

Municipality of Swan Valley West

“Brown Bridge” Rehabilitation

Quote Request / Tender

The Municipality of Swan Valley West invites proposals for the rehabilitation of the “Brown Bridge” as described in the documents included in this package.

The bridge has been previously repaired. The included bridge inspection details the current issues and contains a proposal for remedial work to be completed.

We are seeking qualified companies to perform the stated work. We understand that each company may have slightly different thoughts on how to best correct the issues with the bridge. As such, we will also accept proposals to conduct the repairs in a different manner so long as the proposed repairs will correct the problems and extend the life of the bridge.

When you submit your proposal, please make sure these things are included:

1. Clearly explain the work you will be doing – if it is different than the list of work included in the recommendations further explain your reasoning for a different plan.
2. Quote a price that is valid to do the entire proposed work. It is acceptable to quote the asphalt separately with a note that its price may vary depending on the subcontractor.
3. If you feel that municipal forces could do some of the work, clearly indicate which portions can be done by the municipality and provide a second price that excludes those portions.
4. Explain when you are able to do the work. It is our intention to approve the work for the 2026 calendar year – but we want to know when you think it is best to work at the site.

Site visits are welcome. Photos are included from the inspection that was conducted. You may visit the site on your own. Or, call our office and someone will go with you to the site.

Please submit your proposal / quote by no later than 3PM December 23, 2025.

Proposals may be emailed to CAO@munswanvalleywest.com. If you do not receive a confirmation that we received your proposal, please call our office at (204) 734-3344.

➤ **Site 3 – Brown Bridge, over Woody River**

Site 3 is a four span, 107' long x 25' 10" wide, timber bridge with no skew. The bridge consists of concrete abutments, steel piers, and timber stringers with a timber superstructure including an asphalt overlay. Date of construction is unknown, but judging by the construction type and practices we can reasonably assume construction between 1970-2000.

Found deficiencies include;

- SU2 pier is frost heaving and creating an elevated hazard along the bridge deck
- SU3&4 piers have some frost heaving with SU4 previously releveled
- Excessive asphalt deterioration and missing sections above the heaving piers
- Weathering, abrasion, and flex damage to exposed deck boards above the heaving piers
- All guard rail posts are rotten in different locations with undersized posts and inadequate connections
- All exterior stringers are rotten and insufficient to stop a vehicular collision
- Additional interior girders are rotten
- Structure has no hazard markers
- Debris and sedimentation along the channel
- Area of embankment loss along SU1
- Insufficiently sized rip rap along the abutments

Maintenance recommendations and estimated costs are;

- Primary
 - Cut piles at SU2 to level bridge deck
 - Replace all guard-rail posts, and w-beam as required
 - Span 1; replace exterior stringers, sister beside G3, 5, 6, 7, 10, 11, & 12
 - Span 2; replace exterior stringers, sister beside G2, 6, 7, & 8
 - Span 3; replace exterior stringers, sister beside G5, 6, & 11
 - Span 4; replace exterior stringers, sister beside G2, 11, & 12
- Secondary
 - Replace damaged deck boards caused by heaving and exposure
 - Replace asphalt, alternatively only over the piers that is now exposing the deck
- Tertiary
 - Install 4 standard hazard markers on spring mounts

Several items were noted to be monitored with no work recommended at this point.

- Monitor sedimentation and debris along the channel
- Monitor embankment loss along SU1

Restriction recommendations;

- Post weight restriction to 10 tonnes until rotten interior stringers are addressed
- Post speed restriction to 50 km/h until heaving SU2 pier is levelled

The total estimated repair cost for this site is \$1,400,000. We do encourage municipal crews to perform some of this work, however, Pier Solutions is able to offer the above repairs as lump sum pricing as estimated above (plus GST), contingent on getting current pricing from a paving contractor when work is to be done. Levelling the pier due to heaving is not a permanent fix and frost heaving will likely continue to be an issue after relevelevelling due to likely inadequate pile embedment, although it can vary on how much heaving is experienced on an annual basis. Current level of heaving minimally impacts structural capacity of the structure, and will depend more so on what amount of heaving is safe and manageable by road users.

Given the extent of rot in the superstructure and the heaving piers, likely due to inadequate pile embedment, this structure could be considered to be replaced in the near future instead of investing in repairs. The RM has expressed interest in replacing this structure. It is recommended to initially perform hydraulic and geotechnical analysis to determine required replacement structure size and foundation requirements. Estimated cost for both hydraulic and geotechnical analysis is \$10,000. Environmental assessment could also be considered at this time to determine environmental requirements and aid in selecting the most cost-effective replacement structure. Estimated cost for environmental assessment is between \$5,000 - \$10,000.

In summary, the bridge structure Pier Solutions inspected is in poor condition. The estimated remaining service life is 10-15 years, assuming a reasonable and cost-effective level of maintenance is followed. On average, 1-2% of the bridge value is typically spent on bridge maintenance. High level replacement cost for this structure is in the \$1.4-1.6M range for a bridge with similar length, width and skew constructed to current design standards. We encourage your municipality to consider preventative maintenance to ensure longevity of your structures.



Inspection Summary Form

Bridge File : Site # 3

Previous Inspection : 2020, Pier Solutions

Owner
Bridge name
Waterbody
Location
Coordinates
Inspection date

RM of Swan Valley West
Brown Bridge
Woody River
Rd 166W, NE 08:37:28W
52.166371, -101.418264
16-Oct-24

Inspectors
Structure type
Dimensions (m)
Year built
Dir of structure
Dir of flow

Kyle Andrusiek
Four Span Timber Bridge with Steel Substructure
L: 32.6 W: 7.9 Skew: 0°
unknown
N-S
W-E

Location	No.	Element	Material	Unit	Quantity	Condition State			Perf. Deficiencies			Comments	Recommended Work	Timing (yrs)
						Good	Fair	Poor	1	2	3 (+)			
Deck		Wearing Surface	Asphalt	Sq. m	257.5						x	(107' long x 25.9' wide) Severe areas of asphalt crumbling and debonding over the SUs due to differential movements and frost heaving of the pile bents. Total poor areas are full width of bridge x 4 feet long and exposing deck boards below. Medium-severe transverse and longitudinal cracking throughout the wearing surface with alligator map cracking stretching from SUs.	Remove existing asphalt and repave following bridge leveling, alternatively patch areas over SUs only.	1-5
		Decking	Timber	Sq. m	257.5	x			x			2x4 boards placed on edge. Exposed boards over the SUs are in overall fair condition. Some boards are in poor condition due to no asphalt protection and the heaving at the SUs causing the boards to bow repeatedly as traffic crosses. Most are still being protected by crumbled asphalt. Remaining of the deck had limited inspection due to asphalt cover. Soffit appears to be in generally good condition.	Replace damaged deck boards in conjunction with deck repaving.	1-5
Bridgerail		Railing	Steel	Ltn. m	65.2	x					x	(12" w-beam) Minor deformations throughout both the East and West Interior (traffic facing) face of W-beam has been painted and has coating failure throughout. Isolated areas of minor corrosion through some coating failures.		
Bridgerail		Posts	Timber	Each	36						x	(4"x 6" x 4' long) Posts are painted, majority of posts have some degree of rot. Splits and shrinkage checks typical throughout. Posts and spacers are undersized with insufficient connections for vehicle impact. All girders securing the posts are rotten and have insignificant strength to stop a vehicular collision.	Replace all posts with 8x8 timber posts in conjunction with exterior girder replacements.	1
Bridgerail		Hazard Signs	Steel	Each	n/a				x			Site has no hazard markers	Install 4 standard hazard markers on spring mounts in conjunction with post replacements.	1
Abutment	SU1	Backwall	Concrete	Sq. m	5.3	x						(H = 2) 4"x 6" spacer blocks have been placed under the girders to help level span 1. Concrete is in generally good condition with minor hairline-narrow cracks.		
	SU1	Wingwalls	Concrete	Sq. m	n/a		x		x			Wingwalls were buried at time of inspection.		
Span	1	Stringers	Timber	Each	13						x	(8"x 12") G1: top 13" rotten; G3: bottom 4" rotten, bottom half replaced at SU2; G6: top half replaced with 3x16s and split at notch at SU2; G7: top 4" rotten, G10: up to 3" section loss; G11: top 6" rotten, crack at bottom & side; G12: top 3" rotten, G13: top 6" rotten	Replace exterior stringers G1 & G13, sister in stringers beside G3, 5, 6, 7, 10, 11 & 12. Alternatively, replace superstructure.	1-5
Pier	SU2	Piles	Steel	Each	4	x				x		(H10 x 42 piles with 8" C-channel bracing) 2x diagonal bracing and 2 x full width horizontal bracing with 1 extra horizontal section of bracing spanning P1-2 on the upstream side. Paint coating is failing throughout with isolated areas of light corrosion. Pile bent appears to be frost heaving creating a significant change in elevation throughout the roadway and a hazard directly above SU2.	Cut piles and level pile bent. Monitor heaving.	1-5
Pier	SU2	Pile Cap	Steel	Each	1	x					x	(H10 x 42 H-pile cap) Paint coating is failing throughout with isolated areas of light corrosion. Cap has additional c-channel sections placed at 45 degrees under each stringer for additional support.		

North



Inspection Summary Form

Bridge File : Site # 3

Previous Inspection : 2020, Pier Solutions

Owner
Bridge name
Waterbody
Location
Coordinates
Inspection date

Inspectors
Structure type
Dimensions (m)
Year built
Dir of structure
Dir of flow

Kyle Andrusiek
Four Span Timber Bridge with Steel Substructure
L: 32.6 W: 7.9 Skew: 0°
unknown
N-S
W-E

Location	No.	Element	Material	Unit	Quantity	Condition State			Perf. Deficiencies			Comments	Recommended Work	Timing (yrs)
						Good	Fair	Poor	1	2	3 (+)			
Span	2	Stringers	Timber	Each	13			x			x	(8"x 12") G1, G2, G6, G7, G8, G13 rotten at SU2; G7: bottom half cut out and replaced at SU3.	Replace exterior stringers G1 & G13, sister in stringers beside G2, G6, 7 & 8. Alternatively, replace superstructure.	1-5
Pier	SU3	Piles	Steel	Each	4	x				x		(H10 x 42 piles with 8" C-channel bracing) 2x diagonal bracing and 2 x full width horizontal bracing with 1 extra horizontal section of bracing spanning P1-2 on the upstream side. Paint coating is failing throughout with isolated areas of light corrosion. Pile bent appears to be frost heaving with being higher in elevation compared to the abutments although the least compared to SU2 & 4.	Monitor heaving.	
Pier	SU3	Pile Cap	Steel	Each	1	x				x		(H10 x 42 H-pile cap) Paint coating is failing throughout with isolated areas of light corrosion.		
Span	3	Stringers	Timber	Each	13			x			x	(8"x 12") G1: bottom section is severely rotten, up to 25% section loss; G5: top 3" rotten at SU4; G6: top 10" rotten, crushing at SU4; G11: top 15" rotten at SU4; horizontal crack developing at notch on North face; G13: bottom section is severely rotten.	Replace exterior stringers G1 & G13, sister in stringers beside G5, 6 & 11. Alternatively, replace superstructure.	1-5
Pier	SU4	Piles	Steel	Each	4	x					x	(H10 x 42 piles with 8" C-channel bracing) 2 x full width horizontal bracing with extra horizontal section of bracing spanning P1-2 and P3-4. Paint coating is failing throughout with isolated areas of light corrosion. Concrete has been cast around the base of the piles. Exposed length of concrete could indicate some frost heaving action and/or loss of embankment and cover. Concrete around piles can also indicate piles were set into augered holes instead of being driven, likely resulting in insufficient pile depth and subsequent frost heaving. Splice areas above bottom horizontal cross bracing and removed diagonal bracing indicates pile bent could have been previously leveled. Pier is higher in elevation compared to abutments and SU3 due to frost heaving.	Monitor heaving.	
Pier	SU4	Pile Cap	Steel	Each	1	x				x		(H10 x 42 H-pile cap) Paint coating is failing throughout with isolated areas of light corrosion.		
Span	4	Stringers	Timber	Each	13			x			x	(8"x 12") G1: top 10" rotten near SU3, fully rotten at SU4; G2: top 2" rotten near SU3; G11: top 4" rotten at SU4; G12: top 4" rotten near SU3; G13: top 5" rotten near SU3	Replace exterior stringers G1 & G13, sister in stringers beside G2, 11 & 12. Alternatively, replace superstructure.	1-5
Abutment	SU5	Backwall	Concrete	Sq. m	5.3	x			x			(H = 27) 4" 6" spacer blocks have been placed under the girders to help level span 4. Concrete is in generally good condition with minor hairline narrow cracks.		
Abutment	SU5	Wingwalls	Concrete	Sq. m	n/a		x		x			Wingwalls were buried at time of inspection.		
Stream		Channel	Soil	N/A			x			x		Minor debris build up along the upstream side of SU2 and SU3. Sedimentation along the stream and embankment side of SU2.	Monitor sedimentation and clean channel when necessary.	
Stream		Banks	Soil	N/A			x				x	Both abutments are armoured with small rip rap (~12" diameter). The North embankment has light-medium material loss stream side.	Monitor embankment loss at SU1, consider installing larger rip rap (class 350).	

South



Inspection Summary Form

Bridge File : _____ Site # 3

Previous Inspection : _____ 2020, Pier Solutions

Owner RM of Swan Valley West
Bridge name Brown Bridge
Waterbody Woody River
Location Rd 166W, NE 08-37-28W
Coordinates 52.166371, -101.418264
Inspection date 16-Oct-24
Inspectors Kyle Andrusiek
Structure type Four Span Timber Bridge with Steel Substructure
Dimensions (m) L: 32.6 W: 7.9 Skew: 0°
Year built unknown
Dir of structure N-S
Dir of flow W-E

Location	No.	Element	Material	Unit	Quantity	Condition State			Perf. Deficiencies			Comments	Recommended Work	Timing (yrs)
						Good	Fair	Poor	1	2	3 (+)			
General Conditions		Restrictions										Structure was going to be restricted to 50 km/h by RM at time of inspection due to heaving of piers creating an uneven driving surface.	Maintain 50 km/h speed restriction until structure has been leveled and post weight restriction to 10 tonnes until stringers have been replaced/sistered. Alternatively, given the extent of rot in the stringers and heaving of the piers, consider replacing the bridge. Perform hydraulic and geotechnical analysis to determine replacement structure size and foundation requirements. Can also consider environmental assessment of replacement structure at this time.	1-5



Roadway, looking North



Roadway, looking South



Typical wearing surface



Downstream, looking East



Upstream, looking West



East elevation



West elevation, North



West elevation, South



Typical railing



Typical post



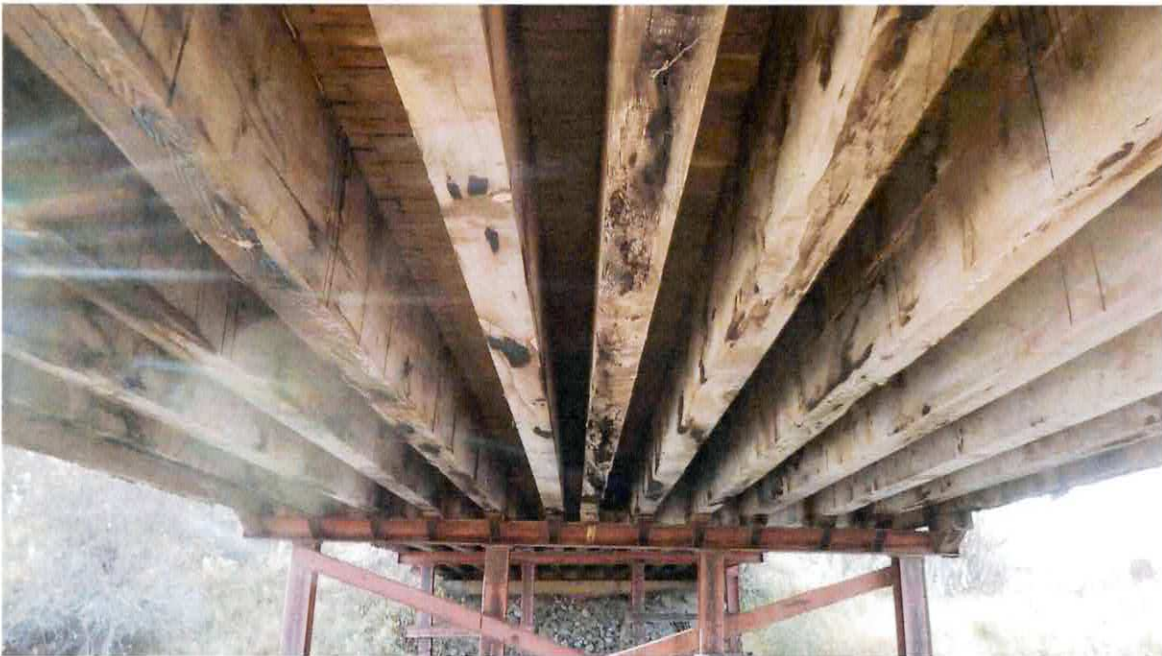
SU1, North abutment



SU5, South abutment. NOTE: Spacer blocks under girders



Typical soffit



Typical mid-span soffit



SU2, North elevation



SU3, North elevation



SU4, North elevation



Looking East over SU3. NOTE: Alligator cracking caused by differential movements and pier heaving



Looking East over SU2. NOTE: Severe asphalt damage and exposed deck boards



Looking over SU2. NOTE: Missing asphalt with exposed deck boards (1)



Looking over SU2. NOTE: Missing asphalt with exposed deck boards (2)



Looking over SU2. NOTE: Missing asphalt with exposed deck boards (3)



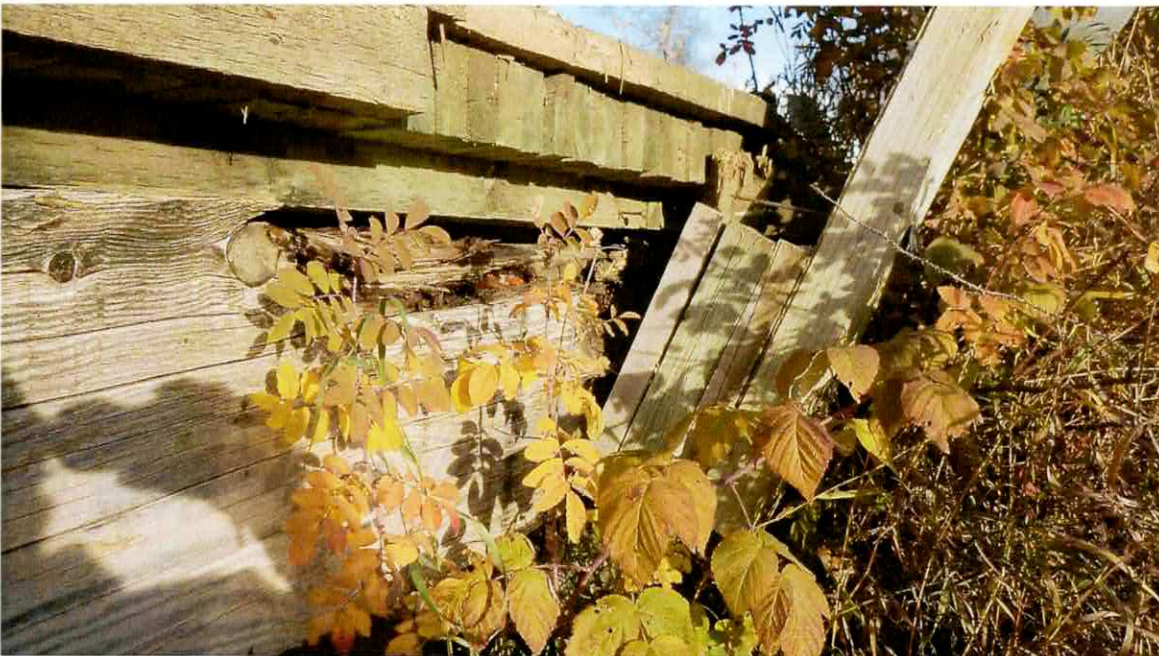
Looking East over SU4. NOTE: Alligator cracking caused by differential movements and pier heaving



Showing heaving at SU2, East side



G1, span 1. NOTE: Severe rot throughout (1)



G1, span 1. NOTE: Severe rot throughout (2)



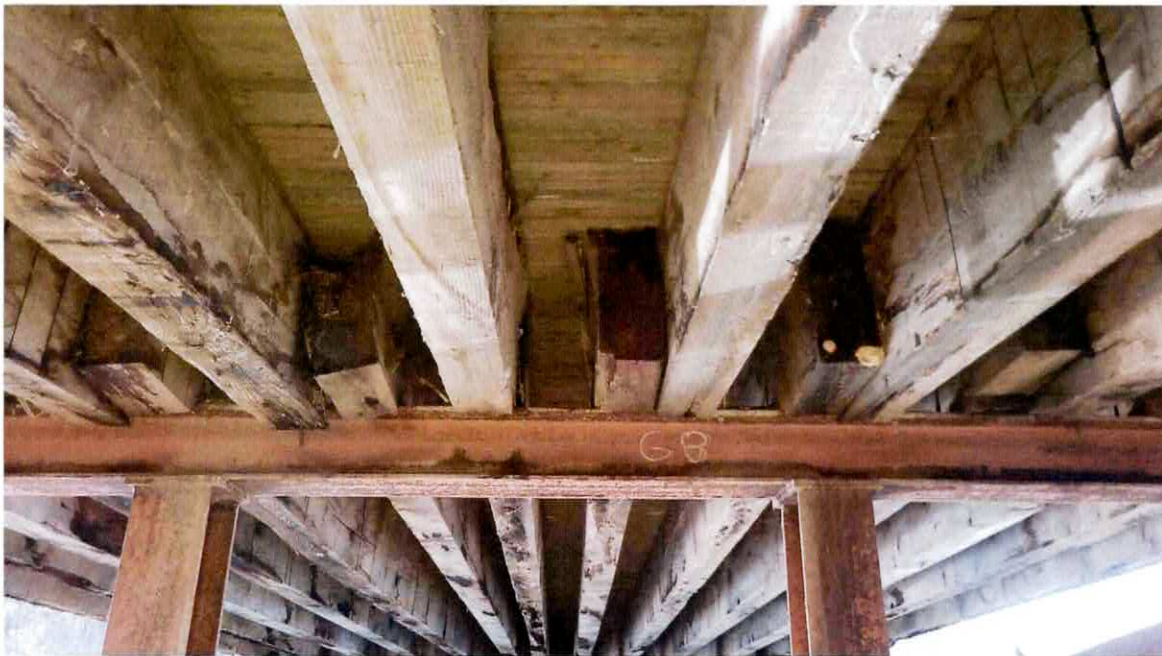
G5, span 1. NOTE: Severe rot along underside



G5, span 1. NOTE: Rotten along under side and splintered at SU2.



G6, span 1. NOTE: Girder is only half height and top half is constructed of other timbers



G6 and G8, span 2. NOTE: Rotten and crushing along top face.



G13, span 1. NOTE: Severe rot



Span 2 minor girder defects



G7 span 2, NOTE: Rot along underside of G7



G6 span 1, NOTE: Splitting at end notch



G2, span 2. NOTE: Rotten along underside



G1, span 4. NOTE: Rotten, full depth (1)



G1, span 4. NOTE: Rotten, full depth (2)



G13, span 4. NOTE: Severe rot over abutment



SU4 pile at groundline. NOTE: Concrete has been cast around the pile bases. (1)



SU4 pile at groundline. NOTE: Concrete has been cast around the pile bases. (2)