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Stantec

October 23, 2008
Stantec File: 113731470

The City of Winnipeg
Water and Waste Department
552 Plinquet Street
Winnipeg MB R2J 0G1

Attention: Mr. David E. Carr, P.Eng.

Dear Sir :

Reference: City of Winnipeg GWWD Bridge Inspections
Deacon Railway Bridge (buried) – Initial Inspection Results

Stantec Consulting Ltd. was retained to complete a visual inspection of the Deacon Railway Bridge, a buried timber structure which spans the Shoal Lake Aqueduct supporting the GWWD Railway. The bridge is located between PR 207 and the east entrance to the Deacon Reservoir water treatment plant currently under construction. Stantec understands the bridge was constructed circa 1918 and has not been visually inspected since its construction. The bridge is buried below the railway ballast and surrounding terrain and generally consists of 8"x16", 10"x12" and 8"x12" timber ties supported by timber caps which are in turn supported by timber piles.

Stantec proposed to expose two areas of the bridge, through soft-digging operations, away from the track and ballast for an initial visual inspection and to obtain timber cores, if possible. The holes were then to be backfilled with granular material.

The visual inspection of the Deacon Railway Bridge was conducted on October 21, 2008. As the condition of the timber was unknown, exposure was facilitated via soft-digging operations conducted by Uni-Jet to mitigate any damage to the structure. The first hole was located approximately 14.5m east of two manholes located approximately 40.0m east of the entrance to the water treatment plant, and 2.9m south of the south rail of the track. The hole was dug until the top of the timber ties were located at a depth of approximately 0.9m below the top of the adjacent rail. The hole was then carefully enlarged, to 1.5x1.5m, to expose portions of three ties and a portion of the cap and one pile, as shown in the attached photographs. All of the exposed timber had very severe rot such that the wood could be crumbled and disintegrated with ease by hand. Due to the state of deterioration of the exposed timber Stantec did not proceed with a second hole as it was determined by interpolation that the remaining timber was more than likely in a similar condition. The hole was then backfilled with granular material. Mr. Jerry Legal, Section Foreman, of the City of Winnipeg Water and Waste Department was present onsite during the inspection.

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**Reference: City of Winnipeg GWWD Bridge Inspections
Initial Results of the Inspection of the Deacon Bridge**

Based on the exposed portion of the bridge it can be concluded that the timber is currently not providing any structural resistance to live loads induced by the railway, or any other loading. The rot has likely been in existence for a considerable period of time. However, there are no noticeable effects to the railway such as subsidence of the ballast and rail. Mr. Jerry Legal indicated that they have not performed any maintenance operations such as re-leveling of the railway at this location in recent memory. Therefore, at least for the immediate short term, we believe that emergency repairs to provide additional support to the railway are not required. Mr. Ed Clarkson, Engine Driver, of the City of Winnipeg Water and Waste Department was contacted by telephone on October 21, 2008 and informed of the findings of the inspection. Mr. Clarkson was noted to be the contact person by Mr. Dave Carr during periods of his absence from the office.

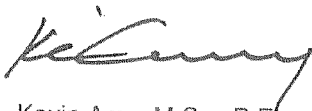
Stantec recommends that the City of Winnipeg conduct an immediate review of the loading on the aqueduct due to the railway, neglecting the load carrying capacity of the bridge, to identify any structural concerns. Based on the fact that a bridge was constructed at this location, we assume that the aqueduct was not originally designed to support the railway loading and that replacement of the existing bridge with a new structure will be required to support the railway and to ensure the long term structural integrity of the aqueduct. At this point in time we recommend that a new structure be constructed no later than early spring of 2009, but this timeframe should be re-assessed based on the results of the load analysis, and any associated risks.

Stantec would like to meet with the City to further discuss the findings of the inspections and possible risks associated with the current condition of the Deacon Railway Bridge at the earliest time convenient.

If you have any questions or comments please contact the undersigned.

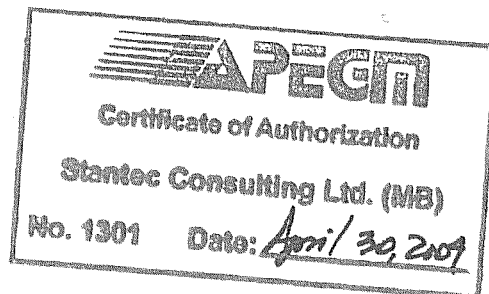
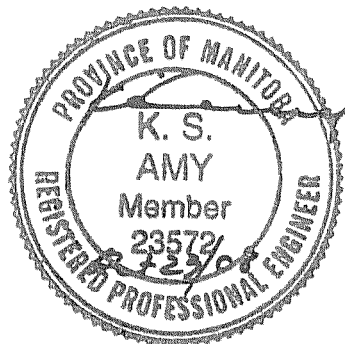
Sincerely,

STANTEC CONSULTING LTD.

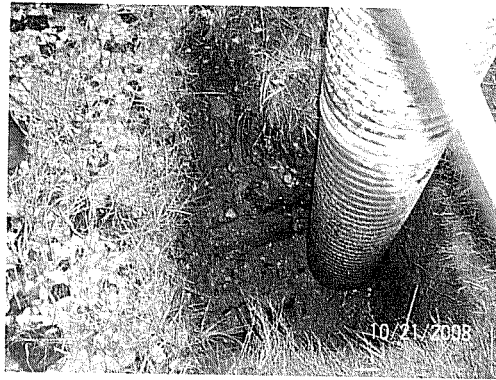
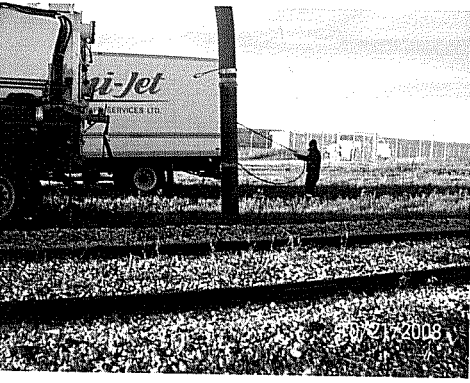


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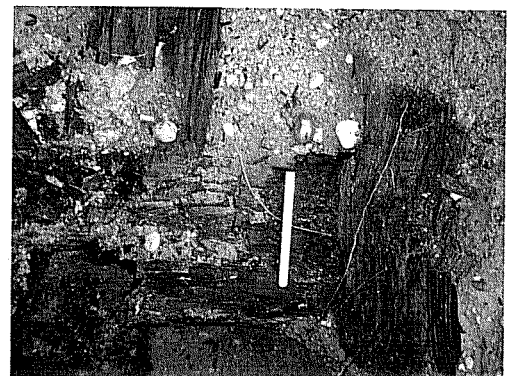
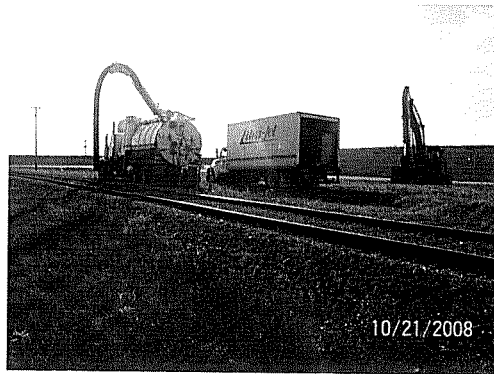
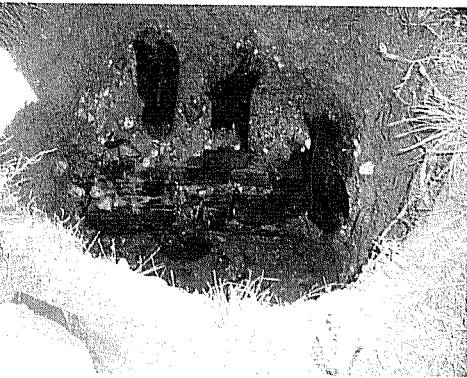
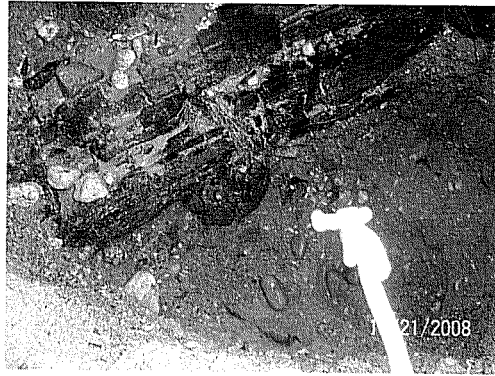
Attachment: Pictures



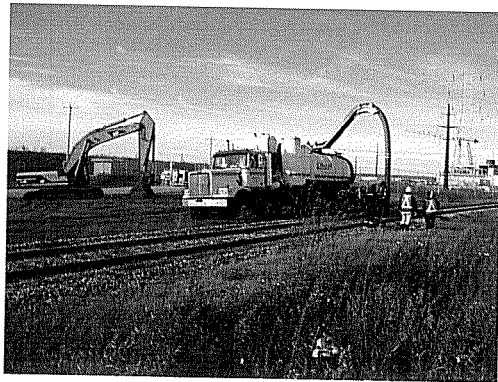
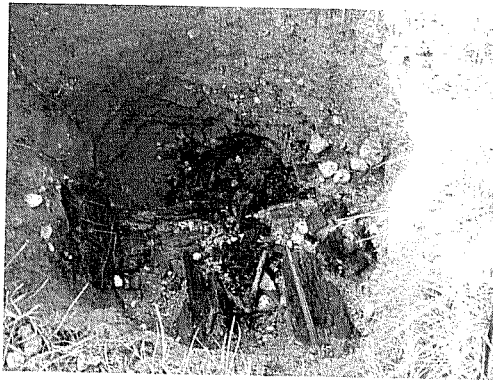
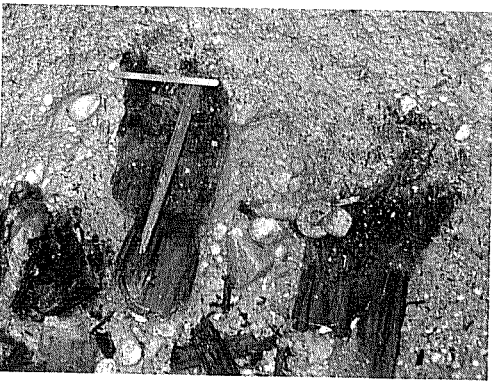
Deacon Bridge



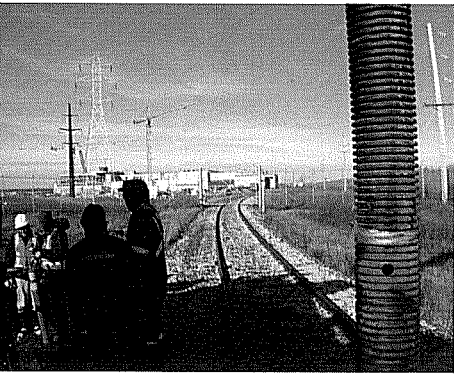
Deacon Bridge

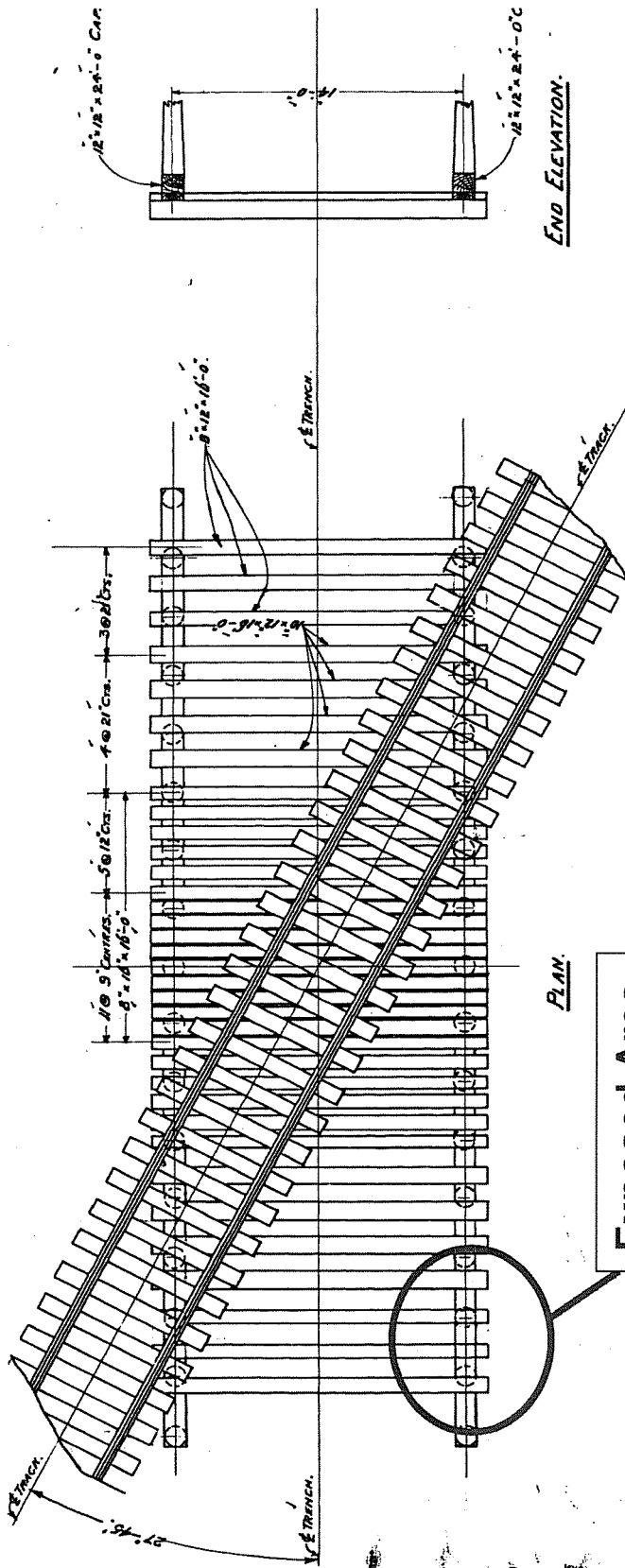


Deacon Bridge



Deacon Bridge





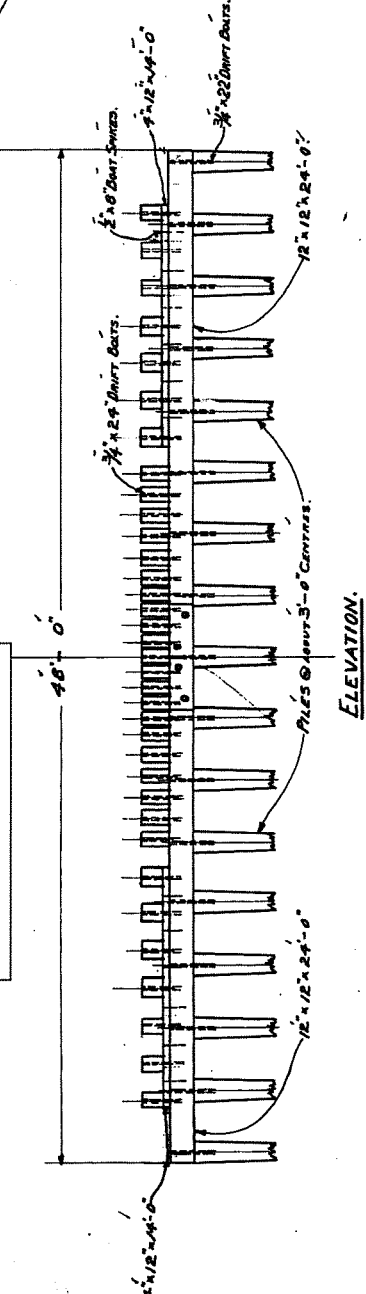
PLAN

Exposed Area

END ELEVATION

BILL OF MATERIAL

LUMBER		DESCRIPTION	
QTY.	SIZE	QTY.	SIZE
4	12" x 12" x 8'-0"	4	2" x 4" x 8'-0"
21	12" x 12" x 8'-0"	21	2" x 4" x 8'-0"
6	12" x 12" x 8'-0"	6	2" x 4" x 8'-0"
4	12" x 12" x 8'-0"	4	2" x 4" x 8'-0"
4	12" x 12" x 8'-0"	4	2" x 4" x 8'-0"



ELEVATION

Figure 1

CONTRACT 30.

DRAWN BY: R.S.
 TRACED BY: R.S.
 CHECKED BY: *[Signature]*
 APPROVED: *[Signature]*

W. Geisler
 CHIEF ENGINEER

GREATER WINNIPEG WATER
 BRIDGE OVER AQUEDUCT AT D.

JUNE 12 1918.