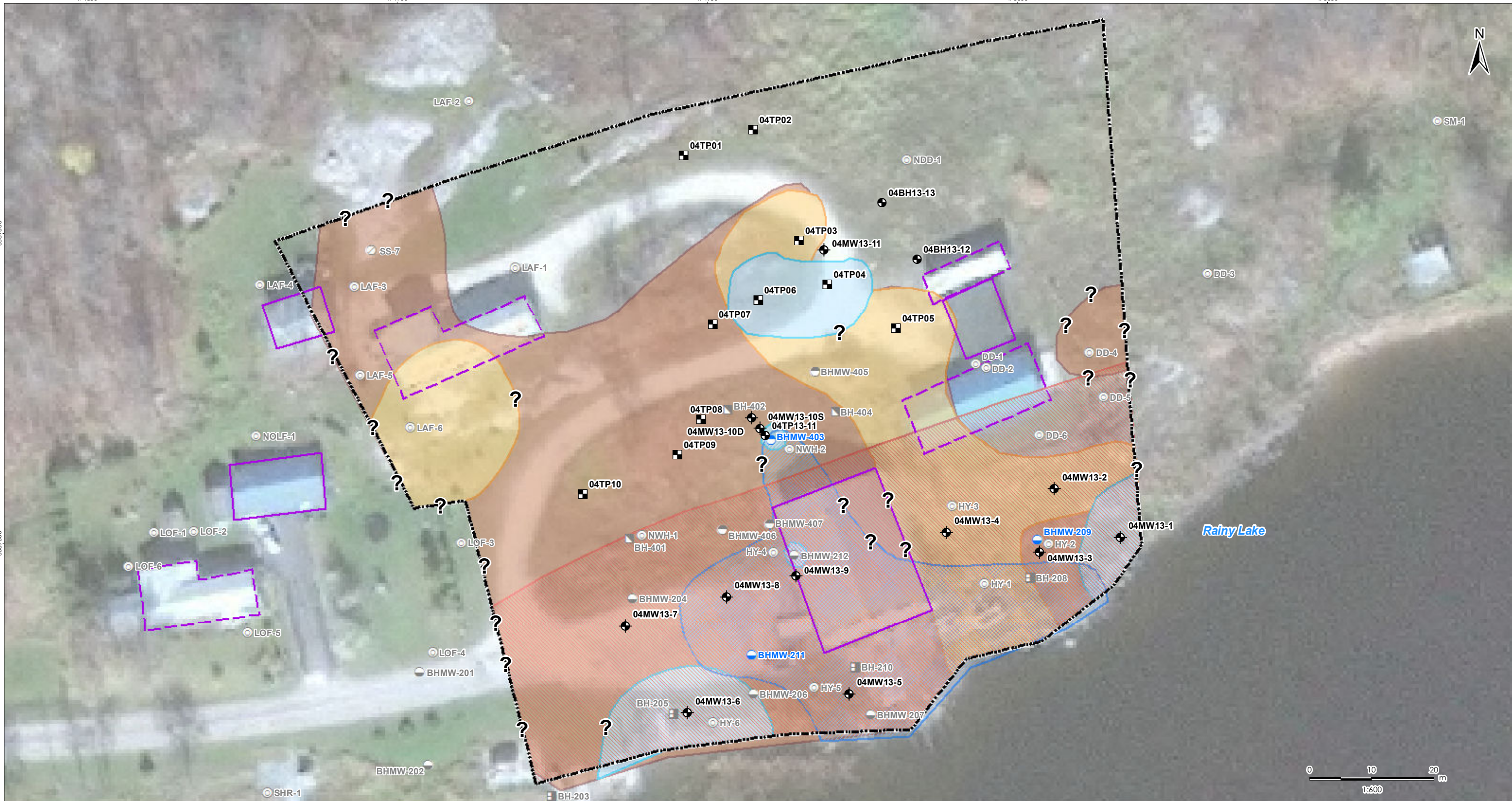




\\cd1215-f01\work_group\01222\active\122210557 - Couchiching Sampling Program\Drawings\MXD\2013-2014\Phase\APEC4_10_14\122210557_PHL_Fig05a_Impacts_SO_RES_APEC4.mxd
Revised: 2014-03-28 By: tdecrescenzo



- Notes**
- Coordinate System: NAD 1983 UTM Zone 15N
 - Satellite Imagery Source: WorldView-2, October 16, 2010.

- Legend**
- APEC
 - Test Pit (Stantec, September 2013)
 - Borehole (Stantec, October 2013)
 - Borehole with Monitoring Well (Stantec, October 2013)
 - Borehole (DST, January 2009, Reported May 2010)
 - Borehole (DST, December 2007, Reported May 2010)

- Monitoring Well (DST, January 2009, Reported May 2010)
- Monitoring Well (DST, January 2009, Reported May 2010, Found On-Site)
- Monitoring Well (DST, December 2007, Reported May 2010)
- Monitoring Well (DST, December 2007, Reported May 2010, Found On-Site)
- Soil Sample (DST, July 2009)
- Surficial Soil Sample (DST, April 2010)
- Building
- Building Demolished

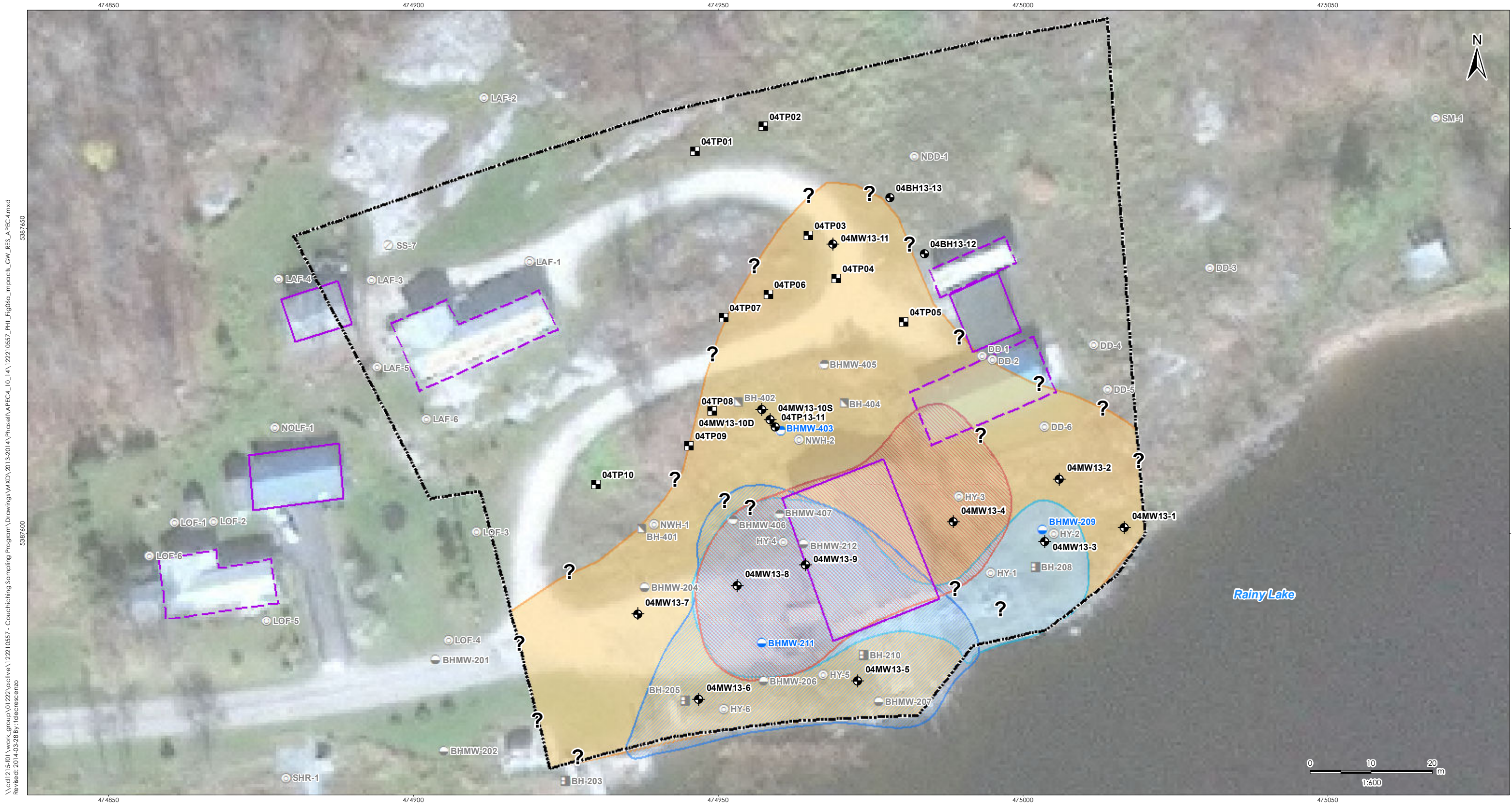
- Preliminary Estimate of Extent of VOCs Impacted Soil
- Preliminary Estimate of Extent of PHCs Impacted Soil
- Preliminary Estimate of Extent of PAHs Impacted Soil
- Preliminary Estimate of Extent of Metals Impacted Soil
- Preliminary Estimate of Extent of PCCD/F Impacted Soil

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Former INAC Leased Industrial Site,
Couchiching First Nation,
Fort Frances, Ontario, Canada

Figure No.
5a

Title
**Preliminary Estimate of
Extent of Impacted Soil
- APEC 4 - Residential**

March 2014
122210557



- Notes**
- Coordinate System: NAD 1983 UTM Zone 15N
 - Satellite Imagery Source: WorldView-2, October 16, 2010.

Legend

- APEC
- Test Pit (Stantec, September 2013)
- Borehole (Stantec, October 2013)
- Borehole with Monitoring Well (Stantec, October 2013)
- Borehole (DST, January 2009, Reported May 2010)
- Borehole (DST, December 2007, Reported May 2010)

- Monitoring Well (DST, January 2009, Reported May 2010)
- Monitoring Well (DST, January 2009, Reported May 2010, Found On-Site)
- Monitoring Well (DST, December 2007, Reported May 2010)
- Monitoring Well (DST, December 2007, Reported May 2010, Found On-Site)
- Soil Sample (DST, July 2009)
- Surficial Soil Sample (DST, April 2010)

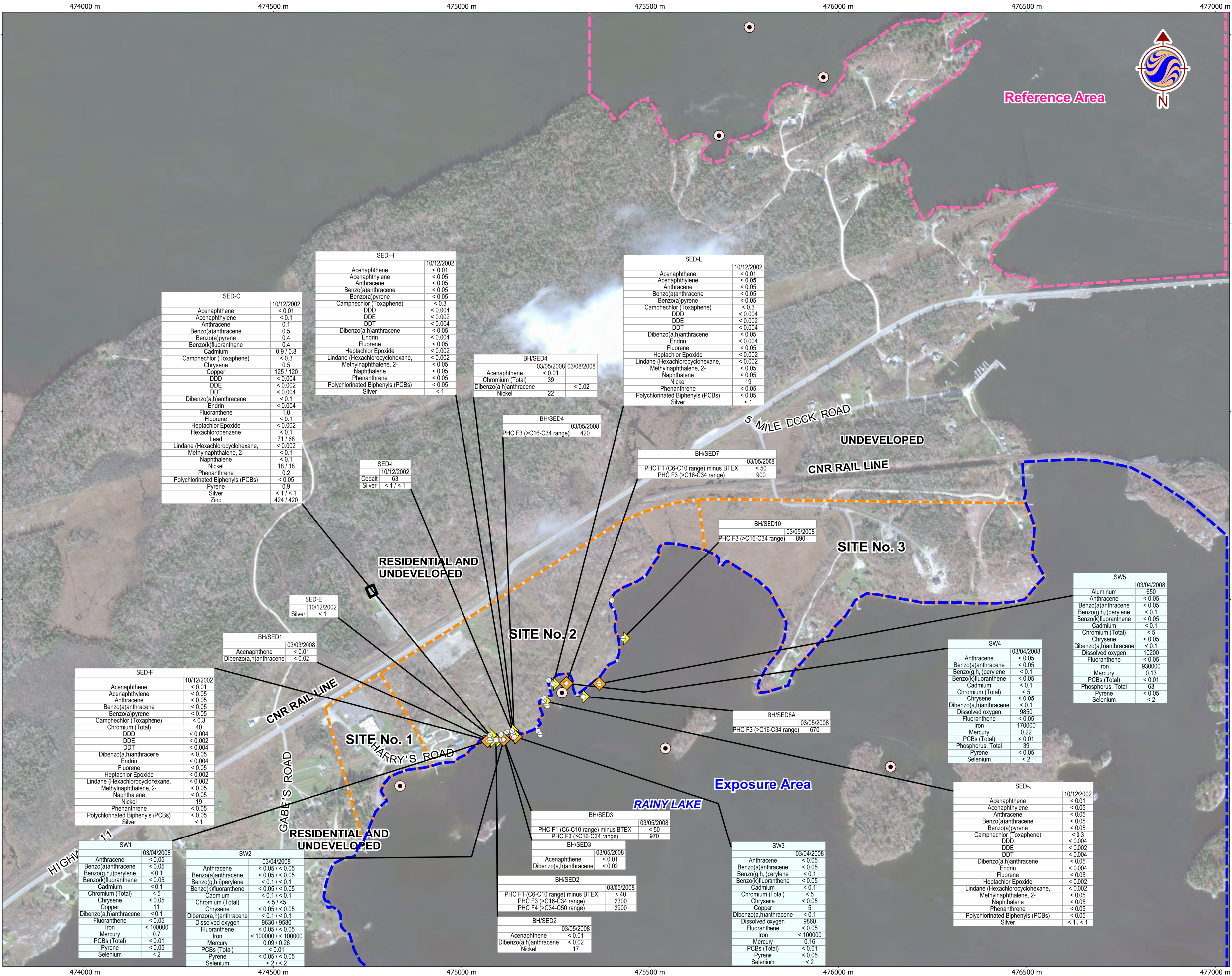
- Building
- Building Demolished
- Preliminary Estimate of Extent of VOCs Impacted Groundwater
- Preliminary Estimate of Extent of PHCs Impacted Groundwater
- Preliminary Estimate of Extent of PAHs Impacted Groundwater
- Preliminary Estimate of Extent of Metals Impacted Groundwater

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Former INAC Leased Industrial Site,
Couchiching First Nation,
Fort Frances, Ontario, Canada

Figure No.
6a

Title
**Preliminary Estimate of Extent
of Impacted Groundwater
- APEC 4 - Residential**

March 2014
122210557



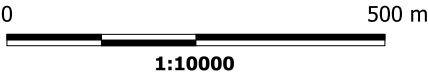
Legend

- Property Boundary (Approximate)
- Exposure Area
- Reference Area
- Proposed Benthic Invert, Water, Sediment
- Sediment Sample (DST Mar, 2008)
- Sediment Sample (NBEE Nov, 2003)
- Surface Water Sample (DST Mar, 2008)
- Sediment Sample Exceedance
- Surface Water Exceedance

SW2	
Anthracene	03/04/2008 < 0.05 / < 0.05
SED-F	
Acenaphthene	10/12/2002 < 0.01

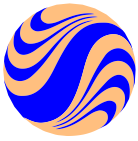
Exceeds CCME Canadian Water Quality Guideline and in absence of CCME criteria exceeds PWQO (ug/L)

Exceeds CCME Canadian Sediment Quality Guidelines or CCME CWS for PHC in Soil and in absence of CCME criteria exceeds MOE Table 8 (ug/g)



Notes

- Satellite Imagery Source: WorldView-2, October 16, 2010.



Stantec

July 2011
122120061

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Figure No.
10b

Title

SITE PLAN SHOWING
APEC 12 LOCATION - STAGE II

V:\01222(active)_Other PC (Stantec) Projects\122120061 - Couchiching Fort Frances\Drawings\Workplan Drawings\160
6/13/2011 10:06:04 AM By: bcowper Revised 13-06-2011 By: bcowper



DEBRIS INCLUDING BOATS, DRUMS, OLD UST,
OLD CARS, SCRAP WOOD & METAL, ETC.
(REPORTED FORMER CNR SAND & GRAVEL PIT - APEC 15)

0 50 m
1:750

June 2011
122120061



Legend

- Property Boundary (Approximate)
- APEC Boundary (Approximate)
- Proposed Monitoring Well
- Proposed Test Pit

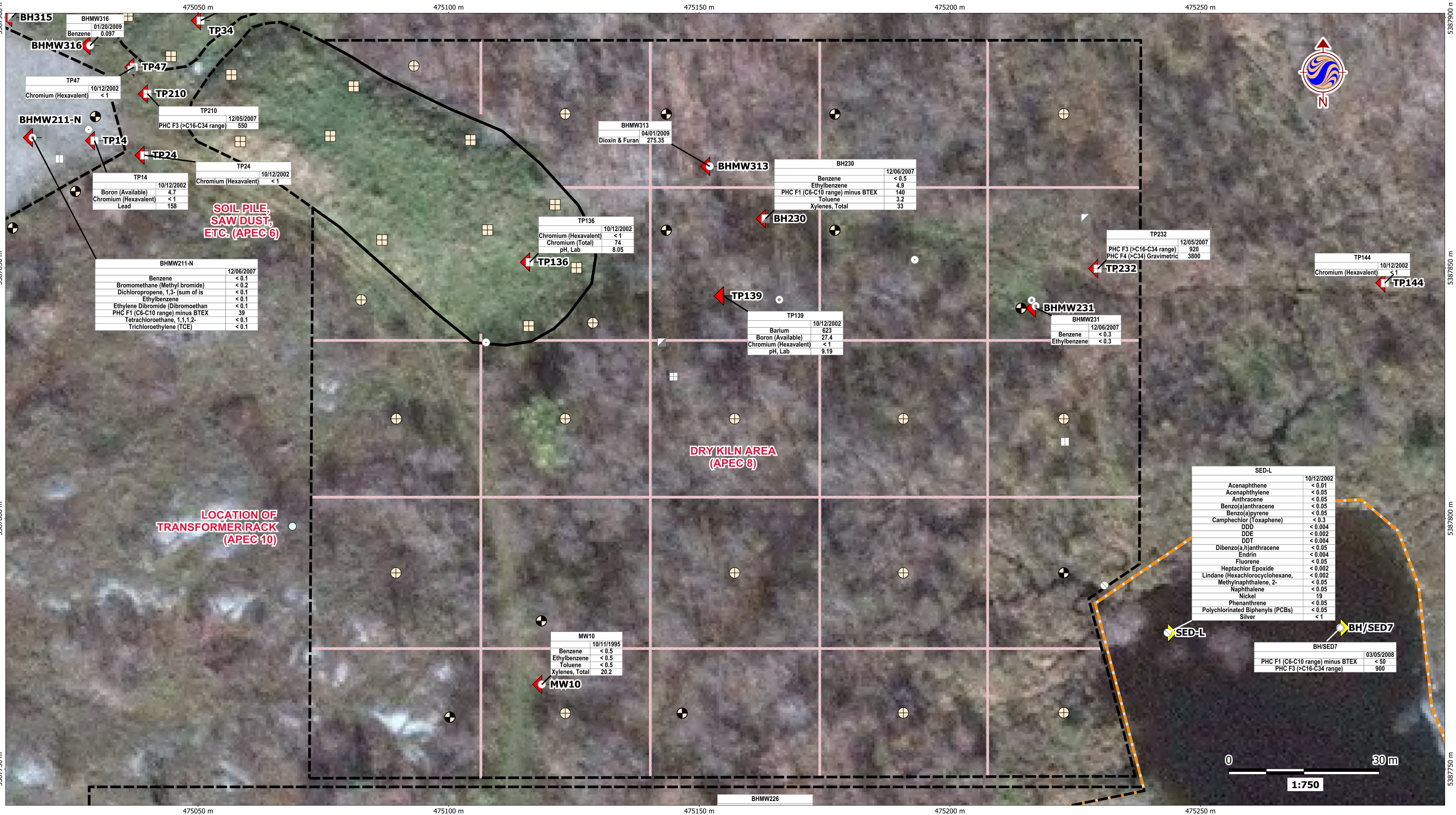
Notes

- Coordinate System:
UTM Zone 15N NAD 83.

Client/Project
Public Works and Government Services Canada
Former INAC Leased Industrial Site,
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Fort Frances, Ontario, Canada

Figure No.
12

Title
**SITE PLAN SHOWING
APEC 15 LOCATION**



Legend

- Property Boundary (Approximate)
- APEC Boundary (Approximate)
- Proposed Sampling Grid
- Proposed Borehole
- Proposed Monitoring Well
- Proposed Soil Grab Sample Location
- Sediment Sample Exceedance
- Soil Sample Exceedance

- Borehole (DST Nov/Dec, 2007)
- Borehole (DST Jan, 2009)
- Borehole (DST June, 1994)
- Borehole (DST Nov, 1994)
- Borehole (DST Dec, 2007)
- Borehole (DST Jan, 2009)
- Monitoring Well (DST Nov/Dec, 2007)
- Monitoring Well (DST Jan, 2009)
- Monitoring Well (DST June, 1994)
- Monitoring Well (DST Nov, 1994)
- Monitoring Well (DST Dec, 2007)
- Monitoring Well (DST Jan, 2009)
- Monitoring Well (NBEE Nov, 2003)
- Sediment Sample (DST Mar, 2008)
- Sediment Sample (NBEE Nov, 2003)
- Soil Sample (DST May, 2009)
- Surface Water Sample (DST Mar, 2008)
- Surficial Soil Sample (DST Nov, 2009))
- Test Pit (DST Dec, 2007)
- Test Pit (DST June, 1994)
- Test Pit (NBEE Nov, 2003)
- Wipe/Vacuum Sample (DST Apr, 2009)

Notes

- Coordinate System:
UTM Zone 15N NAD 83.

TP144	10/12/2002
Chromium (Hexavalent)	< 1

Exceeds CCME Canadian Soil Quality Guideline or CWS for PHC and in absence of CCME criteria exceeds MOE Table 2 (ug/g). PCDD/F data presented in pg/g.

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Figure No.

7a

Title

SITE PLAN SHOWING APEC 6 AND 8 LOCATIONS AND SOIL AND SEDIMENT EXCEEDANCES

V:\01222\active\Other PC (Stantec)\Projects\122120061 - Couchiching Fort Frances\Drawings\Workplan Drawings\1609_GI
6/13/2011 10:04:37 AM By: bcowper Revised 13-06-2011 By: bcowper



Legend

- Property Boundary (Approximate)
- APEC Boundary (Approximate)
- Proposed Borehole
- Proposed Monitoring Well
- Proposed Soil Grab Sample Location
- Exceeds CCME and in absence of CCME, using MOE Table 2
- Exceeds FIGQG and in absence of FIGQG, using MOE Table 2
- Surface Water Exceedance

- Proposed Sampling Grid
- Borehole (DST Nov/Dec, 2007)
- Borehole (DST Jan, 2009)
- Borehole (DST June, 1994)
- Borehole (DST Nov, 1994)
- Borehole (DST Dec, 2007)
- Borehole (DST Jan, 2009)
- Monitoring Well (DST Nov/Dec, 2007)
- Monitoring Well (DST Jan, 2009)
- Monitoring Well (DST June, 1994)
- Monitoring Well (DST Nov, 1994)
- Monitoring Well (DST Dec, 2007)

- Monitoring Well (DST Jan, 2009)
- Monitoring Well (NBEE Nov, 2003)
- Sediment Sample (DST Mar, 2008)
- Sediment Sample (NBEE Nov, 2003)
- Soil Sample (DST May, 2009)
- Surface Water Sample (DST Mar, 2008)
- Surficial Soil Sample (DST Nov, 2009)
- Test Pit (DST Dec, 2007)
- Test Pit (DST June, 1994)
- Test Pit (NBEE Nov, 2003)
- Wipe/Vacuum Sample (DST Apr, 2009)

Notes

- Coordinate System:
UTM Zone 15N NAD 83.

BHMW302	01/21/2009
Benzo(a)pyrene	0.016

BHMW302	01/21/2009
Benzo(a)pyrene	0.016

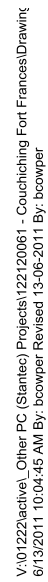
Exceeds HC CDWG and in absence of HC CDWG, using MOE Table 2 (ug/g)

Exceeds EC FIGQG and in absence of EC FIGQG, using MOE Table 2 (ug/g)

Client/Project
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Former INAC Leased Industrial Site,
Couchiching First Nation,
Fort Frances, Ontario, Canada

Figure No.
7b

Title
**SITE PLAN SHOWING
APEC 6 AND 8 LOCATIONS AND
GROUNDWATER EXCEEDANCES**



SITE PLAN SHOWING APEC 7 LOCATION AND SOIL AND SEDIMENT EXCEEDANCES



Legend

- Property Boundary (Approximate)
- APEC Boundary (Approximate)
- Proposed Borehole
- Proposed Monitoring Well
- Proposed Test Pit
- Exceeds CCME and in absence of CCME, using MOE Table 2
- Exceeds FIGQG and in absence of FIGQG, using MOE Table 2
- Surface Water Exceedance

- Borehole (DST Nov/Dec, 2007)
- Borehole (DST Jan, 2009)
- Borehole (DST June, 1994)
- Borehole (DST Nov, 1994)
- Borehole (DST Dec, 2007)
- Borehole (DST Jan, 2009)
- Monitoring Well (DST Nov/Dec, 2007)
- Monitoring Well (DST Jan, 2009)
- Monitoring Well (DST June, 1994)
- Monitoring Well (DST Nov, 1994)
- Monitoring Well (DST Dec, 2007)
- Monitoring Well (DST Jan, 2009)
- Sediment Sample (DST Mar, 2008)
- Sediment Sample (NBEE Nov, 2003)
- Soil Sample (DST May, 2009)
- Surface Water Sample (DST Mar, 2008)
- Surficial Soil Sample (DST Nov, 2009)
- Test Pit (DST Dec, 2007)
- Test Pit (DST June, 1994)
- Test Pit (NBEE Nov, 2003)
- Wipe/Vacuum Sample (DST Apr, 2009)

Notes

- Coordinate System:
UTM Zone 15N NAD 83.

BHMW302		Exceeds HC CDWG and in absence of HC CDWG, using MOE Table 2 (ug/g)
Benzo(a)pyrene	0.016	

BHMW302		Exceeds EC FIGQG and in absence of EC FIGQG, using MOE Table 2 (ug/g)
Benzo(a)pyrene	0.016	

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Fort Frances, Ontario, Canada

Figure No.
9b

Title
**SITE PLAN SHOWING
APEC 9 LOCATION AND
GROUNDWATER EXCEEDANCES**



Legend

- Borehole
- ⊕ Monitoring Well
- Approximately 30 m from Rainy Lake
- ▭ APEC
- ▨ Preliminary Estimate of Extent of Impacted Soil

Sample ID and Depth

	MW12-1 : 1.2 - 2 m	
Parameter	pH (available as CaCl2)	09/19/2012
	5.53	Sample Date
	Value	

Parameter	Value	Units	Standard
pH (available as CaCl2)	6 to 8	S U	CCME

Notes

1. Coordinate System: NAD 1983 UTM Zone 15N
2. Base features produced under license with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2012.
3. Satellite Imagery Source: WorldView-2, October 16, 2010.



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Figure No.
16A

Title
Preliminary Estimate of Extent of Impacted Soil – APEC 2



Legend

- Borehole
- Monitoring Well
- Approximately 30 m from Rainy Lake
- APEC

Sample ID	
BH12-302	
Parameter	Value
Iron	4.8
Sample Date	
09/21/2012	

Parameter	Value	Units	Standard
Anthracene	0.012	µg/L	FIGQG
Cadmium	0.017	µg/L	FIGQG
Chloroform (Trichloromethane)	1.8	µg/L	FIGQG
Copper	0.004	mg/L	FIGQG
Iron	0.3	mg/L	FIGQG
Pyrene	0.025	µg/L	FIGQG
Selenium	0.001	mg/L	FIGQG
Uranium	0.015	mg/L	FIGQG
Zinc	0.03	mg/L	FIGQG

Notes

- Coordinate System: NAD 1983 UTM Zone 15N
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Fort Frances, Ontario

Figure No.
17

Title
Exceedences in Groundwater
- APEC2



Legend

- Monitoring Well
- Surface Soil Sample
- Test Pit
- APEC
- Preliminary Estimate of Extent of Impacted Soil

Sample ID and Depth

Parameter	TP12-9 : 1.55 m	Sample Date
	Selenium	09/17/2012
	Value	1.4

Parameter	Value	Units	Standard
PHC F3 (>C16-C34 range)	300	µg/g	CCME
PHC F4 (>C34) Gravimetric	2800	µg/g	CCME
Selenium	1	µg/g	CCME
Total TEQ (ND 0) (WHO Calc)	4	pg/g	CCME
Trichloroethylene (TCE)	0.01	µg/g	CCME

Notes

- Coordinate System: NAD 1983 UTM Zone 15N
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- Satellite Imagery Source: WorldView-2, October 16, 2010.



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Figure No.
24A

Title
Preliminary Estimate of Extent of Impacted Soil – APEC 3



Legend

- Monitoring Well
- Surface Soil Sample
- Test Pit
- APEC

Sample ID	
BHMW302	
Parameter	Sample Date
Iron	09/21/2012
Value	
4.8	

Parameter	Value	Units	Standard
Cadmium	0.017	µg/L	FIGQG
Copper	0.004	mg/L	FIGQG
Iron	0.5	mg/L	FIGQG

Notes

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Fort Frances, Ontario

Figure No.
25

Title
**Exceedences in Groundwater
- APEC3**



Legend

- Borehole (DST 2009)
- Monitoring Well (DST 2009)
- Monitoring Well
- Surficial Soil Sample (DST)
- Test Pit
- Approximately 30 m from Rainy Lake
- APEC
- Preliminary Estimate of Extent of Impacted Soil

Sample ID and Depth

TP12-9 : 1.55 m	09/17/2012
Parameter	Value
Selenium	1.4

Sample Date

Parameter	Value	Units	Standard
Acetone	0.5	µg/g	MCE
Copper	63	µg/g	CCME
Lead	140	µg/g	CCME
pH (available as CaCl ₂)	6 to 8	S.U.	CCME
PHC F1 (C6-C10 range)	30	µg/g	CCME
PHC F1 (C6-C10 range) minus BTEX (calc)	30	µg/g	CCME
Total TEQ (ND=0) (WHO Calc)	4	pg/g	CCME
Zinc	250	µg/g	CCME

Notes

- Coordinate System: NAD 1983 UTM Zone 15N
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- Satellite Imagery Source: WorldView-2, October 16, 2010.



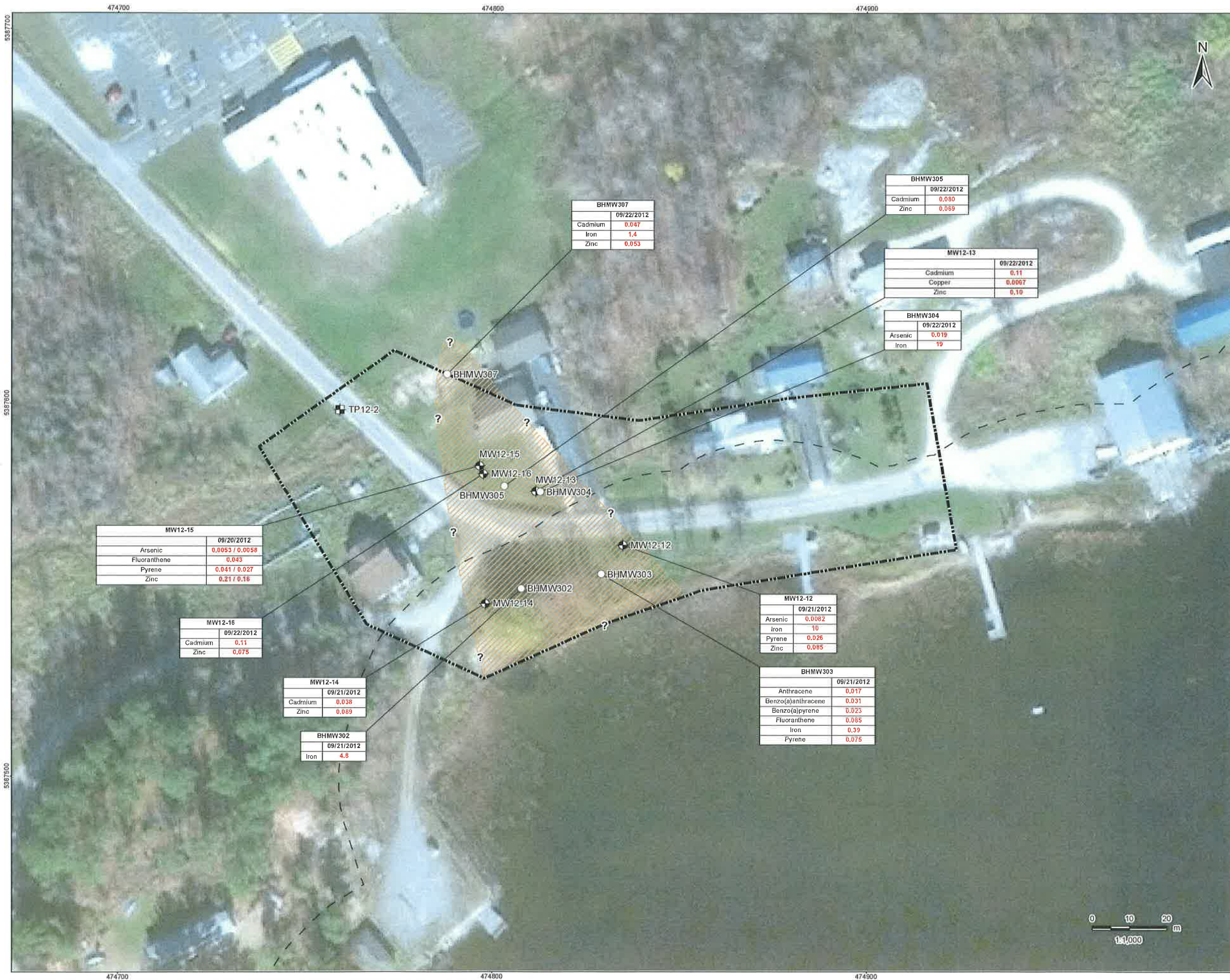
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Former AANDC Leased Industrial Properties
Couchiching First Nation
Fort Frances, Ontario

Figure No.
8A

Title
**Preliminary Estimate of Extent
of Impacted Soil – APEC 1**



Legend

- Monitoring Well (DST 2009)
- ⬮ Monitoring Well
- ⬮ Test Pit
- Approximately 30 m from Rainy Lake
- APEC
- Preliminary Estimate of Extent of Impacted Groundwater

	Sample ID		
	BHMW302		
	09/21/2012		Sample Date
Parameter	Iron	4.8	
		Value	

Parameter	Value	Units	Standard
Anthracene	0.012	µg/L	FIGQG
Arsenic	0.005	mg/L	FIGQG
Benzo(a)anthracene	0.011	µg/L	FIGQG
Benzo(a)pyrene	0.015	µg/L	FIGQG
Cadmium	0.017	µg/L	FIGQG
Copper	0.004	mg/L	FIGQG
Fluoranthene	0.04	µg/L	FIGQG
Iron	0.3	mg/L	FIGQG
Pyrene	0.025	µg/L	FIGQG
Zinc	0.03	mg/L	FIGQG

Notes

- Coordinate System: NAD 1983 UTM Zone 15N
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- Satellite Imagery Source: WorldView-2, October 16, 2010.



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Former AANDC Leased Industrial Properties
Couchiching First Nation
Fort Frances, Ontario

Figure No.
9A

Title
Preliminary Estimate of Extent of Impacted Groundwater – APEC 1