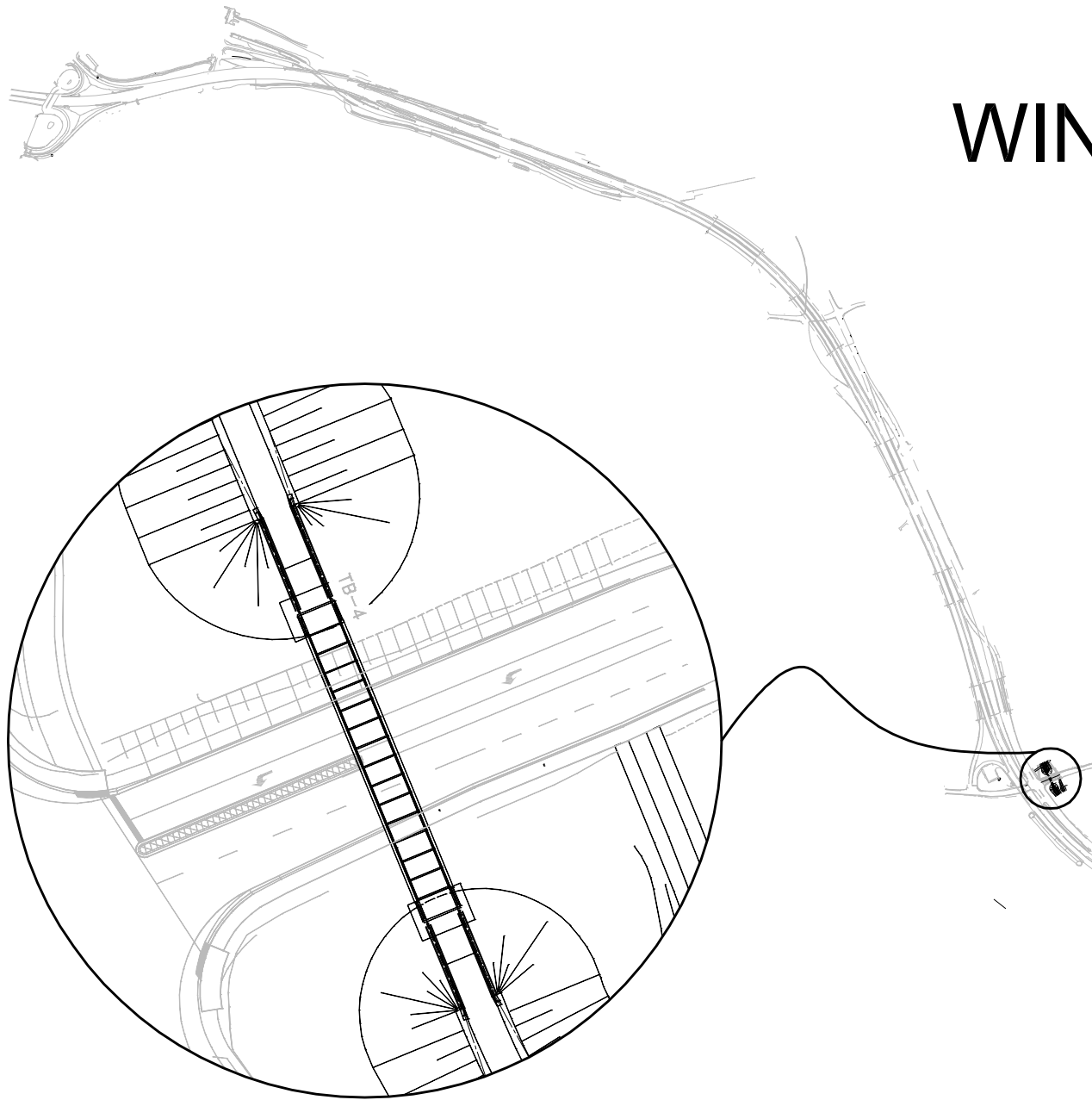


# WINDSOR-ESSEX PARKWAY PROJECT

## PHASE 1 – STRUCTURE TB-4 60% MTO SUBMISSION



KEY PLAN  
NOT TO SCALE

### ENVIROMENTAL NOTES:

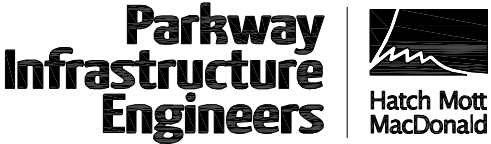
- TB-4 IS LOCATED IN PROXIMITY TO KNOWN SPECIES AT RISK (SAR) HABITAT. CONSTRUCTION MITIGATION TO BE IN PLACE AND MAINTAINED THROUGHOUT THE WORKS. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING DUE SAR CLEARANCE AND POTENTIAL SITE INTERACTIONS WITH SAR. ALL INDIVIDUALS ON THE PROJECT ARE REQUIRED TO UNDERGO SAR AWARENESS TRAINING.
- THE CONTRACTOR IS RESPONSIBLE TO CONTROL EROSION AND SEDIMENT CAUSED BY CONSTRUCTION RELATED ACTIVITIES SO AS TO MEET ALL LEGISLATIVE REQUIREMENTS AND PROJECT AGREEMENT. REFER TO MTO ENVIRONMENTAL GUIDE FOR EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION OF HIGHWAY PROJECTS AND THE RELEVANT PROJECT SPECIFIC EROSION AND SEDIMENT CONTROL PLANS.
- FISHERIES CONCERNS IN PROXIMITY TO TB-4 ARE NOT A SIGNIFICANT. ALL WORK IS TO BE COMPLETED IN A MANNER TO PREVENT THE RELEASE OF A DELETERIOUS SUBSTANCE TO THE ENVIRONMENT.
- WORKS ARE REQUIRED TO BE UNDERTAKEN WITHIN THE TIMING WINDOWS PERMITTED BY LOCAL NOISE BY-LAWS.
- TREE PROTECTION MAY BE REQUIRED AS PER THE TREE PROTECTION PLAN TO BE PUT FORWARD IN THE FINAL LANDSCAPE PLANS. ALL TREE PROTECTION IS TO BE COMPLIANT WITH OPSS 801.
- IF PUMPING IS REQUIRED FOR CONSTRUCTION, PERMIT TO TAKE WATER GUIDELINES SHALL BE FOLLOWED. A DEWATERING PLAN MAY BE REQUIRED IN CONJUNCTION WITH CONSTRUCTION ACTIVITIES.
- STOCKPILE LOCATIONS TO COMPLY WITH THOSE NOTED IN THE DCR AND OTHER APPROVED ENVIRONMENTAL DOCUMENTATION.
- EXCESS EARTH TO BE MANAGED AS OUTLINED WITHIN THE EXCESS EARTH MANAGEMENT PLAN AND DCR.
- REFER TO GENERAL ENVIRONMENTAL NOTES SPECIFIED IN ENVIRONMENTAL PROTECTION PACKAGE SHEETS E9001 AND E9002 FOR ADDITIONAL ENVIRONMENTAL CONSTRAINTS AND MITIGATION MEASURES.

### LIST OF DRAWINGS

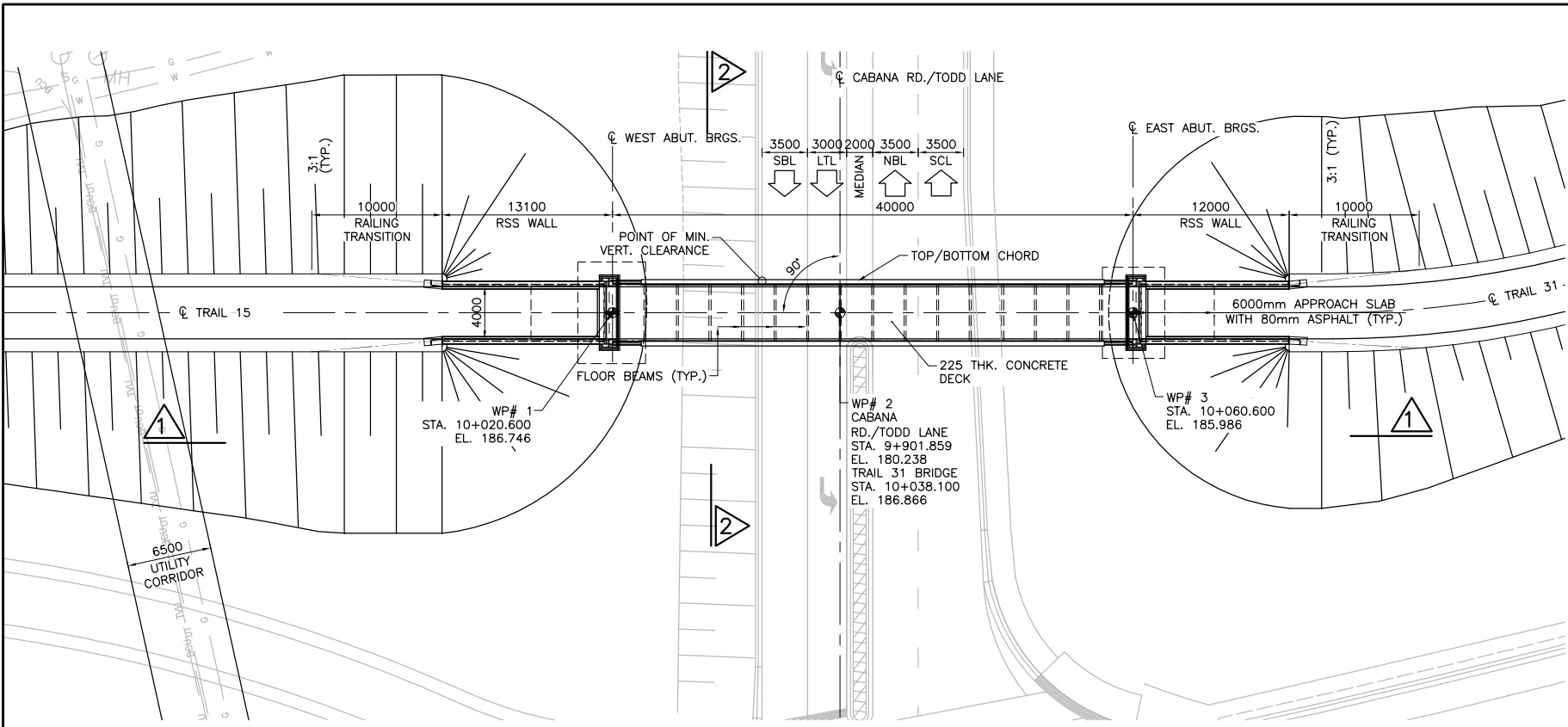
SHEET_NO	TITLE
S6401	GENERAL ARRANGEMENT
S6402	GENERAL NOTES (IN PROGRESS)
S6403	BOREHOLE LOCATIONS & SOIL STRATA
S6404	SOIL STRATIGRAPHY
S6405	GROUND IMPROVEMENTS – PLAN (IN PROGRESS)
S6406	GROUND IMPROVEMENTS – SECTIONS (IN PROGRESS)
S6407	CONSTRUCTION NOTES – BACKFILL AT STRUCTURES
S6408	CONSTRUCTION NOTES – LWF
S6409	FOUNDATION LAYOUT AND DETAILS (IN PROGRESS)
S6410	ABUTMENT LAYOUT AND DETAILS I (IN PROGRESS)
S6411	ABUTMENT LAYOUT AND DETAILS II (IN PROGRESS)
S6412	RSS WINGWALL LAYOUT AND DETAILS I (IN PROGRESS)
S6413	RSS WINGWALL LAYOUT AND DETAILS II (IN PROGRESS)
S6414	MISCELLANEOUS DETAILS (IN PROGRESS)
S6415	PEDESTRIAN BARRICADES LAYOUT AND DETAILS (IN PROGRESS)
S6416	6000mm APPROACH SLAB
S6417	STANDARD DETAILS
S6418	EMBEDDED ELECTRICAL WORK (IN PROGRESS)

### CONTEMPLATED LIST OF DRAWINGS TO BE SUPPLIED BY BRIDGE SUPPLIER:

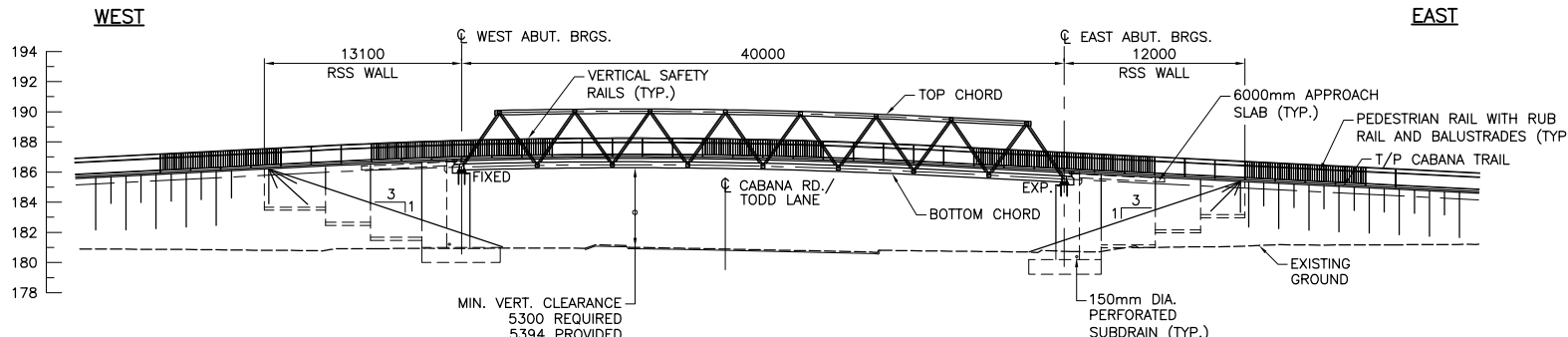
- TRUSS LAYOUT AND DETAILS
- DECK LAYOUT AND DETAILS
- BEARING DETAILS
- EXPANSION JOINT DETAILS
- TRUSS RAILING DETAILS



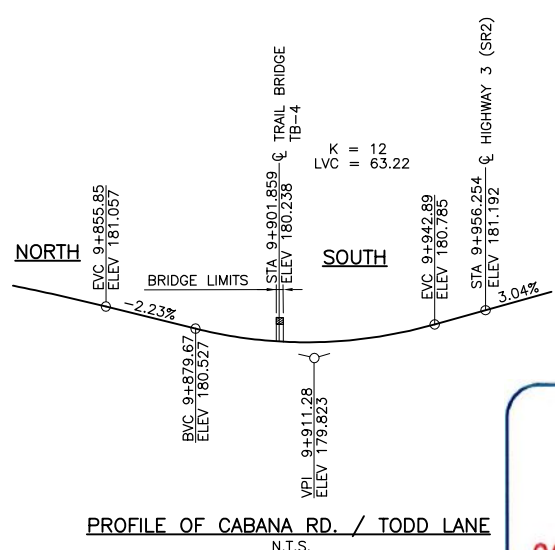
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PR-D-707 BB-05  
MINISTRY OF TRANSPORTATION, ONTARIO



PLAN  
SCALE 1:250



SCALE 1:250



PROFILE OF CABANA RD. / TODD LANE  
N.T.S.

CELLULAR CONCRETE HAS BEEN INCLUDED IN THE BACKFILL DESIGN AT THE REQUEST OF PIC. CELLULAR CONCRETE IS NOT AN MTO APPROVED BACKFILL MATERIAL FOR BRIDGE ABUTMENTS OR RSS WALLS AND THEREFORE IS NOT PERMITTED FOR USE IN THIS APPLICATION UNDER THE TERMS OF THE PROJECT AGREEMENT. ANY REFERENCE TO CELLULAR CONCRETE CONTAINED WITHIN THIS DRAWING SET SHALL BE CONSIDERED ON HOLD UNTIL MTO APPROVAL IS GRANTED.

**PARKWAY**  
INFRASTRUCTURE CONSTRUCTORS  
**OCT 10 2013**  
PROCESSED  
PROJECT DOCUMENT AND DATA MANAGEMENT

**PARKWAY**  
INFRASTRUCTURE CONSTRUCTORS  
**RELEASED FOR  
ADVANCE WORKS**  
OCT 09 2013  
PDDM

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

**METRIC**  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

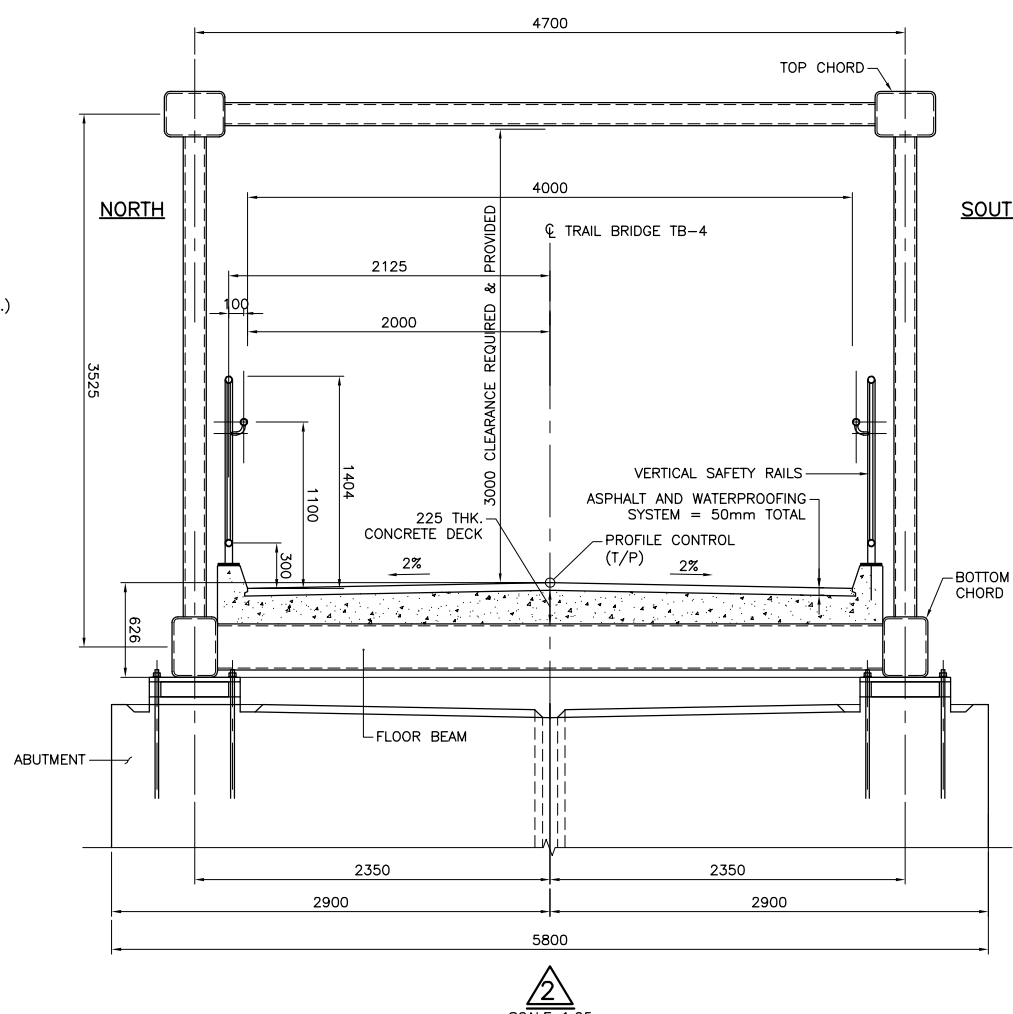
**Parkway  
Infrastructure  
Engineers**  
**Hatch Mott  
MacDonald**

Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007

NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
GENERAL ARRANGEMENT

SHEET  
S6401  
Phase 1  
60% Sub

PROFILE OF CABANA TRAIL BRIDGE  
N.T.S.



SCALE 1:25

REVISIONS							
01-OCT-13	A	MAS	60% MTO SUBMISSION	DATE	REV.	BY	DESCRIPTION
DESIGN	BR	CHK	PM	CODE	CAN/CSA	S6-06	LOAD CL 625-ONT
DRAWN	RD	CHK	MAS	SITE	6-619	DATE	JULY 2010

88-05  
PR-D-707  
MINISTRY OF TRANSPORTATION, ONTARIO  
DATE PLOTTED: 10/1/2013 10:35:14 AM  
FILE LOCATION: C:\RunScript\285380-03-060-SEG1-6402.dwg

NOTES:

1. CLASS OF CONCRETE:  
•CAST-IN-PLACE DECK:  
•REMAINDER:

40 MPa  
30 MPa

2. CLEAR COVER TO REINFORCING STEEL:  
•FOOTINGS:  
•DECK:  
•REMAINDER U.N.O:

100 ± 25  
70 ± 20  
40 ± 10  
70 ± 20

TOP  
BOTTOM

3. REINFORCING STEEL:  
•REINFORCING STEEL SHALL BE GRADE 400W UNLESS OTHERWISE SPECIFIED.  
•BAR MARKS WITH PREFIX 'C' DENOTE COATED BARS.  
•BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.  
•STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 OR TYPE XM-28 AND HAVE A MINIMUM YIELD STRENGTH OF 500 MPa, UNLESS OTHERWISE SPECIFIED.  
•UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES SHALL BE CLASS B.  
•BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 AND SS12-2 UNLESS SHOWN OTHERWISE.

4. STRUCTURAL STEEL: (NOT PART OF THIS PACKAGE)  
•ALL STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD CAN/CSA-G40.20-04/G40.21-04 STEEL MARKED 'AT' SHALL BE GRADE 350AT CATEGORY 2. ALL OTHER STEEL SHALL BE GRADE 350A CATEGORY 2. ROLLED SECTIONS SHALL CONFORM TO CAN/CSA-G40.20-04/G40.21-04 OR ASTM SPECIFICATION A588.  
•MEMBERS OR COMPONENTS OF MEMBERS FOR WHICH "AT" STEEL IS SPECIFIED ARE PRIMARY TENSION MEMBERS, STIFFENERS AND GUSSETS ATTACHED TO "AT" MEMBERS SHALL BE "AT" STEEL.  
•BOLTS ON ATMOSPHERIC CORROSION RESISTANT STEEL SHALL BE ASTM A325 TYPE 3, M22. BOLTS ON COATED STEEL SHALL BE GALVANIZED ASTM A325M TYPE 1, M22. BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANES.  
•STUD SHEAR CONNECTORS SHALL BE 22mm DIA. AND SHALL CONFORM TO ASTM A108 AND CSA W59.  
•ALL LENGTHS SHOWN ARE IN THE HORIZONTAL PLANE AND MEASURED AT 20°C.  
•THE TRUSS AND BEARING STIFFENERS SHALL BE TRULY VERTICAL UNDER FULL DEAD LOAD.  
•ALL BUTT WELDS IN FLANGE, WEB AND BOX SECTION SHOP SPLICES SHALL BE FINISHED FLUSH OR SMOOTH. BY GRINDING WHERE NECESSARY IN THE DIRECTION OF THE APPLIED STRESSES.  
•UNLESS OTHERWISE NOTED. THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)

MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)

TO 12 INCLUSIVE  
OVER 12 TO 20  
OVER 20 TO 40  
OVER 40 TO 60  
OVER 60 TO 120

5  
6  
8  
10  
12

•ALL STEEL SURFACES SHALL BE COATED EXCEPT FOR THE SURFACE OF MEMBERS THAT WILL BE IN CONTACT WITH CONCRETE OR CONTACT SURFACES OF BOLTED CONNECTIONS. THE COLOUR OF THE TOPCOAT SHALL BE 504-217 BROWN (1-GP-12C).  
•THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL COMPONENTS DURING HANDLING TRANSPORTATION AND ERECTION AND UNTIL THE STRUCTURAL STEEL IS IN THE FINAL LOCATION WITH ALL THE PERMANENT BRACING CONNECTIONS AND SUPPORTS IN PLACE AND THE CONCRETE IN THE DECK HAS REACHED A STRENGTH OF 25MPa.

5. CONCRETE FINISH OF ALL EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.

CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH THE BEARING DESIGN DATA, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.

2. THE CONTRACTOR IS FULLY RESPONSIBLE FOR GROUNDWATER CONTROL ON TIMING OF CONSTRUCTION AND PREVAILING WEATHER CONDITIONS.

3. BACKFILL SHALL NOT BE PLACED AGAINST ANY PORTION OF THE ABUTMENTS OR WINGWALLS UNTIL THE CONCRETE FOR THE DECK HAS BEEN PLACED AND ITS COMPRESSIVE STRENGTH HAS REACHED 30 MPa. BACKFILL SHALL BE PLACED BEHIND BOTH ABUTMENTS SIMULTANEOUSLY KEEPING THE HEIGHT OF BACKFILL APPROXIMATELY THE SAME AT ALL TIMES. DURING PLACEMENT, THE HEIGHT OF THE BACKFILL AGAINST ONE ABUTMENT SHALL NEVER EXCEED THE HEIGHT OF BACKFILL AGAINST THE OTHER ABUTMENT BY MORE THAN 500 mm. THE CONTRACTOR MUST ENSURE THE STABILITY OF THE ABUTMENTS DURING CONSTRUCTION.

4. ALL EXISTING UTILITIES SHALL BE ACCURATELY LOCATED PRIOR TO ANY CONSTRUCTION BEING CARRIED OUT. UNLESS NOTED OTHERWISE ON STRUCTURAL AND UTILITIES DRAWINGS, ALL EXISTING UTILITIES ARE TO REMAIN IN PLACE AND SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION OF THE TUNNEL EMBANKMENTS.

5. TEMPORARY EXCAVATION, SUBGRADE EXPOSURE AND PROTECTION, AND BACKFILLING SHALL CONFORM TO OPSS 902.

6. SETTLEMENTS AND GROUND DEFORMATIONS SHALL BE MONITORED DURING AND AFTER CONSTRUCTION.

7. VIBRATIONS SHALL BE MONITORED AT STRATEGIC LOCATIONS DURING PILING AND CONSTRUCTION ON TEMPORARY SLOPES AND ADJACENT TO UTILITIES.

8. FOR ALL HIGHWAY WORKS REFER TO HIGHWAY NEW CONSTRUCTION DRAWINGS.

9. FOR ALL ELECTRICAL AND ATMS WORKS REFER TO ELECTRICAL AND ATMS NEW CONSTRUCTION DRAWINGS.

10. FOR ALL UTILITY WORKS REFER TO UTILITY NEW CONSTRUCTION DRAWINGS.

11. APPROVED RSS WALL SUPPLIER TO REFER TO UTILITIES NEW CONSTRUCTION DRAWINGS AND CONFIRM LOCATION OF ALL UTILITIES. RSS WALL DESIGN SHALL ACCOUNT FOR ALL INTERFERENCE WITH UTILITIES.

12. FOR LIGHT AND TRAFFIC POLE LOCATIONS REFER TO ELECTRICAL AND ATMS DRAWING PACKAGE.

13. RSS WALL SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE 'MTO RSS DESIGN GUIDELINES' AND SPECIAL PROVISIONS SP599S22 AND SP599S23.

14. THE FACTOR-OF-SAFETY AGAINST EXTERNAL MODES OF FAILURE FOR RSS WALLS SHALL BE AS PER CANADIAN FOUNDATION ENGINEERING MANUAL (CFEM).

15. FOR INFORMATION ON EXISTING PAVEMENT AND INFRASTRUCTURE REFER TO HIGHWAYS REMOVAL DRAWINGS AND GENERAL NOTES PROVIDED WITHIN HIGHWAY REMOVALS DRAWING PACKAGE.

16. ALL WORKS OCCURRING AFTER CONSTRUCTION OF RSS WALLS AND ABUTMENTS THAT INVOLVE EXCAVATION BELOW ROAD SUBGRADE SHALL BE COORDINATED WITH GEOTECHNICAL DESIGN.

ABBREVIATIONS:

ABUT.	ABUTMENT
BF	BACK FACE
BOT.	BOTTOM
BRGS.	BEARINGS
BVC	BEGINNING OF VERTICAL CURVE
C/C	CENTER-TO-CENTER
℄	CENTER LINE
CIP	CAST-IN-PLACE
CLR	CLEAR
CONT.	CONTINUOUS
CSP	CORRUGATED STEEL PIPE
C/W	COMPLETE WITH
DIA	DIAMETER
DR	DRIVE
DWG	DRAWING
EA.	EACH
E.B. (EB)	EASTBOUND
EF	EACH FACE
E.G.	EXISTING GROUND
E.J.	EXPANSION JOINT
EL./ELEV.	ELEVATION
E.P.D.M	ETHYLENE PROPYLENE DIENE MONOMER (M-CLASS) RUBBER
EPS	EXPANDED POLYSTYRENE
EQ	EQUAL
EVA	ETHYLENE VINYL ACETATE
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EXP.	EXPANSION
FF	FRONT FACE
FIX	FIXED
HORIZ.	HORIZONTAL
HP	H-PILE
HWY	HIGHWAY
ID	INSIDE DIAMETER
LTL	LEFT TURN LANE
LWF	LIGHT WEIGHT FILL
MAT.	MATERIAL
MAX.	MAXIMUM
MIN.	MINIMUM
NB	NORTHBOUND
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
OD	OUTSIDE DIAMETER
R/C	REINFORCED CONCRETE
RD	ROAD
REINF.	REINFORCEMENT
RGM	REINFORCED GRANULAR MAT
RSS	RETAINED SOIL SYSTEM
RTL	RIGHT TURN LANE
R.W. (RW)	RETAINING WALL
SB	SOUTHBOUND
SCL	SPEED CHANGE LANE
SHLD.	SHOULDER
STA.	STATION
STD	STANDARD
STIR.	STIRRUP
TB	TRAIL BRIDGE
T/D	TOP OF DECK
THK.	THICKNESS
T.O.	TOP OF
T/P	TOP OF PAVEMENT
TYP.	TYPICAL
UNO (U.N.O.)	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VERT.	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
W.B.(WB)	WESTBOUND
WP	WORKING POINT
W.W.	WINGWALL
WWR	WELDED WIRE REINFORCEMENT

METRIC

DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007

NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
GENERAL NOTES

SHEET  
S6402

Phase 1

60% Sub

APPLICABLE STANDARD DRAWINGS

OPSD 3000.100	FOUNDATION, PILES, STEEL H-PILE DRIVING SHOE
OPSD 3000.150	FOUNDATION, PILES, STEEL H-PILE SPLICE
OPSD 3101.150	WALLS, ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENT
OPSD 3121.150	WALLS, RETAINING, BACKFILL, MINIMUM GRANULAR REQUIREMENT
OPSD 3190.100	WALLS, RETAINING AND ABUTMENT, WALL DRAIN
OPSD 3370.100	DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD 3370.101	DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2 mm WIDE AND CONSTRUCTION JOINTS
OPSD 3390.100	DECK, DRIP CHANNEL
OPSD 3941.200	FIGURES IN CONCRETE, SITE NUMBER AND DATE, LAYOUT
OPSD 3950.100	JOINTS, CONCRETE EXPANSION AND CONSTRUCTION, ON STRUCTURE

IN PROGRESS

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

REVISIONS					
	01-OCT-13	A	MAS	60% MTO SUBMISSION	
	DATE	REV.	BY	DESCRIPTION	
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DRAWN	LG	CHK	MAS	SITE 6-619	DATE JUN 2013

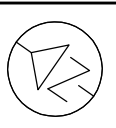
DOC: 285380-03-060-SEG1-6402



**METRIC**  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

**Parkway**  
Infrastructure  
Engineers  
**amec**  
Hatch Mott  
Macdonald

Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007

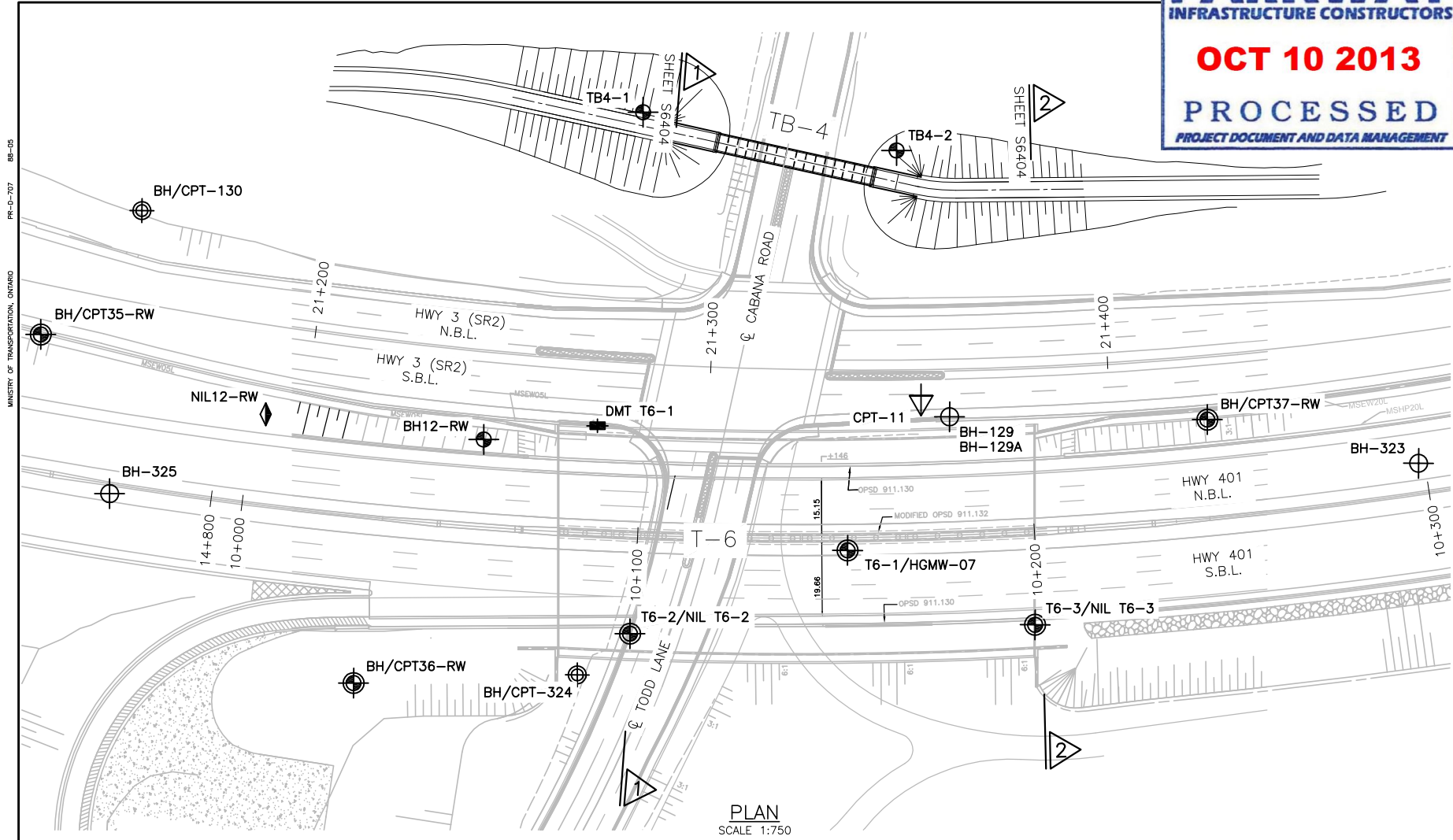


NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
BOREHOLE LOCATIONS & SOIL STRATA

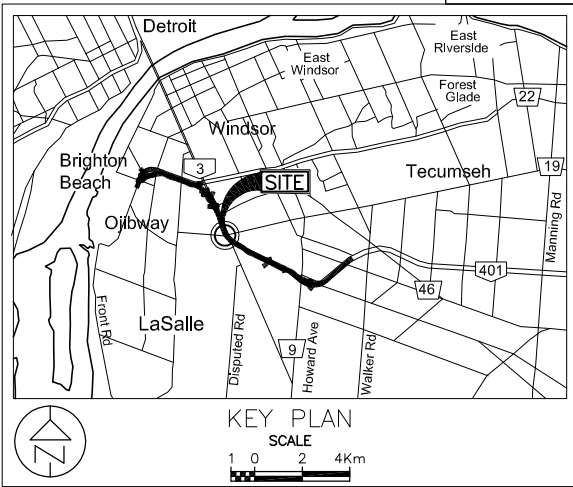
**SHEET**  
**S6403**

Phase 1  
60% Sub

MINISTRY OF TRANSPORTATION, ONTARIO  
PR-D-707  
BB-05



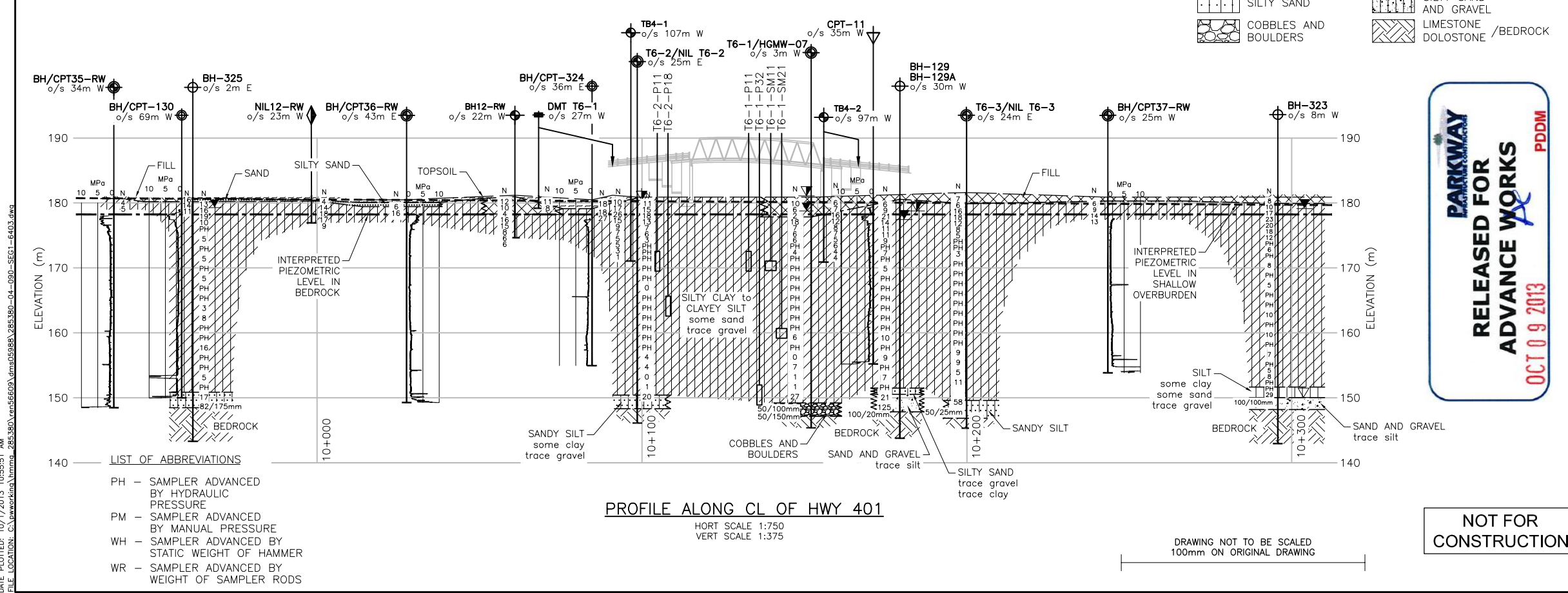
No.	ELEVATION	CO-ORDINATES (UTM, NAD 83 ZONE 17)	
		NORTHING	EASTING
AMEC BOREHOLES			
BH12-RW	181.2	4679718.1	332037.9
BH/CPT35-RW	181.0	4679825.8	331995.8
BH/CPT36-RW	180.5	4679710.0	331968.8
BH/CPT37-RW	180.9	4679571.4	332146.2
DMT T6-1	181.2	4679696.6	332057.3
NIL12-RW	181.2	4679767.0	332011.4
NIL T6-2	180.8	4679661.8	332020.5
NIL T6-3	181.7	4679574.1	332073.1
T6-1/HGMW-07	180.9	4679627.0	332067.4
T6-2	180.8	4679659.9	332018.8
T6-3	181.6	4679577.5	332079.1
TB4-1	180.7	4679732.3	332128.6
TB4-2	181.0	4679674.4	332157.2
PREVIOUS BOREHOLES			
BH-129	180.8	4679625.1	332109.7
BH-129A	180.8	4679625.1	332109.7
BH-323	181.3	4679521.4	332167.6
BH-325	180.8	4679787.7	331972.9
BH/CPT-130	180.8	4679821.8	332036.1
BH/CPT-324	180.9	4679664.9	332002.7
CPT-11	180.9	4679634.0	332110.0



MATERIAL LEGEND	
	TOPSOIL/ORGANICS
	FILL
	SAND
	SILTY CLAY
	SILTY SAND
	COBBLES AND BOULDERS
	SILT
	SANDY SILT
	CLAYEY SILT
	SAND AND GRAVEL
	SILTY SAND AND GRAVEL
	LIMESTONE /BEDROCK

- LEGEND**
- BOREHOLE CURRENT INVESTIGATION
  - BOREHOLE AND NILCON VANE CURRENT INVESTIGATION
  - SW/SP HOLE (HYDROGEOLOGY) CURRENT INVESTIGATION
  - NILCON VANE CURRENT INVESTIGATION
  - CPT - CURRENT INVESTIGATION
  - DMT - CURRENT INVESTIGATION
  - BOREHOLE PREVIOUS INVESTIGATION
  - BOREHOLE, CPT AND NILCON VANE PREVIOUS INVESTIGATIONS
  - CPT -PREVIOUS INVESTIGATION
  - N SPT N-VALUE
  - BLOWS/0.3m UNLESS OTHERWISE STATED (STD. PEN. TEST, 475 J/BLOW)
  - MHSG - MAGNETIC HEAVE/SETTLEMENT GAUGE (SM)
  - P - VIBRATING WIRE PIEZOMETER (VWP)
  - SPZ - STANDPIPE PIEZOMETER
  - DRY BOREHOLE DRY DURING DRILLING
  - WATER LEVEL DURING DRILLING
  - WATER LEVEL (SHALLOW PIEZO)
  - WATER LEVEL (DEEP PIEZO)

- NOTES**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GEOTECHNICAL DESIGN REPORT.
  - THE INTERPRETED STRATIGRAPHY REPRESENTS SIMPLIFIED SUBSURFACE CONDITIONS. THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN DEFINED AT BOREHOLE LOCATIONS ONLY. CONDITIONS BETWEEN BOREHOLE LOCATIONS COULD DIFFER FROM ILLUSTRATED CONDITIONS.
  - ELEVATIONS ARE REFERENCED TO GEODETIC DATUM.



**PARKWAY**  
**RELEASED FOR**  
**ADVANCE WORKS**  
**OCT 09 2013**  
**PDDM**

**NOT FOR CONSTRUCTION**

DATE PLOTTED: 10/1/2013 10:55:51 AM  
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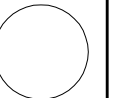
REVISIONS		DATE		REV. BY		DESCRIPTION	
01-OCT-13		A		EA		60% MTO SUBMISSION	
DESIGN	EA	CHK	DD	CODE	CAN/CSA	LOAD	CL-625-ONT
DRAWN	SJL	CHK	MO	SITE	6-619	DATE	19-APR-13

# METRIC

DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN



Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007



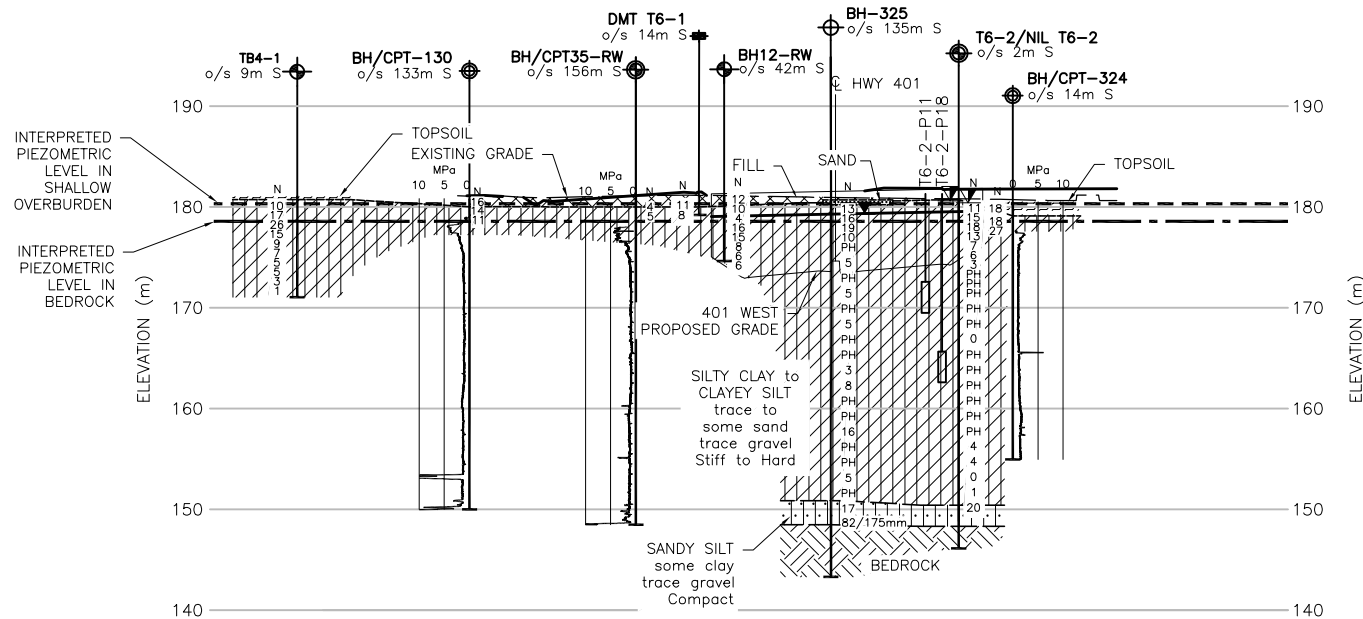
NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
SOIL STRATIGRAPHY

SHEET

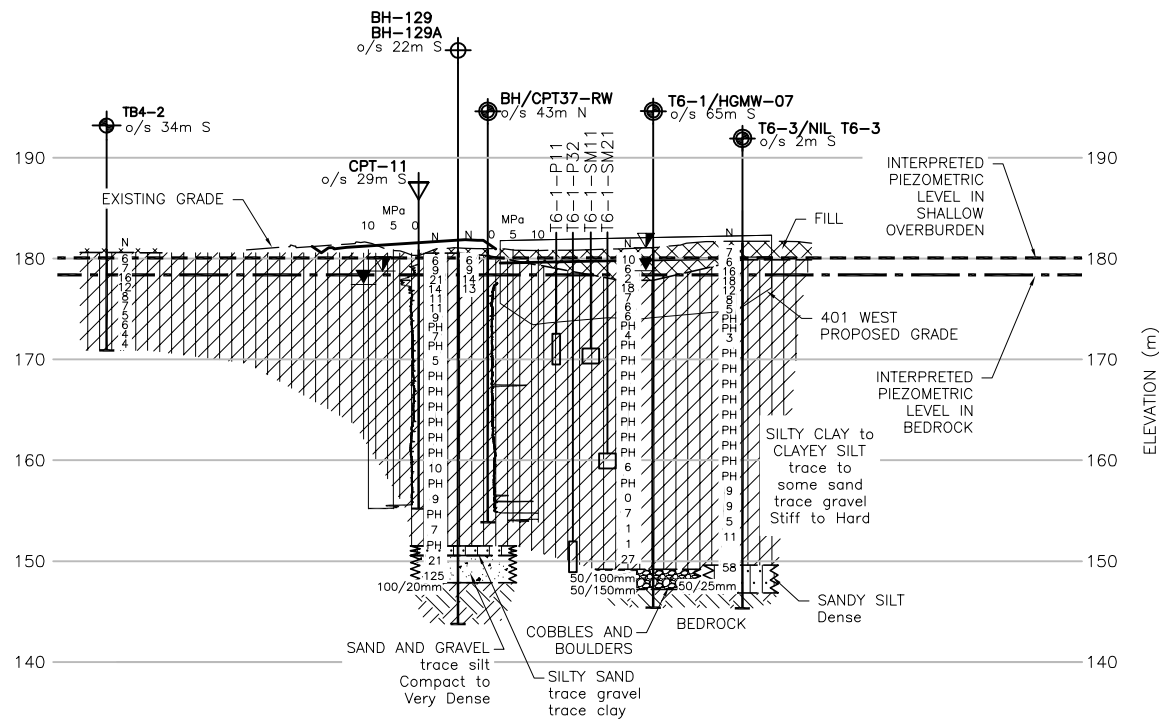
S6404

Phase 1

60% Sub



HORT SCALE 1:750  
VERT SCALE 1:375



HORT SCALE 1:750  
VERT SCALE 1:375

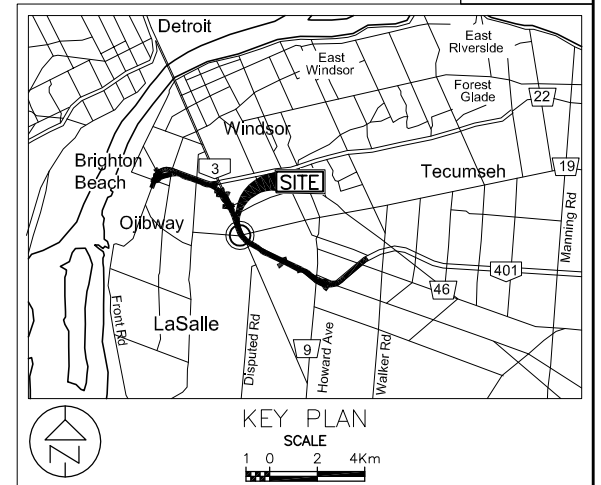


## LIST OF ABBREVIATIONS

PH - SAMPLER ADVANCED BY HYDRAULIC PRESSURE  
PM - SAMPLER ADVANCED BY MANUAL PRESSURE  
WH - SAMPLER ADVANCED BY STATIC WEIGHT OF HAMMER  
WR - SAMPLER ADVANCED BY WEIGHT OF SAMPLER RODS

## MATERIAL LEGEND

	TOPSOIL/ORGANICS		SILT
	FILL		SANDY SILT
	SAND		CLAYEY SILT
	SILTY CLAY		SAND AND GRAVEL
	SILTY SAND		SILTY SAND AND GRAVEL
	COBBLES AND BOULDERS		LIMESTONE/DOLOSTONE
			BEDROCK



## LEGEND

	BOREHOLE CURRENT INVESTIGATION
	BOREHOLE AND NILCON VANE CURRENT INVESTIGATION
	SW/SP HOLE (HYDROGEOLOGY) CURRENT INVESTIGATION
	NILCON VANE CURRENT INVESTIGATION
	CPT - CURRENT INVESTIGATION
	DMT - CURRENT INVESTIGATION
	BOREHOLE PREVIOUS INVESTIGATION
	BOREHOLE, CPT AND NILCON VANE PREVIOUS INVESTIGATIONS
	CPT -PREVIOUS INVESTIGATION
	N SPT N-VALUE
	BLOWS/0.3m UNLESS OTHERWISE STATED (STD. PEN. TEST, 475 J/BLOW)
	MHSG - MAGNETIC HEAVE/SETTLEMENT GAUGE (SM)
	P - VIBRATING WIRE PIEZOMETER (VWP)
	SPz - STANDPIPE PIEZOMETER
	DRY BOREHOLE DRY DURING DRILLING
	WATER LEVEL DURING DRILLING
	WATER LEVEL (SHALLOW PIEZO)
	WATER LEVEL (DEEP PIEZO)

## NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GEOTECHNICAL DESIGN REPORT.
- THE INTERPRETED STRATIGRAPHY REPRESENTS SIMPLIFIED SUBSURFACE CONDITIONS. THE BOUNDARIES BETWEEN SOIL STRATA HAVE BEEN DEFINED AT BOREHOLE LOCATIONS ONLY. CONDITIONS BETWEEN BOREHOLE LOCATIONS COULD DIFFER FROM ILLUSTRATED CONDITIONS.
- ELEVATIONS ARE REFERENCED TO GEODETIC DATUM.

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

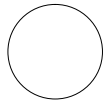
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DESIGN	EA	CHK	DD	CODE CAN/CSA
DRAWN	SJL	CHK	MO	SITE 6-619
				LOAD CL-625-ONT
				DATE 19-APR-13

METRIC  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

Parkway  
Infrastructure  
Engineers



Windsor–Essex  
Parkway Project  
RFP No. 09–54–1007

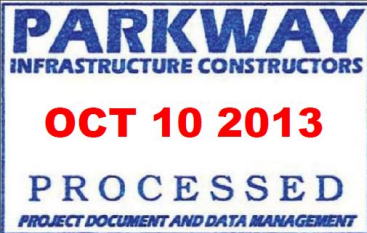


NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.–TODD LN. TB–4  
GROUND IMPROVEMENTS – PLAN

SHEET  
S6405

Phase 1  
60% Sub

IN PROGRESS



DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

REVISIONS									
		01–OCT–13	A	MAS	60% MTO SUBMISSION				
		DATE	REV.	BY	DESCRIPTION				
DESIGN	BR	CHK	PM	CODE	CAN/CSA	S6–06	LOAD	CL	625–ONT
DRAWN	LG	CHK	MAS	SITE	6–619		DATE	JUN	2013

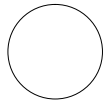


METRIC  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

Parkway  
Infrastructure  
Engineers



Windsor–Essex  
Parkway Project  
RFP No. 09–54–1007



NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.–TODD LN. TB-4  
GROUND IMPROVEMENTS – SECTIONS

SHEET  
S6406

Phase 1  
60% Sub

IN PROGRESS

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION



REVISIONS										
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	DATE	REV.	BY	DESCRIPTION						
DESIGN	BR	CHK	PM	CODE	CAN/CSA	S6-06	LOAD	CL	625-ONT	
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MINISTRY OF TRANSPORTATION, ONTARIO

PR-D-707  
BB-05

CONSTRUCTION NOTES – BACKFILL AT STRUCTURES

1.0 GENERAL REQUIREMENTS

- 1.1.

THESE CONSTRUCTION NOTES RELATE TO THE SUPPLY AND PLACEMENT OF BACKFILL MATERIALS AT THE STRUCTURES AT THE WINDSOR–ESSEX PARKWAY (WEP) PROJECT AS ILLUSTRATED ON THE ACCOMPANYING DRAWINGS. THE REQUIREMENTS GIVEN HEREFTER ARE THE GENERAL REQUIREMENTS. FOR DETAILED REQUIREMENTS, THE CONTRACTOR SHOULD REFER TO APPROPRIATE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) LISTED IN SECTION 1.6.
- 1.2.

THESE CONSTRUCTION NOTES ARE TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING GEOTECHNICAL DESIGN DRAWINGS AND REPORT.
- 1.3.

FOR LIGHTWEIGHT FILL (LWF), REFER TO CONSTRUCTION NOTES FOR LIGHTWEIGHT FILL MATERIAL.
- 1.4.

FOR EXPANDED POLYSTYRENE (GEOFOAM, EPS) FILL, REFER TO CONSTRUCTION NOTES FOR EXPANDED POLYSTYRENE FILL.
- 1.5.

THESE REQUIREMENTS DO NOT APPLY TO THE HIGHWAY PAVEMENT CONSTRUCTION.
- 1.6.

THE CONSTRUCTION WORKS SHALL BE EXECUTED IN ACCORDANCE WITH THE GEOTECHNICAL DESIGN ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, THE SUPPLIER SPECIFICATIONS AND THE REQUIREMENTS SPECIFIED IN THE FOLLOWING STANDARDS, SPECIFICATIONS AND PUBLICATIONS:
- ASTM D422

PARTICLE–SIZE ANALYSIS OF SOILS

•

ASTM D2216

MOISTURE CONTENT OF SOILS

•

ASTM D2850

UNCONSOLIDATED–UNDRAINED TRIAXIAL COMPRESSION TEST ON COHESIVE SOILS

•

ASTM D2922

DENSITY OF SOIL AND SOIL–AGGREGATE IN PLACE BY NUCLEAR METHODS

•

ASTM D3017

WATER CONTENT OF SOIL AND ROCK IN PLACE BY NUCLEAR METHODS

•

ASTM D5856

HYDRAULIC CONDUCTIVITY OF POROUS MATERIALS USING A RIGID WALL PERMEAMETER

•

OPSS 201

CLEARING, CLOSE CUT CLEARING, GRUBBING, REMOVAL OF SURFACE AND PILED BOULDERS

•

OPSS 206

GRADING

•

OPSS 212

BORROW

•

OPSS 401

TRENCHING, BACKFILLING AND COMPACTING

•

OPSS 501

COMPACTING

•

OPSS 517

DEWATERING OF PIPELINE, UTILITY AND ASSOCIATED STRUCTURE EXCAVATION

•

OPSS 518

CONTROL OF WATER FROM DEWATERING OPERATIONS

•

OPSS 805

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

•

OPSS 902

CONSTRUCTION SPECIFICATIONS FOR EXCAVATING AND BACKFILLING – STRUCTURES

•

OPSS 1001

AGGREGATES – GENERAL

•

OPSS 1004

AGGREGATES – MISCELLANEOUS

•

OPSS 1010

AGGREGATES – BASE, SUBBASE, SELECT SUBGRADE AND BACKFILL MATERIAL

•

OPSS 1860

GEOTEXTILE

•

OPSD 208.010

BENCHING OF EARTH SLOPES

1.7.

IF THERE IS ANY CONFLICT BETWEEN THE REQUIREMENTS GIVEN ON THIS DRAWING AND THE STANDARDS AND SPECIFICATIONS DOCUMENTS LISTED IN SECTION 1.6, THE DESIGNER SHOULD BE CONSULTED FOR CLARIFICATION AND RECOMMENDATIONS.

1.8.

IN THE FOLLOWING CONSTRUCTION NOTES, THE CONTRACTOR MEANS PIC AND ITS SUB–CONTRACTORS, THE SUPPLIER MEANS THE MANUFACTURER AND PROPRIETARY SUPPLIER, THE ENGINEER MEANS THE GEOTECHNICAL SITE ENGINEER, AND THE DESIGNER MEANS THE GEOTECHNICAL DESIGNER OF THE PROJECT.
- 2.0 SITE PREPARATION AND EXCAVATION
- 2.1

CLEARING AND GRUBBING AREA SHALL EXTEND MINIMUM 3 m BEYOND THE FOOTPRINT AREA OF THE STRUCTURE, OR AS REQUIRED BY THE ENGINEER. THE TREES AND SHRUBS REMOVED FROM THE GROUND SHALL BE TRANSPORTED TO DESIGNATED AREAS.

2.2

THE STRIPPING AREA SHALL EXTEND MINIMUM 1 m BEYOND THE FOOTPRINT AREA OF THE STRUCTURE, OR AS REQUIRED BY THE ENGINEER. ALL PEAT/MUSKEG, WETLAND VEGETATION AND OTHER UNSUITABLE MATERIAL SHOULD BE STRIPPED AND TRANSPORTED TO DESIGNATED AREAS.

2.3

CONTRACTOR IS FULLY RESPONSIBLE FOR THE DESIGN, CONSTRUCTION METHODS AND PERFORMANCE OF THE TEMPORARY SLOPES AND WORKS.

2.4

ALL EXCAVATION WORKS SHOULD BE CARRIED OUT IN ACCORDANCE WITH THE GUIDELINES OUTLINED IN OCCUPATIONAL HEALTH AND SAFETY ACT (OHSa) AND ONTARIO PROVINCIAL STANDARD SPECIFICATION (OPSS) 902. NATIVE DEWATERED SOILS AT THE SITE AND COMPACTED FILLS MAY BE CLASSIFIED IN GENERAL AS TYPE 3 SOILS. UNDEWATERED FILLS, NATIVE SAND AND SILTS, AND WATER BEARING BACKFILL WITHIN TRENCHES OF ACTIVE AND/OR ABANDONED UTILITIES MAY DEVELOP TYPE 4 SOIL CONDITIONS AND SHALL BE ADDRESSED ACCORDINGLY.
- 2.5

THE SOILS AT THE PROJECT SITE ARE HIGHLY SUSCEPTIBLE TO RAPID DETERIORATION WHEN EXPOSED TO ELEMENTS, WEATHERING, WATER INFLOW AND PONDING, DISTURBANCE FROM CONSTRUCTION TRAFFIC, AND THE LIKE. SUBGRADE SOILS AND BACKFILL IN PROGRESS SHALL BE APPROPRIATELY PROTECTED AT ALL TIMES AGAINST SURFACE EROSION, DESICCATION, AND FREEZE–THAW EFFECTS, REGULARLY INSPECTED AND MONITORED, AND TREATED AS REQUIRED.

2.6

TO PROTECT THE SUBGRADE INTEGRITY, THE FINAL EXCAVATION LAYER ABOVE THE DESIGN ELEVATION IN GENERAL SHOULD NOT BE LESS THAN 0.5 m AND SHOULD BE CARRIED OUT ONLY WHEN THE CONTRACTOR IS READY TO PREPARE AND COVER/PROTECT THE SUBGRADE SAME DAY THE FINAL EXCAVATION IS EXPOSED AND APPROVED.

2.7

NO CONSTRUCTION TRAFFIC SHOULD BE PERMITTED OVER THE SUBGRADE WITHOUT APPROVED PROTECTIVE COVERS.

2.8

THE SUBGRADE EXCAVATION SHALL BE CUT TO NEAT LINES AND GRADES USING BUCKETS EQUIPPED WITH SMOOTH LIPS. ONCE EXPOSED, THE SUBGRADE MUST BE IMMEDIATELY INSPECTED. UPON APPROVAL, THE SUBGRADE SURFACE SHOULD BE COVERED WITH SKIM COAT OF LEAN CONCRETE MUD MAT, GRANULAR OVER GEO–FABRIC, GRANULAR OVER SUBGRADE, ETC., AS APPROVED BY THE ENGINEER, FOR PROTECTION AGAINST DISTURBANCE AND TO PROVIDE A WORKING SURFACE.

2.9

THE TEMPORARY EXCAVATION SURFACES SHALL BE BENCHED ACCORDING TO OPSD 208.010. UNLESS THE GRANULAR BACKFILL IS FILTER GRADED WITH RESPECT TO THE NATIVE SUBGRADE MATERIAL, A GEOTEXTILE LAYER (TERRAFIX 360R OR EQUIVALENT) SHALL BE PLACED AT THE BENCHED INTERFACE BETWEEN THE EXCAVATED SURFACE AND THE GRANULAR BACKFILL TO FUNCTION AS A SEPARATOR AND PREVENT MIGRATION OF FINES.

2.10

IF PRESENCE OF GASSY SOILS IS EVIDENCED (FOR EXAMPLE, DISSOLVED GAS BUBBLES COMING OUT OF SOLUTION AND/OR SOFTENING OF THE EXCAVATION FACE), THE EXCAVATION PROGRESS SHALL BE REVIEWED WITH THE ENGINEER IN TERMS OF TIMING, STAGING AND OTHER MITIGATION MEASURES.

2.11

THE CONTRACTOR SHOULD EMPLOY APPROPRIATE GROUND IMPROVEMENT APPROACH (E.G., SUITABLE FILL LAYER, GEOGRID SHEET, ETC.) TO FACILITATE CONSTRUCTABILITY, WHERE REQUIRED, AS APPROVED BY THE ENGINEER.

2.12

THE SUBGRADE SHOULD BE SLOPED APPROPRIATELY TO ACHIEVE POSITIVE DRAINAGE OF SEEPAGE AND SURFACE WATER TO SUBDRAINS, DITCHES OR SUMPS TO AVOID PONDING BENEATH ANY FILL PLACED. NO PONDING OR FLOODING SHALL BE ALLOWED TO OCCUR IN AREAS OF FINAL EARTHWORKS (SEE SECTION 6 ON DRAINAGE – REQUIREMENTS).
- 3.0 REINFORCED GRANULAR MAT (RGM)
- 3.1

THE RGM ARE REINFORCED SOIL MATS COMPRISING SELECT COMPACTED GRANULAR FILL AND REINFORCEMENT (GEOSYNTHETICS OR METALLIC)

3.2

GRANULAR FILL FOR RGM: THE FILL MATERIAL SHALL BE GRANULAR 'A' OR GRANULAR 'B' TYPE II (OPSS 1010) PLACED AS PER NOTE 5.4 AND COMPACTED TO NOT LESS THAN 98%.

3.3

REINFORCEMENT FOR RGM: AS PER CONTRACT DOCUMENTS.
- 4.0 FILL MATERIALS
- 4.1

ALL FILL MATERIALS TO BE USED AS BACKFILL FOR STRUCTURES SHALL BE INERT MATERIAL, FREE OF ORGANIC MATERIAL AND DELETERIOUS SUBSTANCES. ALL FILL MATERIALS SHALL BE APPROVED BY THE ENGINEER AT THE BORROW SOURCE AND AT PLACEMENT LOCATION.

4.2

SILTY CLAY FILL: THE UPPER CLAY CRUST ZONE MATERIAL OBTAINED FROM REQUIRED EXCAVATIONS IN THE DEPRESSED SEGMENTS OF THE WEP OR OTHER SOURCES APPROVED BY THE ENGINEER SHALL BE USED AS PER DRAWINGS PROVIDED IT MEETS THE OPSS 902 REQUIREMENTS AND CAN BE COMPACTED TO AT LEAST 95% SPMDD. THE SUITABILITY OF THE CLAY FILL MATERIALS SHALL BE VERIFIED IN TERMS OF ITS GRADATION (E.G., SILTY CLAY TO CLAYEY SILT), PLASTICITY CHARACTERISTICS (LOW TO MEDIUM PLASTICITY INDEX) AND THE IN–SITU MOISTURE CONTENT. ALL SUITABLE METHODS TO ACHIEVE THE SPECIFIED PLACEMENT MOISTURE CONTENT SHALL BE EMPLOYED.

4.3

GRANULAR FILL FOR GENERAL BACKFILL: THE GRANULAR FILL MATERIAL SHALL BE GRANULAR 'B' TYPE I OR II, OR ALTERNATIVE GRANULAR MATERIALS APPROVED BY THE ENGINEER. THE SUITABILITY OF GRANULAR FILL MATERIALS SHALL BE DETERMINED AS PER THE OPSS 1010 STANDARD AND THE REQUIREMENTS OF THE RSS/RGM SUPPLIER.

4.4

RIPRAP: THE RIPRAP MATERIAL FOR EROSION PROTECTION OF PERMANENT SLOPES AND CHANNEL SURFACES SHALL BE R–10 (MINUS 180 mm) FOR LIGHT TO MEDIUM EROSION RISK CONDITIONS AND R–50 (MINUS 305 mm) FOR HIGH RISK CONDITIONS, AS SHOWN ON THE DESIGN DRAWINGS OR AS REQUIRED BY THE ENGINEER (OPSS 1004). GEOTEXTILE SHALL BE USED AT INTERFACE BETWEEN THE SOIL SLOPES AND RIPRAP LAYER TO PREVENT LOSS OF MATERIAL FROM THE SOIL SLOPE.

4.5

LWF AND EPS: SEE RESPECTIVE CONSTRUCTION NOTES.

4.6

ROCK FILL INSIDE CULVERT SHALL BE RIVER STONE AND SHALL MEET THE FOLLOWING REQUIREMENTS: 20% 100–200mm DIA. STONE, 50% 100mm DIA. STONE, 20% 50–100mm DIA. STONE, 10% CLEAN SAND.

4.7

ROCK FILL INSIDE CULVERT SHALL BE MIXED WITH PARENT MATERIAL AND TOPSOIL. MIXTURE RATIO TO BE 60% ROCK TO 40% SOIL.
- METRIC
- DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN
- 
- Windsor–Essex  
Parkway Project  
RFP No. 09–54–1007
- 
- NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.–TODD LN. TB–4  
CONSTRUCTION NOTES – BACKFILL AT STRUCTURES
- SHEET  
S6407
- Phase 1
- 60% Sub
- 5.0 FILL PLACEMENT AND COMPACTION
- 5.1

GENERAL:

•

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THEIR QC/QA INSPECTION AND TEST PLAN FOR REVIEW/COMMENT PRIOR TO THE PLACEMENT/COMPACTION OF FILL.

•

FILL SHALL NOT BE PLACED ON SURFACES HAVING STANDING WATER, OR SURFACES WHICH HAVE BEEN RUTTED AND HEAVED BY TRAFFICKING. FILL SHALL NOT BE PLACED ON FROZEN SURFACES. FROZEN FILL IS DEFINED AS MATERIALS WITH SOIL WATER IN FROZEN STATE.

•

ALL EARTHWORKS TO BE ADEQUATELY PROTECTED AGAINST EROSION, FROST AND WATER INGRESS UNTIL THE LANDSCAPING REQUIREMENTS HAVE BEEN INSTALLED (SEE SECTIONS 2.6 TO 2.8).

5.2

IF NOT SPECIFIED IN THE CONTRACT DOCUMENTS, TARGET DENSITIES WILL BE ESTABLISHED UTILIZING CONTROL STRIPS AS PRESENTED IN OPSS 501. THE MINIMUM TARGET DENSITIES SHALL BE AS PER NOTES 5.3 AND 5.4.

5.3

THE SILTY CLAY FILL SHALL BE PLACED IN MAXIMUM 200 mm THICK LOOSE LIFTS AND COMPACTED AT WOPT±2% MOISTURE CONTENT TO A MINIMUM OF 95% SPMDD UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. THE TERMS WOPT AND SPMDD REFER TO OPTIMUM WATER CONTENT AND MAXIMUM DRY DENSITY, RESPECTIVELY, DETERMINED BY STANDARD PROCTOR TESTS.

5.4

THE GRANULAR FILL MATERIALS SHALL BE PLACED IN MAXIMUM 300 mm THICK LOOSE LIFTS AND COMPACTED AT WOPT±2% MOISTURE CONTENT TO A MINIMUM OF 95% SPMDD UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

5.5

THE COMPACTION EQUIPMENT SHALL BE APPROPRIATE FOR THE MATERIAL TO BE COMPACTED AND THE SITE CONDITIONS, AND SHOULD BE PROPOSED TO THE ENGINEER FOR APPROVAL. ADEQUATE NUMBER OF PASSES SHALL BE EMPLOYED TO ACHIEVE THE SPECIFIED PLACEMENT DENSITIES. HEAVY COMPACTION EQUIPMENT SHOULD NOT BE EMPLOYED NEAR STRUCTURAL WALLS.

5.6

COMPACTION AND PLACEMENT OF GRANULAR MATERIALS FOR RSS WALLS SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.

5.7

FILL PLACEMENT SHALL CONFORM TO THE REQUIREMENTS PRESENTED IN OPSS 501. THE CONTRACTOR SHOULD USE APPROPRIATELY SIZED EQUIPMENT TO AVOID DAMAGING ANY STRUCTURES, DEGRADING THE AGGREGATE, OR EPS BLOCKS.
- 6.0 DRAINAGE – DEWATERING
- 6.1

REFER TO OPSS 518 FOR DEWATERING REQUIREMENTS.

6.2

THE CONSTRUCTION SITE WILL BE KEPT CLEAN AND DRY, FREE OF WATER PUDDLES, MUD AND DEBRIS.

6.3

MINOR TO SIGNIFICANT SEEPAGE FROM RUNOFF INFILTRATIONS OR PERCHED WATER WITHIN UPPER GRANULAR DEPOSITS AND/OR FILL IS ANTICIPATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TEMPORARY DEWATERING SYSTEM.
- 7.0 USE
- 7.1

THIS DRAWING PROVIDES CONSTRUCTION REQUIREMENTS FOR GEOTECHNICAL ASPECTS OF BACKFILLING AT TRAIL EMBANKMENTS AND STRUCTURES.
- 
- 
- NOT FOR  
CONSTRUCTION
- DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING
- |           |           |      |     |                    |                 |
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MINISTRY OF TRANSPORTATION, ONTARIO  
PR-D-707  
BB-05

CONSTRUCTION NOTES – LIGHTWEIGHT FILL MATERIAL

1.0 GENERAL REQUIREMENTS

- 1.1.

THE CONSTRUCTION NOTES ON THIS DRAWING COVER THE REQUIREMENTS FOR THE SUPPLY AND PLACEMENT OF WATER COOLED ULTRA LIGHTWEIGHT BLAST FURNACE SLAG TO BE USED FOR CONSTRUCTION OF THE STRUCTURES FOR THE WINDSOR–ESSEX PARKWAY (WEP) PROJECT. AT THE WEP PROJECT, THE ULTRA LIGHTWEIGHT BLAST FURNACE SLAG MATERIAL IS GENERALLY REFERRED TO AS THE LIGHT WEIGHT FILL (LWF).
- 1.2.

THESE CONSTRUCTION NOTES ARE TO BE READ IN CONJUNCTION WITH THE ACCOMPANYING DESIGN DRAWING(S), OTHER RELEVANT CONSTRUCTION NOTES AND GEOTECHNICAL REPORT.
- 1.3.

THE CONSTRUCTION WORKS SHALL BE EXECUTED IN ACCORDANCE WITH THE DESIGN ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, AND THE REQUIREMENTS SPECIFIED IN THE FOLLOWING STANDARDS, SPECIFICATIONS AND PUBLICATIONS:

•

MTO

•

ASTM D422

•

ASTM D2216

•

ASTM D2922

•

ASTM D3017

•

OPSS 212

•

OPSS 501

•

OPSS 517

•

OPSS 1010

•

OPSS 1860

NSSP ULTRA LIGHTWEIGHT BLAST FURNACE SLAG (WATER COOLED)

PARTICLE–SIZE ANALYSIS OF SOILS

MOISTURE CONTENT OF SOILS

DENSITY OF SOIL AND SOIL–AGGREGATE IN PLACE BY NUCLEAR METHODS

WATER CONTENT OF SOIL AND ROCK IN PLACE BY NUCLEAR METHODS

BORROW

COMPACTION

DEWATERING

AGGREGATES–BASE, SUBBASE, SELECT SUBGRADE, AND BACKFILL MATERIAL

GEOTEXTILES
- 1.4.

IF THERE IS ANY CONFLICT BETWEEN THE REQUIREMENTS GIVEN ON THIS DRAWING AND THE STANDARDS AND SPECIFICATIONS DOCUMENTS LISTED IN SECTION 1.3, THE DESIGNER SHOULD BE CONSULTED FOR CLARIFICATION AND RECOMMENDATIONS.
- 1.5.

IN THE FOLLOWING SPECIFICATIONS, THE CONTRACTOR MEANS PIC AND ITS SUB–CONTRACTORS, AND THE ENGINEER MEANS THE GEOTECHNICAL SITE ENGINEER, AND THE DESIGNER MEANS THE GEOTECHNICAL DESIGNER OF THE PROJECT.

2.0 SITE PREPARATION AND EXCAVATION

- 2.1

THE SITE PREPARATION AND EXCAVATION REQUIREMENTS ON THE CONSTRUCTION NOTES FOR THE BACKFILL AT STRUCTURES ARE APPLICABLE.

3.0 SUBMISSION AND DESIGN REQUIREMENTS

- 3.1

THE CONTRACTOR SHALL SUBMIT TO PIC AND THE ENGINEER CERTIFICATES OF CONFORMANCE SEALED AND SIGNED BY THE QUALITY VERIFICATION ENGINEER AS FOLLOWS:

a.

PRIOR TO THE PLACEMENT OF THE LIGHTWEIGHT FILL MATERIAL ON THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR A CERTIFICATE OF CONFORMANCE STATING THAT THE MATERIAL SATISFIES THE MATERIAL PROPERTIES SPECIFIED IN SECTION 4.1.

b.

FOLLOWING FILL PLACEMENT, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR A CERTIFICATE OF CONFORMANCE STATING THAT THE MATERIAL SATISFIES THE REQUIREMENTS OF THIS SPECIFICATION AND THAT THE WORK HAS BEEN CARRIED OUT IN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE CONTRACTOR SHALL ALSO SUBMIT ALL QUALITY CONTROL TEST RESULTS FOR INFORMATION ONLY.

4.0 MATERIAL

- 4.1

THE LWF SHALL SATISFY THE FOLLOWING PHYSICAL, MECHANICAL AND CHEMICAL PROPERTY REQUIREMENTS:

•

ANGLE OF INTERNAL FRICTION

>35° (ASTM 2850–85)

•

HYDRAULIC CONDUCTIVITY

>8 E–03 CM/S (ASTM 5856–95, METHOD A)

•

CHEMICAL COMPOSITION

THE MATERIAL SHALL MEET THE LEACHATE CRITERIA ESTABLISHED UNDER ONTARIO REGULATION 347

•

IN SITU WET UNIT WEIGHT

<12.5 kN/m³ (ASTM D2922) (MAXIMUM WHEN PLACED AND COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS)

5.0 CONSTRUCTION

- 5.1

THE LWF (BLAST FURNACE SLAG) IS SUSCEPTIBLE TO CRUSHING IF OVERCOMPACTED AND CAREFUL CONSTRUCTION PROCEDURES AND SUPERVISION ARE REQUIRED. THE CONTRACTOR SHALL PLACE THE LWF MATERIAL AND SHALL ACHIEVE COMPACTION WITHOUT CRUSHING THE MATERIAL SINCE CRUSHING INCREASES ITS UNIT WEIGHT. THE CONTRACTOR SHALL PLACE THE LWF MATERIAL WITHOUT EXCEEDING THE SPECIFIED IN SITU UNIT WEIGHT AND MAINTAINING CRUSHING OF THE MATERIAL BELOW 5%.
- 5.2

TO PREVENT OVER–CRUSHING AND OVER–COMPACTION, THE LWF SHALL BE PLACED AS FOLLOWS:

a.

FOR EMBANKMENTS THE LWF SHALL BE PLACED IN LIFTS OF 300 mm AND COMPACTED BY 3 PASSES OF SINGLE DRUM VIBRATORY EQUIPMENT APPROVED BY THE ENGINEER (E.G., BOMAG 142 OR EQUIVALENT, TABLE 1).

b.

FOR BACKFILL TO STRUCTURES, THE LWF SHALL BE PLACED IN LIFTS OF 300 mm AND COMPACTED WITH 8 PASSES OF MANUALLY GUIDED TAMPER SUCH AS A BOMAG BPR 30/38 D OR EQUIVALENT (TABLE 1).

c.

THE CONTRACTOR SHALL PLACE AND SPREAD THE LOOSE LIFTS USING A RUBBER TIRE FRONT–END LOADER SUCH AS A CATERPILLAR 980 F OR EQUIVALENT.
- 5.3

COMPACTION EQUIPMENT TECHNICAL DETAILS ARE PROVIDED IN TABLE 1.
- 5.4

THE LWF ZONES SHALL BE APPROPRIATELY WRAPPED IN GEOTEXTILE TO AVOID LOSS OF FINES FROM THE ADJACENT BACKFILL OR NATIVE MATERIALS IN CONTACT WITH THE LWF ZONES.

6.0 QUALITY CONTROL

- 6.1

QUALITY CONTROL (QC) TESTING SHALL BE CARRIED OUT BY THE CONTRACTOR TO ENSURE THAT THE LWF MATERIAL IS PLACED AND COMPACTED AS SPECIFIED. FIELD DENSITY AND FIELD MOISTURE DETERMINATION SHALL BE MADE IN ACCORDANCE WITH ASTM D2922 AND ASTM D3017, RESPECTIVELY.
- 6.2

THE CONTRACTOR SHALL BUILD A CONTROL STRIP TO VERIFY THAT THE PLACEMENT AND COMPACTION PROCEDURE WILL ACHIEVE THE REQUIREMENTS OF THESE SPECIFICATIONS WITHOUT EVIDENCE OF CRUSHING AND WITHOUT EXCEEDING THE SPECIFIED MAXIMUM IN SITU WET UNIT WEIGHT OF 12.5 kN/m³.
- 6.3

MATERIAL PLACED IN THE CONTROL STRIP SHALL HAVE THE MOISTURE CONTENT THAT WILL YIELD THE SPECIFIED IN–SITU UNIT WEIGHT. FOR THE CONTROL STRIP DETERMINATION, THE NUCLEAR GAUGE METHOD WILL NOT BE CONSIDERED AN ACCEPTABLE METHOD OF DETERMINING THE IN–SITU MOISTURE CONTENT OF THE LWF MATERIAL. MOISTURE CONTENT SHALL BE DETERMINED BY THE OVEN DRY METHOD ON SELECTED COMPACTED EMBANKMENT MATERIAL SAMPLES IN ACCORDANCE WITH ASTM D2216.
- 6.4

AFTER THE TRIAL AREA IS COMPLETE, SAMPLES FOR MOISTURE CONTROL AND IN SITU UNIT WEIGHT DETERMINATION TESTING SHALL BE AS PER ASTM D2922.
- 6.5

IN ADDITION, GRADATION AS PER ASTM D422–63 BEFORE AND AFTER COMPACTION EFFORT SHALL BE PERFORMED TO DETERMINE THAT CRUSHING IS KEPT WITHIN 5%.
- 6.6

THE REQUIREMENTS OF THE CONTROL STRIP MUST BE SATISFIED AS PART OF THE ACCEPTANCE CRITERIA OF ANY PROPOSED CHANGE TO THE SPECIFIED COMPACTION METHOD OF THIS SPECIAL PROVISION.

7.0 USE

- 7.1

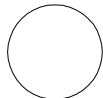
THIS DRAWING PROVIDES CONSTRUCTION REQUIREMENTS FOR GEOTECHNICAL ASPECTS OF BACKFILLING AT TRAIL EMBANKMENTS AND STRUCTURES.

METRIC

DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN



Windsor–Essex  
Parkway Project  
RFP No. 09–54–1007



NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.–TODD LN. TB–4  
CONSTRUCTION NOTES – LIGHTWEIGHT FILL MATERIAL

SHEET

S6408

Phase 1

60% Sub

TABLE 1: COMPACTION EQUIPMENT TECHNICAL DETAILS

	BOMAG 142 D	BOMAG BPR 30/38 D
WEIGHTS		
• OPERATING WEIGHT (kg)	4690±	175±
• MASS PER SQUARE METRE OF BASE PLATE (kg/m²)	N/A	1439
DIMENSIONS		
• DRUM WIDTH (mm)	1426±	N/A
• DRUM DIAMETER (mm)	1058±	N/A
• WIDTH OF BASE PLATE (mm)	N/A	380
• LENGTH OF BASE PLATE (mm)	N/A	730
DRIVE		
• PERFORMANCE DIN 6271 IFN (kW)	37±	3.7
• PERFORMANCE SAE (kW)	39.5	N/A
• SPEED (RPM)	2300	3600
VIBRATORY SYSTEM		
• FREQUENCY (Hz)	32±	68±
• AMPLITUDE (mm)	1.24±	N/A
• CENTRIFUGAL FORCE (KN)	66±	30±



DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

REVISIONS					
	01–OCT–13	A	EA	60% MTO SUBMISSION	
	DATE	REV.	BY	DESCRIPTION	
DESIGN	SF	CHK	NSV	CODE CAN/CSA S6–06	LOAD CL–625–ONT
DRAWN	MM	CHK	DD	SITE 6–619	DATE 20–DEC–11

DOC: 285380–04–094–SEG1–6408

# METRIC

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**Infrastructure**  
**Engineers**



Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007



NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
FOUNDATION LAYOUT AND DETAILS

SHEET  
S6409

Phase 1  
60% Sub

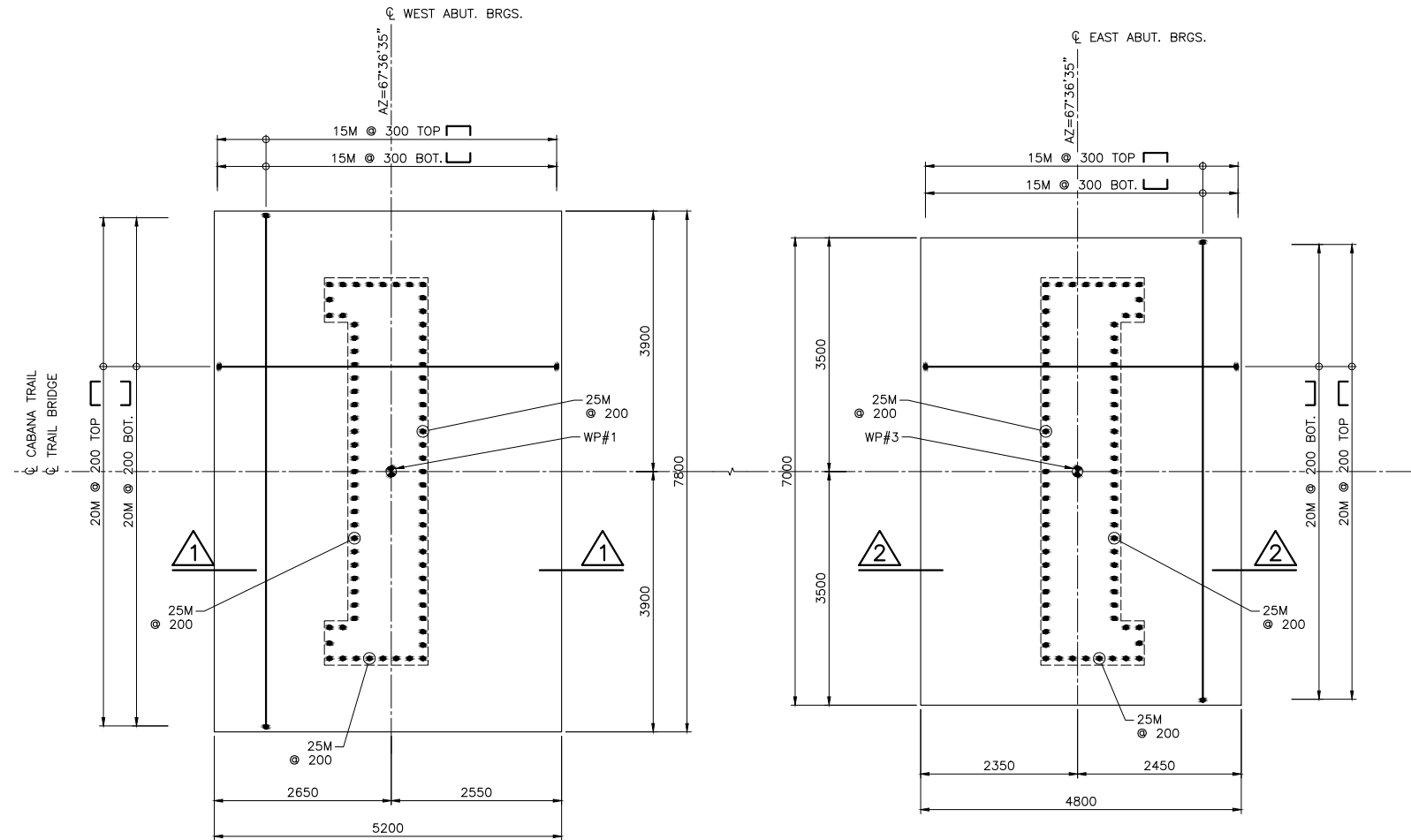
## NOTES:

1. FOR GENERAL NOTES SEE SHEET S6402.

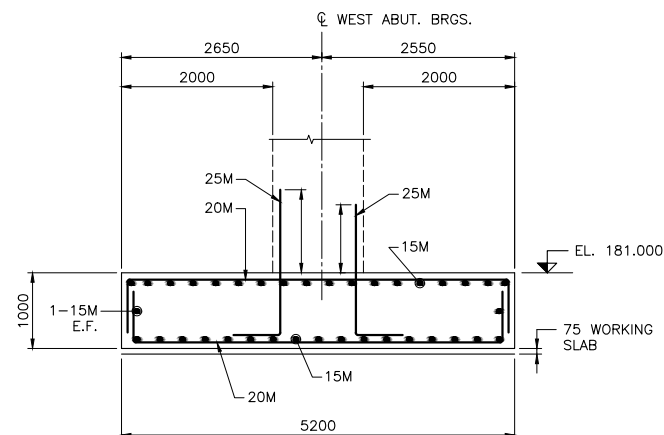
## ASSUMED LOADS FROM SUPERSTRUCTURE-UNFACTORED:

CONCRETE DECK	xxxkN
ASPHALT	xxxkN
STEEL TRUSS	xxxkN
MAINTENANCE VEHICLE	xxxkN
PEDESTRIANS	4kN/m <sup>2</sup>

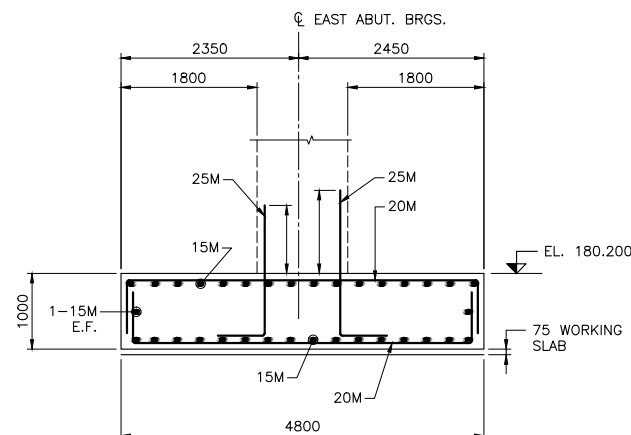
WORKING POINT DATA			
WORKING POINT	STATION	CO-ORDINATES	
		NORTHING	EASTING
WP #1	10+020.600	4679712.573	332133.077
WP #3	10+060.600	4679675.589	332148.314



PLAN  
SCALE 1:50



1  
SCALE 1:50

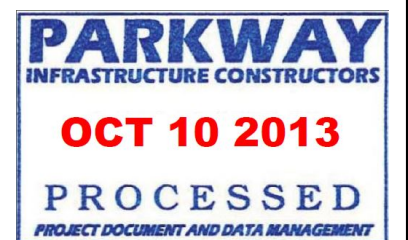


2  
SCALE 1:50

IN PROGRESS

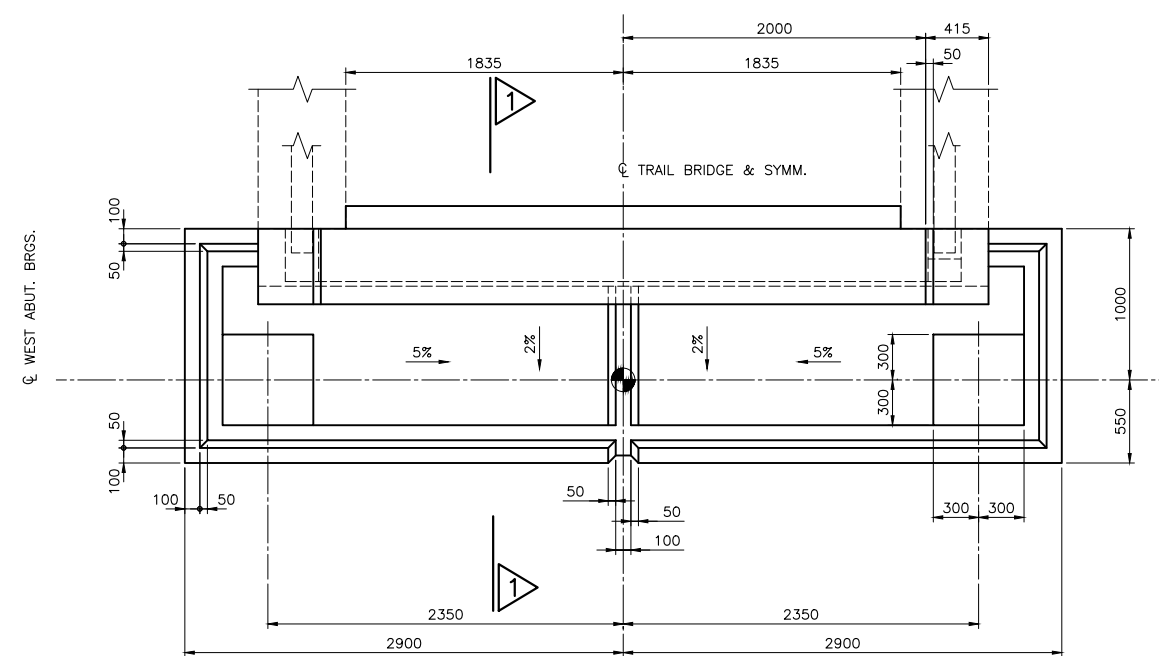
NOT FOR  
CONSTRUCTION

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

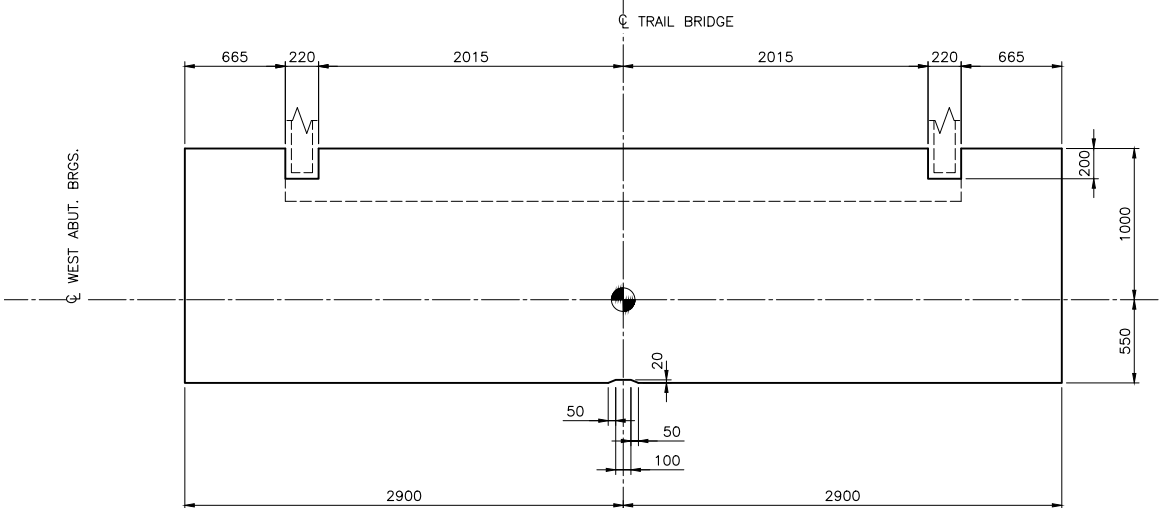


REVISIONS		DATE	REV.	BY	DESCRIPTION
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DESIGN	BR	CHK	PM	CODE	CAN/CSA S6-06
DRAWN	LG	CHK	MAS	SITE	6-619
		LOAD	CL	625-ONT	
		DATE	JUN	2013	

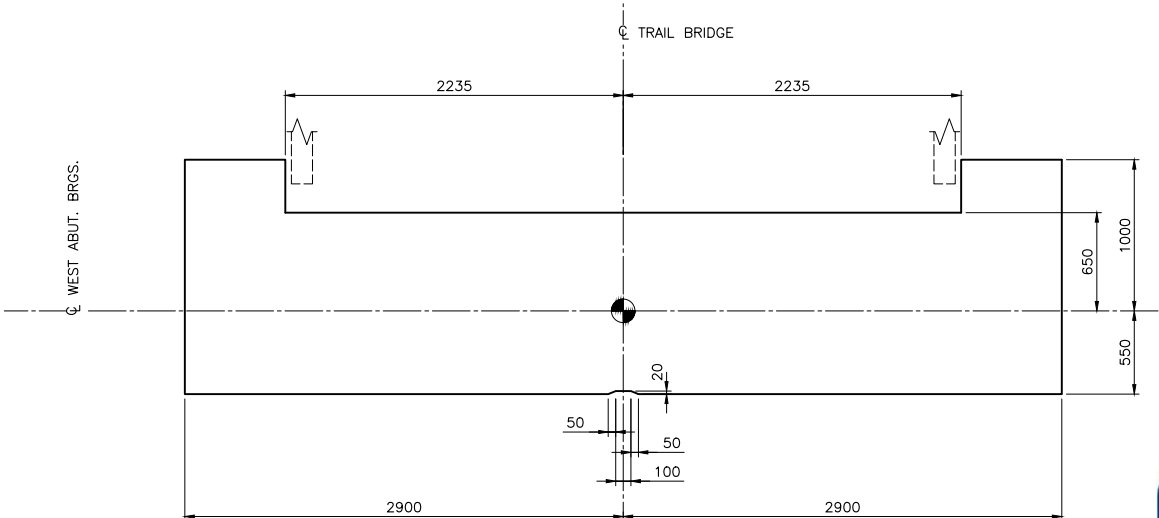
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MINISTRY OF TRANSPORTATION, ONTARIO  
PR-D-707 88-05



PLAN 2  
SCALE 1:25  
NORTH ABUTMENT SHOWN  
SOUTH ABUTMENT SIMILAR (AS NOTED)



PLAN 3  
SCALE 1:25  
NORTH ABUTMENT SHOWN  
SOUTH ABUTMENT SIMILAR (AS NOTED)



PLAN 4  
SCALE 1:25  
NORTH ABUTMENT SHOWN  
SOUTH ABUTMENT SIMILAR (AS NOTED)



METRIC  
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AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN



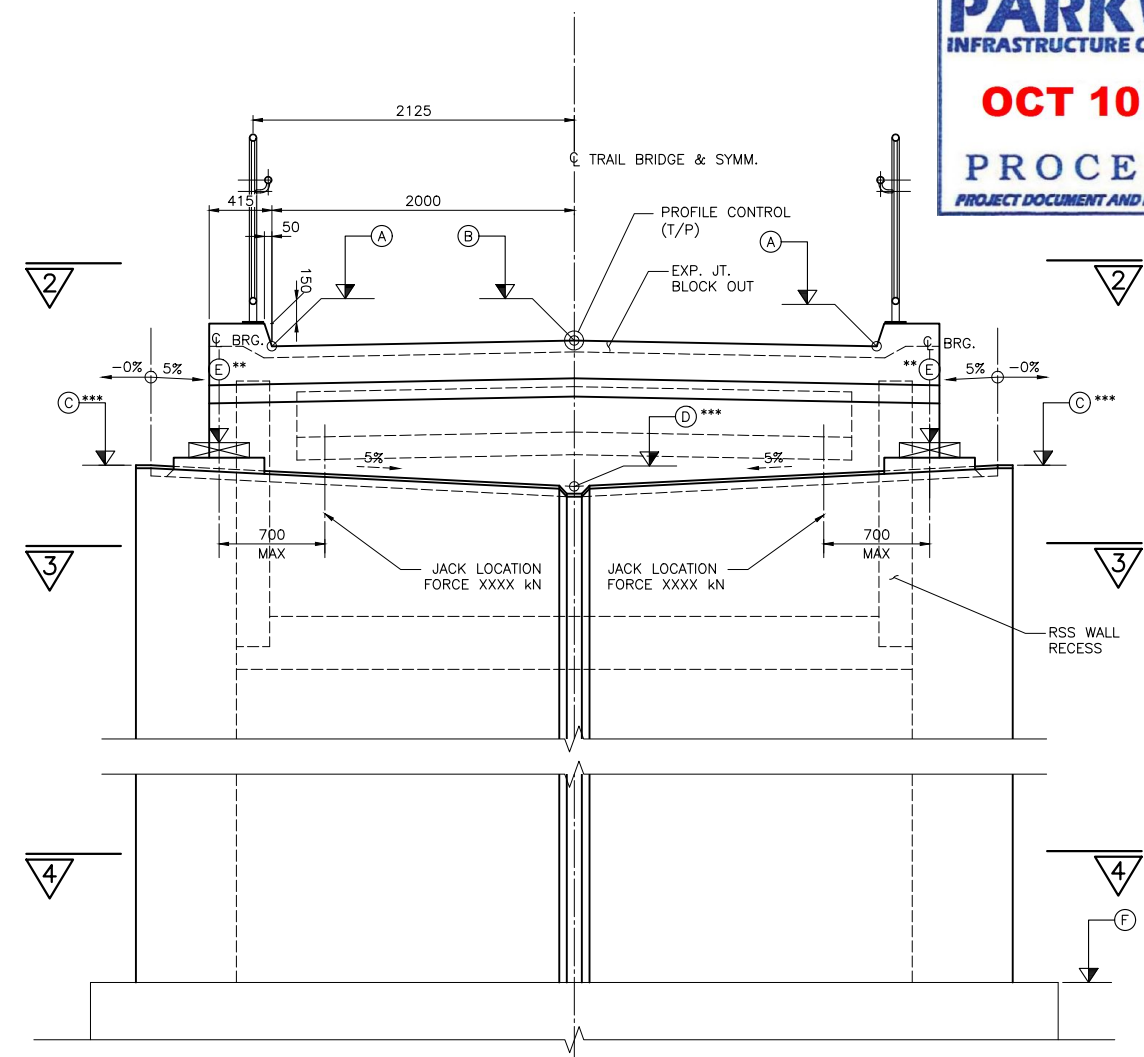
Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007



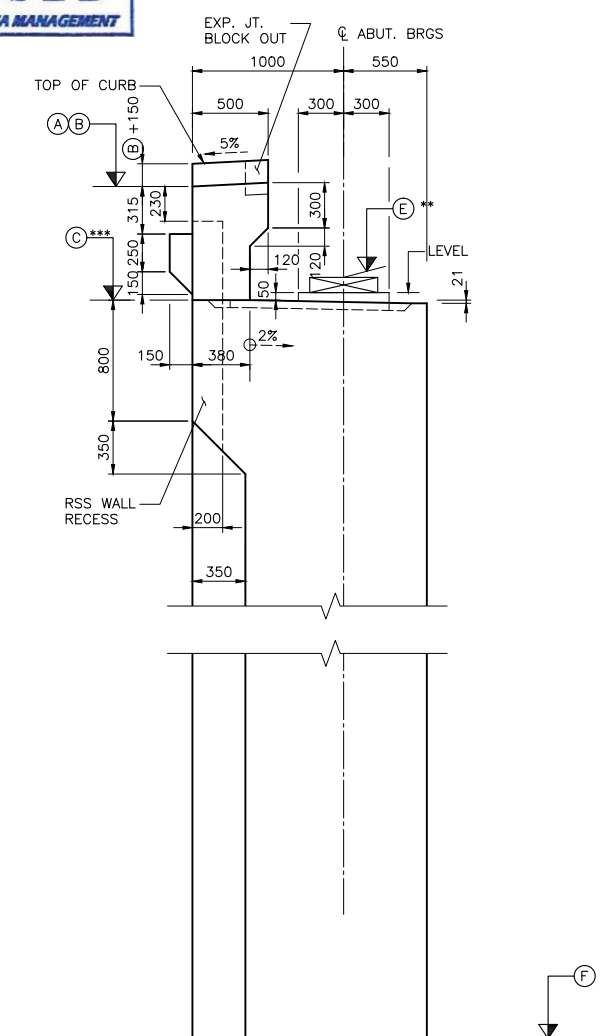
**PARKWAY**  
INFRASTRUCTURE CONSTRUCTORS  
**OCT 10 2013**  
PROJECT DOCUMENT AND DATA MANAGEMENT

NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
ABUTMENT LAYOUT AND DETAILS I

SHEET  
S6410  
Phase 1  
60% Sub



ELEVATION  
SCALE 1:25



SCALE 1:25

POINT	W ABUT. ELEVATIONS	E ABUT. ELEVATIONS
A	xxx.xxx	xxx.xxx
B	xxx.xxx	xxx.xxx
C***	xxx.xxx	xxx.xxx
D***	xxx.xxx	xxx.xxx
E**	xxx.xxx	xxx.xxx
F	xxx.xxx	xxx.xxx

\*\* DENOTES TOP OF BEARING ELEVATIONS. SEE CONSTRUCTION  
NOTES ON SHEET S6402.  
\*\*\* VARY ACCOMMODATE ACTUAL BEARING HEIGHT

- NOTES:
- BACKFILL SHOULD XXXXXXXX BE PLACED BEHIND THE ABUTMENTS TO THE CONSTRUCTION JOINT LEVEL BEFORE THE DECK SLAB IS IN PLACE.
  - CAST BEARING PEDESTALS LEVEL.
  - THIS DRAWING TO BE READ IN CONJUNCTION WITH DWG. S64XX, S64XX, S64XX AND S64XX.
  - THE CONTRACTOR SHALL COORDINATE WITH BEARING SUPPLIER FOR THE INSTALLATION OF BEARING ANCHORAGES.

APPLICABLE STANDARD DRAWINGS  
OPSD 3101.150 WALLS, ABUTMENT, BACKFILL, MINIMUM GRANULAR REQUIREMENT  
OPSD 3102.100 WALLS, ABUTMENT, BACKFILL DRAIN  
OPSD 3950.100 JOINTS, CONCRETE EXPANSION AND CONSTRUCTION, ON STRUCTURE

IN PROGRESS

NOT FOR  
CONSTRUCTION

RELEASED FOR  
ADVANCE WORKS  
OCT 09 2013  
PDDM

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

REVISIONS	DATE	REV.	BY	DESCRIPTION
01-OCT-13	A	MAS		60% MTO SUBMISSION
DESIGN	BR	CHK	PM	CODE CAN/CSA S6-06 LOAD CL 625-ONT
DRAWN	LG	CHK	MAS	SITE 6-619 DATE JUN 2013

DOC: 285380-03-061-SEG1-6410





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MINISTRY OF TRANSPORTATION, ONTARIO  
PR-D-707 88-05

METRIC

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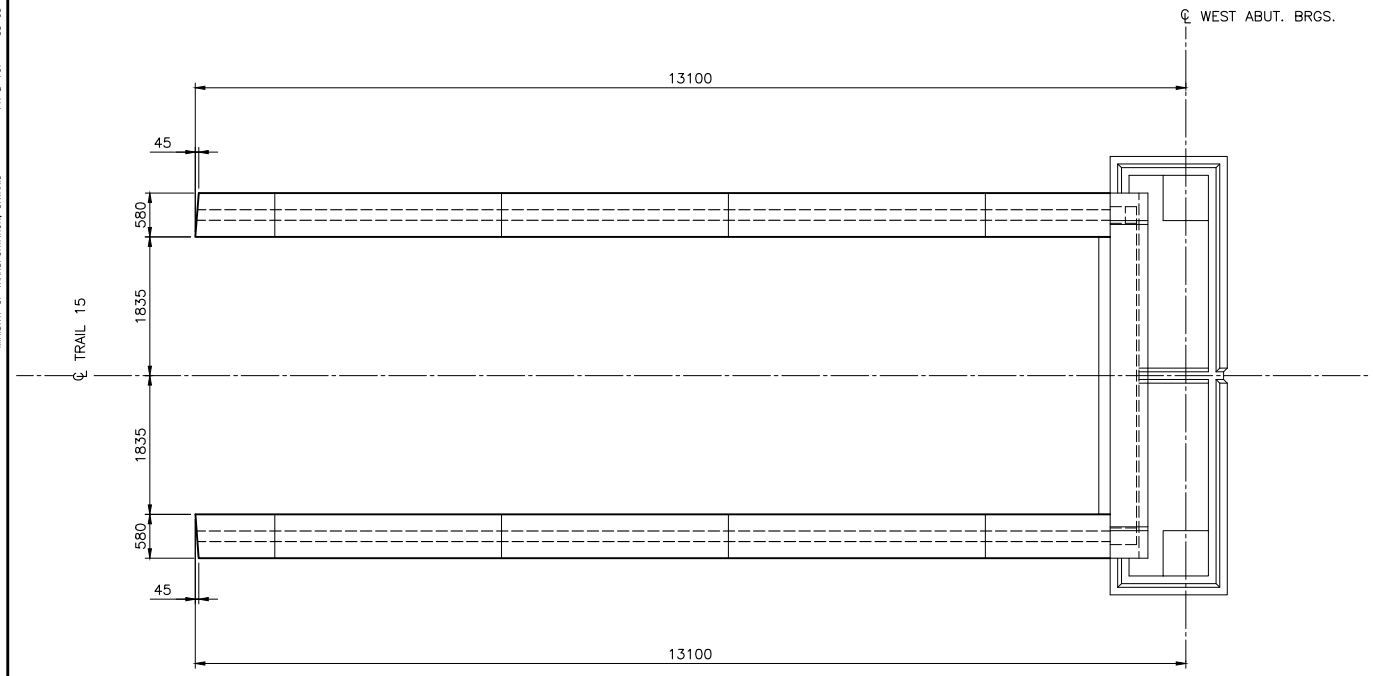


NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
RSS WINGWALL LAYOUT AND DETAILS I

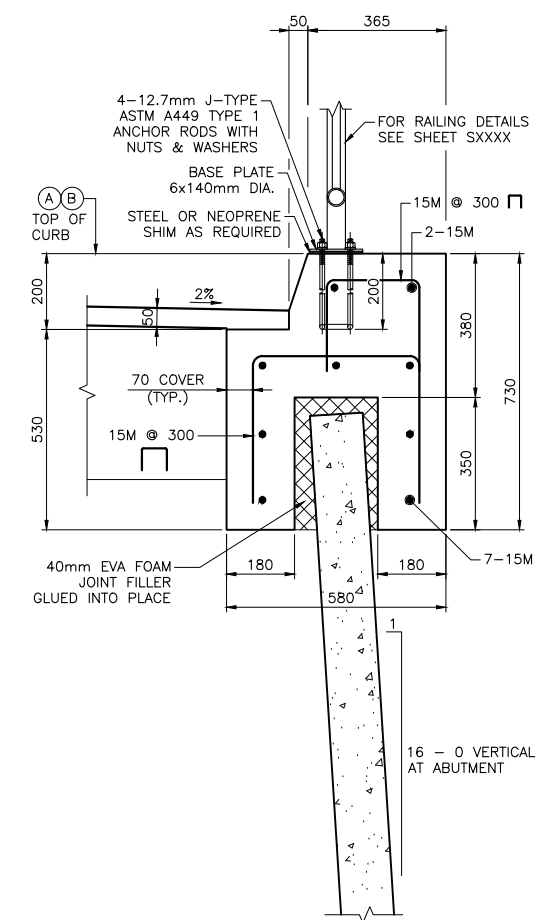
SHEET  
S6412

Phase 1  
60% Sub

TOP OF CONCRETE ELEVATIONS		
WINGWALL	(A)	(B)
NORTHWEST	-	-
SOUTHWEST	-	-



PLAN  
SCALE 1:50



RSS WALL CAP DETAIL  
SCALE 1:10

IN PROGRESS



- NOTES:
- FOR GENERAL NOTES SEE SHEET S6402.
  - MAXIMUM RSS WALL COPING LENGTHS BETWEEN, EXPANSION, CONSTRUCTION AND CONTROL JOINTS ARE NOT TO EXCEED THE FOLLOWING:
    - 3000 BETWEEN CONSTRUCTION AND CONTROL JOINTS.
    - 9000 BETWEEN EXPANSION JOINTS.
- CONSTRUCTION AND CONTROL JOINTS ARE TO BE CONSTRUCTED AS PER DETAILS SHOWN ON STANDARD DRAWING SS110-64 AND EXPANSION JOINTS ARE TO CONSTRUCTED AS BE DETAIL SHOWN ON OPSD 3950.100.

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

REVISIONS		DATE	REV.	BY	DESCRIPTION
01-OCT-13	A	MAS	60% MTO SUBMISSION		
DESIGN	BR	CHK	PM	CODE	CAN/CSA S6-06
DRAWN	LG	CHK	MAS	SITE	6-619
				LOAD	CL 625-ONT
				DATE	JUN 2013

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PR-D-707 88-05  
DATE PLOTTED: 10/1/2013 10:45:27 AM  
FILE LOCATION: C:\RunScript\285380-03-061-SEG1-6413.dwg

METRIC

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UNLESS OTHERWISE SHOWN

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RFP No. 09-54-1007



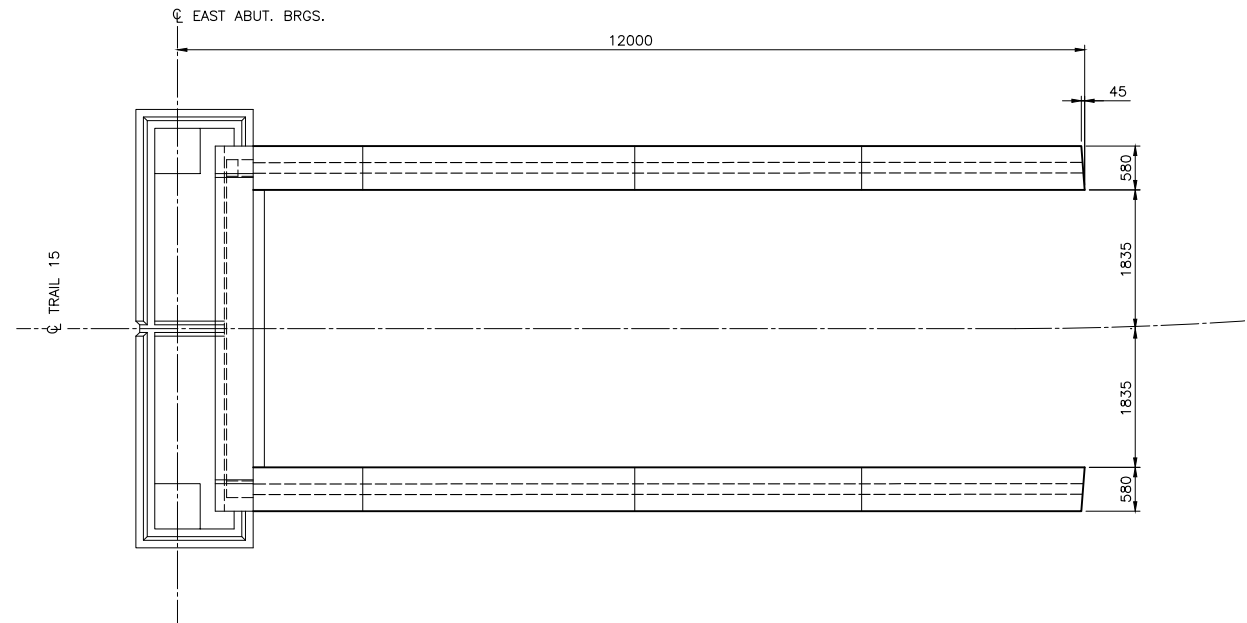
NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
RSS WINGWALL LAYOUT AND DETAILS II

SHEET

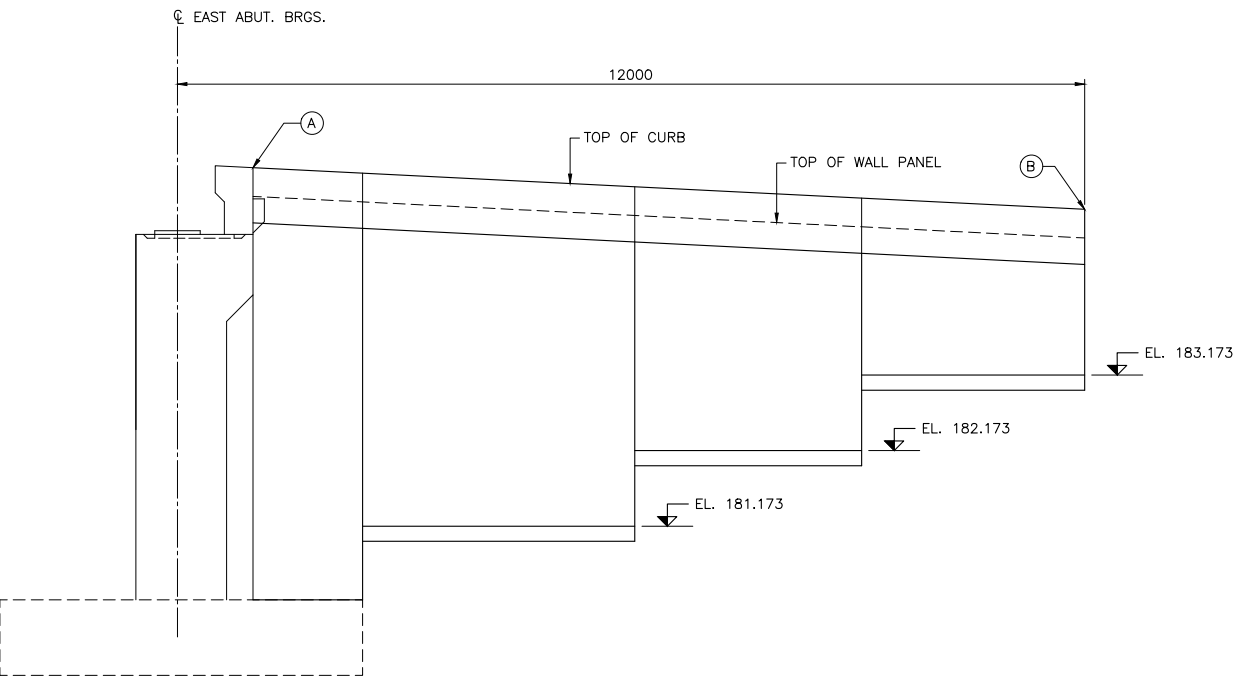
S6413

Phase 1

60% Sub

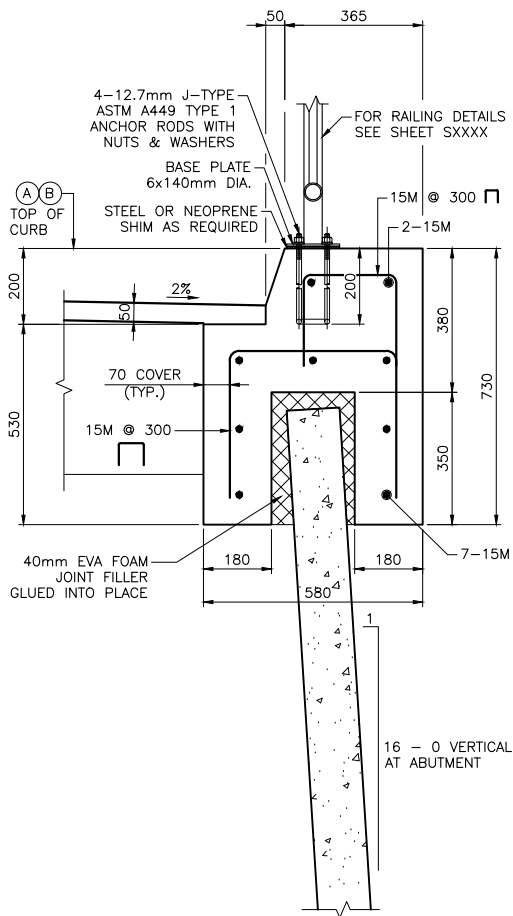


PLAN  
SCALE 1:50

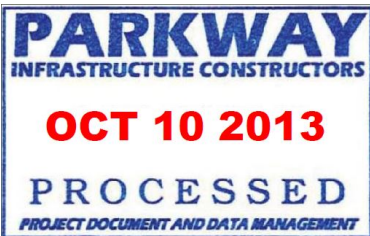


ELEVATION  
SCALE 1:50

TOP OF CONCRETE ELEVATIONS		
WINGWALL	(A)	(B)
NORTHEAST	-	-
SOUTHEAST	-	-



RSS WALL CAP DETAIL  
SCALE 1:10



IN PROGRESS

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

REVISIONS		DATE	REV.	BY	DESCRIPTION
01-OCT-13		A	MAS	60% MTO SUBMISSION	
DESIGN	BR	CHK	PM	CODE CAN/CSA S6-06	LOAD CL 625-ONT
DRAWN	LG	CHK	MAS	SITE 6-619	DATE JUN 2013

DOC: 285380-03-061-SEG1-6413

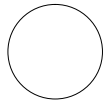


METRIC  
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Parkway Project  
RFP No. 09–54–1007



NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.–TODD LN. TB–4  
MISCELLANEOUS DETAILS

SHEET  
S6414

Phase 1  
60% Sub

IN PROGRESS

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION

**PARKWAY**  
INFRASTRUCTURE CONSTRUCTORS  
  
**OCT 10 2013**  
  
P R O C E S S E D  
PROJECT DOCUMENT AND DATA MANAGEMENT

**PARKWAY**  
INFRASTRUCTURE CONSTRUCTORS  
  
**RELEASED FOR  
ADVANCE WORKS**  
  
OCT 09 2013 PDDM

REVISIONS									
01–OCT–13		A	MAS	60% MTO SUBMISSION					
DATE		REV.	BY	DESCRIPTION					
DESIGN	BR	CHK	PM	CODE	CAN/CSA	S6-06	LOAD	CL	625–ONT
DRAWN	LG	CHK	MAS	SITE	6–619	DATE	JUN	2013	

MINISTRY OF TRANSPORTATION, ONTARIO  
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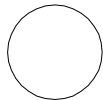
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METRIC  
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Parkway Project  
RFP No. 09-54-1007



NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
PEDESTRIAN BARRICADES LAYOUT AND DETAILS

SHEET  
S6415

Phase 1  
60% Sub

IN PROGRESS

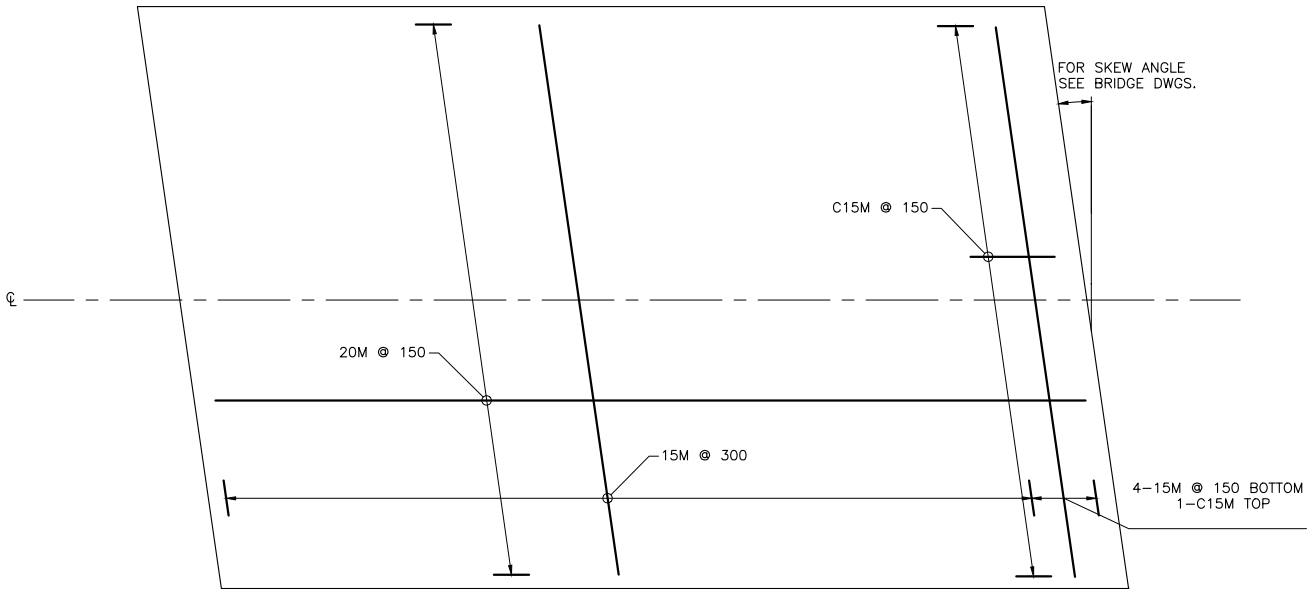


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100mm ON ORIGINAL DRAWING

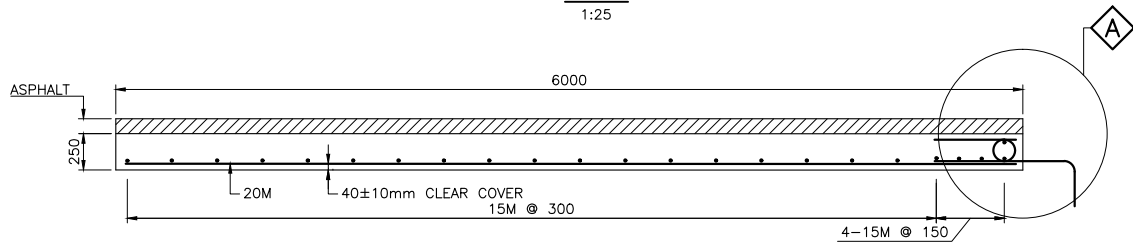
NOT FOR  
CONSTRUCTION

REVISIONS										

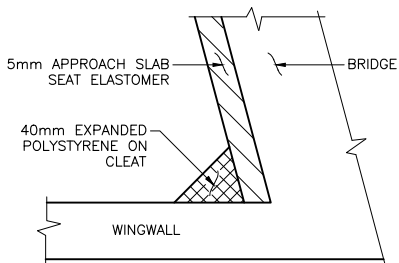
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MINISTRY OF TRANSPORTATION, ONTARIO  
PR-D-707  
88-05



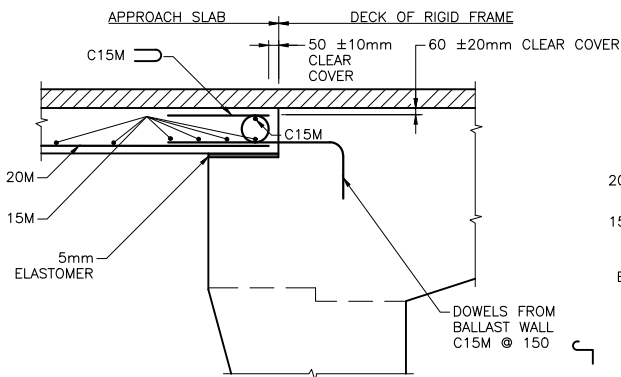
PLAN  
1:25



LONGITUDINAL SECTION  
1:25

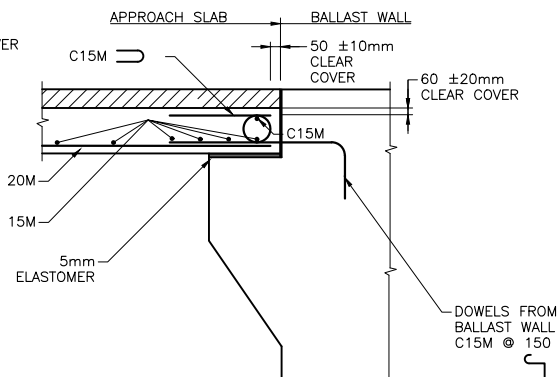


DETAIL AT CLEAT



A

FOR BRIDGES WITHOUT EXPANSION JOINTS



A

FOR BRIDGES WITH EXPANSION JOINTS

## METRIC

DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

**Parkway**  
Infrastructure  
Engineers



Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007

NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
6000mm APPROACH SLAB



SHEET  
S6416

Phase 1

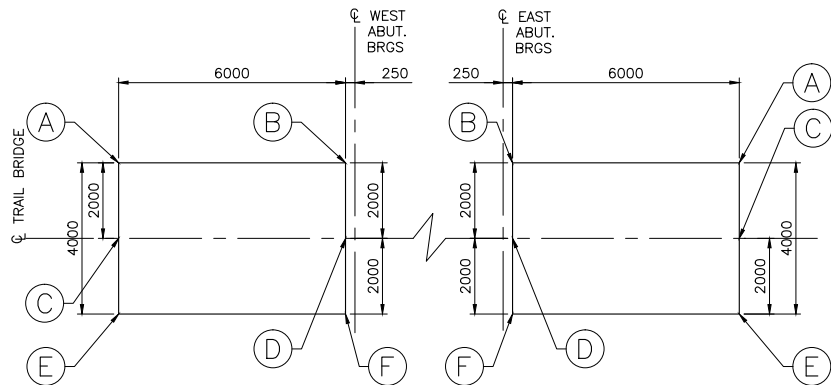
60% Sub

### NOTES

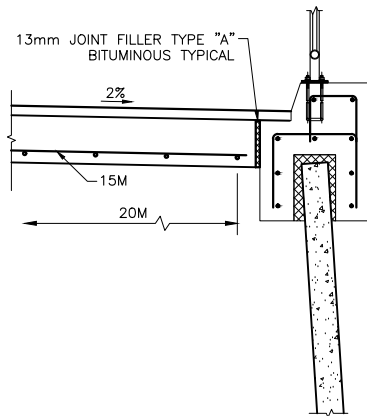
- CLEAR COVER TO REINFORCING STEEL 70 ± 20 mm EXCEPT AS NOTED.
- LAYOUT OF REINFORCING STEEL WILL BE SIMILAR FOR LEFT HAND AND ZERO DEGREE SKEW.
- BARS MARKED WITH PREFIX C DENOTE COATED BARS.
- WATERPROOFING AT JOINT BETWEEN BRIDGE AND APPROACH SLAB TO BE IN ACCORDANCE WITH OPSD-3370.1000.
- WATERPROOFING FOR BRIDGES WITHOUT EXPANSION JOINTS (RIGID FRAMES AND INTEGRAL ABUTMENTS) TO BE IN ACCORDANCE WITH OPSD-3370.1010.

### APPLICABLE STANDARD DRAWINGS

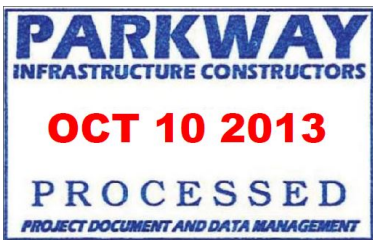
- OPSD-3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
- OPSD-3370.101 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS



KEY PLAN  
1:100



SECTION AT RSS WINGWALL



TOP OF CONCRETE ELEVATION		
POINT	WEST APPROACH SLAB	EAST APPROACH SLAB
(A)	-	-
(B)	-	-
(C)	-	-
(D)	-	-
(E)	-	-
(F)	-	-



STANDARD DRAWING APRIL 2008	SS116-1
6000 mm APPROACH SLAB	

NOT FOR  
CONSTRUCTION

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING


REVISIONS		DATE	REV.	BY	DESCRIPTION
01-OCT-13	A	MAS	60% MTO SUBMISSION		
DESIGN	BR	CHK	PM	CODE	CAN/CSA S6-06
DRAWN	LG	CHK	MAS	SITE	6-619
				LOAD	CL 625-ONT
				DATE	JUN 2013

DOC: 285380-03-065-SEG1-6416



METRIC  
DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
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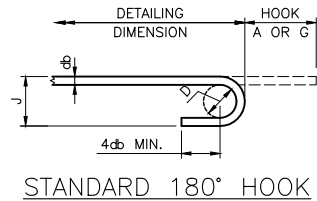
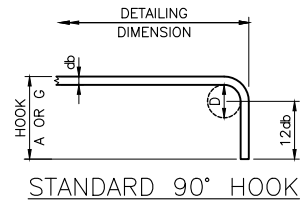
**Parkway Infrastructure Engineers**



Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007

NEW CONSTRUCTION  
HWY 401  
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4  
STANDARD DETAILS

SHEET  
S6417  
Phase 1  
60% Sub



MINIMUM BENDING PIN DIAMETER,  
D, mm

BAR SIZE	STEEL GRADE	
	400R <sup>(2)</sup>	400W
10M	70	60
15M	100	90
20M	120	100
25M	150	150
30M	250	200
35M	300	250
45M	450 <sup>(1)</sup>	400
55M	600 <sup>(1)</sup>	550

- (1) SPECIAL FABRICATION IS REQUIRED FOR BENDS EXCEEDING 90° FOR BARS OF THESE SIZES AND GRADE.  
(2) FOR STAINLESS STEEL, WITH FY = 420, USE THE SAME D AS FOR 400R.

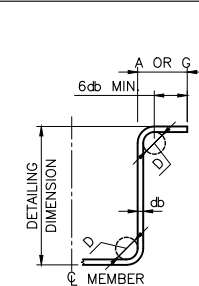
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS			
	A OR G (mm)		A OR G (mm)		J (mm)	
	400R	400W	400R	400W	400R	400W
10M	180	180	140	130	90	80
15M	260	250	180	170	130	120
20M	310	300	220	200	160	140
25M	400	400	280	280	200	200
30M	510	490	400	350	310	260
35M	610	590	480	430	370	320
45M	790	770	680	630	540	490
55M	1030	1010	900	850	710	660

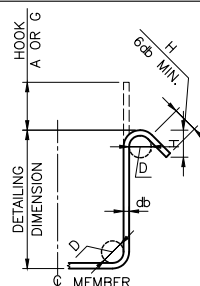
NOTE: ALL HOOK DIMENSIONS ARE ACCORDING TO THE CHBDC-2000.

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

BAR SIZE	BAR DIAM. $\phi_b$ (mm)	PIN DIAM. D (mm)	90°		135°
			A OR G (mm)	A OR G (mm)	H (APPROX.) (mm)
10M	11.3	45	100	100	70
15M	16.0	65	140	140	100
20M	19.5	80	180	175	115
25M	25.2	100	230		



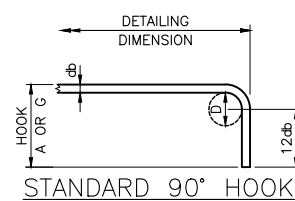
MIN. 90° HOOK



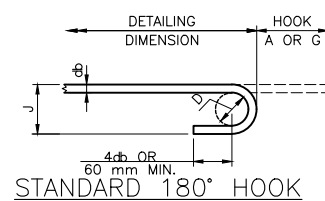
MIN. 135° HOOK

HOOK DIMENSIONS  
FOR UNCOATED BARS

SS12-1



STANDARD 90° HOOK



STANDARD 180° HOOK

MINIMUM BENDING PIN DIAMETER, D, mm

BAR SIZE	STEEL GRADE 400
10M	80
15M	120
20M	160
25M	200
30M	240
35M	350
45M	450
55M	550

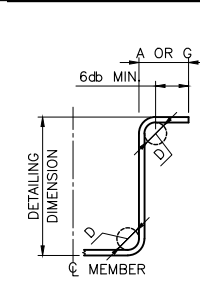
STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS
	A OR G (mm)		J (mm)
10M	190	210*	110*
15M	270	260*	160*
20M	330	300*	200
25M	430	330	250
30M	610	460*	300
35M	640	700*	430*
45M	790	850*	540
55M	1010	1050*	680*

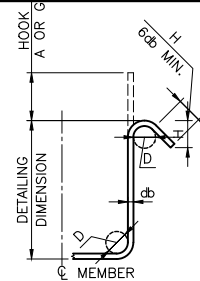
NOTE: TABULATED VALUES FOR STANDARD HOOK DIMENSIONS ARE THE LARGER OF CALCULATED (ACCORDING TO CHBDC-2000) AND REINFORCING STEEL INSTITUTE OF CANADA (RSIC) REQUIREMENTS. VALUE MARKED BY \*\* INDICATE RSIC RECOMMENDED MINIMUM.

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

BAR SIZE	BAR DIAM. $\phi_b$ (mm)	PIN DIAM. D (mm)	90°	135°	
			A OR G (mm)	A OR G (mm)	H (APPROX.) (mm)
10M	11.3	90	180	190	120
15M	16.0	130	190	220	130
20M	19.5	160	230	260	150
25M	25.2	200	280		



MIN. 90° HOOK



MIN. 135° HOOK

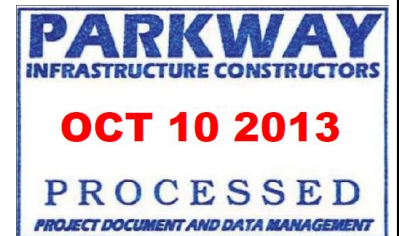
NOTE: VALUE MARKED BY '\*\*' INDICATES RSIC RECOMMENDED MINIMUM, BASED ON THE AVERAGE OF 90° AND 180° HOOKS.

HOOK DIMENSIONS  
FOR COATED BARS

SS12-2

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION



REVISIONS		DATE	REV.	BY	DESCRIPTION
01-OCT-13		A	MAS		60% MTO SUBMISSION
DESIGN	BR	CHK	PM	CODE CAN/CSA S6-06	LOAD CL 625-ONT
DRAWN	LG	CHK	MAS	SITE 6-619	DATE JUN 2013

DATE PLOTTED: 10/1/2013 10:46:42 AM  
FILE LOCATION: C:\RunScript\285380-07-067-SEG1-6418.dwg

METRIC

DIMENSIONS ARE IN METRES  
AND/OR MILLIMETRES  
UNLESS OTHERWISE SHOWN

# Parkway Infrastructure Engineers



Windsor-Essex  
Parkway Project  
RFP No. 09-54-1007



NEW CONSTRUCTION	
HWY 401	
TRAIL BRIDGE OVER CABANA RD.-TODD LN. TB-4	
EMBEDDED ELECTRICAL WORK	

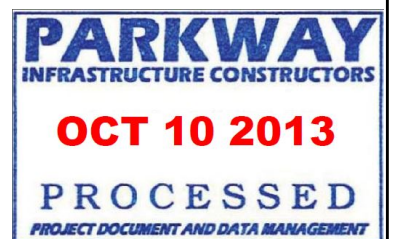
Phase 1
60% Sub



# IN PROGRESS

DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

NOT FOR  
CONSTRUCTION



REVIEWS	01-OCT-13												A	MAS	60% MTO SUBMISSION			
	DATE				REV.				BY		DESCRIPTION							
	DESIGN	BR	CHK	PM	CODE	CAN/CSA	S6-06	LOAD	CL	625-ONT								
DRAWN	LG	CHK	MAS	SITE	6-619			DATE	JUN 2013									