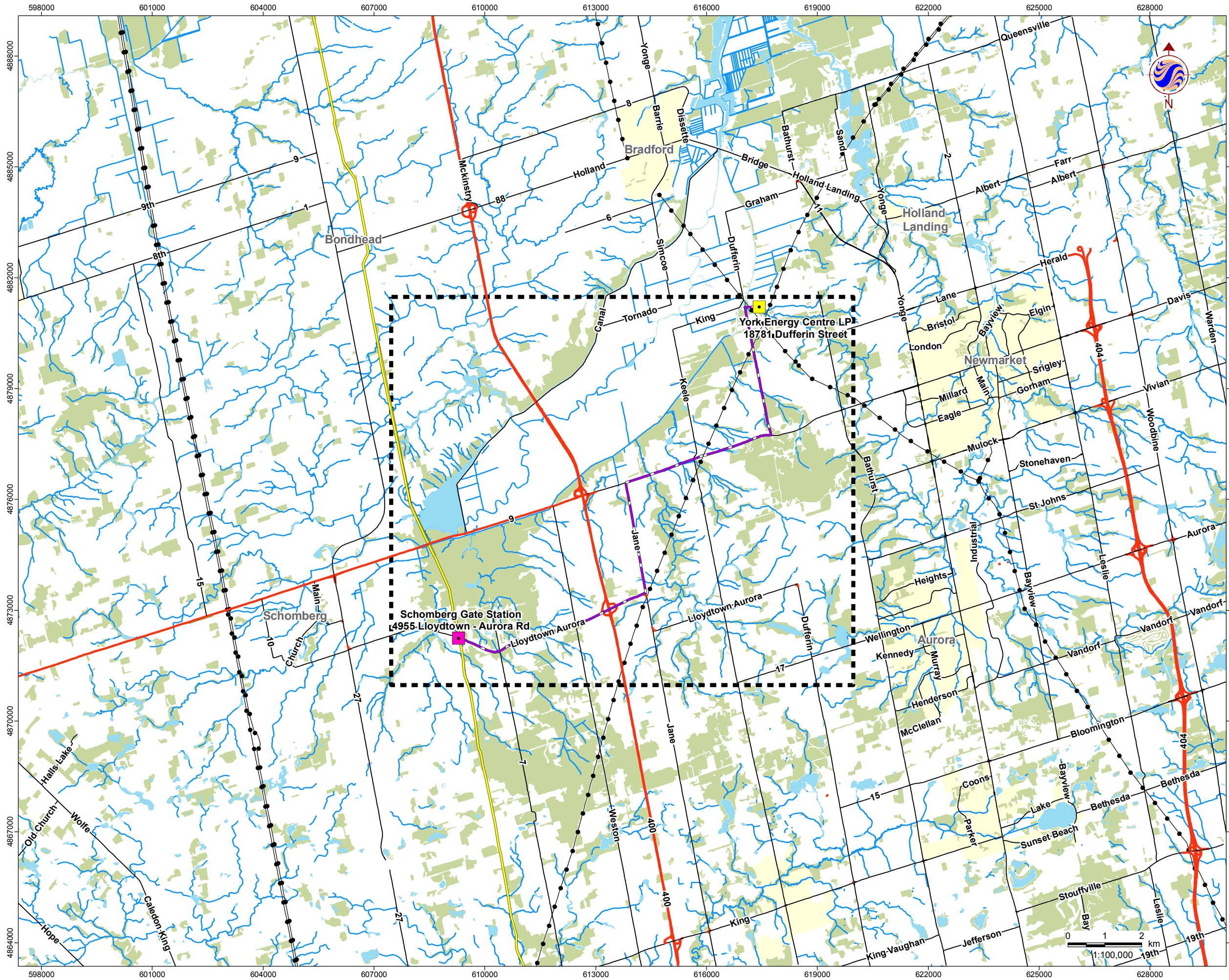


APPENDIX A

FIGURES



- Legend**
- Start Point
 - End Point
 - Preferred Route
 - Utility
 - Existing Pipeline
 - Road
 - Highway
 - Watercourse
 - Study Area Boundary
 - Waterbody
 - Wooded Area
 - City/Town

- Notes**
- Coordinate System: UTM NAD 83 - Zone 17 (N).
 - Base data © Ministry of Natural Resources, 2009
© Geogratis, 2009

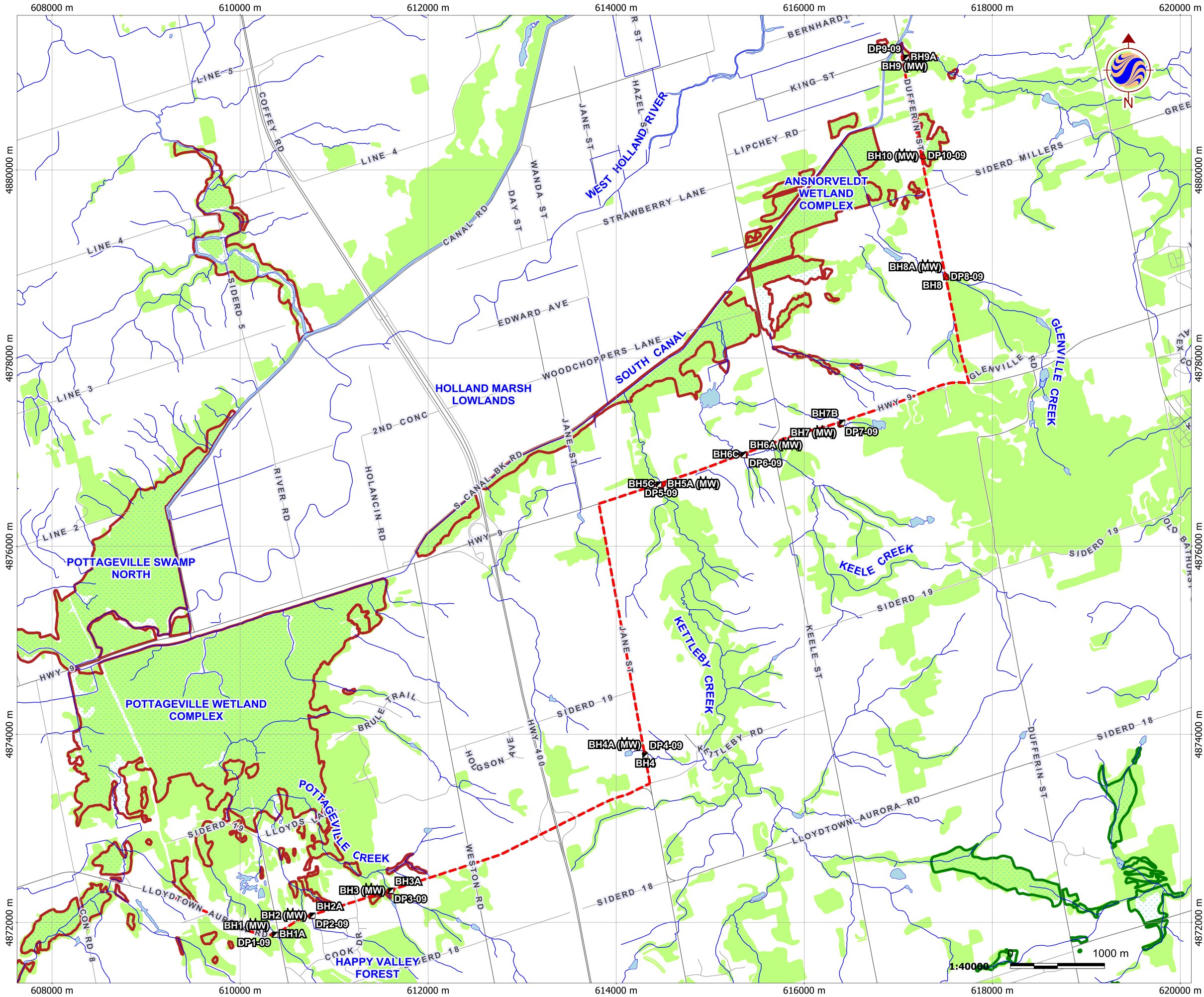


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Pipeline Construction

Figure No.
1

Title
SITE LOCATION

U:\01609\Active\122300138\Drawing\GIS\Manifold\Hydrogeo 2009\1207\122300138_base_2009\1207.map [Surface Water Features Map Layout]
1/28/2010 11:11:27 AM By: bcowper Revised 12-17-2009 By: Bcowper



Legend

Borehole

Drive-Point Piezometer

Monitoring Well

Preferred Route

Watercourse

Waterbody

Woodland

Evaluated Wetlands

Locally Significant Wetland

Provincially Significant Wetland

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).

2. Base Mapping: Ontario Base Map, © Queen's Printer for Ontario, 2009.

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Figure No.

2

Title

SURFACE WATER FEATURES
AND MONITORING LOCATIONS

December 2009
122300138



	20: Organic deposits - Peat, muck
	19: Modern alluvial deposits - Clay, silt sand
	12: Older alluvial deposits - Clay, silt, sand
	9b: Coarse-textured glaciolacustrine deposits - Littoral
	9c: Coarse-textured glaciolacustrine deposits - Basinal
	8a: Fine-textured glaciolacustrine deposits - Well laminated
	8b: Fine-textured glaciolacustrine deposits - Interbedded silt
	7: Glaciofluvial deposits - River deposits
	6: Ice-contact stratified deposits - Sand, gravel
	5b: Till - Stone-poor
	5d: Till - Clay to silt-textured till

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Surficial Geology Source: The Ontario Geological Survey, 2003. Surficial Geology of Southern Ontario. Base Mapping: Ontario Base Map, © Queen's Printer for Ontario, 2009.
3. MOE Water Well locations are approximate and have been positioned based on published UTM coordinates.



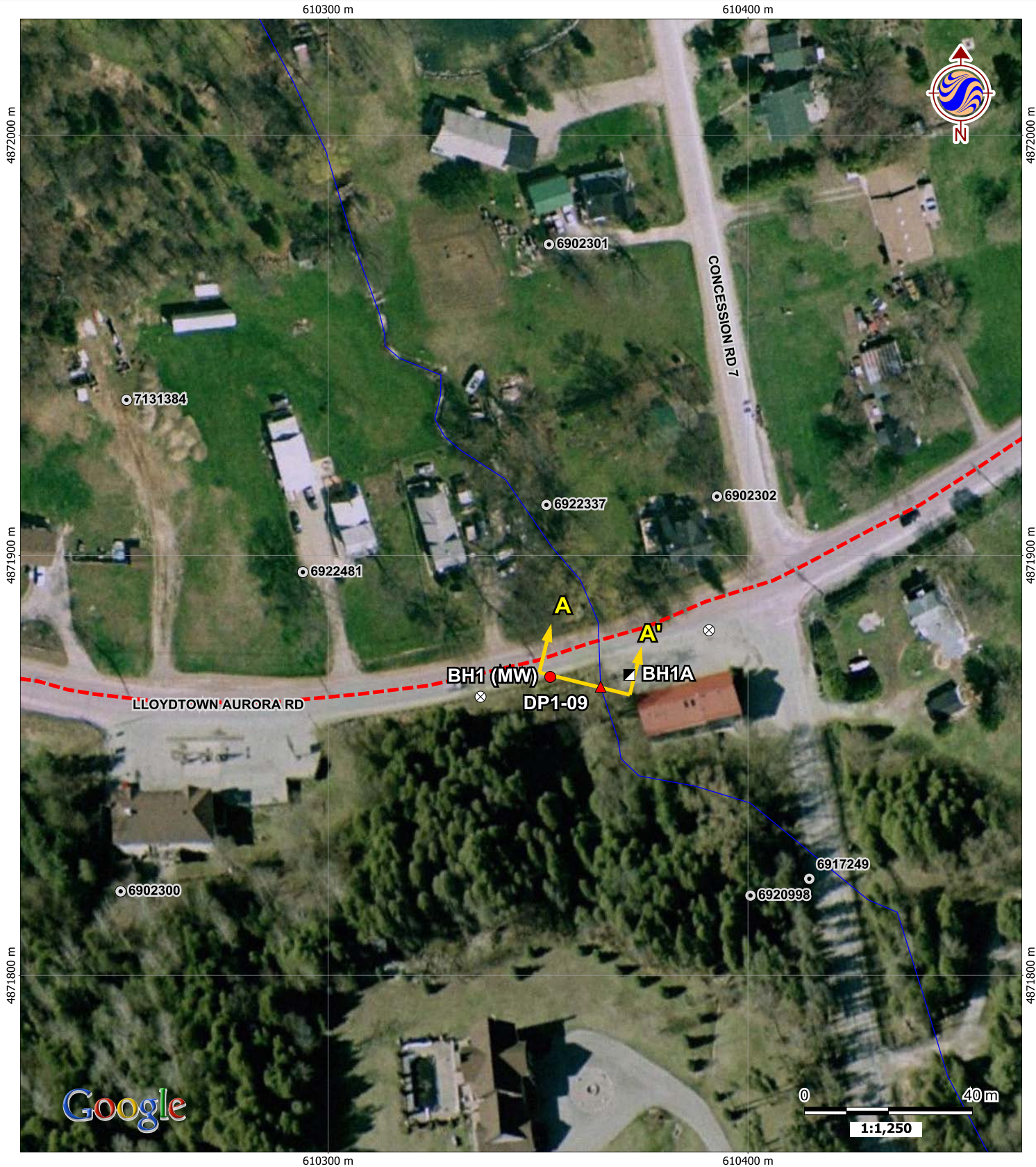
- Station
- Water Crossing
- Wetland Crossing
- Preferred Route
- Water Well Records
- Watercourse
- Waterbody

Enbridge Gas Distributions Inc.
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Watercourse Crossings for Proposed Pipeline Construction

3

SURFICIAL GEOLOGY

U:\01609\Active\122300138\drawing\GIS\Manifold\Hydrogeo 2009\1207\map [Fig Site Plan - Water Crossing 1]
1/28/2010 11:06:15 AM By: bcowper Revised 12-17-2009 By: BCowper



December 2009
122300138



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- Water Well Records
- × Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

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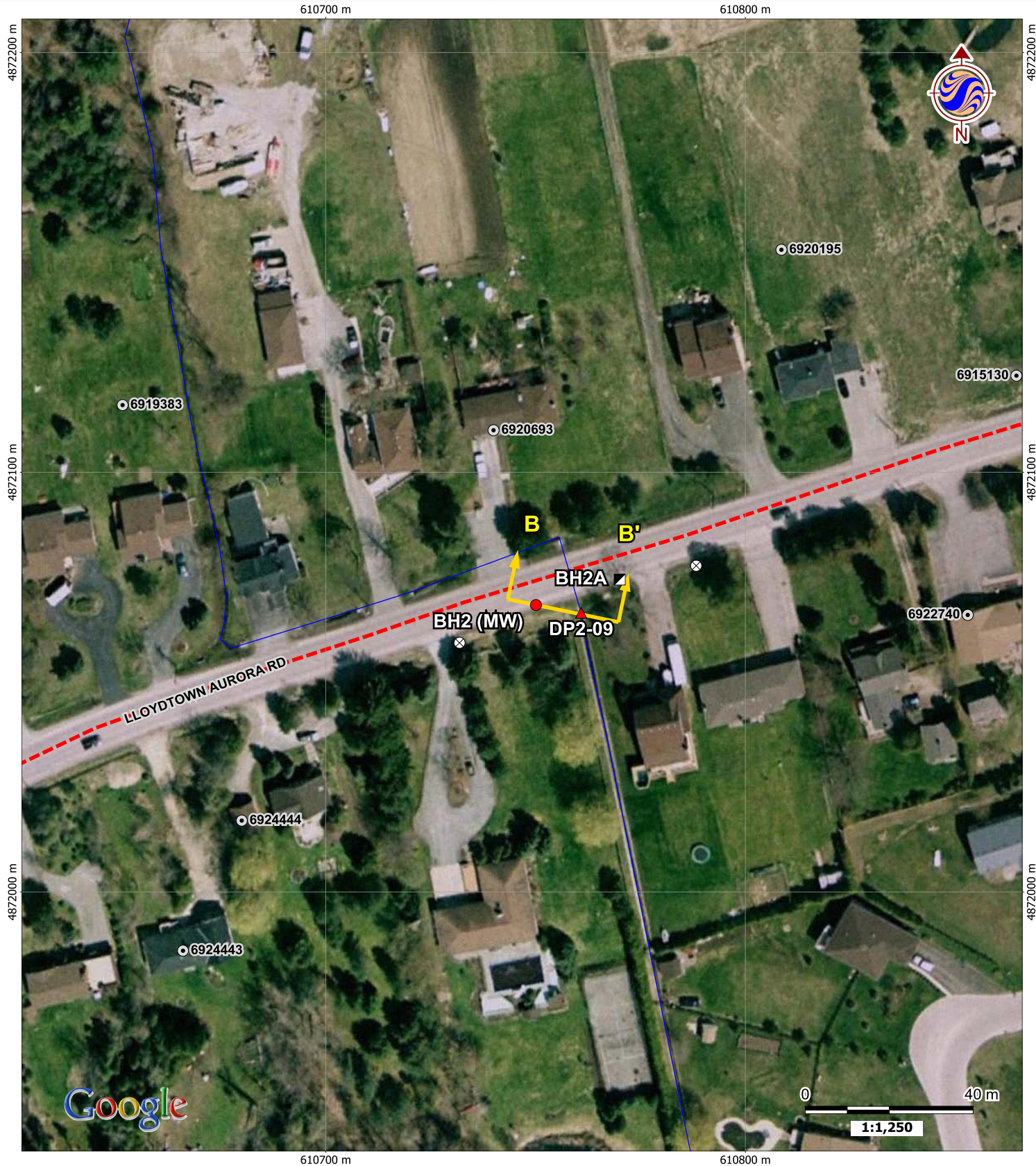
Figure No.

4

Title

**SITE PLAN -
WATERCOURSE
CROSSING 1**

U:\01609\Active\122300138\drawing\GIS\Manifold\Hydrogeo 2009\1207\122300138_base_2009\1207_map [Fig Site Plan - Water Crossing 2]
1/28/2010 11:06:27 AM By: bcowper Revised 12-17-2009 By: BCowper



December 2009
122300138



Legend

- Watercourse
- Borehole
- Drive-Point Piezometer
- Monitoring Well
- Water Well Records
- Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

- Coordinate System: UTM NAD 83 - Zone 17 (N).
- Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
- MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

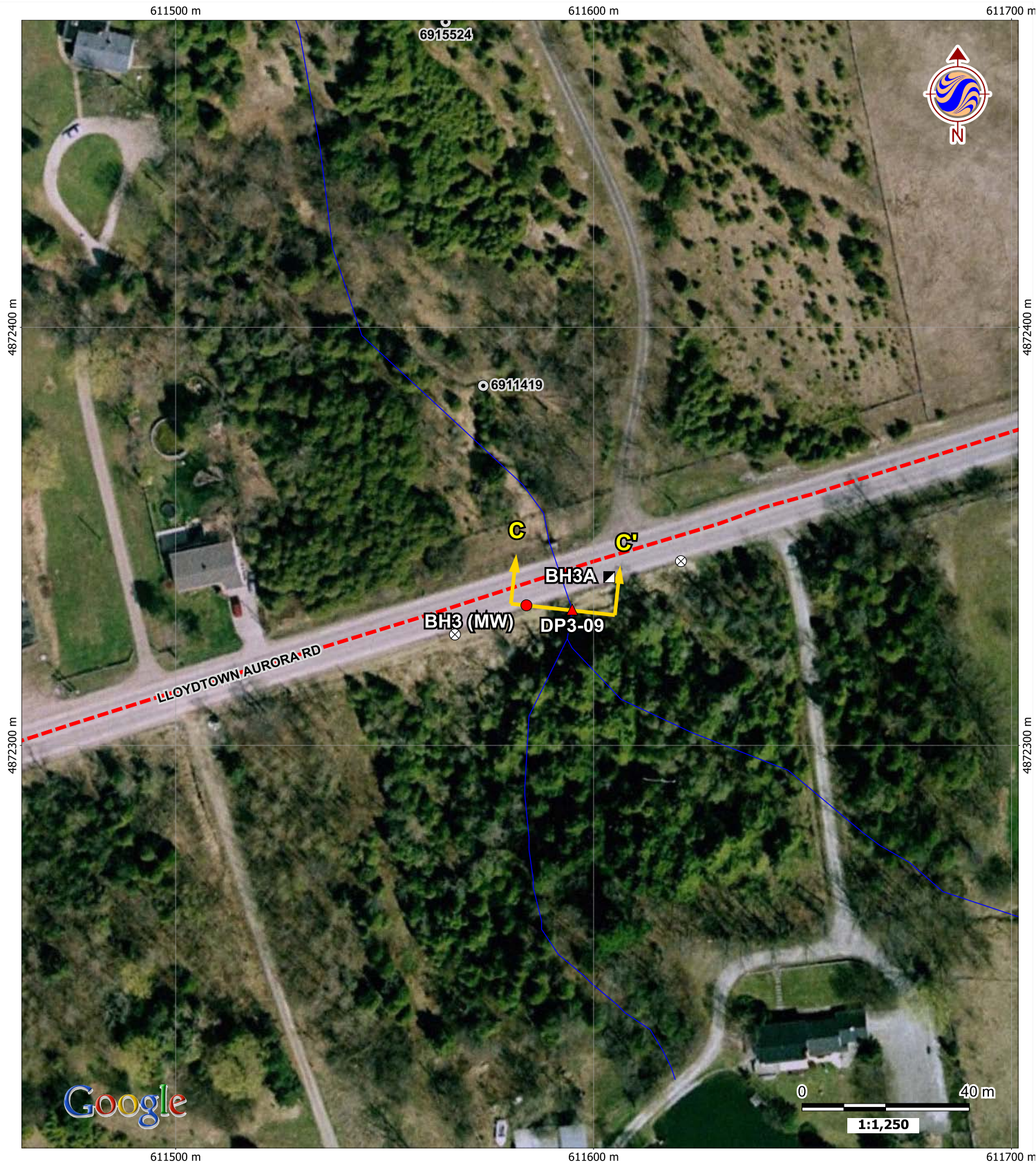
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Pipeline Construction

Figure No.
5

Title

**SITE PLAN -
WATERCOURSE
CROSSING 2**

U:\01609\Active\122300138\drawing\GIS\Manifold\Hydrogeo 2009\1207\122300138_base_2009\1207.map [Fig Site Plan - Water Crossing 3]
1/28/2010 11:06:44 AM By: bcowper Revised 12-04-2009 By: BCowper



Legend

- Watercourse
- ▣ Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- ⊙ Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- - - Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
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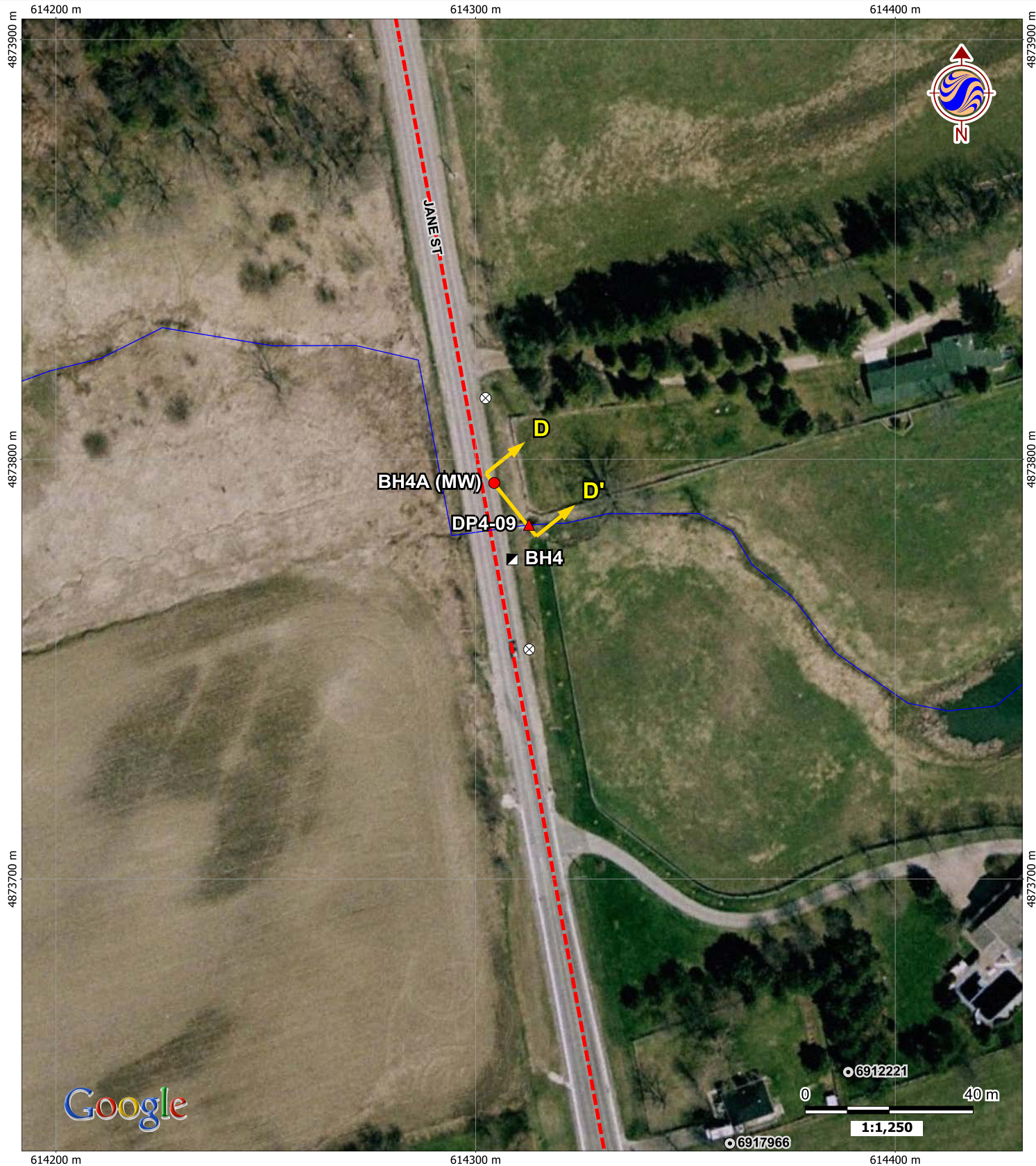
Figure No.
6

Title

**SITE PLAN -
WATERCOURSE
CROSSING 3**



U:\01609\Active\122300138\drawing\GIS\ManifoldHydrogeo 2009\1207\122300138_base_2009\1207_map [Fig Site Plan - Water Crossing 4]
1/28/2010 11:07:02 AM By: bcowper Revised 12-04-2009 By: BCowper



December 2009
122300138



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
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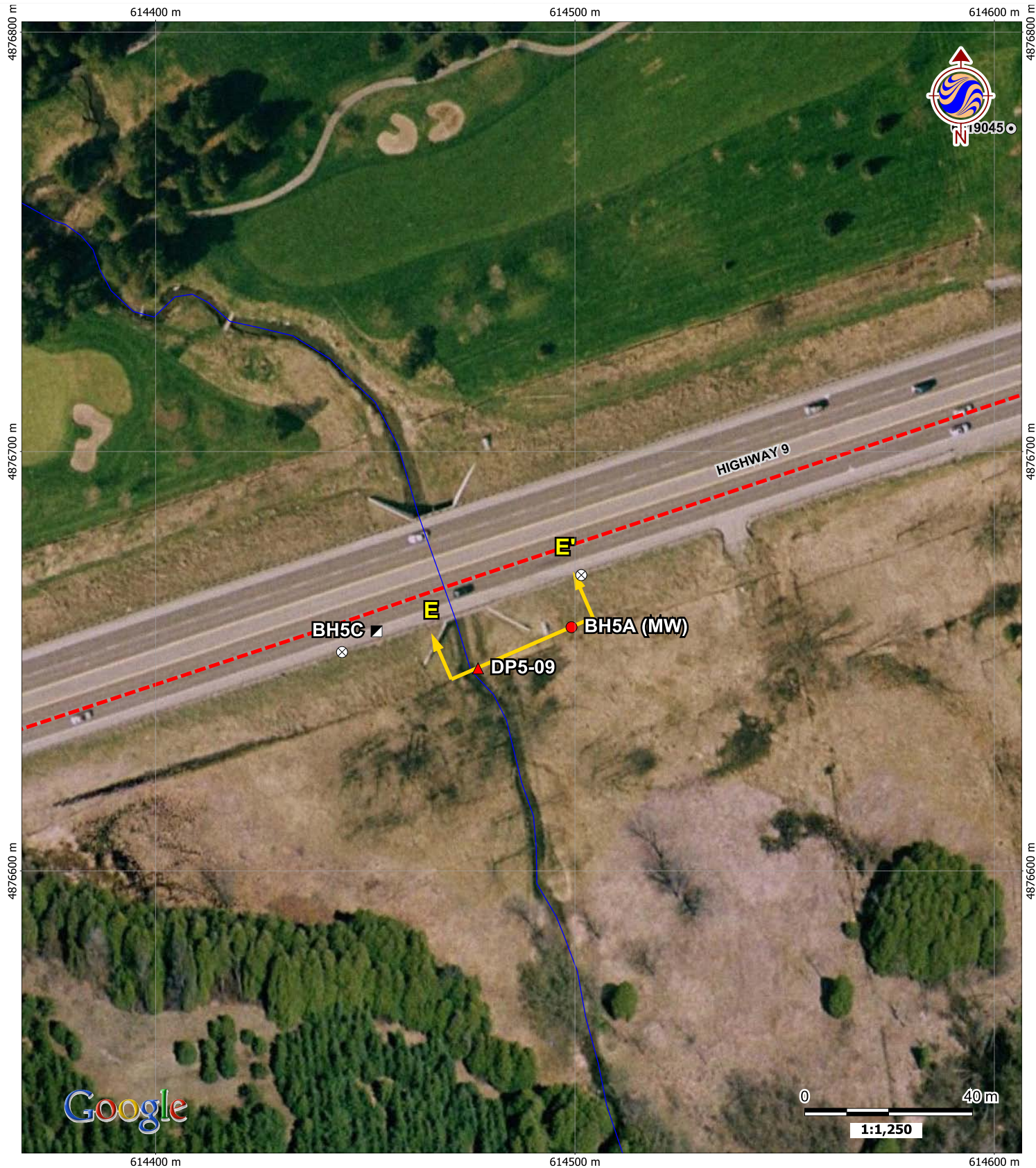
Figure No.

7

Title

**SITE PLAN -
WATERCOURSE
CROSSING 4**

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1/28/2010 11:08:40 AM By: bcowper Revised 12-04-2009 By: BCowper



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122300138



Stantec

Legend

- Watercourse
- ▣ Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- ⊙ Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- - - Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

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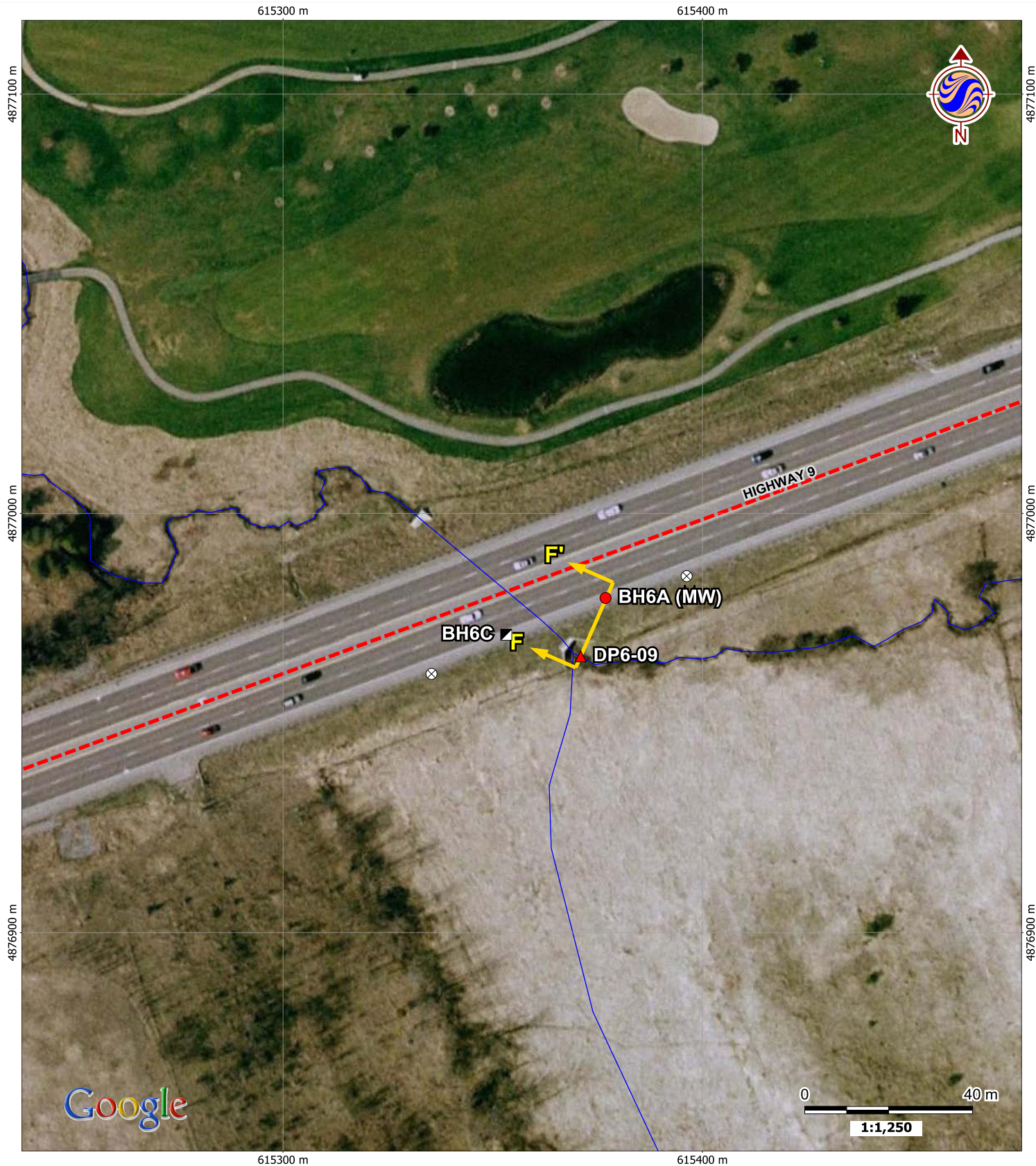
Figure No.

8

Title

**SITE PLAN -
WATERCOURSE
CROSSING 5**

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1/28/2010 11:09:05 AM By: bcowper Revised 12-04-2009 By: BCowper



December 2009
122300138



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- Water Well Records
- × Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

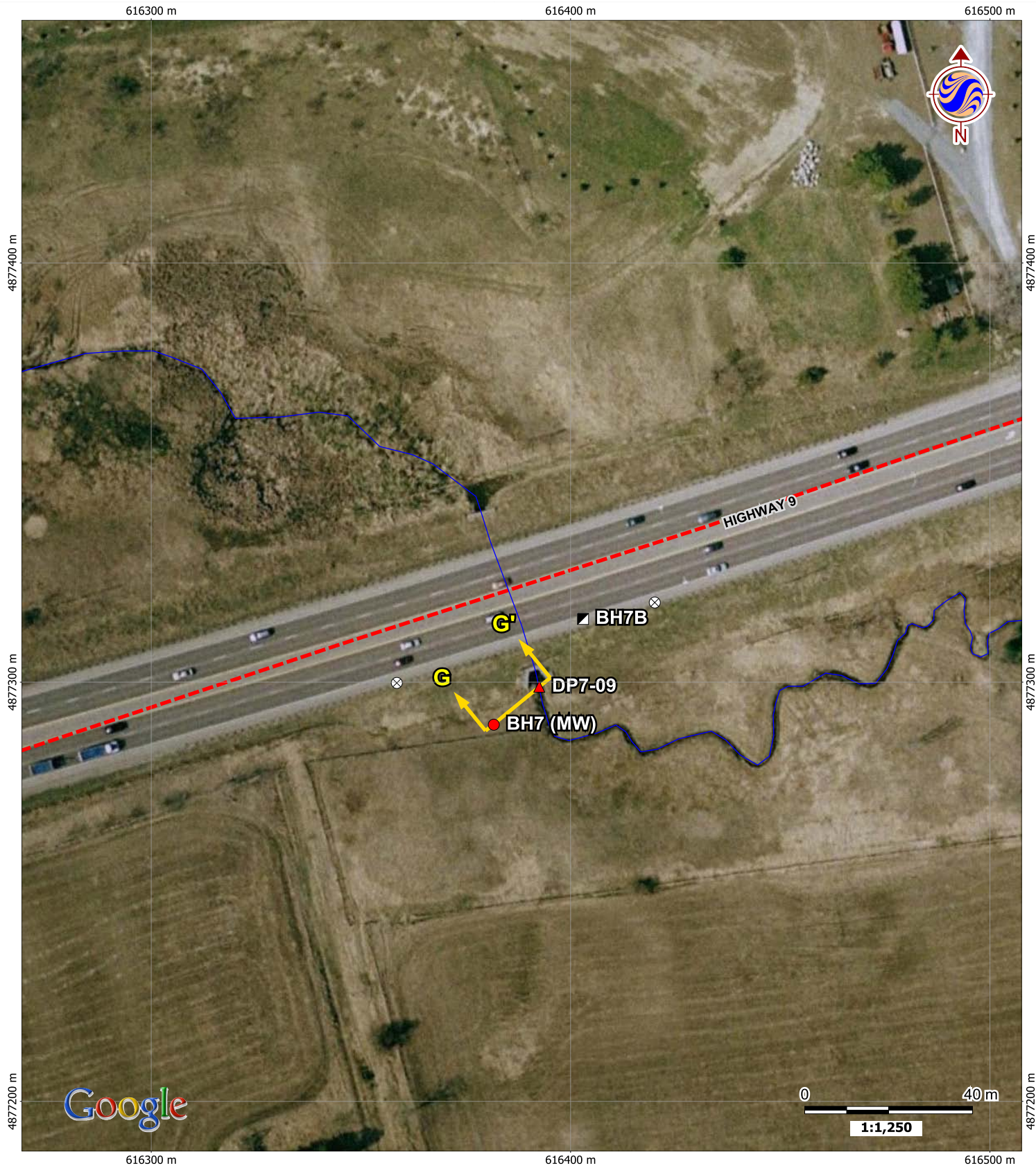
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Figure No.
9

Title

**SITE PLAN -
WATERCOURSE
CROSSING 6**

U:\01609\Active\122300138\drawing\GIS\Manifold\Hydrogeo 2009\1207\122300138_base_2009\1207_map [Fig Site Plan - Water Crossing 7]
1/28/2010 11:09:20 AM By: bcowper Revised 12-04-2009 By: BCowper



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- ⊙ Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

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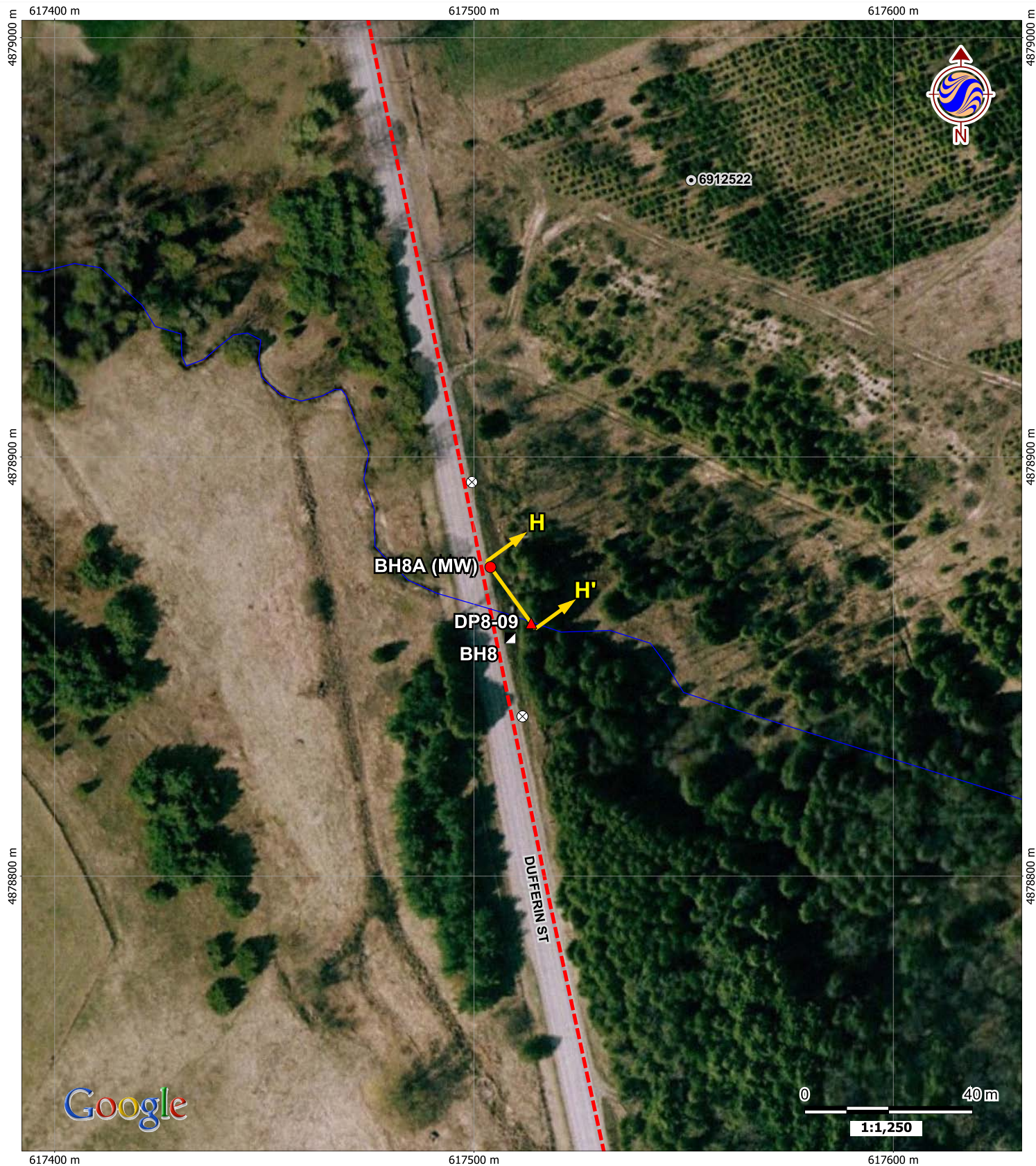
Figure No.

10

Title

**SITE PLAN -
WATERCOURSE
CROSSING 7**

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1/28/2010 11:09:38 AM By: bcowper Revised 12-15-2009 By: BCowper



December 2009
122300138



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- ⊙ Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

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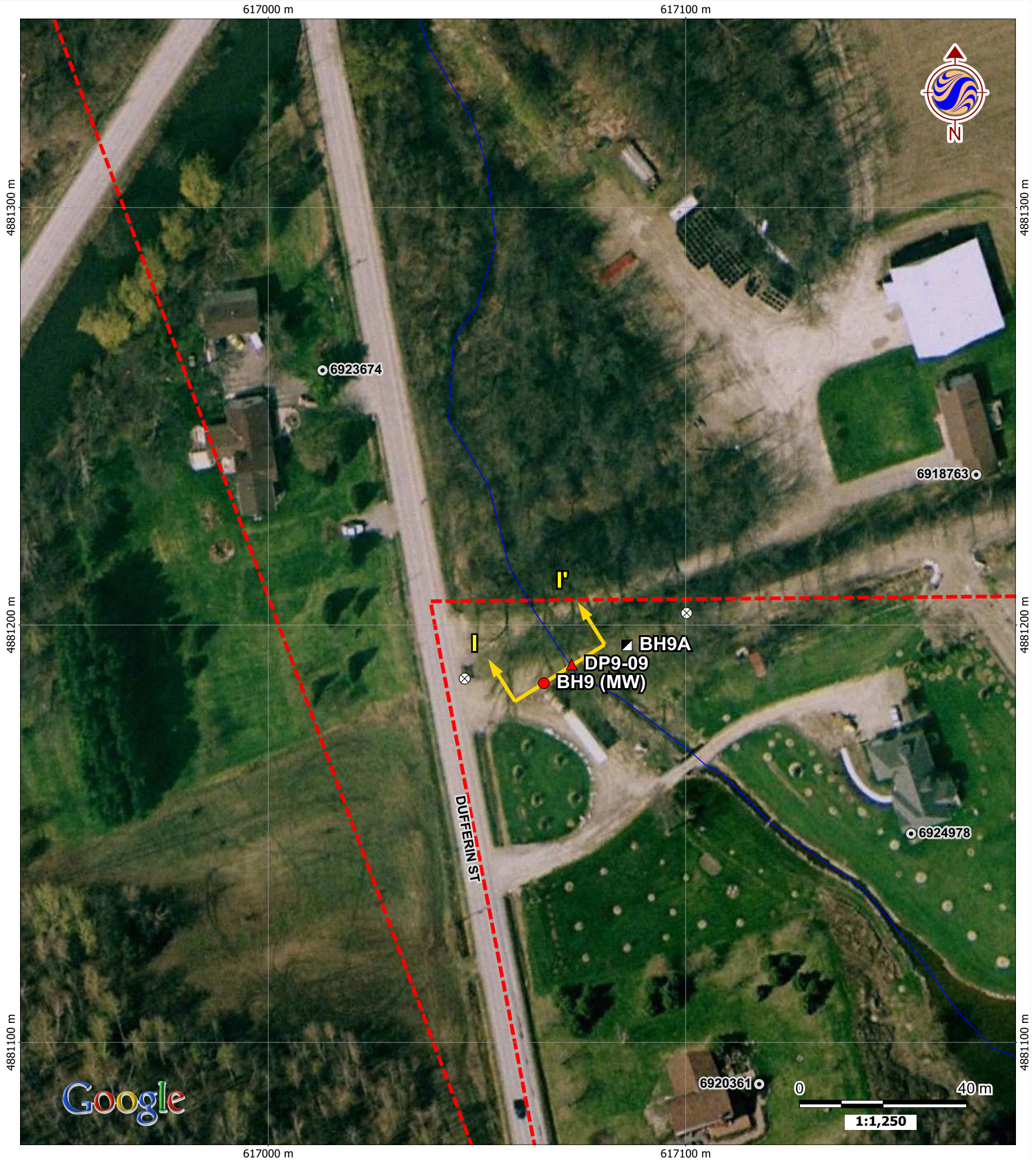
Figure No.

11

Title

**SITE PLAN -
WATERCOURSE
CROSSING 8**

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1/28/2010 11:10:18 AM By: bcowper Revised 12-04-2009 By: BCowper



December 2009
122300138



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

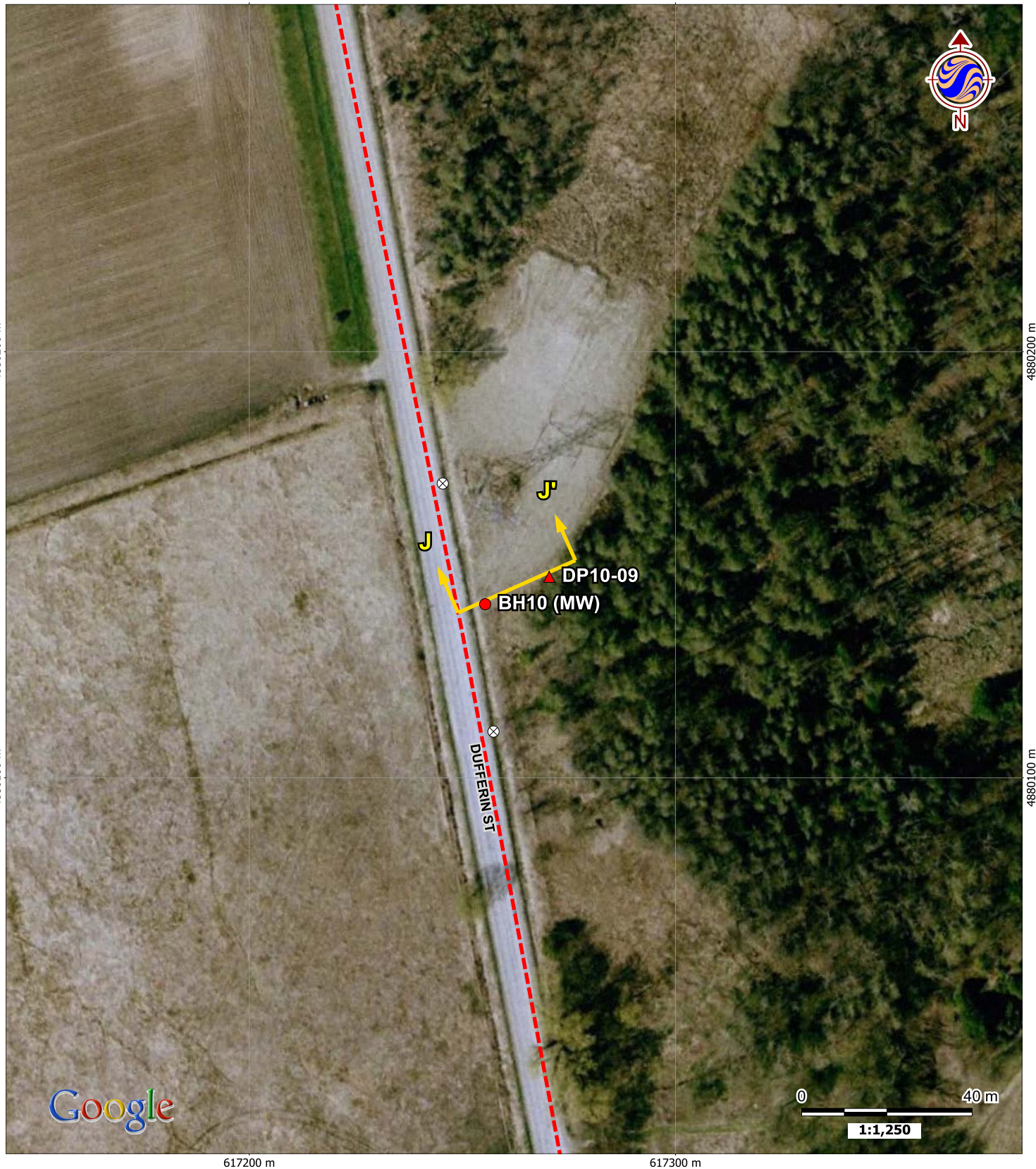
1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
© Queen's Printer for Ontario, 2009.
Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

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Figure No.
12

Title
**SITE PLAN -
WATERCOURSE
CROSSING 9**

U:\01609\Active\122300138\drawing\GIS\Manifold\Hydrogeo 2009\1207\122300138_base_2009\1207_map [Fig Site Plan - Wetland Crossing 1]
1/28/2010 11:11:00 AM By: bowper Revised 12-04-2009 By: BCowper



January 2010
122300138



Legend

- Watercourse
- Borehole
- ▲ Drive-Point Piezometer
- Monitoring Well
- ⊙ Water Well Records
- ⊗ Tie-in Pit Location
- Cross-Section Location
- Preferred Route

Notes

1. Coordinate System: UTM NAD 83 - Zone 17 (N).
2. Data Sources:
Base Mapping: Ontario Base Map,
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Imagery Source: Google Earth.
3. MOE Water Well locations are approximate
and have been positioned based on
published UTM coordinates.

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Pipeline Construction

Figure No.
13

Title
**SITE PLAN - WETLAND
CROSSING 1**

U:\01609\Active\122300138\drawing\CAD\Hydrogeo_2009\1208\122300138_xsecs_2009\1215.dwg [Xsecs_AA-DD]
Printed on: 2010-01-28 11:15AM By: bcowper



Stantec

Legend



Location ID

Stratigraphy

Static Water Level
Screen

- Sand and Gravel
- Silt
- Silty Sand
- Clayey Silt
- Silty Clay



Notes

- Water levels reflective of December 10, 2009 conditions.
- Approximate pipeline path and tie-in pit locations based on Enbridge construction requirements (Enbridge, 2009).
- Tie-in pit locations are approximate and intended as a visual aid only, as not all cross sections are perpendicular to watercourses or located across the preferred pipeline route.

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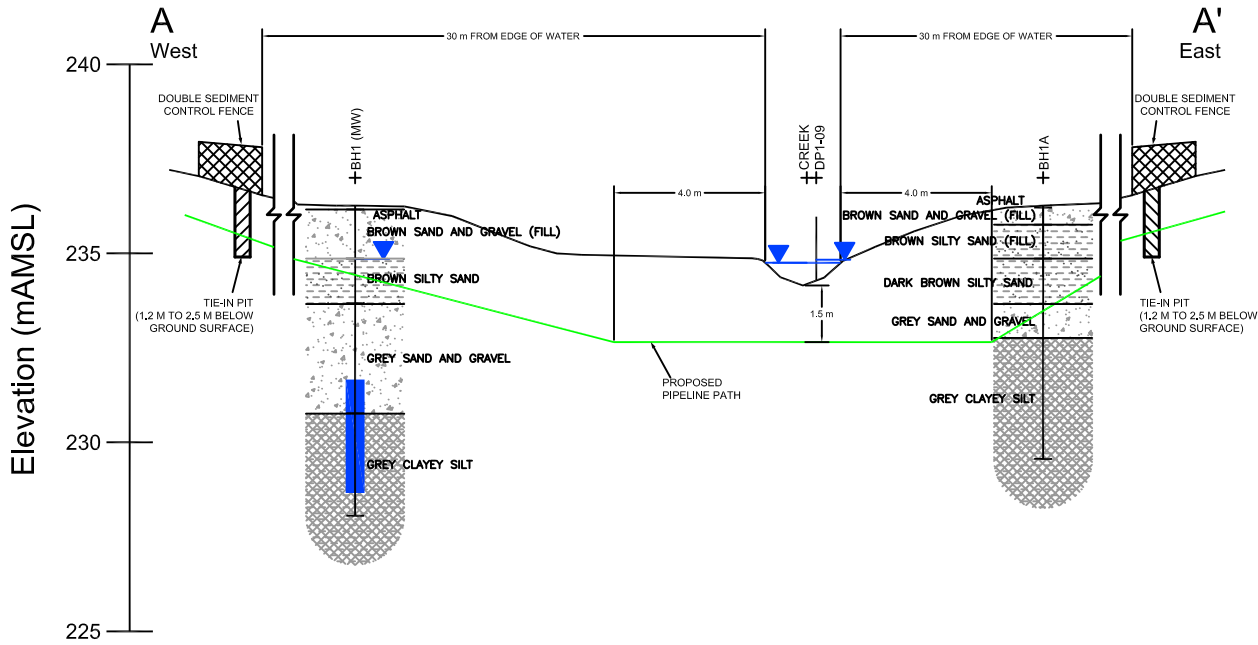
Figure No.

14

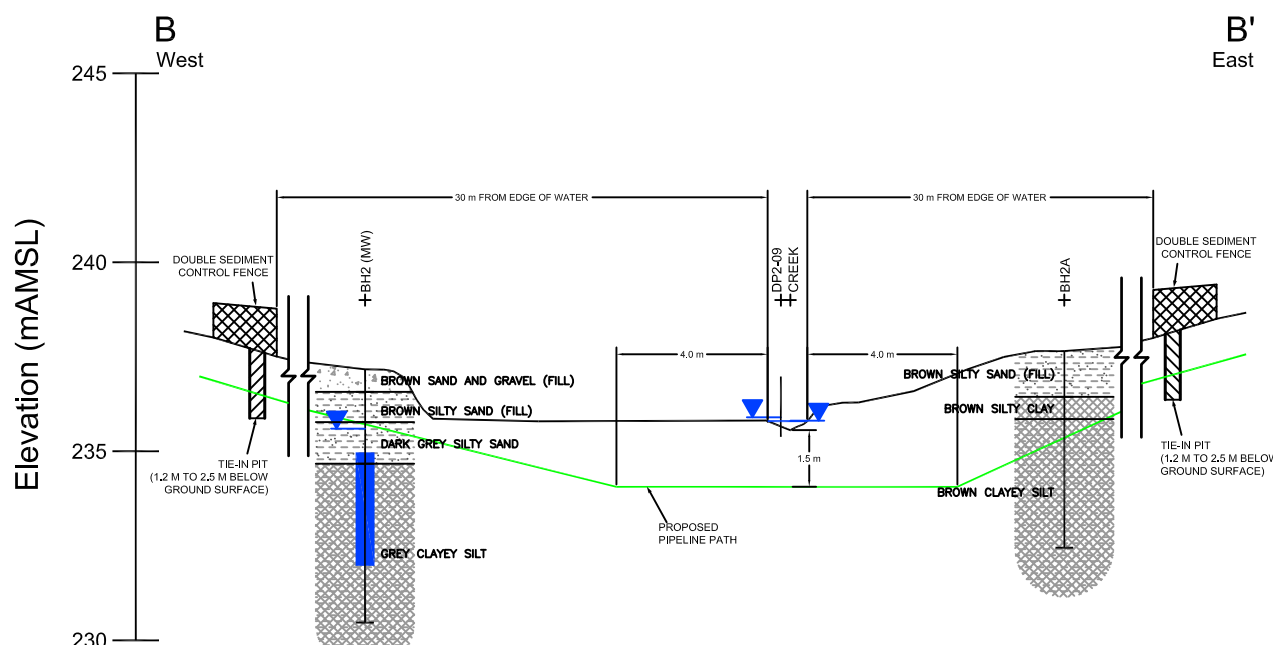
Title

Cross-Sections A-A', B-B', C-C' and D-D'

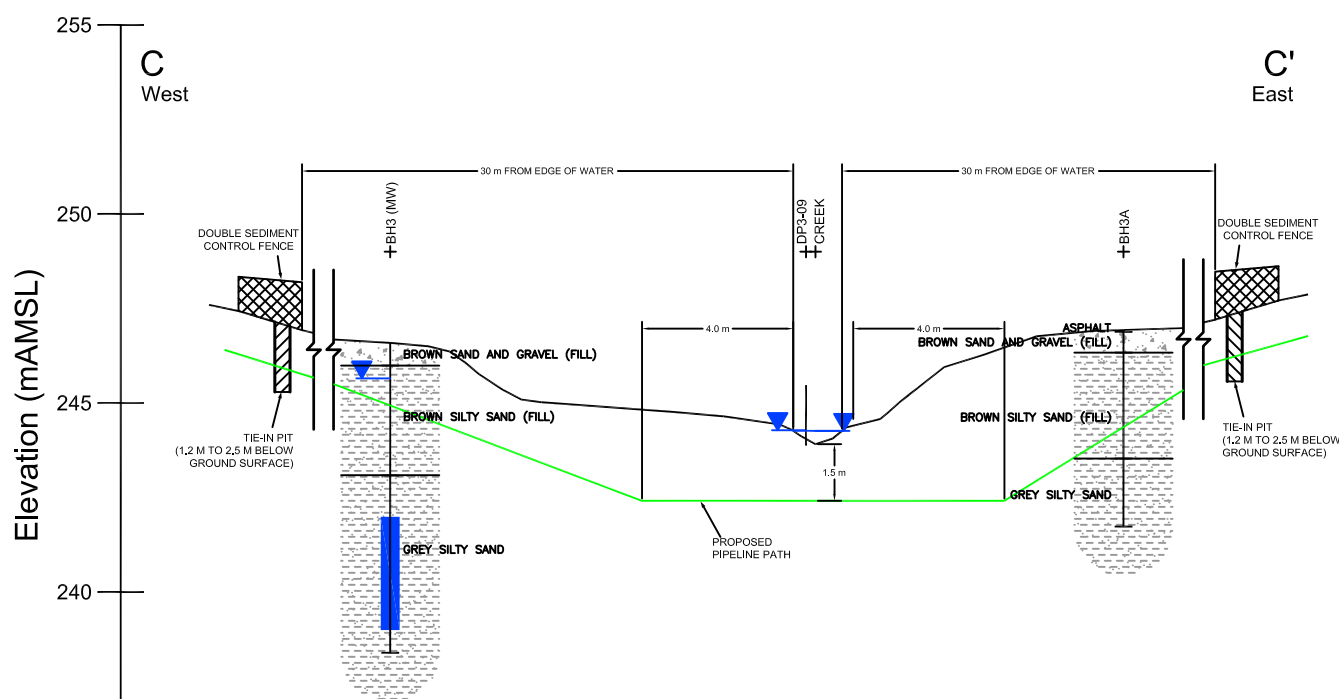
January 2010
122300138



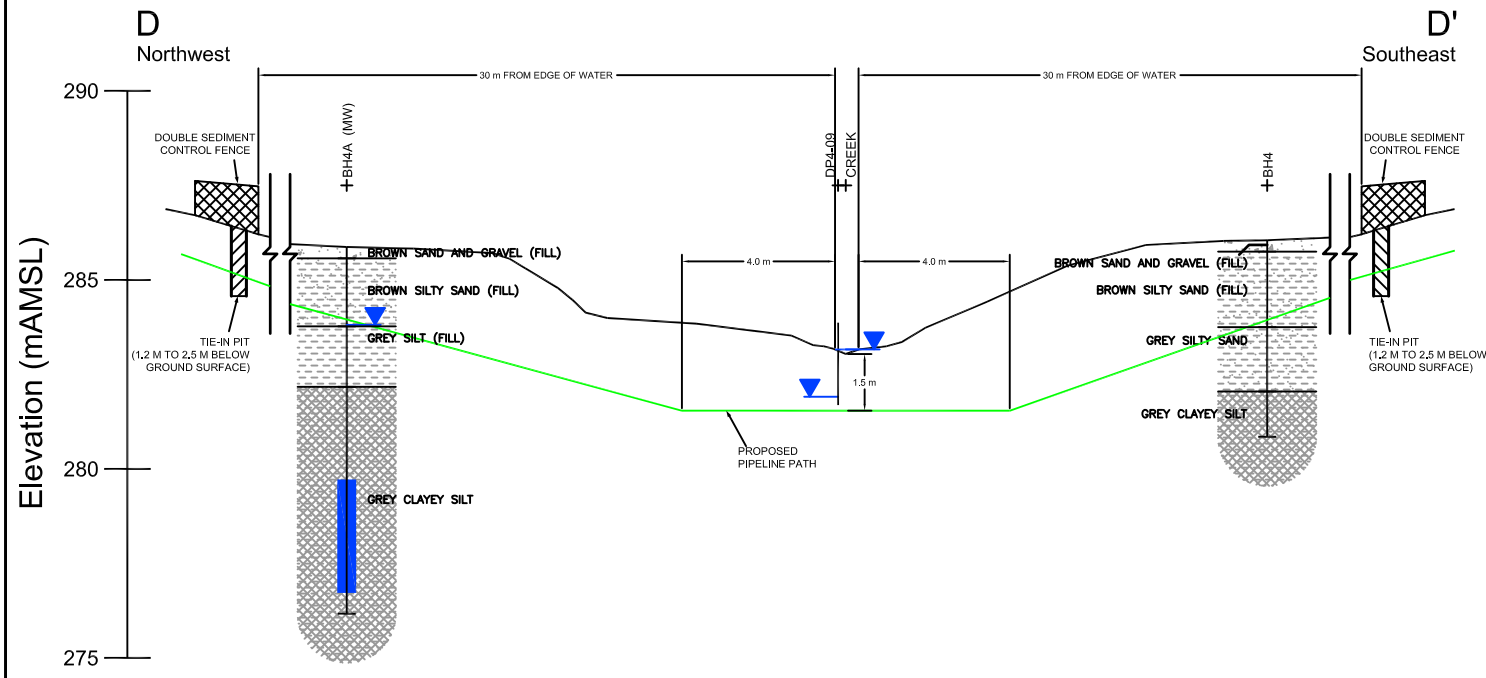
WATERCOURSE CROSSING 1



WATERCOURSE CROSSING 2



WATERCOURSE CROSSING 3



WATERCOURSE CROSSING 4

U:\01609\Active\122300138\drawing\CAD\Hydrogeo_2009\1208\122300138_xsecs_2009\1215.dwg [Xsecs_EE-HH]
Printed on: 2010-01-28 11:14AM By: bcowper



Stantec

Legend



Location ID

Stratigraphy

Static Water Level

Screen

- Sand and Gravel
- Silt
- Silty Sand
- Clayey Silt
- Silty Clay



Notes

- Water levels reflective of December 10, 2009 conditions.
- Approximate pipeline path and tie-in pit locations based on Enbridge construction requirements (Enbridge, 2009).
- Tie-in pit locations are approximate and intended as a visual aid only, as not all cross sections are perpendicular to watercourses or located across the preferred pipeline route.

Client/Project

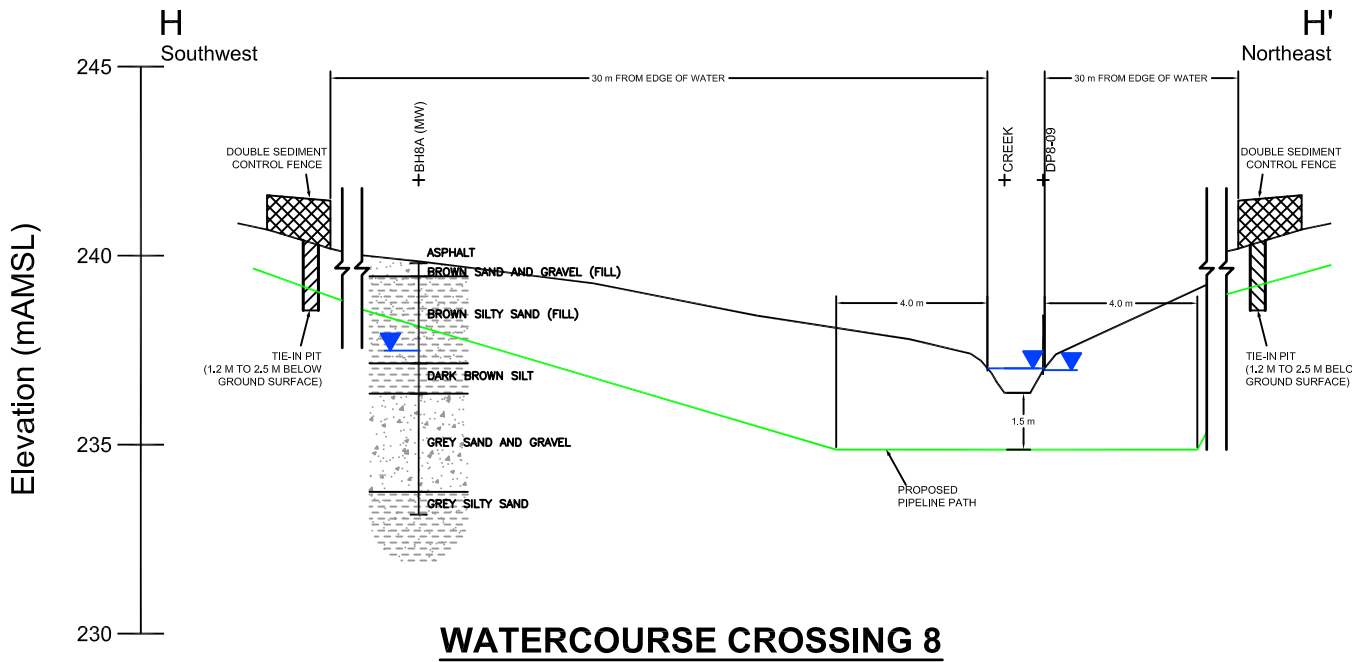
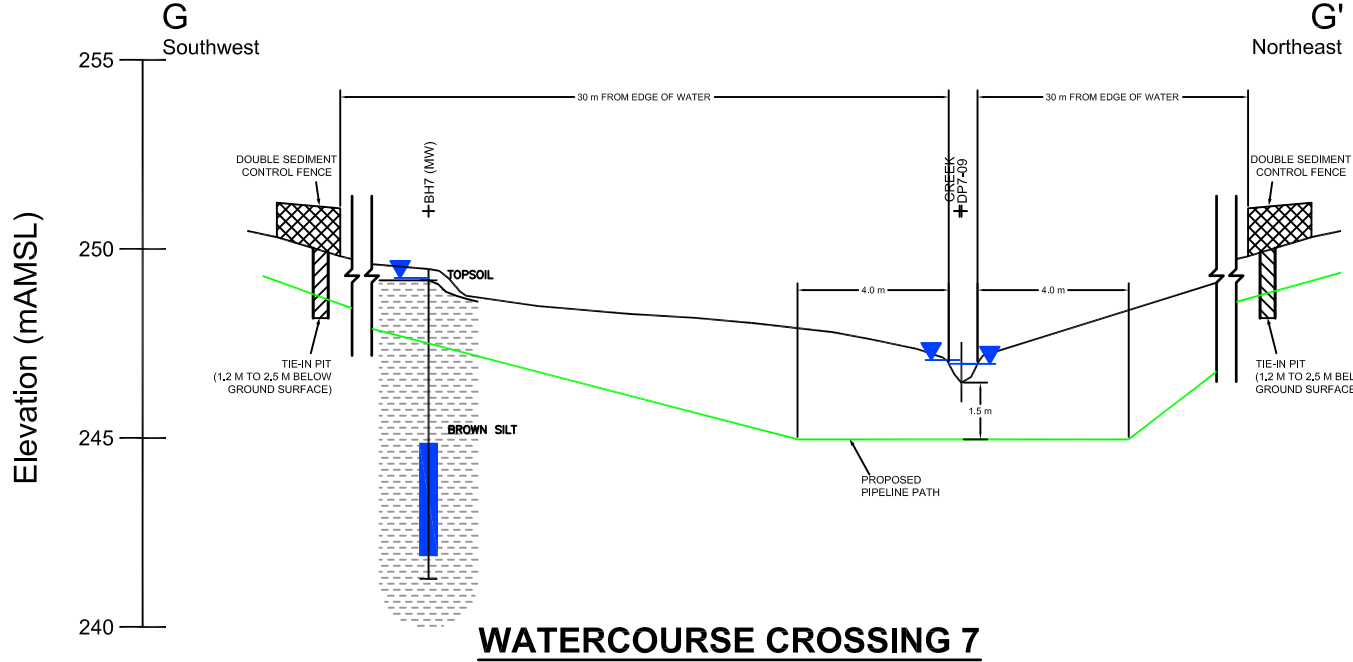
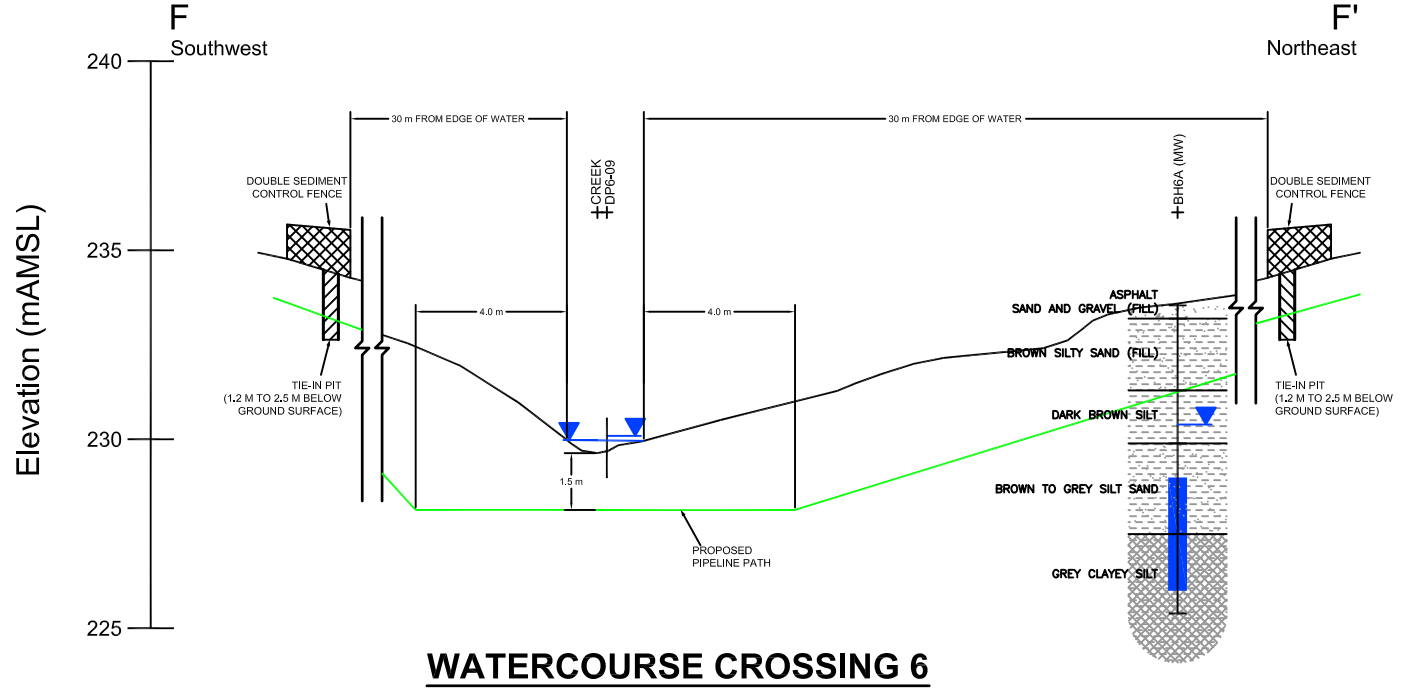
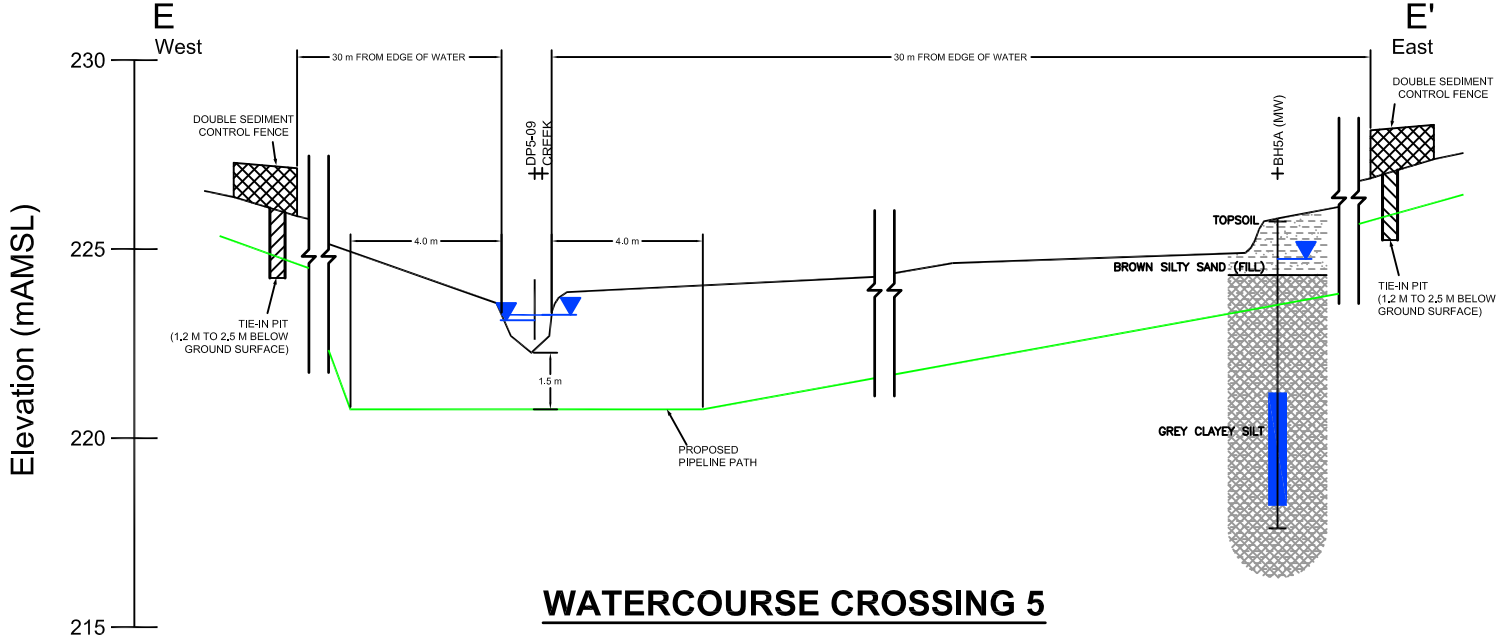
Enbridge Gas Distributions Inc.
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Watercourse Crossings for Proposed
Pipeline Construction

Figure No.

15

Title

Cross-Sections E-E', F-F', G-G' and H-H'



U:\01609\Active\122300138\drawing\CAD\Hydrogeo_2009\1208\122300138_xsecs_2009\1215.dwg [Xsecs_I-I-JJ]
Printed on: 2010-01-28 11:13AM By: bcowper



Stantec

Legend



Location ID

Stratigraphy
Static Water Level
Screen

- Sand and Gravel
- Silt
- Silty Sand
- Clayey Silt
- Silty Clay



Notes

- Water levels reflective of December 10, 2009 conditions.
- Approximate pipeline path and tie-in pit locations based on Enbridge construction requirements (Enbridge, 2009).
- Tie-in pit locations are approximate and intended as a visual aid only, as not all cross sections are perpendicular to watercourses or located across the preferred pipeline route.

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Figure No.

16

Title

Cross-Sections I-I' and J-J'

