



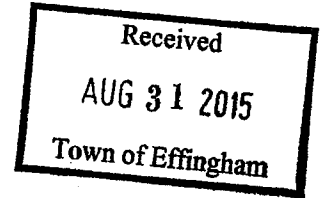
THE STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION



August 26, 2015

WILLIAM CASS, P.E.  
ASSISTANT COMMISSIONER

Timothy Eldridge, Chairman  
Board of Selectmen  
Town of Effingham  
68 School Street  
Effingham, NH 03882-8104



Re: **BRIDGE DEFICIENCY**  
Effingham 165/112  
Snow Road over South River

Dear Mr. Eldridge:

During a recent municipal bridge inspection, the following bridge deficiency was noted:

This structure consists of four 6'-0" diameter corrugated steel culverts. The culverts exhibit widespread moderate corrosion and pitting, with scattered areas of heavy corrosion and corrosion holes. This deterioration is concentrated at and below the normal water elevation. In a few areas, the corrosion, pitting and holes result in section losses of up to 30%.

The bridge is currently recommended to be posted "E-2". However, this bridge is currently posted "E-2" and "Weight Limit 6 Tons", with additional signage indicating "Weight Limit 30 Tons" at the end of the road. The Town should settle on a single posting (E-2 or Weight Limit 6 Tons) and eliminate the conflicting signage.

**We recommend that this bridge continue to be posted "E-2" for the short-term. However, please note that corrugated steel culverts can deteriorate rapidly once corrosion has advanced to this level of severity. The municipality should monitor this structure closely for signs of further deterioration.**

This bridge has been added to the Department's Municipal Red List of deficient bridge structures. It is in need of complete replacement or extensive rehabilitation to provide the structural capacity to carry all legal loads.

We are enclosing a copy of the inspection report for your use. Please keep us informed of any actions taken by the Town so we can keep our records current. If you have any questions or comments, please contact us.

Sincerely,

Nancy J. Mayville, PE  
Municipal Highways Engineer  
Bureau of Planning & Community Assistance  
Tel.: (603) 271-3344 / Fax: (603) 271-8093

NJM/dmp  
Enclosures

cc: Commissioner, Dept. of Education  
Risk Management Representative, Local Government Center

# Bridge Inspection Report

## Effingham 165/112

Date of Inspection: 08/24/2015

SNOW ROAD

Date Report Sent: 8/26/2015

Over

Picture taken during inspection

SOUTH RIVER

Owner: Municipality

*Bridge deficiency sent 8/26/2015 due to ongoing corrosion-related deterioration.*

### Recommended Postings:

Weight: E2

Weight Sign OK

SIGNED "E-2" AND "WEIGHT LIMIT 6 TON" AT BRIDGE. ALSO SIGNED "WEIGHT LIMIT 30 TONS" AT END OF ROAD 8/24/2015.

Width: Not Required

Width Sign OK

Primary Height Sign Recommendation: None

Clearances: Over:  
(Feet) Under: 0.00  
Route:

Height Signs OK

Optional Centerline Height Sign Rec: None

### Condition: Municipal Redlist

Deck: N N/A (NBI)

Superstructure: N N/A (NBI)

Substructure: N N/A (NBI)

Culvert: 4 Poor

### Structure Type and Materials:

Number of Spans Main Unit: 4

Number of Approach Spans: 0

### Main Span Material and Design Type

Steel Culvert

Sufficiency Rating: 70%

NBI Status: Structurally Deficient

Bridge Rail: Substandard

Rail Transition: Substandard

Bridge Approach Rail: Substandard

Approach Rail Ends: Substandard

NH Bridge Type: Metal Pipe

Deck Type: No Deck ( N/A - NBI)

Wearing Surface: No Deck ( N/A - NBI)

Membrane: No Deck ( N/A - NBI)

Deck Protection: No Deck ( N/A - NBI)

Pavement thickness: 5.0 in

Curb Reveal: 0.0 in

Plan Location: Unknown

### Bridge Dimensions:

Length Maximum Span: 6.0 ft

Left Curb/Sidewalk Width: 0.0 ft

Width Curb to Curb: 0.0 ft

Approach Roadway Width (W/ Shoulders): 20.0 ft

Total Bridge Length: 32.0 ft

Right Curb/Sidewalk Width: 0.0 ft

Total Bridge Width: 0.0 ft

Median: No median

Bridge Skew: 0.00 °

### Bridge Service:

Type of Service on Bridge: Highway

Year Built: 1972

Type of Service under: Waterway

Year Rebuilt: Not Rebuilt

Lanes on bridge: 2

Detour Length: 2.0 mi

Lanes Under: NA

AADT: 90

Percent Trucks: 0%

Year of AADT: 2012

**Bridge Inspection Report**

Effingham 165/112

Future AADT: 133

Year of Future AADT: 2035

Federal or State Definition Bridge: Fed. Definition Bridge  
 Roadway Functional Class: Rural Local  
 New Hampshire Highway System and Class: Municipal Highway  
 Eligibility for the National Register of Historic Places: Possibly eligible  
 Traffic Direction: Two-way traffic

**National Bridge Inventory (NBI) Appraisal Ratings:**

Deck Geometry: Not Applicable (NBI)  
 Underclearances: Not Applicable (NBI)  
 Approach Alignment: Equal Desirable Criteria  
 Structural Evaluation: Minimum Tolerable  
 Channel/Channel Protection: Protection Undermined  
 Waterway Adequacy: Above Minimum Criteria  
 Bridge Scour Critical Status: Stable for extreme flood  
 Riprap Condition: Fair Condition  
 Debris Present: Debris Present  
*BEAVER DAM IN ALL BARRELS. SCOUR HOLE AT OUTLET.*  
 Date of Underwater Inspection: Not Applicable

**AASHTO CoRe Element Condition State Data:**

No.	Description	Env.	Material Notes and Condition Notes
240	Culvert (includes Steel, Aluminum and Galvanized)	Moderate	4 @ 6'-2" CLEAR SPAN ROUND PIPE. 2-2/3" X 1/2" X 8/64" CORRUGATIONS. GALVANIZED STEEL WITH BITUMINOUS COATING.  HEAVILY RUSTED AND PITTED WITH SCATTERED PERFORATIONS, TYPICAL OF ALL 4 MPS. FEW SMALL TEARS AT INLET ENDS. FEW DENTS AND LIGHT DISTORTION. HEADWALL STONE DROPPED AT SOUTH. STONES MISSING AND LOOSE / UNSTABLE AT NORTH. EROSION BEHIND WING AT NORTHEAST. BEAVER DEBRIS IN ALL PIPES AT INLET ENDS.
334	Coated Metal Bridge Railing	Moderate	PLOW DAMAGE. MINOR RUSTING.
363	Section Loss Condition Warning Flag	Moderate	Element record added 2015-08-24. MPS ARE THIN AND PITTED WITH SCATTERED PERFORATIONS, 30% SECTION LOSS.

No.	Description	Env.	Quantity	Units	State 1	State 2	State 3	State 4	State 5
240	Culvert (includes Steel, Aluminum and C	Moderate	98	(LF)	0 %	0 %	100 %	0 %	
334	Coated Metal Bridge Railing	Moderate	64	(LF)	90 %	0 %	10 %	0 %	0 %
363	Section Loss Condition Warning Flag	Moderate	1	(EA)	0 %	100 %	0 %	0 %	

**Bridge Notes:**

ADDED TO THE MUNICIPAL RED LIST 8/24/2015.

**Approach and Roadway Notes:**

ASPHALT- (5) CRACKS, SETTLED, POTHOLED AND PATCHED.  
 W- BEAM RAIL - HEAVILY DAMAGED AT NORTHEAST AND SOUTHWEST.

**Bridge Inspection Report**

Effingham 165/112

EMBANKMENT WASHED WITH EROSION BEHIND WING AT NORTHEAST.

**Inspection History:**

<b>Inspection Date:</b> 08/24/2015	<b>Inspector:</b> MAS	<b>Deck:</b> N N/A (NBI) <b>Super:</b> N N/A (NBI) <b>Substr:</b> N N/A (NBI) <b>Culvert:</b> 4 Poor
<p><b>Notes:</b> MAS - inspection comments - CULVERT: ASPHALT - HEAVILY CRACKED, DEPRESSED AND PATCHED. METAL PIPE - HEAVY RUSTING AND PITTING WITH SCATTERED PERFORATIONS. THIN IN AREAS AND FEW SMALL TORN AREAS. FEW DENTS AND LIGHT DISTORTION. HEADWALL STONES ARE MISSING WITH VOIDS AND APPEAR UNSTABLE; EROSION BEHIND WING AT NORTHEAST. BEAVER DAM DEBRIS IN ALL BARRELS. RAIL - PLOW DAMAGE, MINOR RUSTING.</p> <p>PICTURES: C538- 57. BARREL #1 IS THIN AND HOLED WITH SMALL TORN AREA. 58. BARREL #2 IS THIN AND HOLED WITH SMALL TORN AREA. 59. BARREL #3 IS THIN AND HOLED. TYPICAL OF BARREL #4. 60. STONES ARE LOOSE AND UNSTABLE BETWEEN BARRELS #3 AND #4 AT NORTH. 61. SOUTH ELEVATION. 62. WEST APPROACH.</p>		
<b>Inspection Date:</b> 08/16/2013	<b>Inspector:</b> MAS	<b>Deck:</b> N N/A (NBI) <b>Super:</b> N N/A (NBI) <b>Substr:</b> N N/A (NBI) <b>Culvert:</b> 5 Fair
<p><b>Notes:</b> MAS - inspection comments - CULVERT: ASPHALT - HEAVILY CRACKED, DEPRESSED AND PATCHED. MP - HEAVY RUSTING AND PITTING. FEW DENTS. HEADWALL STONES MISSING WITH VOIDS, EROSION BEHIND WING AT NORTHEAST. BEAVER DAM DEBRIS IN THREE MP'S. FLOW THROUGH WEST BARREL ONLY. RAIL - PLOW DAMAGE, MINOR RUSTING.</p> <p>PICTURES: C488- 20. BEAVER DAM DEBRIS IN THREE MP'S. 21. APPROACH RAIL DAMAGED AT NORTHEAST. 22. ASPHALT CRACKED AND DEPRESSED.</p>		
<b>Inspection Date:</b> 10/12/2012	<b>Inspector:</b> KJT	<b>Deck:</b> N N/A (NBI) <b>Super:</b> N N/A (NBI) <b>Substr:</b> N N/A (NBI) <b>Culvert:</b> 5 Fair
<p><b>Notes:</b> KJT-inspection comments - MP'S: HEAVY RUSTING AND PITTING. FEW DENTS. HEADWALL STONES MISSING WITH VOIDS. ASPHALT- CRACKS. RAIL DAMAGED AND BROKED AT SOUTHWEST.</p> <p>PICTURE: C464. 39. MP'S RUSTED AND PITTED.</p>		
<b>Inspection Date:</b> 10/22/2010	<b>Inspector:</b> KJT	<b>Deck:</b> N N/A (NBI) <b>Super:</b> N N/A (NBI) <b>Substr:</b> N N/A (NBI) <b>Culvert:</b> 5 Fair
<p><b>Notes:</b> KJT-inspection comments - MP'S- ELEMENTS IN FAIR CONDITION. ASPHALT- CRACKS. HEADWALL STONE DROPPED AT SOUTH. STONES MISSING AT NORTH.</p>		
<b>Inspection Date:</b> 08/27/2008	<b>Inspector:</b> KJT	<b>Deck:</b> N N/A (NBI) <b>Super:</b> N N/A (NBI) <b>Substr:</b> N N/A (NBI) <b>Culvert:</b> 5 Fair
<p><b>Notes:</b> KJT-inspection comments - MP'S- ELEMENTS IN FAIR CONDITION. ASPHALT- CRACKS. HEADWALL STONE DROPPED AT SOUTH. STONES MISSING AT NORTH.</p> <p>PICTURES: C377-28 THRU 29. 28. STONES MISSING AT NORTH. 29. BRIDGE RAIL BROKE AT NORTH.</p>		

# Bridge Inspection Report

Effingham 165/112

## Inspection History:

<p><b>Inspection Date:</b> 09/27/2006</p> <p><b>Notes:</b> RLM inspection comments - MP'S- ELEMENTS IN FAIR CONDITION. LARGE BEAVER DAMS IN 3 BARRELS. ASPHALT- CRACKS. HEADWALL STONE DROPPED AT SOUTH.</p> <p>PICTURES: C327-1,2.</p>	<p><b>Inspector:</b> RLM</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 5 Fair</p>
<p><b>Inspection Date:</b> 08/25/2004</p> <p><b>Notes:</b> Sufficiency Rating Calculation Accepted by DMB at 11/23/2005 15:55:58 DPC inspection comments - MP'S- ELEMENTS IN FAIR CONDITION. LARGE BEAVER DAMS IN 3 BARRELS. NEW CONCRETE CAP AND WING. NEW ASPHALT.</p> <p>PICTURE: C258-15</p>	<p><b>Inspector:</b> DPC</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 5 Fair</p>
<p><b>Inspection Date:</b> 10/03/2002</p> <p><b>Notes:</b> Sufficiency Rating Calculation Accepted by DEP at 06/26/2003 13:25:47 DPC inspection comments - MP'S- ELEMENTS IN FAIR CONDITION. LARGE BEAVER DAM IN EACH. NEW CONCRETE CAP AND WING. NEW ASPHALT.</p> <p>PICTURE: C144-16</p>	<p><b>Inspector:</b> DPC</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 5 Fair</p>
<p><b>Inspection Date:</b> 10/19/2000</p> <p><b>Notes:</b> Sufficiency Rating Calculation Accepted by DEP at 05-10-2001 14:29:42 DPC inspection comments - MP'S- ELEMENTS IN FAIR CONDITION. NEW CONCRETE CAP AND WING.</p>	<p><b>Inspector:</b> DPC</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 5 Fair</p>
<p><b>Inspection Date:</b> 10/02/1998</p> <p><b>Notes:</b> Sufficiency Rating Calculation Accepted by DEP at 08-16-1999 12:01:36 DPC inspection comments- MP: heavy rust on invert. Minor dents. Headwall- stone missing, voids, settled. Wings also settled. Channel: Light scour and erosion. Heavy drift</p>	<p><b>Inspector:</b> DPC</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 6 Satisfactory</p>
<p><b>Inspection Date:</b> 08/01/1996</p> <p><b>Notes:</b></p>	<p><b>Inspector:</b> Not Available</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 6 Satisfactory</p>
<p><b>Inspection Date:</b> 09/01/1994</p> <p><b>Notes:</b></p>	<p><b>Inspector:</b> Not Available</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> 6 Satisfactory</p>
<p><b>Inspection Date:</b> 09/01/1992</p> <p><b>Notes:</b></p>	<p><b>Inspector:</b> Not Available</p>	<p><b>Deck:</b> N N/A (NBI)</p> <p><b>Super:</b> N N/A (NBI)</p> <p><b>Substr:</b> N N/A (NBI)</p> <p><b>Culvert:</b> N N/A (NBI)</p>

# Bridge Inspection Report

Effingham 165/112

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**Copy Distribution:**

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- Bureau of Turnpikes

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- Bureau of Rail and Transit
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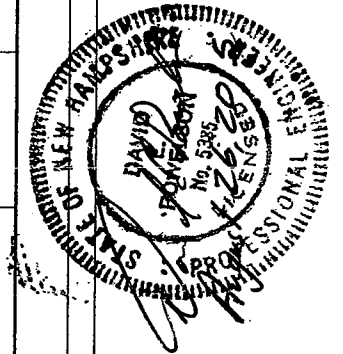
- Dept. of Res. and Econ. Dev.
- Dept. of Environmental Services
- USDA Forest Service
- Bureau of Traffic

**BRIDGE CAPACITY SUMMARY**

TOWN: EFFINGHAM  
 BRIDGE NUMBER: 165/112  
 DESIGN LOAD: UNKNOWN DESIGN METHOD: UNKNOWN  
 RATED BY: NBG DATE: 8/26/2015  
 RATING METHOD: LOAD FACTOR PLAN FILE: UNKNOWN  
 CHECK BY: JH DATE: 8/26/15  
 ROUTE: SNOW ROAD OVER: SOUTH RIVER

RATED MEMBER	LONGITUD. EFFECTIVE SPAN LENGTH	REQUIRED CAPACITY (HS Tons)		AVAILABLE CAPACITY (HS Tons)		SINGLE LANES LOADED		MULTIPLE LANES LOADED		SINGLE LANES LOADED						
		CURRENT LEGAL LOADS	CERTIFIED VEHICLES SINGLE UNIT	CERTIFIED VEHICLES MULTIPLE UNIT	INVENTORY	POSTING	INVENTORY	POSTING	INVENTORY	POSTING	INVENTORY	POSTING				
Corrugated Metal Pipes (1'-6" of fill, 30% losses)	3'-0"	HS 14.0	HS 15.4	HS 15.4	HS 23.4	HS 39.1	HS 23.4	HS 39.1	HS 23.4	HS 39.1	HS 23.4	HS 39.1	HS 23.4	HS 39.1	HS 23.4	HS 39.1
												English Tons	Metric Tons			
												64. (Op.)	70.4	63.8		
												66. (Inv.)	42.2	38.2		

RECOMMENDED POSTING: E-2



**EFFINGHAM 165/112**  
SNOW ROAD over SOUTH RIVER

Monday, August 24, 2015

WEST APPROACH. (RL)



C538 62

Monday, August 24, 2015

SOUTH ELEVATION. (RL)



C538 61

Monday, August 24, 2015

BARREL #1 IS THIN AND  
HOLED WITH SMALL TORN  
AREA. (RL)



C538 57



**EFFINGHAM 165/112**  
**SNOW ROAD over SOUTH RIVER**

Monday, August 24, 2015

BARREL #2 IS THIN AND  
HOLED WITH SMALL TORN  
AREA. (RL)

C538 58



Monday, August 24, 2015

BARREL #3 IS THIN AND  
HOLED. TYPICAL OF  
BARREL #4. (RL)

C538 59



Monday, August 24, 2015

STONES ARE LOOSE AND  
UNSTABLE BETWEEN  
BARRELS #3 AND #4 AT  
NORTH. (RL)

C538 60

