

Inventory Data:									
Structure Name	#8 Catons Bridge-N Structure, L10, C VII, Hungerford								
Main Hwy/Road#	Bethel Road	On <input checked="" type="checkbox"/>	Under	Crossing Type	Navig. Water Rail	Water Road	Non-Navig. Water Ped.	Water Other	
Hwy/Road Name	Carss Road								
Structure Location	1.30 Km S of Bethel Road								
Latitude	44.431189°N			Longitude	77.292011°W				
Owner(s)	Municipality of Tweed			Heritage Designation:	Not Cons. <input checked="" type="checkbox"/>	Cons./not App.	List/not Desig.		
MTO Region	Eastern			Road Class:	Freeway	Arterial	Collector	Local <input checked="" type="checkbox"/>	
MTO District	Kingston			Posted Speed	80km/h	No. of Lanes	1		
Old County				AADT		% Trucks			
Geographic Twp.				Inspection Route Sequence					
Structure Type	T-Beam			Interchange Number					
Total Deck Length	40.2 (m)			Interchange Structure Number					
Overall Str. Width	5.5 (m)			Min. Vertical Clearance					
Total Deck Area	221 (sq.m)			Special Routes	Transit	Truck	School	Bicycle	
Roadway Width	4.3 (m)			Detour Length Around Bridge					
Skew Angle	0 (Deg.)			Direction of Structure	North-South				
No. of Spans	3			Fill on Structure	0 (m)				
Span Lengths	12, 12, 12 (m)								

Historical Data:			
Year Built	1913	Last Evaluation	
Last Biennial Inspection	2020-09-11	Current Load Limit	14 (tonnes)
Last BridgeMaster Inspection		Load Limit By-Law#	2020-63
Last Condition Survey		By-Law Expiry Date	
Last Underwater Inspection			

Rehab History: (Date/description)

- Pier patching has been previously undertaken

Scheduled Improvements:

Regional Priority Number Programmed Work Year

Nature of Program Work:

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometries		
Barrier		
Curb		
Load Capacity		

Field Inspection Information:	
Date of Inspection:	May 12, 2022
Inspector:	Abdul Rahman Stott
Others in Party:	Cody Chambers
Equipment Used:	Camera and hand tools
Weather:	Sunny
Temperature:	26°C

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Detailed Deck Condition Survey:	X		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	X		
Substructure Condition Survey:	X		
Detailed Coating Condition Survey:	X		
Underwater Investigation:	X		
Fatigue Investigation:	X		
Seismic Investigation:	X		
Structure Evaluation:		X	
Monitoring of Deformations, Settlements and Movements:	X		

The structure is generally in fair to poor condition on account of deterioration of all major structural elements

Recommended actions:

- Install guiderail on approaches as per current standards (NOW)
- Reinstate damaged or missing hazard marker signs as part of structure maintenance
- Complete major rehabilitation (1-5 yrs.), consisting of:
 - Abutment refacing and patch repairs
 - Deck soffit patch repairs and deck top overlay or patch repairs
 - Pier patch repairs
 - T-beam patch repairs
 - Barrier wall removal and replacement as per current standards
 - Rehabilitation and re-stabilization of retaining walls
 - Repairs to abutment and pier foundations

BCI (2020): 29.49

BCI (2022): 31.97

Next Detailed Visual Inspection:	2024
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Suspected Performance Deficiencies

00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	

Maintenance Needs

01 Lift and Swing Bridge Maintenance	07 Repair of Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair of Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges – Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Other
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	

Element Data

Element Group:		Abutments		Length		N/A		
Element Name:		Abutment Walls		Width		5.5m		
Location:		Either end of structure		Height		2.2m		
Material:		Cast-in-place Concrete		Count		2		
Element Type:		Conventional Closed		Total Quantity:		24.2m ²		
Environment:		Severe		Limited Inspection		<input type="checkbox"/>		
Protection System:		None				Perform. Deficiencies		Maint. Needs
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m ²	0	0	13.2	11	00		
Comments: Medium to severe scaling and erosion on both abutments. Efflorescence, spalling, and delamination. Full length wide horizontal cracking at south wall.								
Recommended Work: Complete patch repairs as part of major rehabilitation								
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	
						<1 year	<input type="checkbox"/>	
						Urgent	<input type="checkbox"/>	

Element Group:		Abutments		Length		1.5m		
Element Name:		Wingwalls		Width		N/A		
Location:		All four quadrants		Height		2.2m		
Material:		Cast-in-place Concrete		Count		4		
Element Type:				Total Quantity:		13.2m ²		
Environment:		Moderate		Limited Inspection		<input type="checkbox"/>		
Protection System:		None				Perform. Deficiencies		Maint. Needs
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m ²	0	5.7	3.2	4.2	00		
Comments: Southwest wingwall is totally spalled. Severe scaling and erosion at southeast wingwall.								
Recommended Work: Repair wingwalls as part of major rehabilitation								
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	
						<1 year	<input type="checkbox"/>	
						Urgent	<input type="checkbox"/>	

Element Group:		Piers		Length				
Element Name:		Shafts/Columns/Pile Bents		Width		5.5m		
Location:		Intermediate Support		Height		2.2m		
Material:		Cast-in-place Concrete		Count		2		
Element Type:		Concrete Shafts/Pier Walls		Total Quantity:		48.4m ²		
Environment:		Severe		Limited Inspection		<input checked="" type="checkbox"/>		
Protection System:		None				Perform. Deficiencies		Maint. Needs
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	m ²	0	0	14.5	33.9	00		
Comments: Delamination, severe scaling, and wide transverse cracks with efflorescence. Concrete patches on west end of both piers. North pier is completely separated at the east end. Wide vertical cracking on base of north face of north pier.								
Recommended Work: Complete patch repairs as part of major rehabilitation								
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	
						<1 year	<input type="checkbox"/>	
						Urgent	<input type="checkbox"/>	

Element Group:	Retaining Walls	Length	4m				
Element Name:	Walls	Width					
Location:	All four quadrants	Height	2m				
Material:	Masonry	Count	4				
Element Type:	Stacked Stone Gravity Wall	Total Quantity:	32m ²				
Environment:		Limited Inspection	<input checked="" type="checkbox"/>				
Protection System:	None					Perform. Deficiencies	Maint. Needs
Condition	Units	Exc.	Good	Fair	Poor*		
Data:	m ²	0	8	8	16	01/02/04	
Comments: Walls are leaning outward. Stones are bulging and missing. Northeast wall fails to retain backfill and southwest wall is failing.							
Recommended Work: Repair retaining walls as part of major rehabilitation							
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>
						<1 year	<input type="checkbox"/>
						Urgent	<input type="checkbox"/>

Element Group:	Approaches	Length	6				
Element Name:	Wearing Surface	Width	5.5				
Location:	Either end of deck	Height					
Material:	Gravel	Count	2				
Element Type:		Total Quantity:	66m ²				
Environment:	Severe	Limited Inspection	<input type="checkbox"/>				
Protection System:	None					Perform. Deficiencies	Maint. Needs
Condition	Units	Exc.	Good	Fair	Poor*		
Data:	m ²	66	0	0	0	00	
Comments: Resurfaced with gravel in 2022. Underlying asphalt exhibits extensive pothole formation							
Recommended Work:							
		None	<input checked="" type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input type="checkbox"/>
						<1 year	<input type="checkbox"/>
						Urgent	<input type="checkbox"/>

Element Group:	Barriers	Length	40m				
Element Name:	Barrier/Parapet Walls	Width	0.3m				
Location:	Along deck edges	Height	1.2m				
Material:	Cast-in-place Concrete	Count	2				
Element Type:		Total Quantity:	216m ²				
Environment:	Severe	Limited Inspection	<input type="checkbox"/>				
Protection System:	None					Perform. Deficiencies	Maint. Needs
Condition	Units	Exc.	Good	Fair	Poor*		
Data:	m ²	0	0	108	108	01	
Comments: Severe scaling at base. Southwest wall is scaling and disintegrated. Extensive light to severe scaling and cracking. Exposed and corroded rebar at southwest quadrant.							
Recommended Work: Remove and replace with code-compliant barrier system as part of major rehabilitation							
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>
						<1 year	<input type="checkbox"/>
						Urgent	<input type="checkbox"/>

Element Group:		Beams/MLEs		Length		12.2m					
Element Name:		Girders		Width		0.35m					
Location:		Underside of deck		Height		0.75m					
Material:		Cast-in-place Concrete		Count		2					
Element Type:		T-Type		Total Quantity:		270.8m ²					
Environment:		Benign		Limited Inspection		<input type="checkbox"/>					
Protection System:		None				Perform. Deficiencies		Maint. Needs			
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	90.8	110	70	00					
Comments: Localized delamination and spalling with exposed and corroded rebar. Severe scaling at girder ends. Narrow cracks with efflorescence in interior girders. Long longitudinal wide cracking											
Recommended Work: Complete patch repairs as part of major rehabilitation		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:		Decks		Length		40m					
Element Name:		Deck Top – Thin Slab		Width		5.5m					
Location:		Spanning between abutments		Height							
Material:		Cast-in-place Concrete		Count		1					
Element Type:				Total Quantity:		220m ²					
Environment:		Severe		Limited Inspection		<input checked="" type="checkbox"/>					
Protection System:		None				Perform. Deficiencies		Maint. Needs			
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	55	110	55	00					
Comments:											
Recommended Work: Complete patch repairs as part of major rehabilitation		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:		Decks		Length		40m					
Element Name:		Soffit – Thin Slab		Width		5.5m					
Location:		Underside of deck		Height							
Material:		Cast-in-place Concrete		Count		1					
Element Type:				Total Quantity:		220m ²					
Environment:		Benign		Limited Inspection		<input type="checkbox"/>					
Protection System:		None				Perform. Deficiencies		Maint. Needs			
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	125	65	30	00					
Comments: Severe scaling at ends. Localized delamination and moisture accumulation. Severe scaling in middle soffit.											
Recommended Work: Complete patch repairs as part of major rehabilitation		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Decks	Length	40m				
Element Name:	Wearing Surface	Width	5.5m				
Location:	Covering deck	Height					
Material:	Asphalt	Count	1				
Element Type:		Total Quantity:	220m ²				
Environment:	Severe	Limited Inspection	<input type="checkbox"/>				
Protection System:	None					Perform. Deficiencies	Maint. Needs
Condition Data:	Units	Exc.	Good	Fair	Poor*		
	m ²	0	55	110	55	09	02
Comments: Light to severe ravelling, pothole formation, and rough riding surface. Extensive debris accumulation on deck top							
Recommended Work: Resurface as part of major rehabilitation							
None <input type="checkbox"/> 6-10 years <input type="checkbox"/> 1-5 years <input checked="" type="checkbox"/> <1 year <input type="checkbox"/> Urgent <input type="checkbox"/>							

Element Group:	Embankments & Streams	Length	N/A				
Element Name:	Embankments	Width	N/A				
Location:	Side slopes of abutments	Height	N/A				
Material:		Count	4				
Element Type:		Total Quantity:	4				
Environment:		Limited Inspection	<input type="checkbox"/>				
Protection System:	None					Perform. Deficiencies	Maint. Needs
Condition Data:	Units	Exc.	Good	Fair	Poor*		
	Each	0	1	1	2	00	
Comments: Moderate erosion at northwest embankment. Severe erosion at northeast and southwest embankments							
Recommended Work:							
None <input checked="" type="checkbox"/> 6-10 years <input type="checkbox"/> 1-5 years <input type="checkbox"/> <1 year <input type="checkbox"/> Urgent <input type="checkbox"/>							

Element Group:	Embankments & Streams	Length	N/A				
Element Name:	Streams and Waterways	Width	N/A				
Location:	Below structure	Height	N/A				
Material:		Count	N/A				
Element Type:		Total Quantity:	All				
Environment:		Limited Inspection	<input type="checkbox"/>				
Protection System:	None					Perform. Deficiencies	Maint. Needs
Condition Data:	Units	Exc.	Good	Fair	Poor*		
	All		All			00	
Comments: Watercourse flows east to west							
Recommended Work:							
None <input checked="" type="checkbox"/> 6-10 years <input type="checkbox"/> 1-5 years <input type="checkbox"/> <1 year <input type="checkbox"/> Urgent <input type="checkbox"/>							

Element Group:	Foundations	Length	N/A					
Element Name:	Foundation (below grnd lvl)	Width	N/A					
Location:	Buried Substructure	Height	N/A					
Material:		Count	N/A					
Element Type:		Total Quantity:	N/A					
Environment:		Limited Inspection	<input checked="" type="checkbox"/>					
Protection System:	None					Perform. Deficiencies	Maint. Needs	
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	N/A					00		
Comments: transverse and vertical cracking in abutment and pier footings. Transverse separation at construction joints								
Recommended Work: Repair foundation as part of major rehabilitation None <input type="checkbox"/> 6-10 years <input type="checkbox"/> 1-5 years <input checked="" type="checkbox"/> <1 year <input type="checkbox"/> Urgent <input type="checkbox"/>								

Element Group:	Accessories	Length	N/A					
Element Name:	Signs	Width	N/A					
Location:	All four quadrants	Height	N/A					
Material:	Steel	Count	6					
Element Type:	Hazard Marker and Maximum Tonnes Signs	Total Quantity:	6					
Environment:	Severe	Limited Inspection	<input type="checkbox"/>					
Protection System:	None					Perform. Deficiencies	Maint. Needs	
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	Each	0	3	0	3	00		
Comments: Hazard signs are shared with the adjacent structure. Northwest and southeast hazard signs are missing. Northeast hazard sign exhibits deformation								
Recommended Work: Install missing hazard signs and replace damaged signs None <input type="checkbox"/> 6-10 years <input type="checkbox"/> 1-5 years <input type="checkbox"/> <1 year <input type="checkbox"/> Urgent <input checked="" type="checkbox"/>								

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road

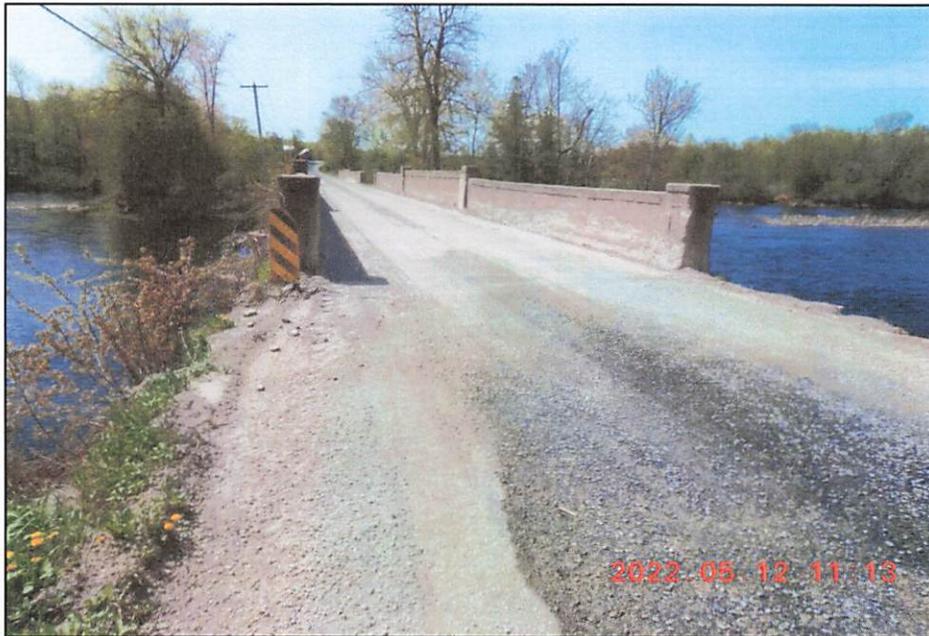


Photo 1: North Approach and Deck Top Looking South



Photo 2: Scaling on West Interior Barrier Wall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road

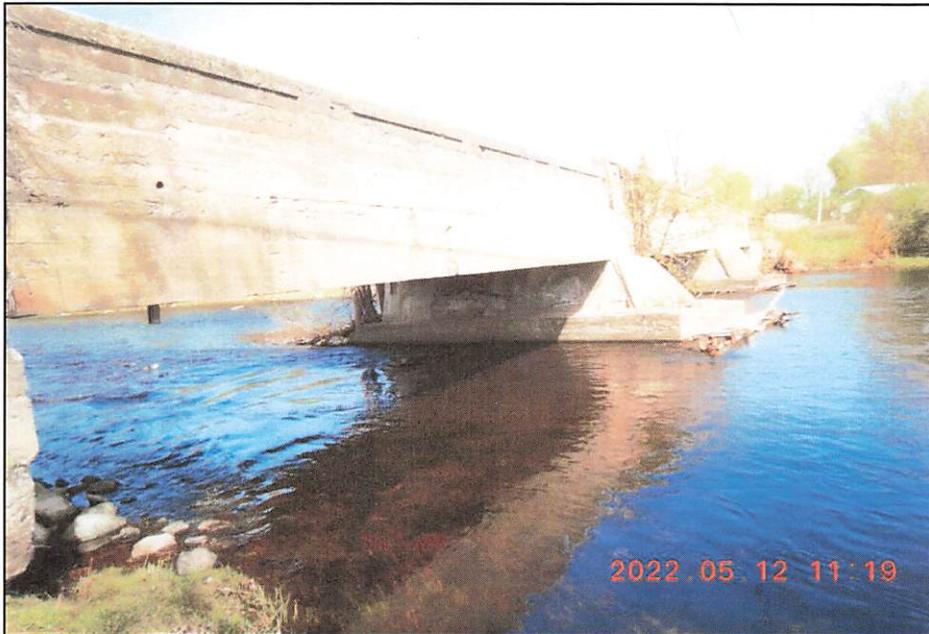


Photo 3: East Exterior T-Beam, Fascia, and Barrier Wall



Photo 4: Scaling, Cracking, and Efflorescence on South Abutment Wall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road

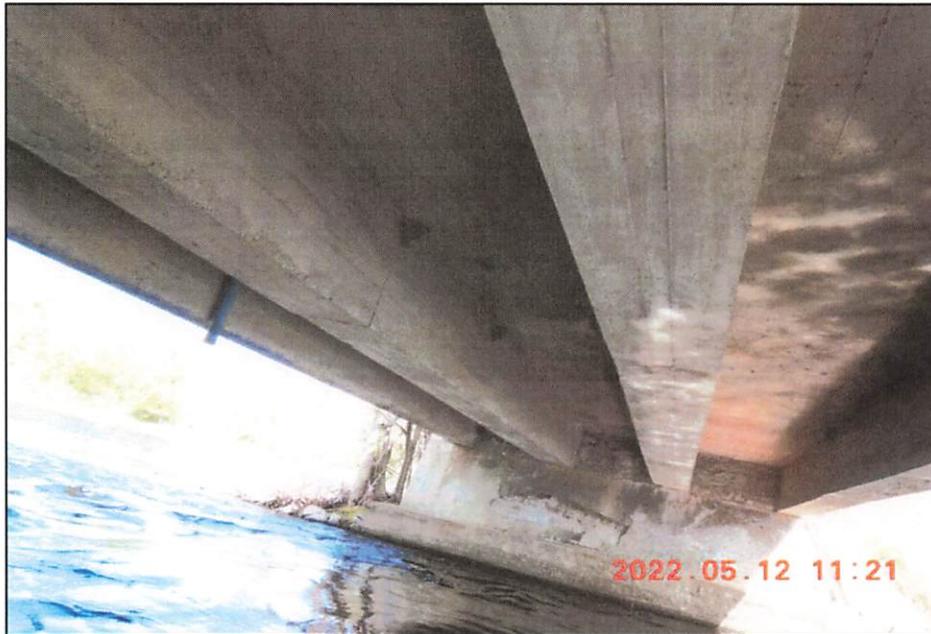


Photo 5: South Span Interior T-Beams and Soffit Looking North



Photo 6: North Abutment Wall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road

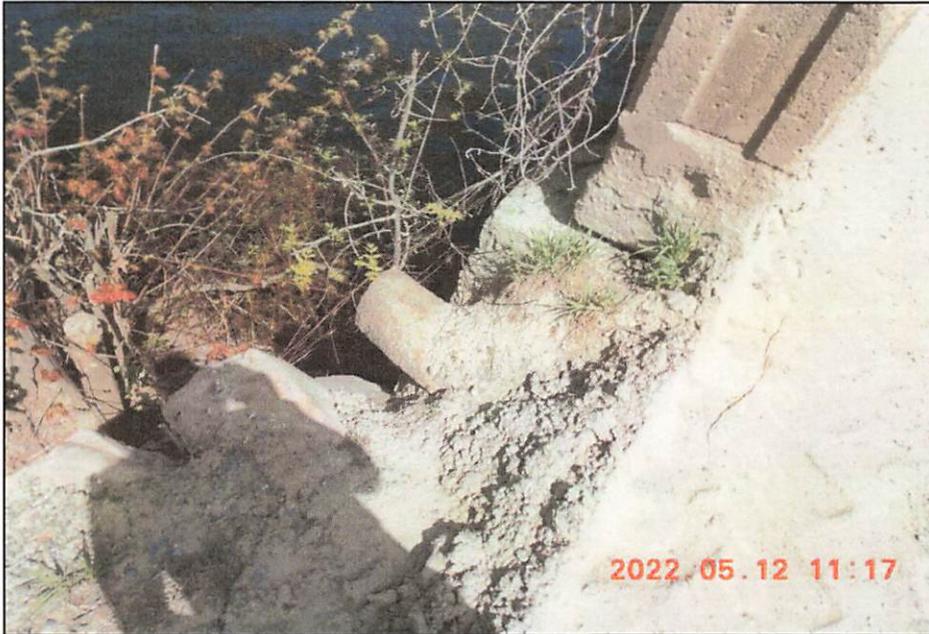


Photo 7: Erosion of Approach over Southwest Retaining Wall

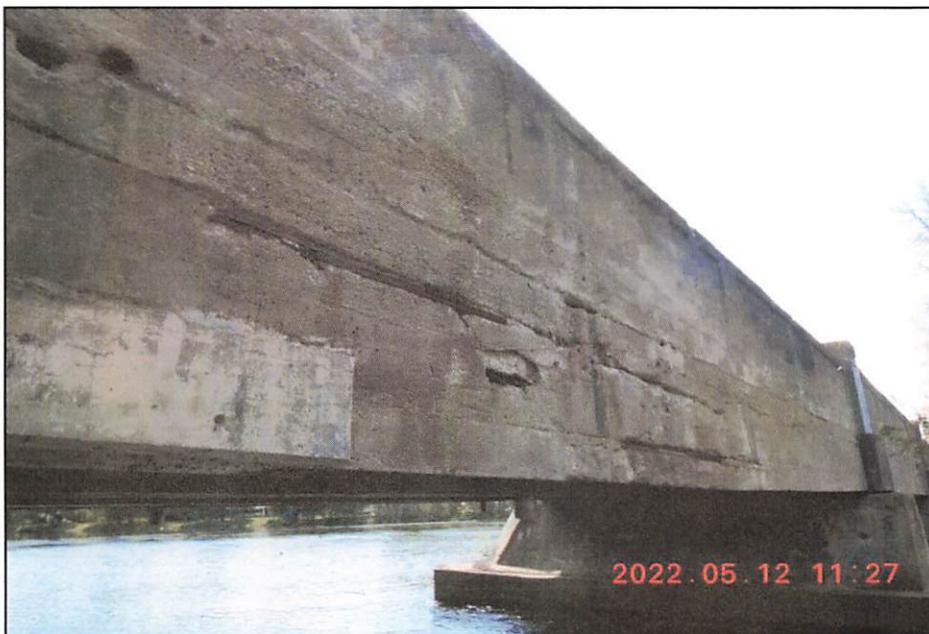


Photo 8: Scaling, Patching, and Spalling with Exposed Rebar on West Exterior T-Beam

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road



Photo 9: Erosion on North Abutment Footing

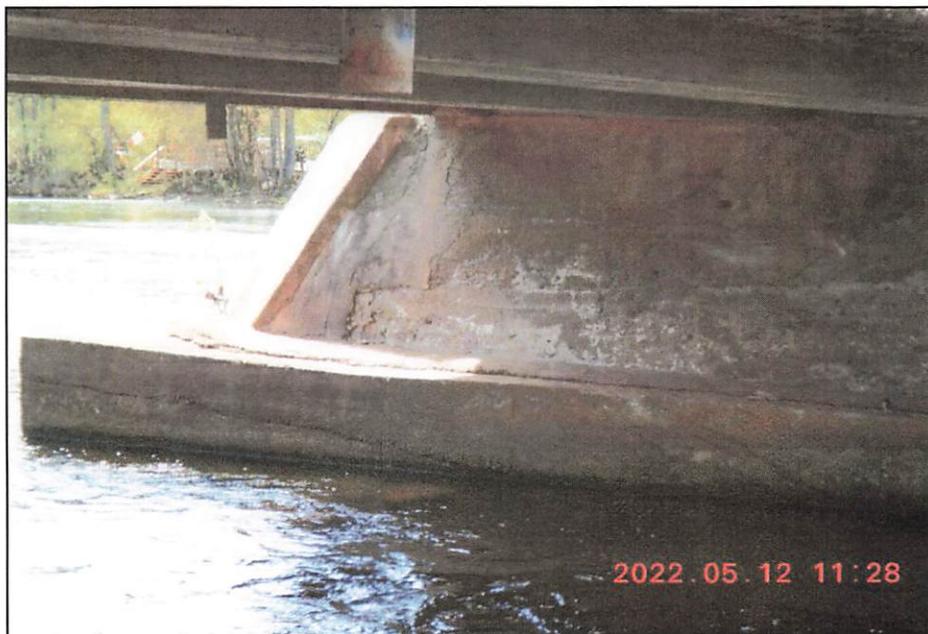


Photo 10: Scaling, Erosion, and Cracking on North Pier North Face

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road

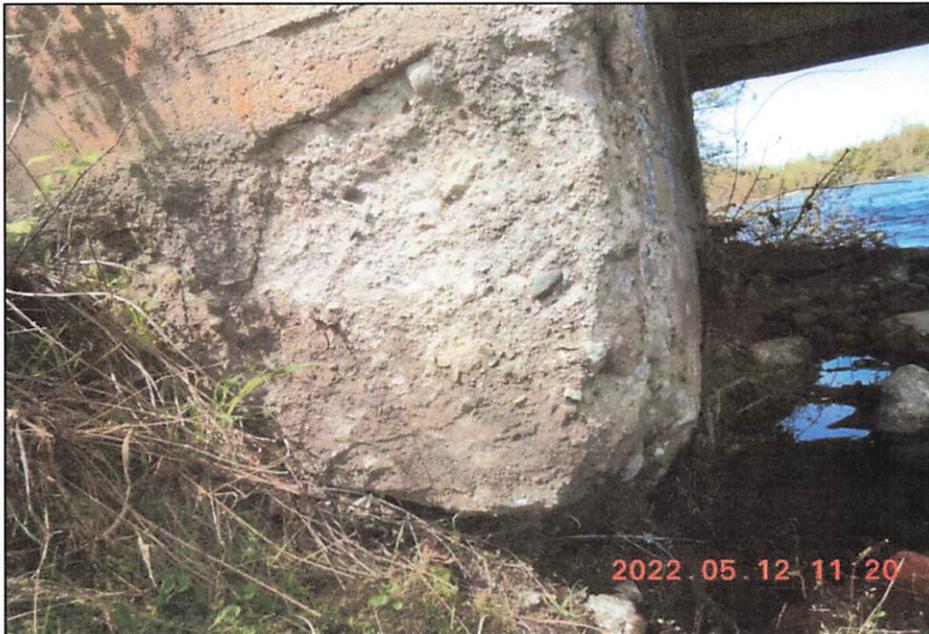


Photo 11: Erosion and Undermining on Southeast Abutment Wall



Photo 12: Northwest Wingwall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road

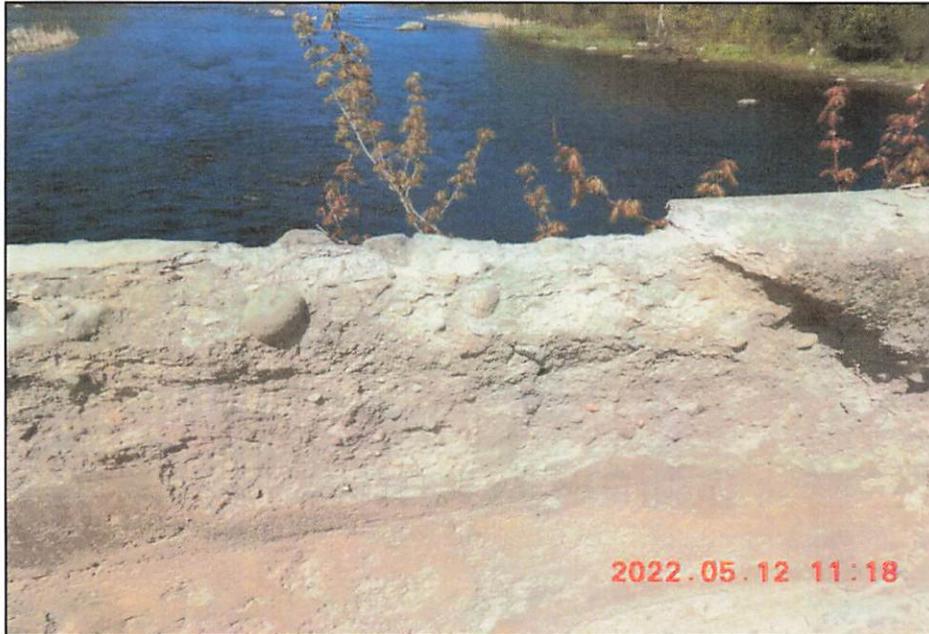


Photo 13: Scaling on Interior Barrier Wall

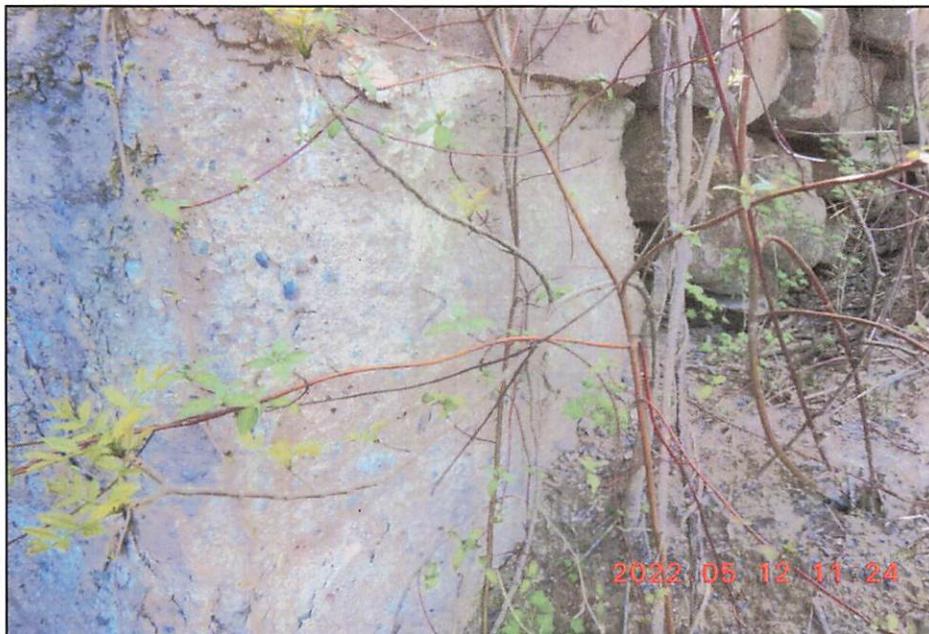


Photo 14: Scaling on Southwest Wingwall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge North Structure
Location: 1.30 km south of Bethel Road



Photo 15: Spalling, Cracking with Efflorescence, and Erosion on South Pier, South Face

Inventory Data:									
Structure Name	#7 Catons Bridge-S Structure, L10, C VI, Hungerford								
Main Hwy/Road#	Bethel Road	On <input checked="" type="checkbox"/>	Under	Crossing Type	Navig. Water Rail	Water Road	Non-Navig. Water Ped.	Water Other	
Hwy/Road Name	Carss Road								
Structure Location	1.31 km S of Bethel Road								
Latitude	44.430672°N			Longitude	77.292071°W				
Owner(s)	Municipality of Tweed			Heritage Designation:	Not Cons. <input checked="" type="checkbox"/>	Cons./not App.	List/not Desig.		
MTO Region	Eastern			Road Class:	Freeway	Arterial	Collector	Local <input checked="" type="checkbox"/>	
MTO District	Kingston			Posted Speed	80	No, of Lanes	1		
Old County		AADT	96	% Trucks					
Geographic Twp.		Inspection Route Sequence							
Structure Type	T-Beam			Interchange Number					
Total Deck Length	40.2 (m)			Interchange Structure Number					
Overall Str. Width	5.5 (m)			Min. Vertical Clearance	(m)				
Total Deck Area	221 (sq.m)			Special Routes	Transit	Truck	School	Bicycle	
Roadway Width	4.3 (m)			Detour Length Around Bridge	8 (km)				
Skew Angle	0 (Deg.)			Direction of Structure	North-South				
No. of Spans	3			Fill on Structure	0 (m)				
Span Lengths	12, 12, 12								(m)

Historical Data:			
Year Built	1913	Last Evaluation	
Last Biennial Inspection	2020-09-11	Current Load Limit	14 (tonnes)
Last BridgeMaster Inspection		Load Limit By-Law#	2020-62
Last Condition Survey		By-Law Expiry Date	
Last Underwater Inspection			

Rehab History: (Date/description)
 - Miscellaneous repairs to the concrete barrier and piers have been previously completed

Scheduled Improvements:

Regional Priority Number Programmed Work Year

Nature of Program Work:

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Field Inspection Information:	
Date of Inspection:	May 12, 2022
Inspector:	Abdul Rahman Stott
Others in Party:	Cody Chambers
Equipment Used:	Camera and hand tools
Weather:	Sunny
Temperature:	26°C

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Detailed Deck Condition Survey:	X		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	X		
Substructure Condition Survey:	X		
Detailed Coating Condition Survey:	X		
Underwater Investigation:	X		
Fatigue Investigation:	X		
Seismic Investigation:	X		
Structure Evaluation:		X	
Monitoring of Deformations, Settlements and Movements:	X		
	X		

The structure is generally in fair to poor condition on account of deterioration of all major structural elements

Recommended actions:

- Install guiderail at structure approach as per current standards (NOW)
- Complete major rehabilitation (1-5 yrs.), consisting of:
 - Abutment and foundation refacing and patch repairs
 - Pier patch repairs
 - Deck soffit patch repairs and deck top overlay or patch repairs
 - T-beam patch repairs
 - Barrier wall removal and replacement with guiderail system
 - Rehabilitation and re-stabilization of retaining walls
 - Repairs to abutment and pier foundations

BCI (2020): 31.17

BCI (2022): 31.25

Next Detailed Visual Inspection:	2024
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Suspected Performance Deficiencies

00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	

Maintenance Needs

01 Lift and Swing Bridge Maintenance	07 Repair of Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair of Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair of Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges – Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Other
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	

Element Data

Element Group:		Abutments		Length		N/A		
Element Name:		Abutment Walls		Width		5.5m		
Location:		Either end of structure		Height		2.2m		
Material:		Cast-in-place Concrete		Count		2		
Element Type:		Conventional Closed		Total Quantity:		24.2m ²		
Environment:		Severe		Limited Inspection		<input type="checkbox"/>		
Protection System:		None				Perform. Deficiencies		Maint. Needs
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	m ²	0	0	8	16.2	00		
Comments: Medium to severe scaling. Localized wide transverse and longitudinal cracks								
Recommended Work: Complete patch repairs as part of major rehabilitation		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	
						<1 year	<input type="checkbox"/>	
						Urgent	<input type="checkbox"/>	

Element Group:		Abutments		Length		1.5m		
Element Name:		Wingwalls		Width		N/A		
Location:		All four quadrants		Height		2.2m		
Material:		Cast-in-place Concrete		Count		4		
Element Type:				Total Quantity:		13.2m ²		
Environment:		Moderate		Limited Inspection		<input type="checkbox"/>		
Protection System:		None				Perform. Deficiencies		Maint. Needs
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	m ²	0	0	0	13.2	00		
Comments: Southwest wingwall is completely spalled. Typical wide cracking and cracking along construction joints.								
Recommended Work: Repair wingwalls as part of major rehabilitation		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	
						<1 year	<input type="checkbox"/>	
						Urgent	<input type="checkbox"/>	

Element Group:		Piers		Length				
Element Name:		Shafts/Columns/Pile Bents		Width		5.5m		
Location:		Intermediate Support		Height		2.2m		
Material:		Cast-in-place Concrete		Count		2		
Element Type:		Concrete Shafts/Pier Walls		Total Quantity:		48.4m ²		
Environment:		Severe		Limited Inspection		<input checked="" type="checkbox"/>		
Protection System:		None				Perform. Deficiencies		Maint. Needs
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	m ²	0	0	11	37.4	00		
Comments: Delamination, spalls, efflorescence, severe scaling, and wide cracks. Piers are severely undermined up to depths of 1m in some areas. Separation of pier base at west.								
Recommended Work: Complete patch repairs as part of major rehabilitation		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	
						<1 year	<input type="checkbox"/>	
						Urgent	<input type="checkbox"/>	

Element Group:	Retaining Walls	Length	4m								
Element Name:	Walls	Width									
Location:	All four quadrants	Height	2m								
Material:	Masonry	Count	2								
Element Type:	Stacked Stone Gravity Wall	Total Quantity:	16m ²								
Environment:		Limited Inspection	<input checked="" type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	0	0	16	01/02/04					
Comments: Retaining walls have failed, with loss of backfill and washouts, loss of stones, and outward building and tilting.											
Recommended Work: Repair retaining walls as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Approaches	Length	6m								
Element Name:	Wearing Surface	Width	5.5m								
Location:	Either end of deck	Height									
Material:	Gravel	Count	2								
Element Type:		Total Quantity:	66m ²								
Environment:	Severe	Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	66	0	0	0						
Comments: Resurfaced with gravel in 2022. Underlying asphalt exhibits potholes and patching in south approach. North approach is uneven with extensive patching and severe pattern cracking.											
Recommended Work:											
		None	<input checked="" type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Decks	Length	40.2m								
Element Name:	Deck Top – Thin Slab	Width	5.5m								
Location:	Spanning between abutments	Height									
Material:	Cast-in-place Concrete	Count	1								
Element Type:		Total Quantity:	221.1m ²								
Environment:	Severe	Limited Inspection	<input checked="" type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	55	111.1	55	00					
Comments: Extensive potholes at south end											
Recommended Work: Complete patch repairs as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Decks	Length	40.2m								
Element Name:	Soffit – Thin Slab	Width	5.2m								
Location:	Underside of deck	Height									
Material:	Cast-in-place Concrete	Count	1								
Element Type:		Total Quantity:	221.1m ²								
Environment:	Benign	Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	121.1	80	20	00					
Comments: Localized delamination. Medium to severe scaling, efflorescence, spalls with exposed and corroded rebar, and moisture accumulation											
Recommended Work: Complete patch repairs as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Decks	Length	40.2m								
Element Name:	Wearing Surface	Width	5.5m								
Location:	Covering deck	Height									
Material:	Asphalt	Count	1								
Element Type:		Total Quantity:	221m ²								
Environment:	Severe	Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	55	110	55	09					
Comments: Light to severe ravelling, pothole formation, and rough riding surface. Extensive debris accumulation on deck											
Recommended Work: Resurface as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Barriers	Length	40.2m								
Element Name:	Barrier/Parapet Walls	Width	0.3m								
Location:	Along deck edges	Height	1.4m								
Material:	Cast-in-place Concrete	Count	2								
Element Type:		Total Quantity:	249.2m ²								
Environment:	Severe	Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	0	124.6	124.6	01					
Comments: Severe disintegration and scaling along base of both walls. Large portion of southeast wall has spalled. Wide separatory cracking. Four post tops have spalled off.											
Recommended Work: Remove and replace with code-compliant railing system as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Beams/MLEs	Length	12.2m								
Element Name:	Girders	Width	0.35m								
Location:	Underside of deck	Height	0.75m								
Material:	Cast-in-place Concrete	Count	2								
Element Type:	T-Type	Total Quantity:	270.8m ²								
Environment:	Benign	Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	m ²	0	115.8	125	30	00					
Comments: Widespread narrow to wide cracking with efflorescence. Severe disintegration and scaling at ends. Delamination, spalling, and moisture accumulation											
Recommended Work: Complete patch repairs as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Embankments & Streams	Length	N/A								
Element Name:	Embankments	Width	N/A								
Location:	Side slopes of abutments	Height	N/A								
Material:		Count	4								
Element Type:		Total Quantity:	4								
Environment:		Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	Each	0	2		2	00					
Comments: Severe erosion at southeast and northwest embankments											
Recommended Work:											
		None	<input checked="" type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Embankments & Streams	Length	N/A								
Element Name:	Streams and Waterways	Width	N/A								
Location:	Below structure	Height	N/A								
Material:		Count	N/A								
Element Type:		Total Quantity:	All								
Environment:		Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	All		All								
Comments: Watercourse flows west											
Recommended Work:											
		None	<input checked="" type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Foundations	Length	N/A								
Element Name:	Foundation (below grnd lvl)	Width	N/A								
Location:	Buried substructure	Height	N/A								
Material:		Count	N/A								
Element Type:		Total Quantity:	N/A								
Environment:		Limited Inspection	<input checked="" type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	N/A					14					
Comments: Erosion and scaling of abutment footings. Localized wide cracks in abutment footings. Severe erosion and undermining of pier footings. Wide cracks in pier footings.											
Recommended Work: Complete repairs as part of major rehabilitation											
		None	<input type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input checked="" type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

Element Group:	Accessories	Length	N/A								
Element Name:	Signs	Width	N/A								
Location:	All four quadrants	Height	N/A								
Material:	Steel	Count	6								
Element Type:	Hazard Marker and Maximum Tonnes Signs	Total Quantity:	6								
Environment:	Severe	Limited Inspection	<input type="checkbox"/>								
Protection System:	None					Perform. Deficiencies	Maint. Needs				
Condition	Units	Exc.	Good	Fair	Poor*						
Data:	Each	0	6	0	0	00					
Comments: Hazard signs are shared with the adjacent structure.											
Recommended Work:											
		None	<input checked="" type="checkbox"/>	6-10 years	<input type="checkbox"/>	1-5 years	<input type="checkbox"/>	<1 year	<input type="checkbox"/>	Urgent	<input type="checkbox"/>

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road

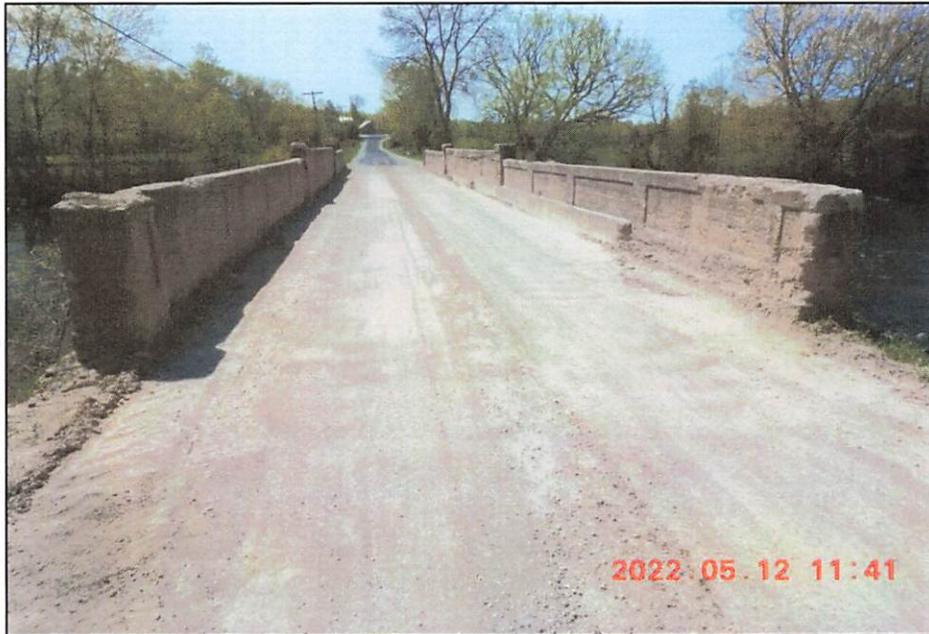


Photo 1: Deck Top Looking South

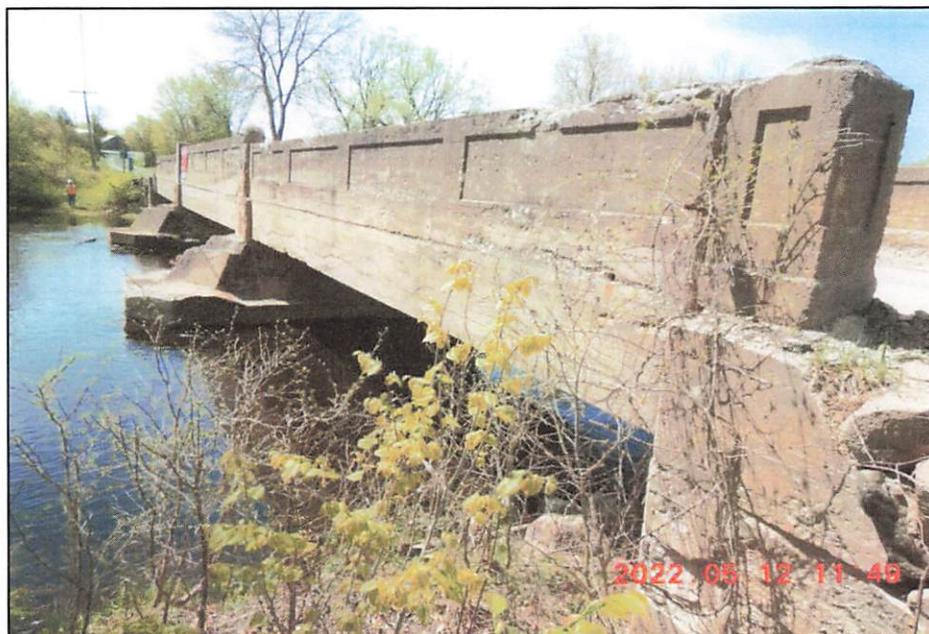


Photo 2: East Exterior Barrier Wall, Fascia, and T-Beam Looking South

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road



Photo 3: Scaling and Cracking with Efflorescence on North Abutment Wall

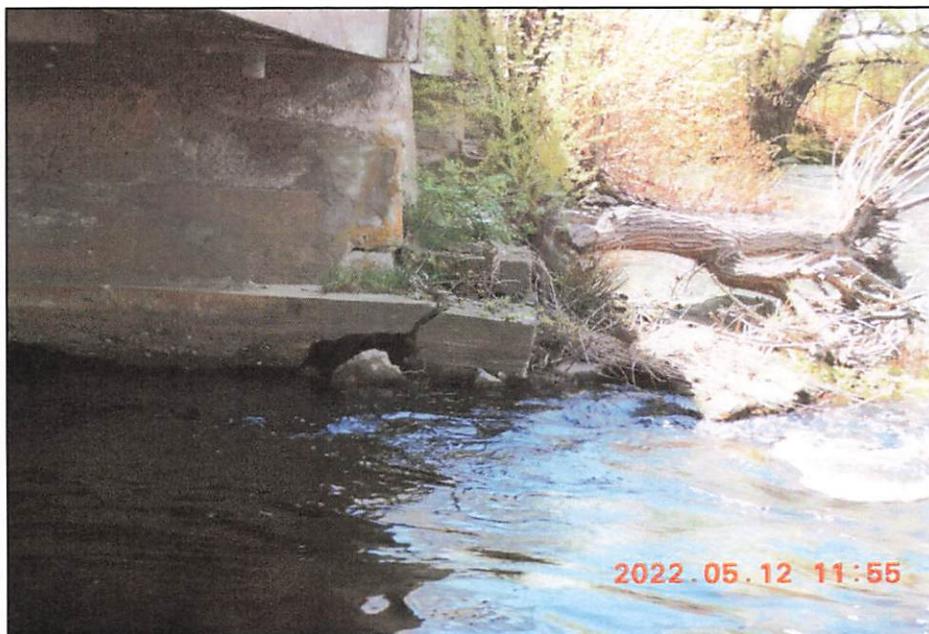


Photo 4: Scaling, Erosion, and Spalling on North Pier North Face

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road



Photo 5: Scaling on West Interior Barrier Wall

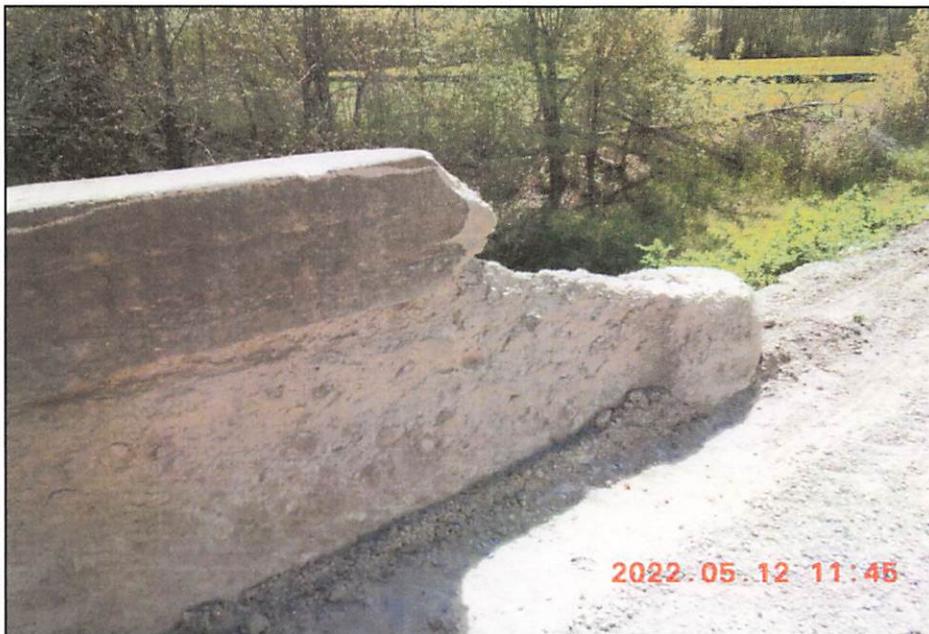


Photo 6: Disintegration and Spalling on West Interior Barrier Wall End

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road



Photo 7: Seperatory Cracking, Scaling, and Tilting on Northeast Wingwall and Failed Retaining Wall



Photo 8: North Span Interior T-Beams and Soffit Looking South

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road



Photo 9: Scaling and Cracking on Northeast Wingwall and Bulging on Retaining Wall

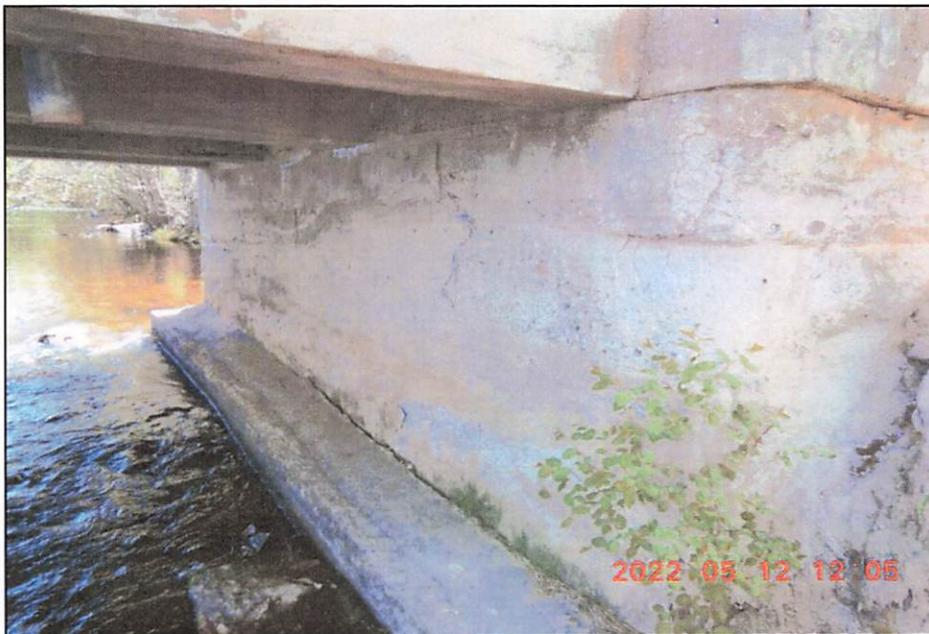


Photo 10: South Abutment Wall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road

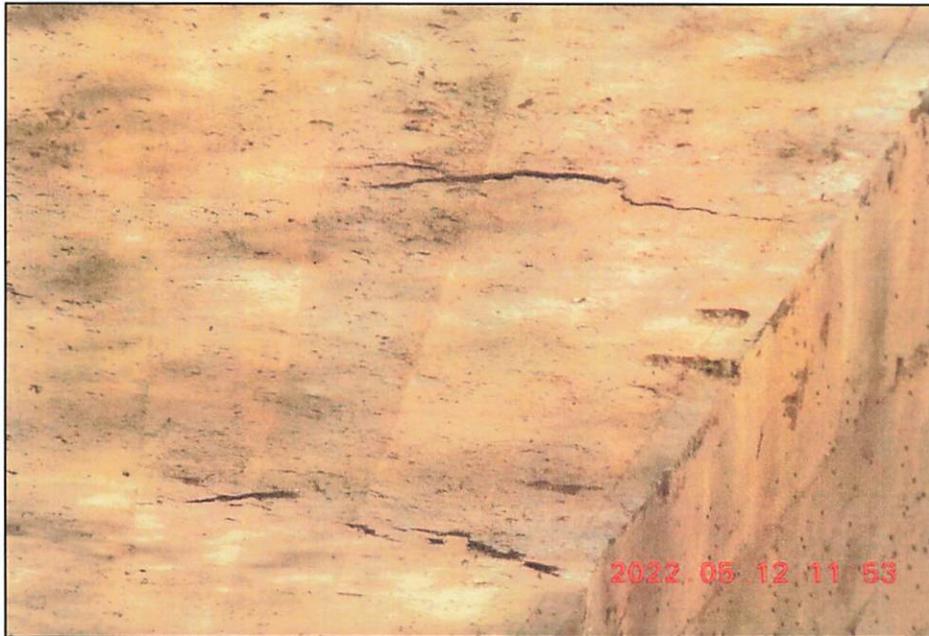


Photo 11: Delamination on North Span Soffit

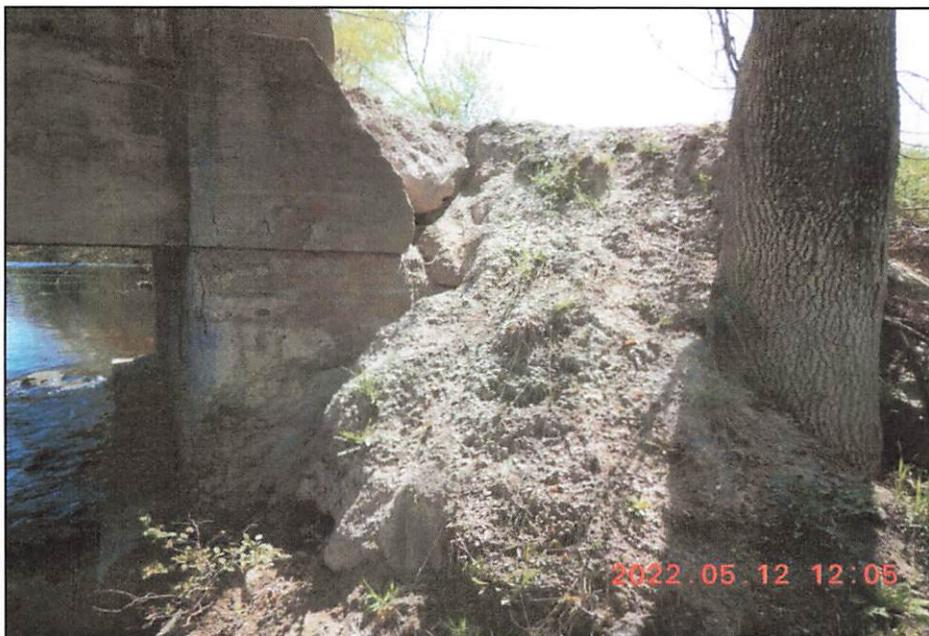


Photo 12: Failed Southwest Retaining Wall

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road



Photo 13: Scaling and Scaling on East Interior Barrier Wall

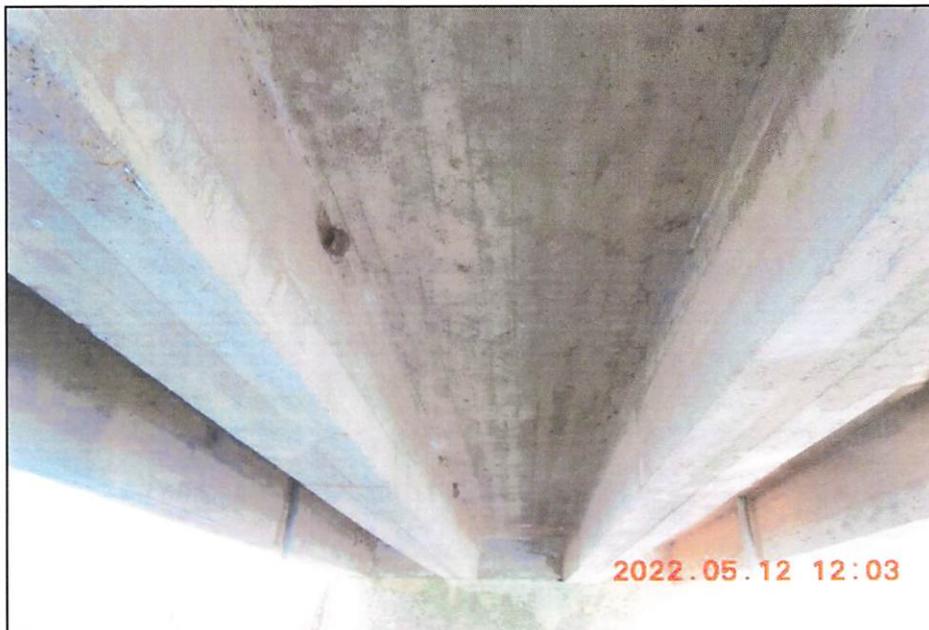


Photo 14: South Span Interior Soffit and T-Beams Looking North

BRIDGE PHOTOGRAPHS

Owner: Municipality Of Tweed
Hwy/Road Name: Carss Road

Structure Name: Catons Bridge South Structure
Location: 1.31 km south of Bethel Road

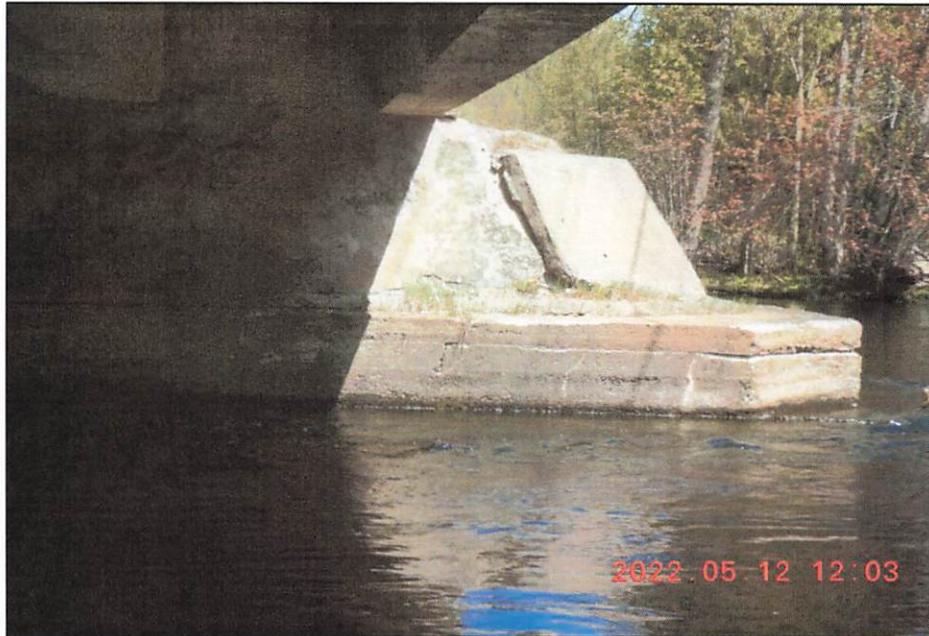


Photo 15: Spall on South Pier South Face

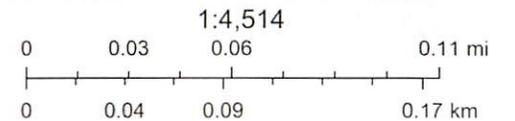
Catons N & S Bridge Locations



2/8/2023, 3:28:23 PM

Civic Addresses

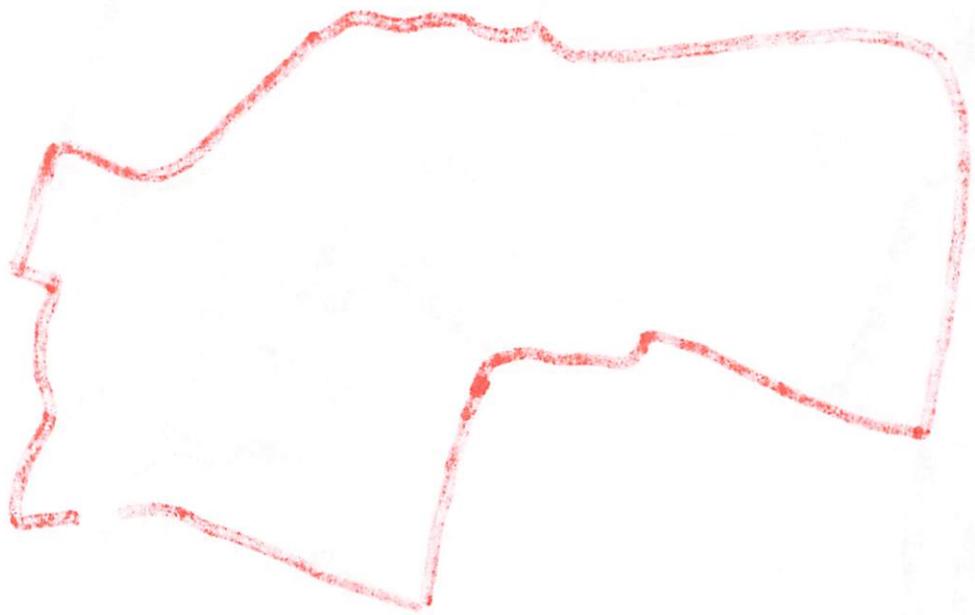
Property Information



Hastings County, Province of Ontario, Ontario MNR, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA, AAFC, NRCan

Hastings County GIS

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