

## Appendix D. River Hydraulics Report



northwest hydraulic consultants

## memorandum

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**To:** Nadia Contant, Project Biologist  
Spencer Environmental Managemet Services

**From:** Eugene Yaremko (NHC)

**CC:**

**Re:** **LRT Cloverdale Bridge Project**  
North Saskatchewan River Survey

**Date:** 21-12-2010

**No. Pages:** 2 + Figures

**Project No.:** 17575

**Ref. No.:**

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Because morphological information was quite limited for the North Saskatchewan River in the reach encompassing the proposed LRT Cloverdale bridge, the city of Edmonton retained NHC to undertake a comprehensive river survey. A single river cross section was available in the vicinity of the pedestrian bridge that was obtained as part of the provincial river floodplain study. As well, there were a few uncontrolled cross sections that were apparently collected as part of an aquatic study. Ultimately, much better morphological information will be required for EA assessments and engineering design work during upcoming phases of this project.

With the approval of the City, NHC undertook a river survey of the North Saskatchewan River November 15, 2010. River bottom and bank data were collected at sufficient density to enable generation of a 0.25 m contour interval plan that would be utilized for hydraulic modelling. The survey consisted of utilizing a boat-mounted continuous river bottom echo sounder, together with satellite-based horizontal positioning equipment that provided precise accuracy with regard to locations of x,y,z coordinates. Characterization information of the river bed and bank material was also collected.

**Figure 1** provides the 0.5 m contour plan generated from the survey. The length of surveyed river extended approximately 1.1 km downstream and 1.0 km upstream of the pedestrian bridge crossing near the easterly boundary of Louise Mc Kinney Park.

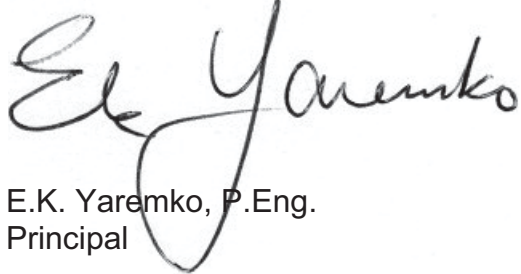
**Figure 2** provides a 0.25 m contour interval plan centered on the proposed bridge site.

The survey data and drawings are available in digital form to members of the bridge EA and design team.

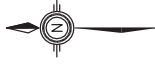
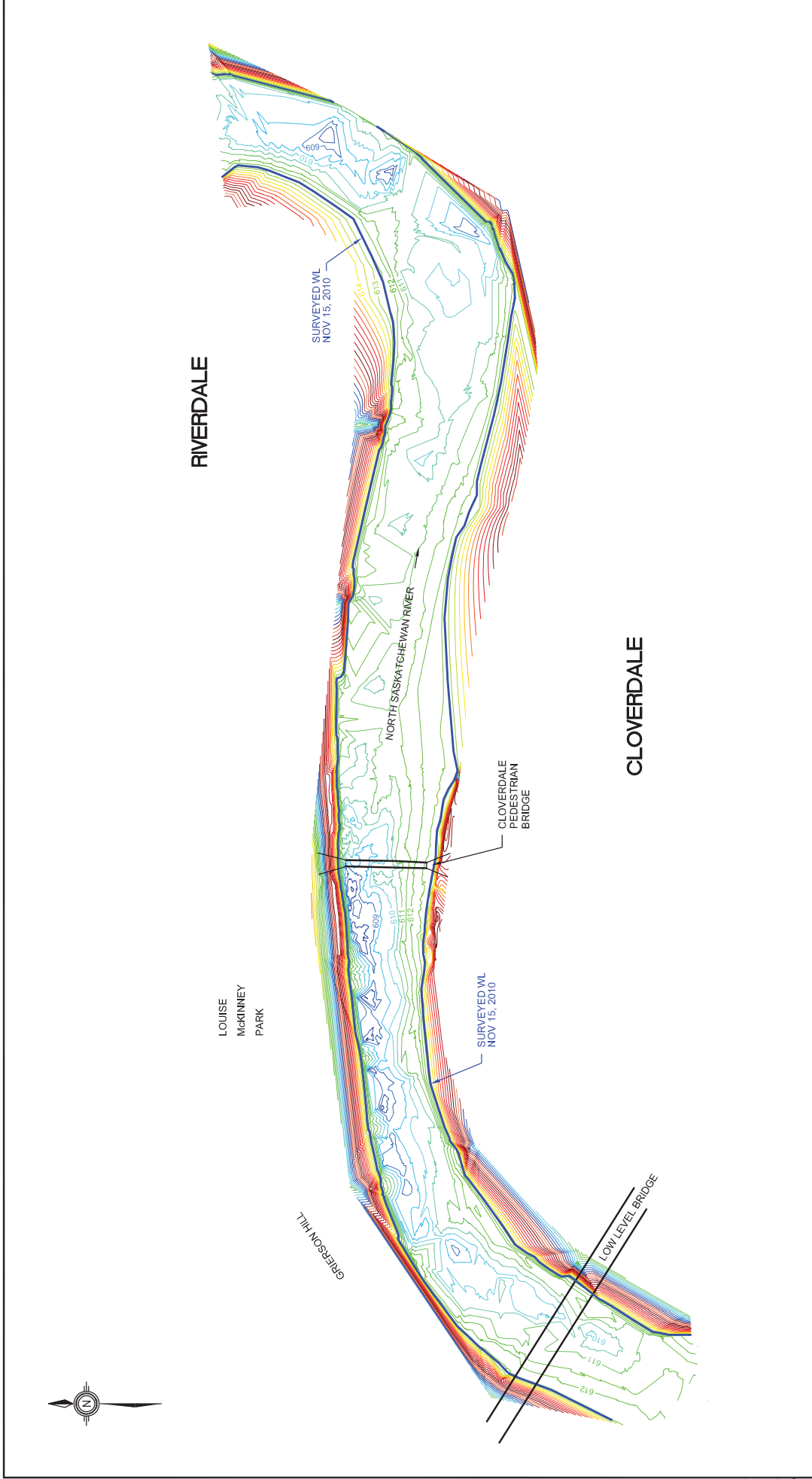
If you have any questions, please give me a call in our Edmonton office at (780) 436-5868.

Sincerely,

**northwest hydraulic consultants**

A handwritten signature in black ink that reads "E.K. Yaremko". The signature is written in a cursive style with a large, looping "Y" and "K".

E.K. Yaremko, P.Eng.  
Principal



RIVERDALE

LOUISE  
McKINNEY  
PARK

GREERSON HILL

SURVEYED WL  
NOV 15, 2010

NORTH SASKATCHEWAN RIVER

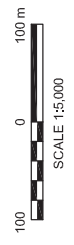
CLOVERDALE  
PEDESTRIAN  
BRIDGE

SURVEYED WL  
NOV 15, 2010

LOW LEVEL BRIDGE

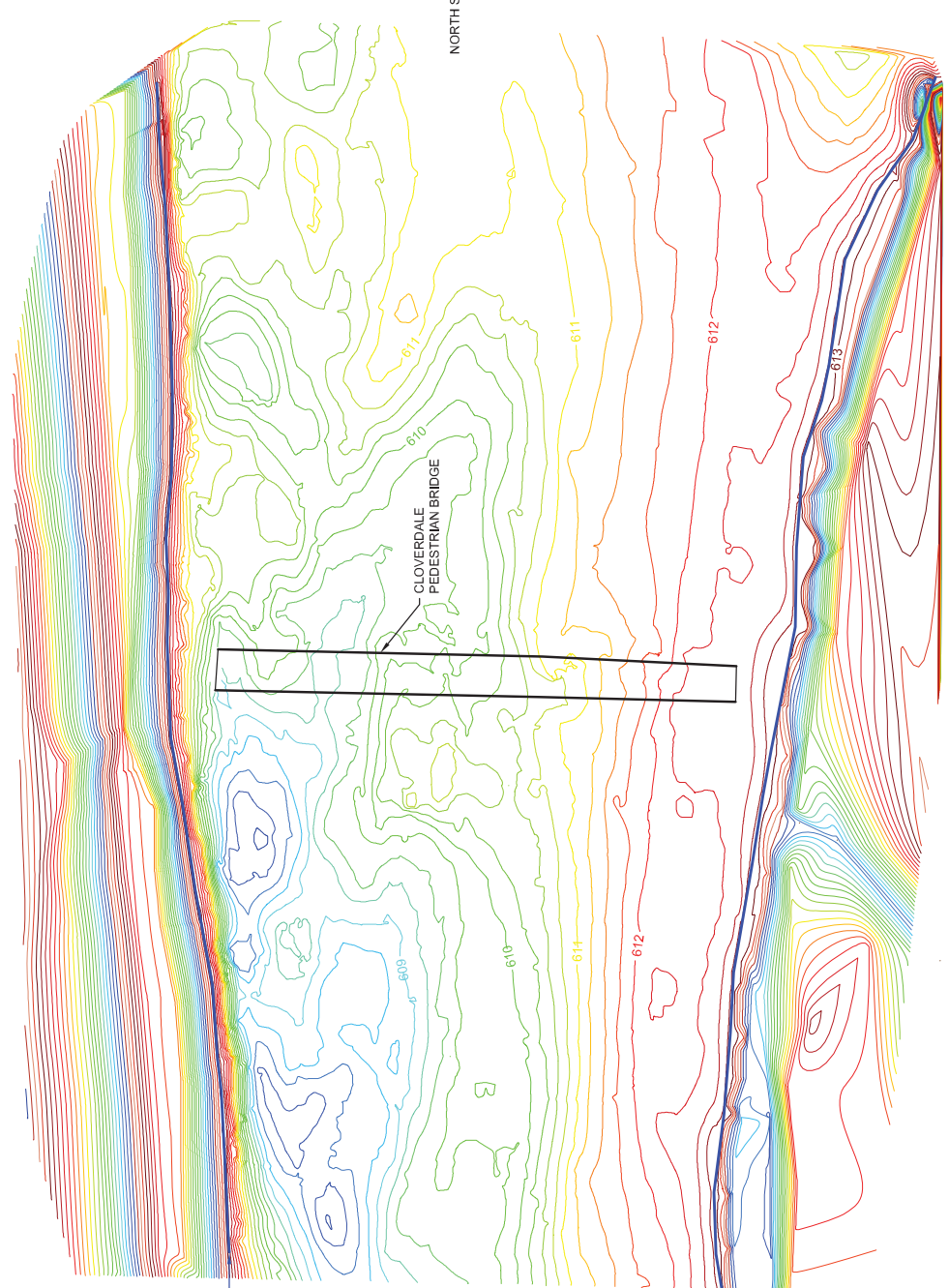
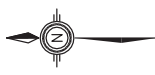
CLOVERDALE

SPENCER ENVIRONMENTAL MANAGEMENT	
LRT BRIDGE DESIGN NORTH SASKATCHEWAN RIVER	
<b>RIVER BATHYMETRY</b>	
Dwg. 7575-002	20 DEC 2010
Figure 1 northwest hydraulic consultants ltd.	



**DESIGN NOTES**

1. ALL DIMENSION IN METERS UNLESS OTHERWISE INDICATED
2. GRID DATUM: UTM ZONE 12, NAD 83
3. SURVEY CONDUCTED BY NHC NOVEMBER 15, 2010
4. CONTOUR INTERVAL 0.5 m



NORTH SASKATCHEWAN RIVER →

SURVEYED WL  
NOV 15, 2010

SURVEYED WL  
NOV 15, 2010

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4. CONTOUR INTERVAL 0.25 m



SPENCER ENVIRONMENTAL MANAGEMENT	
LRT BRIDGE DESIGN NORTH SASKATCHEWAN RIVER	
<b>CONTOUR PLAN</b>	
Dwg. 7575-001	20 DEC 2010 <b>Figure 2</b>
northwest hydraulic consultants ltd.	