

## APPENDIX A

### Report on Paint Testing Analysis Results for Disraeli Bridge & Overpass

*(In reply, please refer to)*

**Our File: 06-5845-5000**



March 2, 2007

The City of Winnipeg  
Streets and Transportation  
106 – 1155 Pacific Avenue  
Winnipeg, Manitoba R3E 3P1

Attention: Mr. B. A. Neirinck, P. Eng.  
Bridge Planning and Operations Engineer

Suite 200  
895 Waverley St.  
Winnipeg  
Manitoba  
Canada  
R3T 5P4  
Telephone  
(204) 453-2301  
Fax  
(204) 452-4412

### **Disraeli Freeway Rehabilitation Project - Paint Testing**

Dear Mr. Neirinck:

The firms of Dillon Consulting Limited and Earth Tech Canada Inc. were retained by the City of Winnipeg Public Works Department to provide preliminary design engineering services for the Disraeli Freeway rehabilitation project. As part of the rehabilitation project the Disraeli Freeway structure will be recoated, including removal, collection and disposal of waste paint and associated sandblast materials generated by cleaning. Therefore it was decided to test the existing paint on the structure for lead. The following report provides an overview of the sampling methodology, laboratory test results, applicable regulations, and our recommendations.

### **Sample Collection**

Dillon retained Canadian Structural Inspection Services to obtain the paint chip samples. On February 8, 2007 six (6) paint chip samples were collected from girders of the Disraeli Bridge and Overpass for chemical analysis. A description of the sample locations is listed below.

- Sample 1: Disraeli Overpass, between Piers 4 and 5.
- Sample 2: Disraeli Overpass, between Piers 15 and 16.
- Sample 3: Disraeli Overpass, between Piers 17 and 18.
- Sample 4: Disraeli Bridge, between Piers 5 and 6.
- Sample 5: Disraeli Bridge, between Piers 10 and 11.
- Sample 6: Disraeli Bridge, between Piers 10 and 11.

Samples were harvested by scraping paint from a 3" x 3" area into a clean envelope from the girders. Samples were taken directly to ALS Laboratory Group for testing.



## **Laboratory Results**

Six (6) paint chip samples were submitted for the determination of the amounts of lead in the paint. Testing of the paint was performed by ALS Laboratory Group following in-house procedures, which are based on nationally and internationally accepted methodologies. Lead was found in all samples. The results ranged from 170,000 mg/kg to 273,000 mg/kg.

## **Applicable Regulations**

Health Canada's Surface Coatings Materials Regulations states that paints and coatings that contain lead at concentrations greater than 600 mg/kg must display a panel containing the following information or its equivalent:

**D A N G E R**  
**CONTAINS LEAD / CONTIENT DU PLOMB**  
**DO NOT APPLY TO SURFACES ACCESSIBLE TO CHILDREN OR**  
**PREGNANT WOMEN.**

Lead-based paint is considered a hazardous substance under the Canadian Occupational Safety and Health Regulations, Part X. This document states that employers shall keep and maintain a record of all hazardous substances that are handled, carry out investigations when workers are exposed to hazardous materials, consult a physician for medical examinations when recommended in hazardous materials exposure report, provide proper storage, handling and use instructions, place proper warning signs, and provide employee education with respect to the hazardous materials.

The Manitoba Workplace Health Hazard Regulation 217/2006 Part 36 indicates that an employer must:

- Assess chemical and biological substances to determine the risk to workers.
- Develop safe work procedures for the use, production, storage, handling and disposal of substances.
- Implement control measures for non-airborne hazards.
- Establish an occupational exposure limit (OEL) for airborne hazards that does not exceed the threshold limit value established by the American Conference of Governmental Industrial Hygienists (ACGIH).
- Monitor worker exposure to ensure workers are not exposed to a substance above the established OEL.
- Implement control measures to reduce worker over-exposure.
- Conduct follow-up monitoring when control measures, production or location of operations are changed.
- Allow personal protective equipment as a method of reducing workers exposure only when other control measures are not practicable.



The document, A Guideline for Working with Lead, published by Manitoba Department of Labour and Immigration, Workplace Safety and Health Branch provides guidelines and resources for employers and workers to safely perform work activities involving various forms of lead. Health effects of lead exposure, controls to reduce exposure, respirator requirements, hygiene & protective equipment recommendations, biological monitoring & treatment requirements, and employer requirements are outlined in this document. All personnel working with or around such substances must be made aware of their existence and provided with proper training in the potential health effects and means of avoiding exposures. Lead in its solid metallic form is considered relatively safe. However, it can become a health hazard if treatments such as heating, spraying, grinding, or burning, generate lead dust and fume.

### **Recommendations**

Lead concentrations from the samples collected exceed the Health Canada's Surface Coatings Materials Regulations threshold of 600 mg/kg. Appropriate human health and environment protection measures should be taken during all phases of rehabilitative works associated with existing painted structures. It is also recommended that appropriate containment measures should be implemented to prevent discharge of waste materials into the environment.

Yours sincerely,

**DILLON CONSULTING LIMITED**

M. R. Doucet for  
A. S. DeRaj, P. Eng.  
Project Engineer

MRD/anq



**Environmental Division**

**PRELIMINARY RESULTS**

CASH CLIENTS - WINNIPEG

**ATTN:** CRAIG THOMPSON

**Reported On:** 15-FEB-07 10:21 AM

CANADIAN STRUCTURAL INSPECTION SERVICES  
BOX 6-601 BOWMAN AVE 36C-4  
WINNIPEG MB R2K 1P7

**Lab Work Order #:** L477330

**Date Received:** 09-FEB-07

**Project P.O. #:**

**Job Reference:** DISRAELI BRIDGE

**Legal Site Desc:**

**CofC Numbers:**

**Other Information:**

**Comments:**

**APPROVED BY:** \_\_\_\_\_

GAIL HILL

**Project Manager**

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.  
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU  
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

## ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	By	Batch
L477330-1 SAMPLE 1 Sampled By: CRAIG THOMPSON on 08-FEB-07 Matrix: PAINT CHIPS  <b>Lead In Paint</b> Lead (Pb)-Total Note: 21.1% LEAD	211000	RAMB	0.05	mg/kg	14-FEB-07	14-FEB-07	DAG	R493617
L477330-2 SAMPLE 2 Sampled By: CRAIG THOMPSON on 08-FEB-07 Matrix: PAINT CHIPS  <b>Lead In Paint</b> Lead (Pb)-Total Note: 18.0% LEAD	180000	RAMB	0.05	mg/kg	14-FEB-07	14-FEB-07	DAG	R493617
L477330-3 SAMPLE 3 Sampled By: CRAIG THOMPSON on 08-FEB-07 Matrix: PAINT CHIPS  <b>Lead In Paint</b> Lead (Pb)-Total Note: 20.9% LEAD	209000	RAMB	0.05	mg/kg	14-FEB-07	14-FEB-07	DAG	R493617
L477330-4 SAMPLE 4 Sampled By: CRAIG THOMPSON on 08-FEB-07 Matrix: PAINT CHIPS  <b>Lead In Paint</b> Lead (Pb)-Total Note: 21.9% LEAD	219000	RAMB	0.05	mg/kg	14-FEB-07	14-FEB-07	DAG	R493617
L477330-5 SAMPLE 5 Sampled By: CRAIG THOMPSON on 08-FEB-07 Matrix: PAINT CHIPS  <b>Lead In Paint</b> Lead (Pb)-Total Note: 27.3% LEAD	273000	RAMB	0.05	mg/kg	14-FEB-07	14-FEB-07	DAG	R493617
L477330-6 SAMPLE 6 Sampled By: CRAIG THOMPSON on 08-FEB-07 Matrix: PAINT CHIPS  <b>Lead In Paint</b> Lead (Pb)-Total Note: 17.0% LEAD	170000	RAMB	0.05	mg/kg	14-FEB-07	14-FEB-07	DAG	R493617
* Refer to Referenced Information for Qualifiers (if any) and Methodology.								

## Reference Information

## Sample Parameter Qualifier key listed:

Qualifier	Description
RAMB	Result Adjusted For Method Blank

## Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Preparation Method Reference(Based On)	Analytical Method Reference(Based On)
PB-LOW-WP	Soil	Lead (Pb)-Total		EPA 200.8 Rev 5.4 May 1994

\*\* Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.

## Chain of Custody numbers:

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
WP	ALS LABORATORY GROUP - WINNIPEG, MANITOBA, CANADA		

## GLOSSARY OF REPORT TERMS

*Surr* - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in environmental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds. The reported surrogate recovery value provides a measure of method efficiency. The Laboratory control limits are determined under column heading D.L.

mg/kg (units) - unit of concentration based on mass, parts per million.

mg/L (units) - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

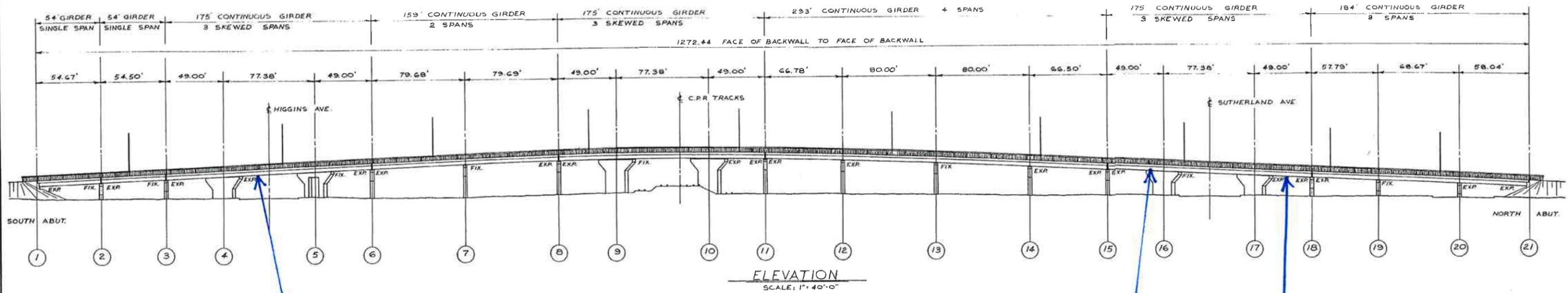
Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

UNLESS OTHERWISE STATED, SAMPLES ARE NOT CORRECTED FOR CLIENT FIELD BLANKS.

Although test results are generated under strict QAI/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

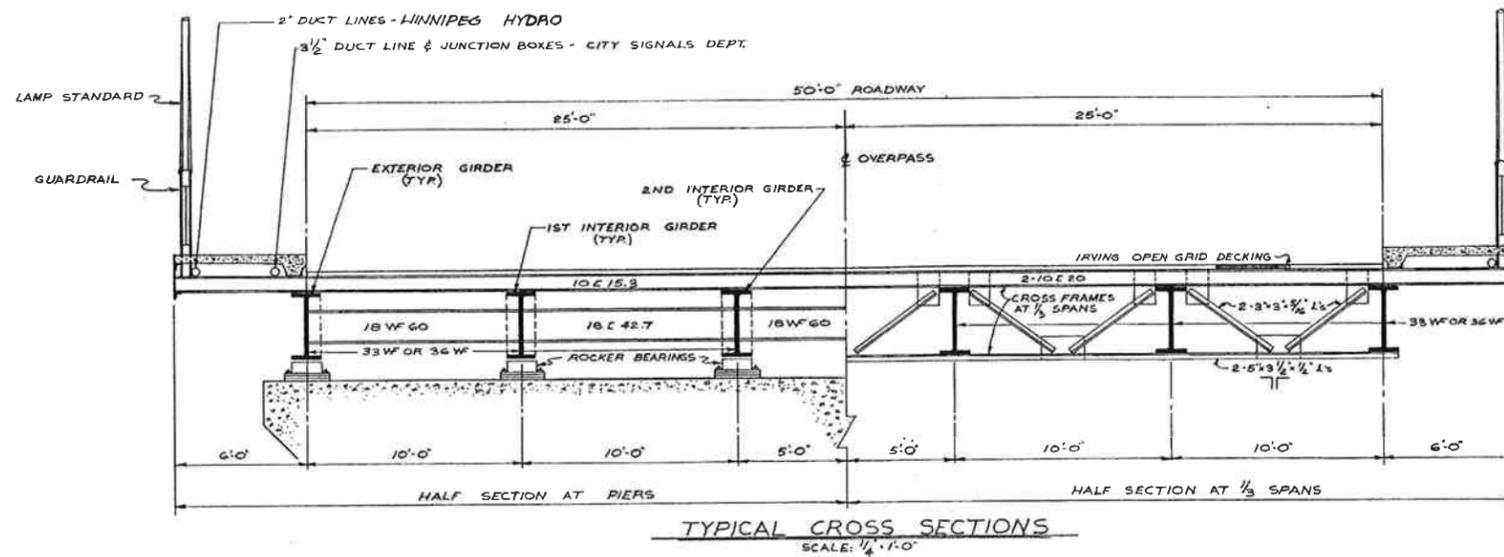
ALS Laboratory Group has an extensive QAI/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.



SAMPLE 1

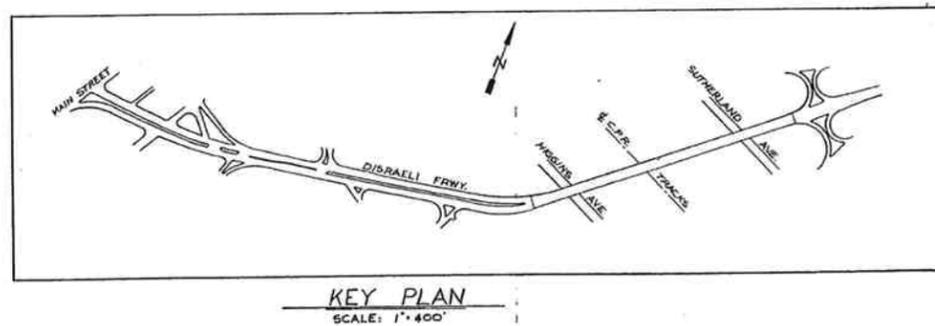
SAMPLE 2

SAMPLE 3



**GENERAL NOTES:**

1. ALL DIMENSIONS WERE TAKEN FROM THE ORIGINAL SHOP DRAWINGS AND WERE FIELD CHECKED BY THE CONTRACTOR BEFORE CONSTRUCTION.
2. DESIGN - DESIGN CONFORMS TO C.S.A. STANDARD S6-1966 "DESIGN OF HIGHWAY BRIDGES" WITH THE STANDARD H20-S16 TRUCK OR LANE LOAD WITH IMPACT USED AS LIVE LOAD.
3. STRUCTURAL STEEL - ALL STEEL PLATES WHICH WERE WELDED TO THE EXISTING GIRDERS CONFORM TO C.S.A. SPECIFICATION G40.8 GRADE "B".  
 - ALL OTHER STEEL PLATES TO A.S.T.M. SPECIFICATION A-36.  
 - ALL BOLTS ARE 1/2" Ø A.S.T.M. - A325.  
 - WELDING CONFORMS TO A.W.S. SPECIFICATION D2.0-69 OR AS NOTED IN THE CONTRACT SPECIFICATIONS.
4. CONCRETE - CEMENT IS NORMAL PORTLAND CEMENT.  
 - ALL CONCRETE IS AIR ENTRAINED AND HAS A 28 DAY FIELD CURED COMPRESSIVE STRENGTH OF 4000 P.S.I.
5. REINFORCING STEEL - REINFORCING STEEL IS INTERMEDIATE GRADE DEFORMED BARS CONFORMING TO C.S.A. SPECIFICATION G30.1.
6. FUTURE MEDIAN 4' WIDE & 6" HIGH CAN BE ACCOMMODATED.



UNDERWOOD McLELLAN & ASSOCIATES LTD. ENGINEERING & PLANNING CONSULTANTS BRITISH COLUMBIA · ALBERTA · SASKATCHEWAN · MANITOBA · ONTARIO		<b>THE CITY OF WINNIPEG</b> TRANSPORTATION DIVISION <b>DISRAELI FREEWAY</b> <b>C.P.R. OVERPASS AND APPROACH ROAD RESURFACING</b>		<b>RECORD DRAWING</b> ELEVATION & SECTION OF ORIGINAL STRUCTURE	
APPROVED BY: <i>[Signature]</i> DATE: June 1/73 DRAWN BY: GAP CHECKED BY: JEZ	DESIGNED BY: JEZ CHECKED BY:	APPROVED BY: <i>[Signature]</i> DATE: June 4/73 ENGINEER OF STREETS AND TRAFFIC	DATE: MAY 73 SCALE: AS SHOWN	DRAWING NO.: B-5075-12	PLATE: 12 REF.: AB
REV. NO.	DESCRIPTION	DATE			

