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Issued by: Jeffrey Luckai
Name

Oct. 2, 2013
Date


Signature

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Project: Windsor-Essex Parkway
Document: TB-2 – Trail Bridge over Grand Marais – Lambton Rd.
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1 Design Package Description

This submission contains design drawings and geotechnical recommendations associated with Trail Bridge #2 over Grand Marais – Lambton Rd. This is the 60% MTO submission for the structure deliverables.

1.1 Name and Location of Structure

Trail Bridge #2 carries pedestrian traffic over Grand Marais / Lambton Rd.

2 Proposed Structure

2.1 Description of Structure

TB-2 is a single span, truss bridge (TBD). The 4.7 m wide and 3.525 m (Center-to-center) deep truss is to span 40 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 concrete abutments.
Span Arrangement:	One span with length of 40 m, aligned East-West and over Grand Marais / Lambton Rd at a skew angle of 38°21'59".
West Abutment:	Reinforced concrete 4.6m x 7.8m shallow foundation (high abutment)
East Abutment:	Reinforced concrete 4.0m 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 Grand Marais / Lambton Rd.

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-SEG2-6200	A	COVER SHEET, SITE PLAN, AND KEY PLAN
285380-03-060-SEG2-6201	A	GENERAL ARRANGEMENT
285380-03-060-SEG2-6202	A	GENERAL NOTES (IN PROGRESS)
285380-04-090-SEG2-6203	A	BOREHOLE LOCATIONS & SOIL STRATA
285380-04-091-SEG2-6204	A	SOIL STRATIGRAPHY
285380-03-060-SEG2-6205	A	GROUND IMPROVEMENTS – PLAN (IN PROGRESS)
285380-03-060-SEG2-6206	A	GROUND IMPROVEMENTS – SECTIONS (IN PROGRESS)
285380-04-094-SEG2-6207	A	GROUND IMPROVEMENTS – BACKFILL (IN PROGRESS)
285380-04-094-SEG2-6208	A	GROUND IMPROVEMENTS – LWF (IN PROGRESS)
285380-04-094-SEG2-6209	A	GROUND IMPROVEMENTS – EPS (IN PROGRESS)
285380-03-061-SEG2-6210	A	FOUNDATION LAYOUT AND DETAILS (IN PROGRESS)
285380-03-061-SEG2-6211	A	ABUTMENT LAYOUT AND DETAILS I (IN PROGRESS)
285380-03-061-SEG2-6212	A	ABUTMENT LAYOUT AND DETAILS II (IN PROGRESS)
285380-03-061-SEG2-6213	A	RSS WINGWALL LAYOUT AND DETAILS I (IN PROGRESS)
285380-03-061-SEG2-6214	A	RSS WINGWALL LAYOUT AND DETAILS II (IN PROGRESS)
285380-03-062-SEG2-6215	A	MISCELLANEOUS DETAILS (IN PROGRESS)
285380-03-065-SEG2-6216	A	PEDESTRIAN BARRICADES LAYOUT AND DETAILS (IN PROGRESS)
285380-03-065-SEG2-6217	A	6000mm APPROACH SLABS
285380-03-066-SEG2-6218	A	STANDARD DETAILS
285380-07-067-SEG2-6219	A	EMBEDDED ELECTRICAL WORK (IN PROGRESS)

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