scour pool approximately 25' diameter x 5' deep (too deep to safely measure) at outlet

Photo Taken: 08/05/2019

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Photo Number: 25

Concrete pipe separation 8-1/2" wide on outlet side

Photo Taken: 08/05/2019



Photo Number: 26

Looking west (on Rte. 2 West)

Photo Taken: 08/05/2019



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Photo Number: 27

Photo Taken: 08/05/2019

Looking east (on Rte. 2 West)



Photo Number: 28

Photo Taken: 08/05/2019

Roadway over structure (on Rte. 2 West)

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Photo Number: 29

Photo Taken: 08/05/2019

Exit 21 sign on Rte. 2 westbound (culvert outlet is approximately 70 feet west of sign)