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Issued by: Jeffrey Luckai  
Name

Oct. 8, 2013  
Date

  
Signature

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## 1 Design Package Description

This submission contains design drawings and geotechnical recommendations associated with Trail Bridge #8 over Highway 3. This is the 60% MTO submission for the structure deliverables.

### 1.1 Name and Location of Structure

Trail Bridge #8 carries pedestrian traffic over Highway 3 (SR4) and Cahill and Wolf Drain.

## 2 Proposed Structure

### 2.1 Description of Structure

TB-8 is a single span, truss bridge (TBD). The 4.7m wide and 3.525m (Center-to-center) deep truss is to span 60 metres. A pedestrian railing with rub rail and balustrades is to run the entire length of the structure and approach walls.

#### Structural Summary

Structure Type:	Steel truss simply supported on two concrete abutments.
Span Arrangement:	One span with length of 60 m, aligned east-west crossing HWY 3 at a skew angle of 1°5'7".
West Abutment:	Reinforced concrete 5.2m x 6.8m shallow foundation (high abutment)
East Abutment:	Reinforced concrete 4.6m x 7.0m shallow foundation (high abutment)
Span Articulation:	Superstructure is not integral with the abutments.
Barrier Type:	Pedestrian railing with rub rail and vertical balustrades safety rails.

### 2.2 Proposed Means for Inspection and Maintenance

All exposed elements are accessible through the use of scaffolding and / or mobile manlifts.

### 2.3 Materials and Finishes

#### 2.3.1 Cast-In-Place Concrete

Substructure: Minimum compressive strength at 28 days: 30 MPa.

Deck: Minimum compressive strength at 28 days: 40 MPa.

Remainder: Minimum compressive strength at 28 days: 30 MPa.

### 2.3.2 Reinforcing Steel

Plain reinforcing steel bars:	CAN/CSA G30.18-M92; Grade 400W
Stainless steel reinforcing bars:	Type 316LN or Duplex 2205 or Type XM-28; Grade 500

### 2.3.3 Structural Steel

Fracture-critical members and all primary tension members shall be Grade 350 AT Category 2, CAN/CSA-G40.20-04/G40.21-04.

Plate sections, if required, shall be Grade 350 AT Category 3, CAN/CSA-G40.20-04/G40.21-04.

Remaining superstructure steel can be Grade 350A Category 2, CAN/CSA-G40.20-04/G40.21-04.

### 2.3.4 Finishes

Concrete finishes shall comply with the applicable requirements of Project Agreement, Schedule 15-2.

## 3 Design/Assessment Criteria

### 3.1 Live Loading and Clearances

#### 3.1.1 Design Live Loading

Maintenance vehicle in accordance with CAN/CSA-S6-06.

#### 3.1.2 Other Live Loading

Uniformly distributed 4 kPa pedestrian loading.

#### 3.1.3 Provision for Exceptional Abnormal Loads

None

#### 3.1.4 Any Special Loading Not Covered

None

#### 3.1.5 Minimum Clearance Provided

Vertical: 5.3 m for HWY 3

#### 3.1.6 Authorities Consulted and Any Special Conditions Required

None

### 3.2 List of Relevant Design Documents

Design Criteria in accordance with Part 2 of Project Agreement - Schedule 15-2:

Article 1 - Highway Geometrics Design Criteria

Article 3 - Structural Design Criteria

Article 5 - Geotechnical and Foundation Design Criteria

In the event of discrepancy, the hierarchy of referenced documents shall be as instructed.

## **4 Structural Analysis**

### **4.1 Methods of Analysis**

#### **4.1.1 Superstructure**

Superstructure design is the responsibility of Pedelta.

#### **4.1.2 Substructure and Foundations**

Analysis and design of the abutments using a combination of hand calculations and spreadsheets was used to determine reinforcing steel requirements and checking stresses.

### **4.2 Calculation of Structural Stiffness**

Structural stiffness was calculated according to CAN/CSA-S6-06.

### **4.3 Earth Pressure Coefficients**

TBD

## **5 Ground Design Considerations**

### **5.1 Ground Conditions**

TBD

### **5.2 Geotechnical Design Parameters**

TBD

### **5.3 Differential Settlement**

TBD

### **5.4 Anticipated Ground Movements or Settlement**

TBD

### **5.5 Groundwater Conditions and Mitigative Measures**

TBD

### **5.6 Variance from Geotechnical Memo Recommendations**

None.

## 6 Construction Considerations

TBD

## 7 Drawings and Documents

### 7.1 List of Drawings (included in this submission)

Drawing No.	Revision	Drawing Title
285380-03-060-SEG1-6800	A	COVER SHEET, SITE PLAN, AND KEY PLAN
285380-03-060-SEG1-6801	A	GENERAL ARRANGEMENT
285380-03-060-SEG1-6802	A	GENERAL NOTES (IN PROGRESS)
285380-04-090-SEG1-6803	A	BOREHOLE LOCATIONS & SOIL STRATA
285380-04-091-SEG1-6804	A	SOIL STRATIGRAPHY
285380-03-060-SEG1-6805	A	GROUND IMPROVEMENTS - PLAN (IN PROGRESS)
285380-03-060-SEG1-6806	A	GROUND IMPROVEMENTS - SECTIONS (IN PROGRESS)
285380-04-094-SEG1-6807	A	GROUND IMPROVEMENTS – BACKFILL
285380-04-094-SEG1-6808	A	GROUND IMPROVEMENTS – LWF
285380-04-094-SEG1-6809	A	GROUND IMPROVEMENTS – EPS
285380-03-061-SEG1-6810	A	FOUNDATION LAYOUT AND DETAILS I (IN PROGRESS)
285380-03-061-SEG1-6811	A	FOUNDATION LAYOUT AND DETAILS II (IN PROGRESS)
285380-03-061-SEG1-6812	A	ABUTMENT LAYOUT AND DETAILS I (IN PROGRESS)
285380-03-061-SEG1-6813	A	ABUTMENT LAYOUT AND DETAILS II (IN PROGRESS)
285380-03-061-SEG1-6814	A	ABUTMENT LAYOUT AND DETAILS III (IN PROGRESS)
285380-03-061-SEG1-6815	A	WING WALL LAYOUT (IN PROGRESS)
285380-03-061-SEG1-6816	A	WING WALL REINFORCEMENT (IN PROGRESS)
285380-03-061-SEG1-6817	A	RSS WINGWALL LAYOUT AND DETAILS I (IN PROGRESS)
285380-03-061-SEG1-6818	A	RSS WINGWALL LAYOUT AND DETAILS II (IN PROGRESS)
285380-03-061-SEG1-6819	A	CHELSEA DR. RSS WALL – PLAN AND PROFILE
285380-03-061-SEG1-6820	A	CHELSEA DR. RSS WALL - SECTIONS
285380-03-062-SEG1-6821	A	MISCELLANEOUS DETAILS (IN PROGRESS)
285380-03-065-SEG1-6822	A	PEDESTRIAN BARRICADE LAYOUT AND DETAILS (IN PROGRESS)
285380-03-065-SEG1-6823	A	6000mm APPROACH SLAB
285380-03-066-SEG1-6824	A	STANDARD DETAILS

285380-03-065-SEG1-6825	A	ELECTRICAL EMBEDDED WORK (IN PROGRESS)
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## 7.2 List of Documents (included in this submission)

Document No.	Revision	Description
285380-04-119-0150	A	Geotechnical Investigation Design Report – Pedestrian Bridges

## 7.3 List of Reference Drawings and Documents (not included in this submission)

See Appendix A.

# 8 Checking and Review

## 8.1 Independent Check

Independent check is required as per Project Agreement – Schedule 15-2, Part 2, Article 3 3.2 (c) (i).

Independent Checking Team: INTERNATIONAL BRIDGE TECHNOLOGIES.

## 8.2 Responsible Design Personnel

Originator:

Checker:

Reviewer:



**The above TAF is submitted for review**

Signed: .....

Design/Construction Manager

Name: BILJANA RAJLIC

Engineering Qualifications: .....

Date: .....

Professional Registration Number: .....

Affix Professional Seal:

Signed: .....

Project Co Representative

Name: .....

Date: .....

Professional Registration Number: .....

Affix Professional Seal:

## 9 Appendix A - Referenced Drawings and Documents

### Referenced Drawing(s)

Drawing No.	Revision	Drawing Title

### Certificate(s)

Certificate No.	Revision	Certificate Name

### Special Provision(s)

Document No.	Revision	Description