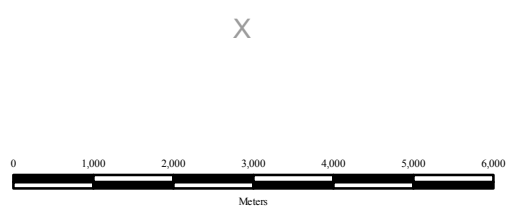
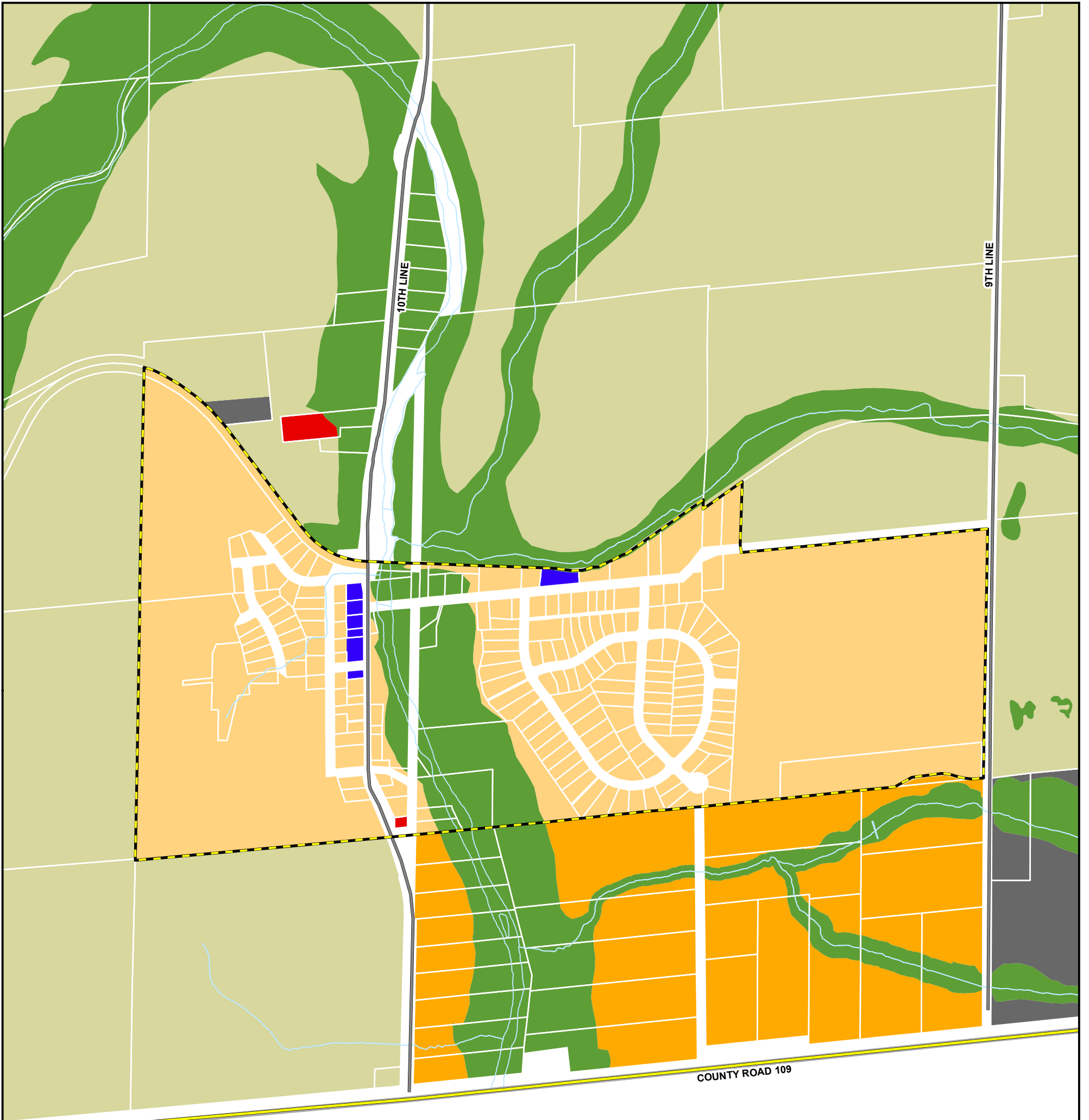


**TOWNSHIP OF AMARANTH OFFICIAL PLAN
DUFFERIN COUNTY
SCHEDULE "A-1" LAND USE & TRANSPORTATION**



Legend

A Agricultural	MX Extractive Industrial	Provincial Highway
EP Environmental Protection	RE Open Space / Recreation	County Road
RU Rural	CR Community Residential	Municipal Road
ER Estate Residential	I Community Institutional	Parcel Boundary
EA Employment Area	CC Community Commercial	FWD Former Waste Disposal Site
		WD Waste Disposal Site

Township of Amaranth - Official Plan Consolidation
September 2010

Note: Schedule "A-1" is revised with respect to the approved Official Plan Amendments (OPA 1 - 3).

Map Projection: NAD 83, UTM Zone 17

This Map is Not A Legal Survey.
The Township Cannot Be Responsible for Errors,
Omissions or Other Inaccuracies.

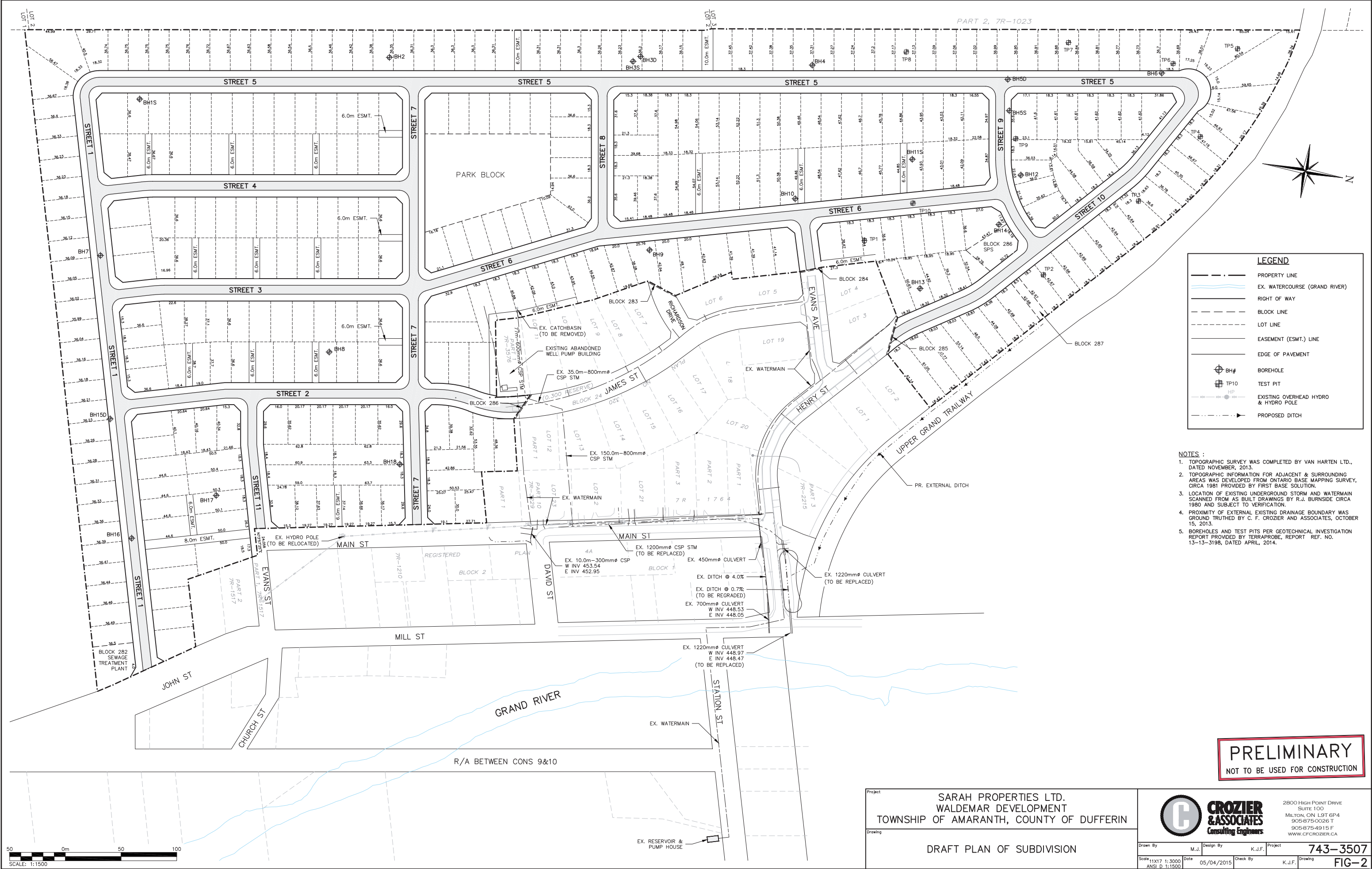
Lot Fabric Created With Data Provided By Teranet Inc.
Official Plan Data updated by R.J. Burnside & Associates Ltd.



LEGEND

- PROPERTY LINE
- EX. WATERCOURSE (GRAND RIVER)
- RIGHT OF WAY
- BLOCK LINE
- LOT LINE
- EASEMENT (ESMT.) LINE
- EDGE OF PAVEMENT
- BOREHOLE
- TEST PIT
- EXISTING OVERHEAD HYDRO & HYDRO POLE
- PROPOSED DITCH

- NOTES :**
- TOPOGRAPHIC SURVEY WAS COMPLETED BY VAN HARTEN LTD., DATED NOVEMBER, 2013.
 - TOPOGRAPHIC INFORMATION FOR ADJACENT & SURROUNDING AREAS WAS DEVELOPED FROM ONTARIO BASE MAPPING SURVEY, CIRCA 1981 PROVIDED BY FIRST BASE SOLUTION.
 - LOCATION OF EXISTING UNDERGROUND STORM AND WATERMAIN SCANNED FROM AS BUILT DRAWINGS BY R.J. BURNSIDE CIRCA 1980 AND SUBJECT TO VERIFICATION.
 - PROXIMITY OF EXTERNAL EXISTING DRAINAGE BOUNDARY WAS GROUND TRUTHED BY C. F. CROZIER AND ASSOCIATES, OCTOBER 15, 2013.
 - BOREHOLES AND TEST PITS PER GEOTECHNICAL INVESTIGATION REPORT PROVIDED BY TERRAPROBE, REPORT REF. NO. 13-13-3198, DATED APRIL, 2014.



PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION



Project: SARAH PROPERTIES LTD.
WALDEMAR DEVELOPMENT
TOWNSHIP OF AMARANTH, COUNTY OF DUFFERIN

Drawing: DRAFT PLAN OF SUBDIVISION

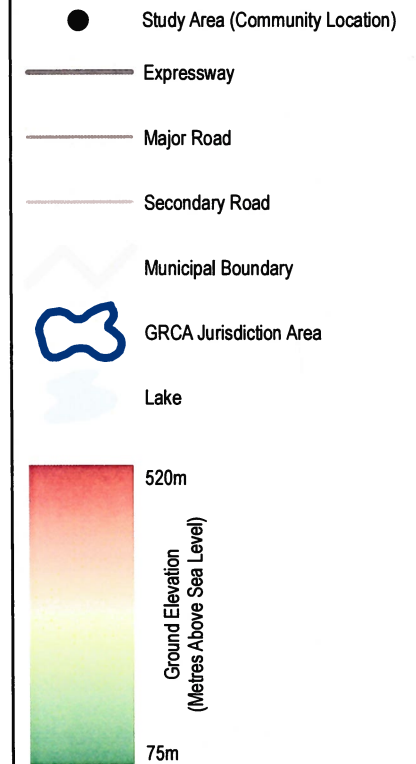
CROZIER & ASSOCIATES
Consulting Engineers

2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn By: M.J. Design By: K.J.F. Project: 743-3507
Date: 05/04/2015 Check By: K.J.F. Drawing: FIG-2

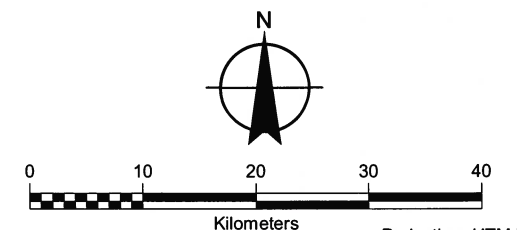
FIGURE 2.1
TOWNSHIP OF AMARANTH
VULNERABILITY ANALYSIS, ISSUES
EVALUATION AND THREATS ASSESMENT

STUDY AREA
WALDEMAR WATER
SUPPLY SYSTEM



DATA SOURCES

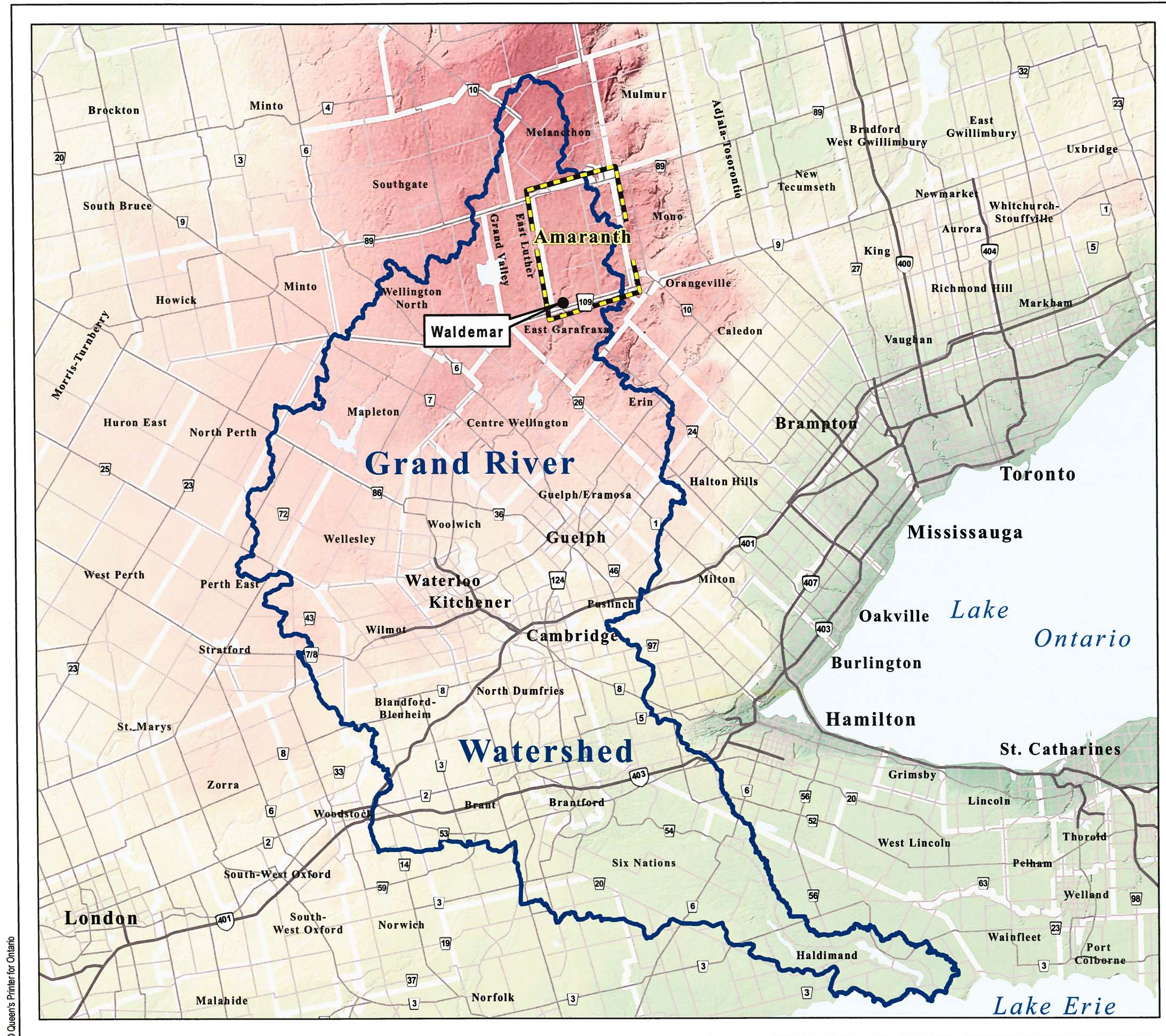
1. 3. Ministry of Natural Resources © Her Majesty the Queen in Right of Ontario
2. Environmental Systems Research Institute (ESRI)
3. Grand River Conservation Authority

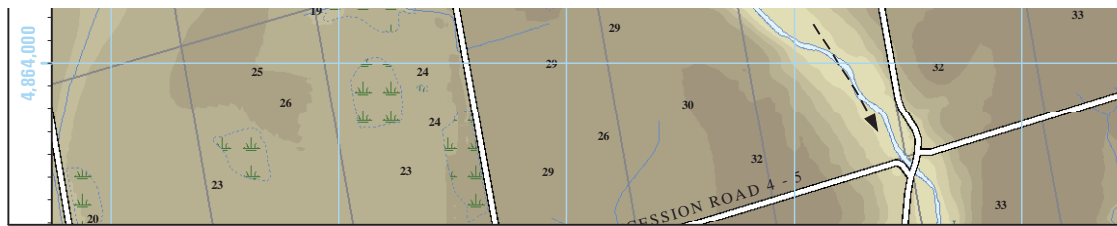


Scale: 1:650,000
 May, 2010
 Project Number: MSA10507.4
 Prepared By: P. Stubbart

Projection: UTM Zone 17
 Datum: NAD 83

Verified By: D. Hopkins





Township of Amaranth

Figure 5

Overburden Thickness

(Estimated General Overburden Thickness)

SOURCES

1. Ministry of the Environment
2. Ministry of Natural Resources
3. Department of Natural Resources
4. Township of Amaranth
5. Ministry of Northern Development and Mines
6. R.J. Burnside & Associates Limited
7. Grand River Conservation Authority

SURFICIAL GEOLOGY FEATURES

Ontario Geological Survey 2003. Surficial Geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release-Data 128.

DISCLAIMER

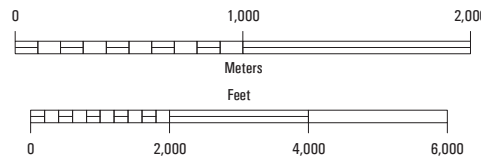
R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented. This map is intended for use in conjunction with the Source Protection Study. This study contains valuable information to aid in the accurate interpretation of this map.

Scale: 1 : 25,000
1 cm on the map equals 250 m on the ground

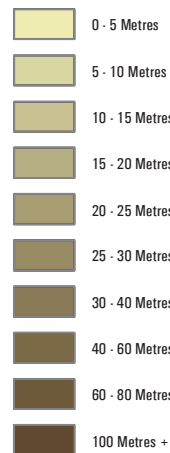
Measure Grid Interval: 1,000 Metres

Datum: North American Datum 1983 (NAD 83)
Projection: Universal Transverse Mercator (UTM) Zone 17

Map Compilation Date: 22 January, 2007



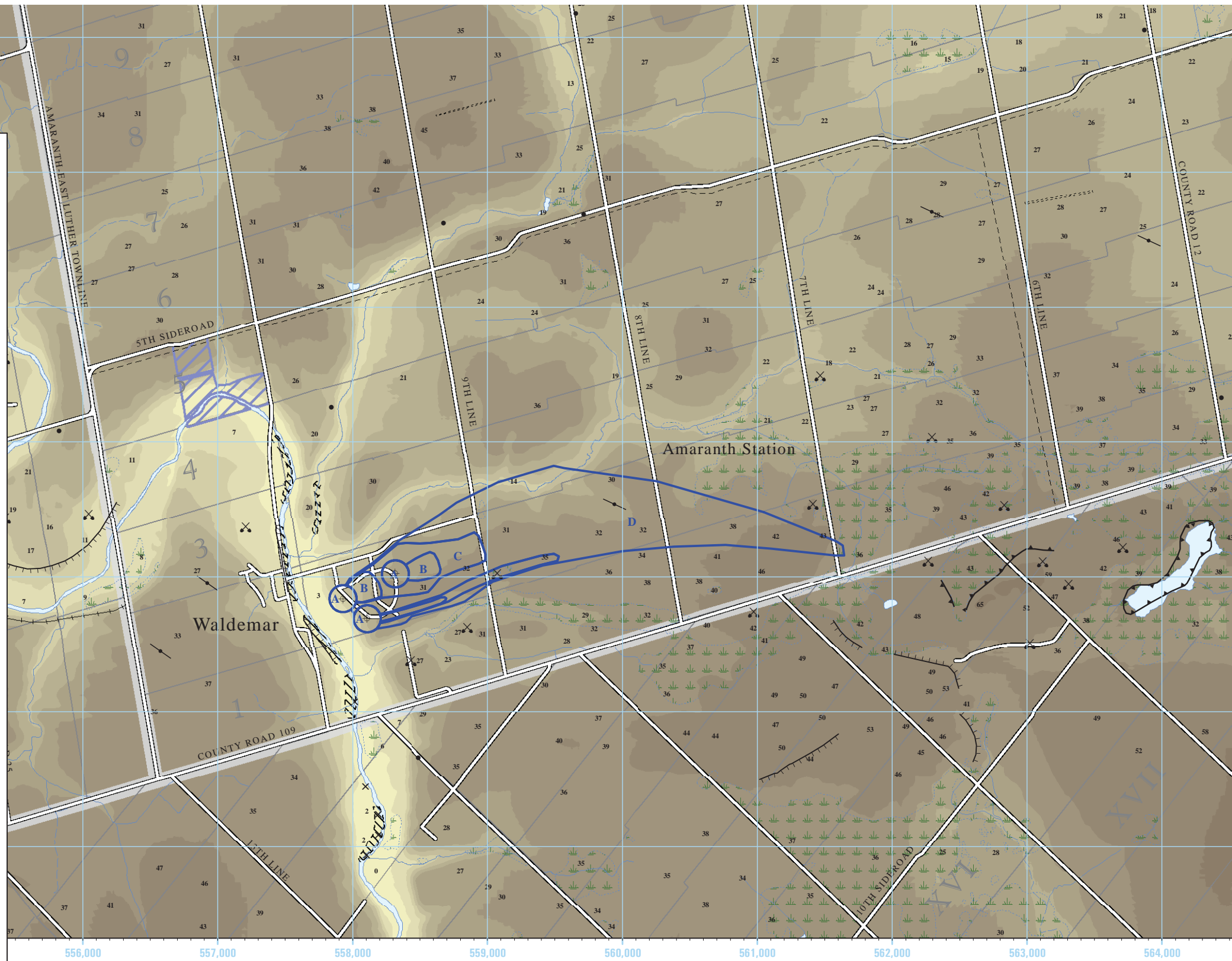
OVERBURDEN THICKNESS

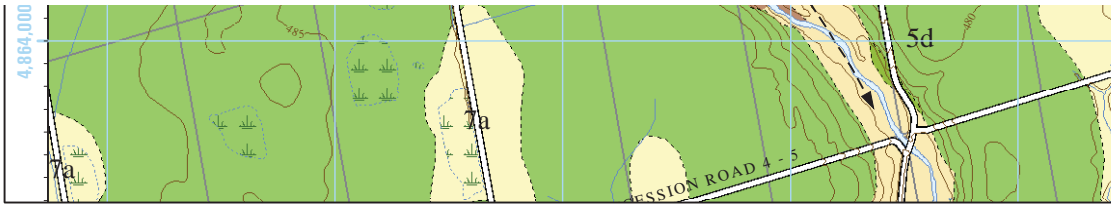


⊕ Production Well Location

A B C D Wellhead Protection Zones

- Zone A: Pathogen Security / Prohibition Zone - 100m Buffer Zone
- Zone B: Pathogen Management Zone - 0 to 2 Year Time of Travel
- Zone C: DNAPL/Contaminant Protection Zone - 2 to 5 Year Time of Travel
- Zone D: Secondary Protection Zone - 5 to 25 Year Time of Travel





Township of Amaranth

Figure 4

Quaternary Geology

(Surficial Geology)

- SOURCES**
1. Ministry of the Environment
 2. Ministry of Natural Resources
 3. Department of Natural Resources
 4. Township of Amaranth
 5. Ministry of Northern Development and Mines
 6. R.J. Burnside & Associates Limited
 7. Grand River Conservation Authority

SURFICIAL GEOLOGY

Ontario Geological Survey 2003. Surficial Geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release-Data 128.

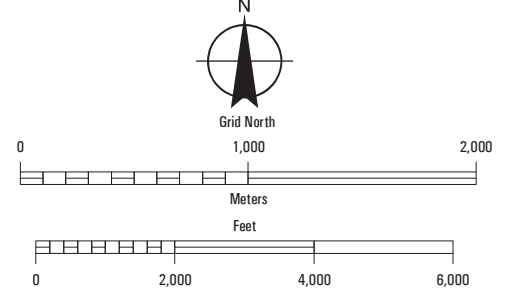
DISCLAIMER

R.J. Burnside & Associates Limited and the above mentioned sources and agencies are not responsible for the accuracy of the spatial, temporal, or other aspects of the data represented on this map. It is recommended that users confirm the accuracy of the information represented. This map is intended for use in conjunction with the Source Protection Study. This study contains valuable information to aid in the accurate interpretation of this map.

Scale: 1 : 25,000
 1 cm on the map equals 250 m on the ground
 Contour Interval: 5 Meters
 Measure Grid Interval: 1,000 Metres

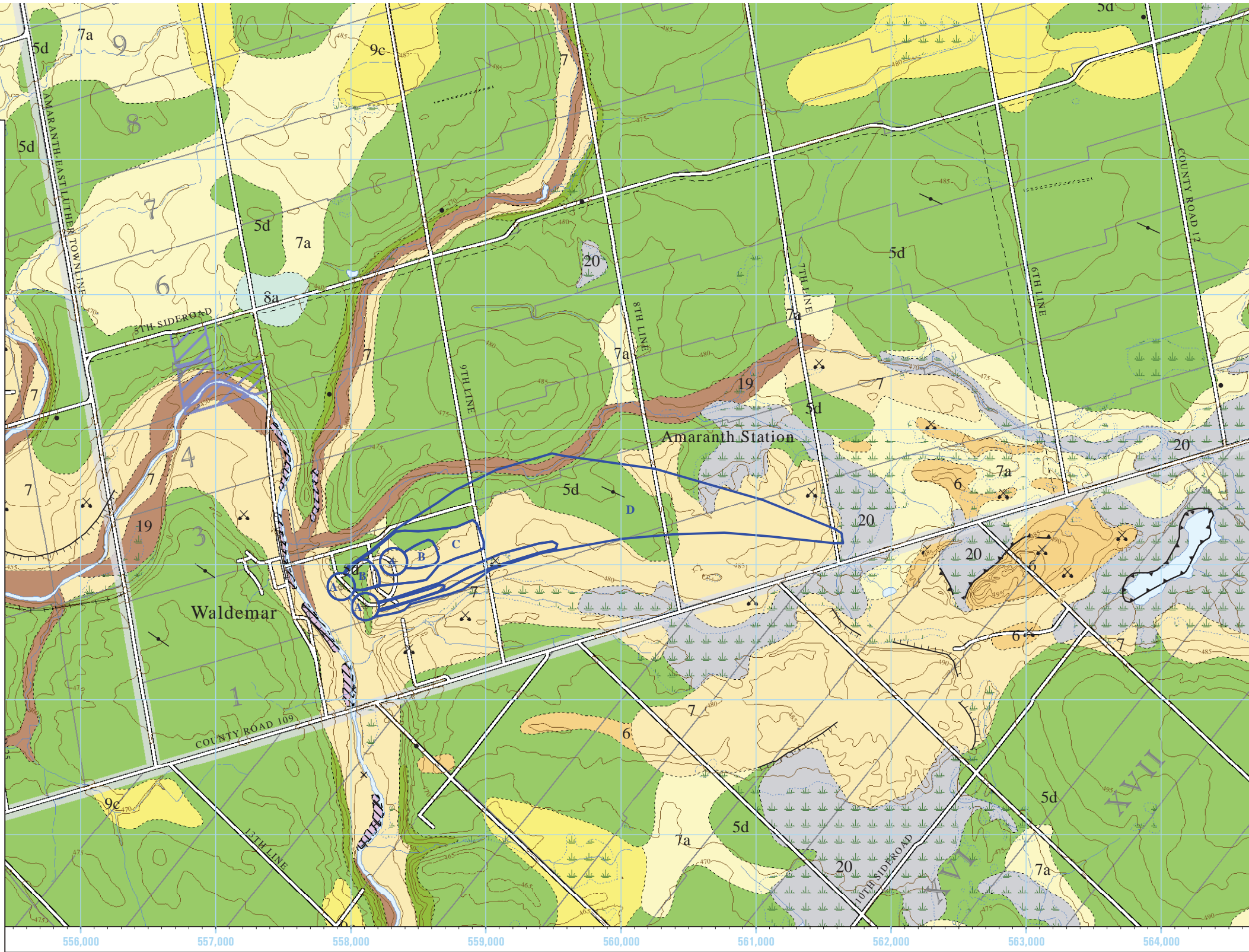
Datum: North American Datum 1983 (NAD 83)
 Projection: Universal Transverse Mercator (UTM) Zone 17

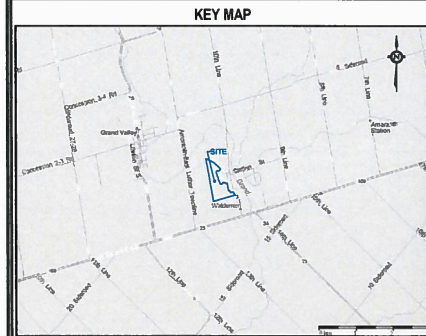
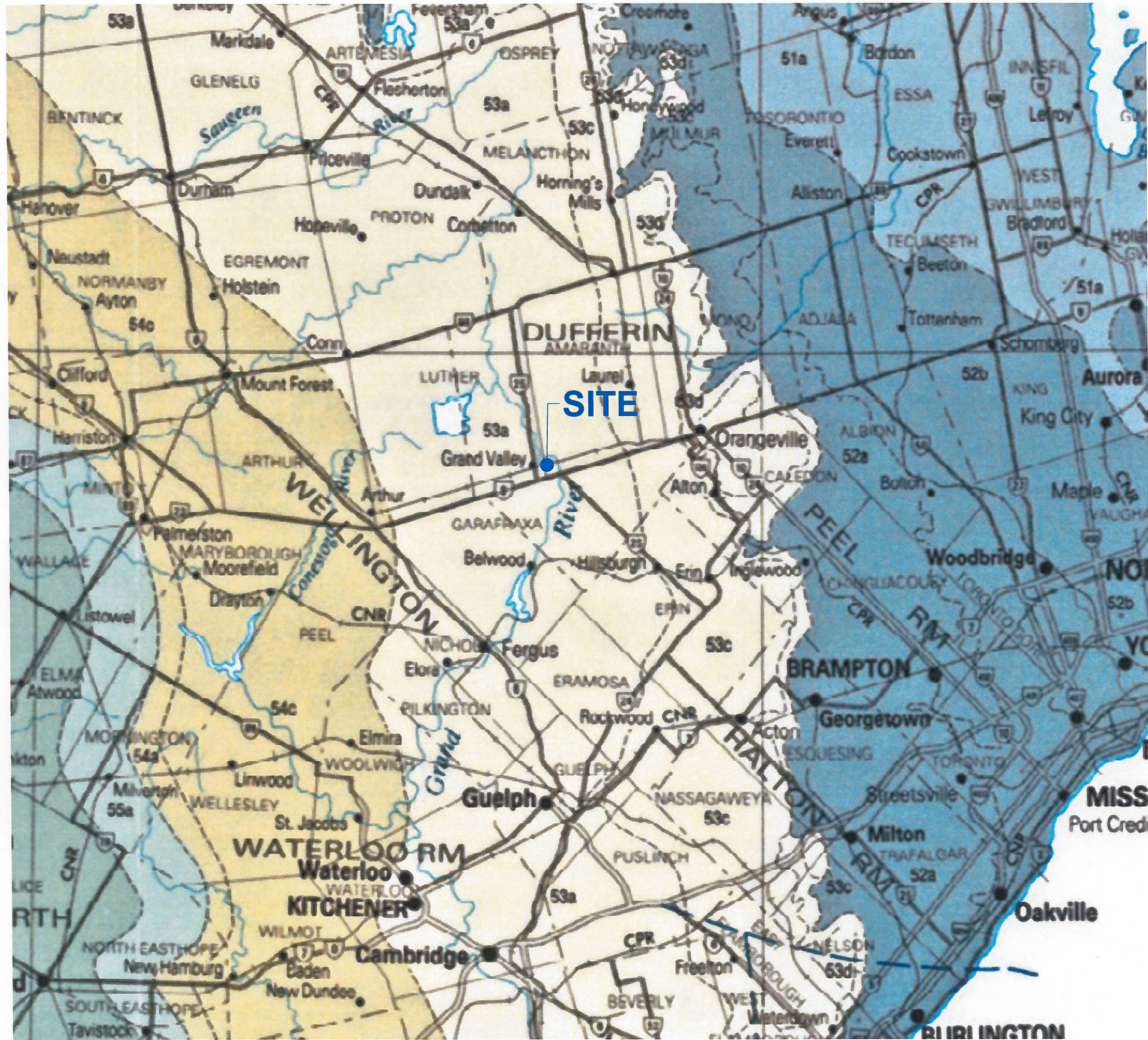
Map Compilation Date: 22 January, 2007



- GEOLOGIC UNITS**
- 3: Paleozoic bedrock
 - 5b: Stone-poor, carbonate-derived silty to sandy till
 - 5d: Glaciolacustrine-derived silty to clayey till
 - 6: Ice-contact stratified deposits
 - 7: Glaciofluvial deposits
 - 7a: Sandy deposits
 - 8a: Massive-well laminated
 - 9c: Foreshore-basinal deposits
 - 19: Modern alluvial deposits
 - 20: Organic deposits

- Production Well Location
- Wellhead Protection Zones
- Zone A: Pathogen Security/Prohibition Zone - 100m Buffer Zone
 - Zone B: Pathogen Management Zone - 0 to 2 Year Time of Travel
 - Zone C: DNAPL/Contaminant Protection Zone - 2 to 5 Year Time of Travel
 - Zone D: Secondary Protection Zone - 5 to 25 Year Time of Travel





REFERENCE:
 Ministry of Northern Development and Mines
 MAP 2544
 Bedrock Geology of Ontario
 Southern Sheet

NOTES:

LEGEND:

- SILURIAN**
- UPPER SILURIAN**
- 54 Limestone, dolostone, shale, sandstone, gypsum, salt
 54a Bass Islands Fm.
 54b Bertie Fm.
 54c Salina Fm.
 54d Kenogami River Fm. (Upper Silurian to Lower Devonian)
- MIDDLE AND LOWER SILURIAN**
- 53 Sandstone, shale, dolostone, siltstone
 53a Guelph Fm.
 53b Lockport Fm.
 53c Amabel Fm.
 53d Clinton Gp.: Cataract Gp.
 53e Thornloe Fm.; Earleton Fm.
 53f Wabi Gp.
 53g Attawapiskat Fm.
 53h Ekwan River Fm.
 53i Severn River Fm.
- ORDOVICIAN**
- UPPER ORDOVICIAN**
- 52 Shale, limestone, dolostone, siltstone
 52a Queenston Fm.
 52b Georgian Bay Fm.; Blue Mountain Fm.; Billings Fm.; Collingwood Mb.; Eastview Mb.
 52c Liskeard Gp.
 52d Red Head Rapids Fm.
 52e Churchill River Gp.
 52f Bad Cache Rapids Gp.
- MIDDLE ORDOVICIAN**
- 51 Limestone, dolostone, shale, arkose, sandstone
 51a Ottawa Gp.; Simcoe Gp.; Shadow Lake Fm.
 51b Chazy Gp., Rockcliffe Fm.

PROJECT TITLE:
 Hydrogeological Investigation

SITE LOCATION:
 Waldemar Developments
 Township of Amaranth, Ontario

FIGURE TITLE:
 REGIONAL BEDROCK GEOLOGY

REV NO.: 0	FILE NO.: 13-13-3198-6
SCALE: NTS	FIGURE NO.: 5
DATE: January 2014	

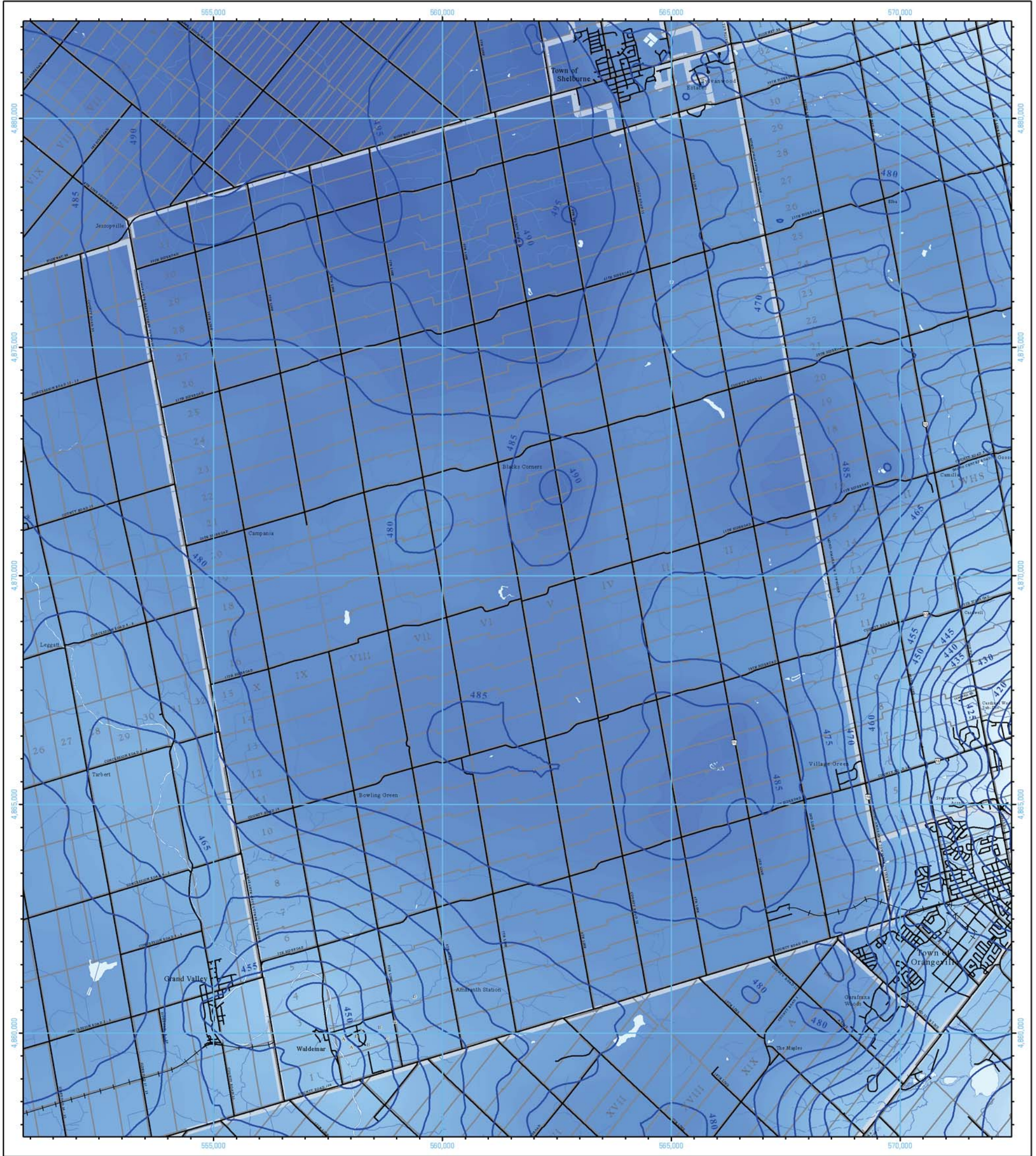
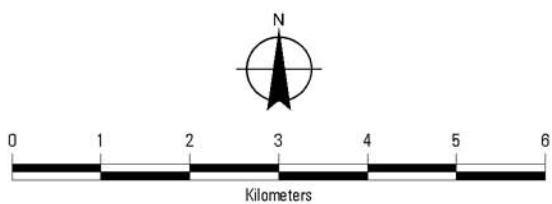


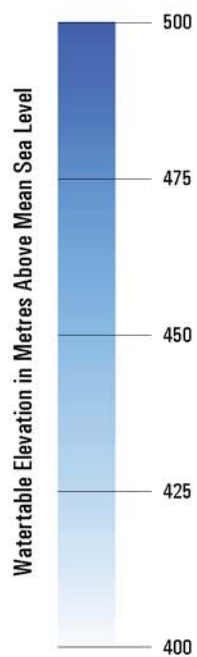
FIGURE 6
Township of Amaranth
Water Table Elevation



Scale: 1:85,000
 Mapping Date: 22 January, 2007

Projection: UTM Zone 17
 Datum: NAD 83

Project: MSA10507.4



NOTES

1. Watertable elevation data taken from the Amaranth Groundwater Protection Study, 2002.

SOURCES

1. Ministry of the Environment
2. Ministry of Natural Resources
3. Department of Natural Resources
4. Township of Amaranth
5. Ministry of Northern Development and Mines
6. R. J. Burnside & Associated Limited

DISCLAIMER

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BURNSIDE

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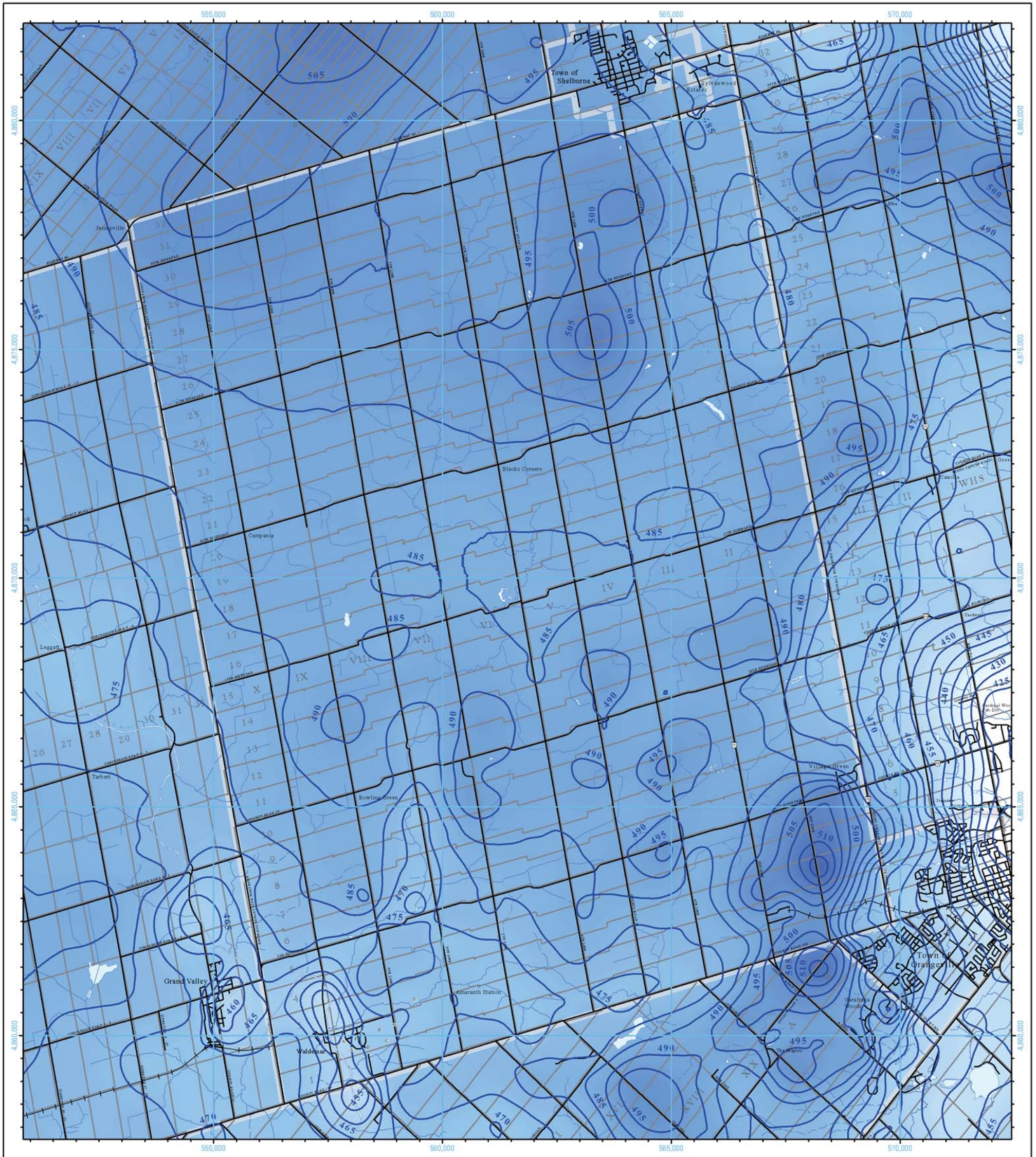
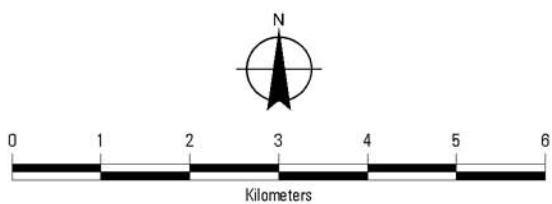


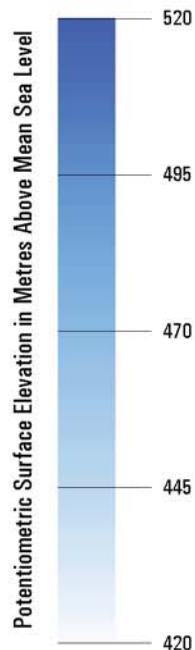
FIGURE 7
Township of Amaranth
Potentiometric Surface



Scale: 1:85,000
 Mapping Date: 22 January, 2007

Projection: UTM Zone 17
 Datum: NAD 83

Project: MSA10507.4



NOTES

1. Potentiometric Surface data taken from the Amaranth Groundwater Protection Study, 2002.

SOURCES

1. Ministry of the Environment
2. Ministry of Natural Resources
3. Department of Natural Resources
4. Township of Amaranth
5. Ministry of Northern Development and Mines
6. R.J. Burnside & Associated Limited

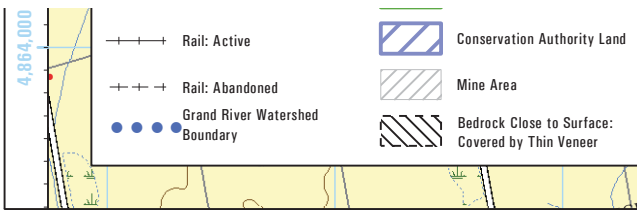
DISCLAIMER

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BURNSIDE

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Township of Amaranth Figure 9 Aquifer Vulnerability Index - Bedrock Wells -

SOURCES

1. Ministry of the Environment
2. Ministry of Natural Resources
3. Department of Natural Resources
4. Township of Amaranth
5. Ministry of Northern Development and Mines
6. R.J. Burnside & Associates Limited
7. Grand River Conservation Authority

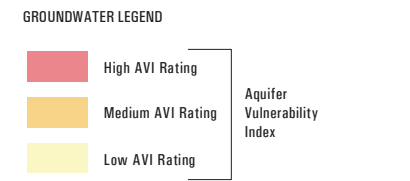
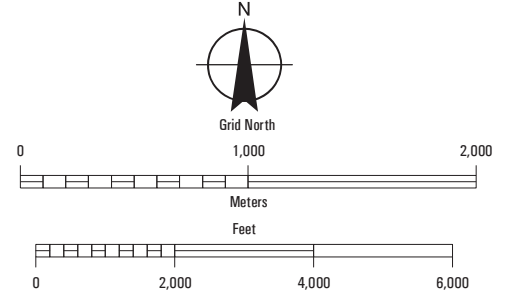
DISCLAIMER

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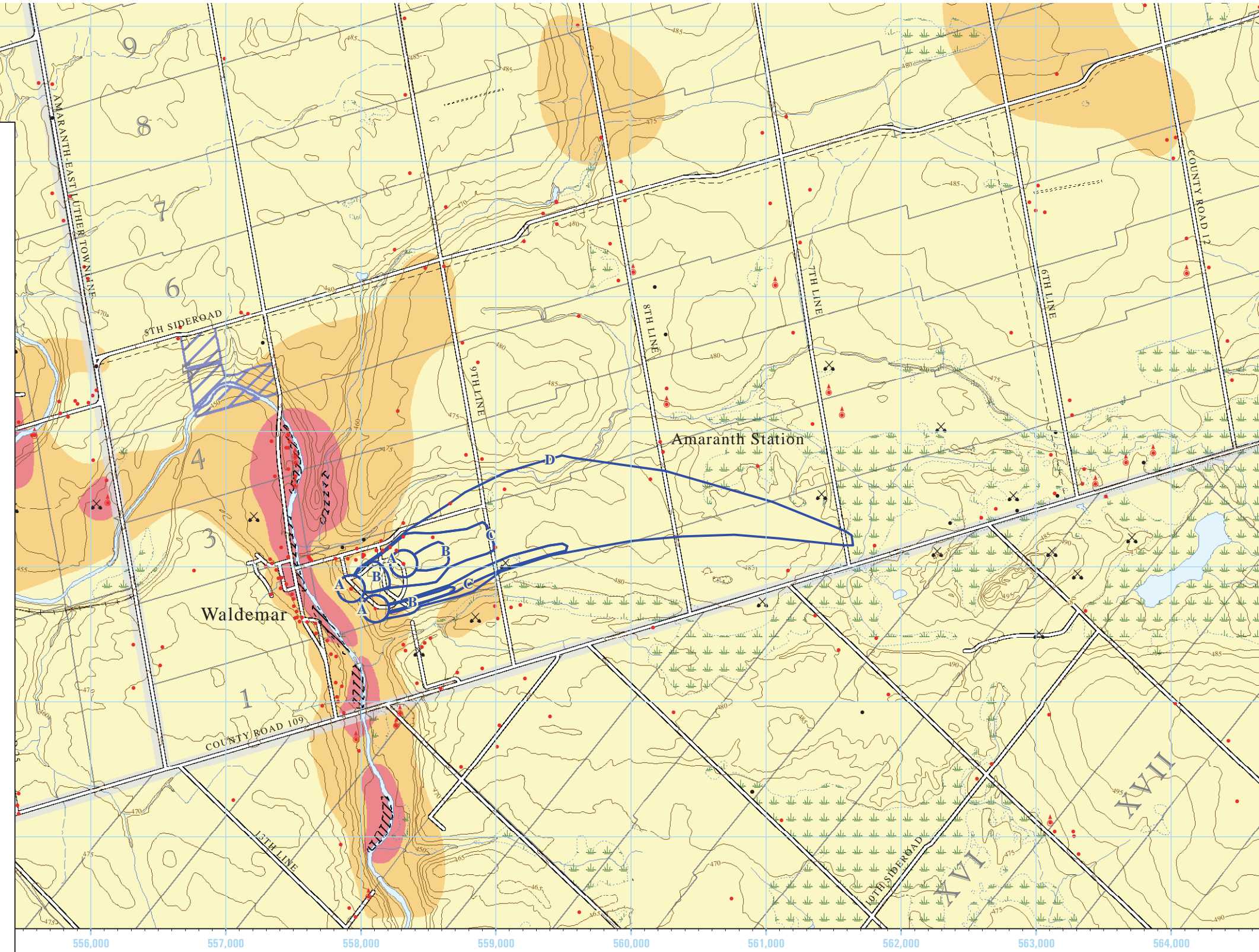
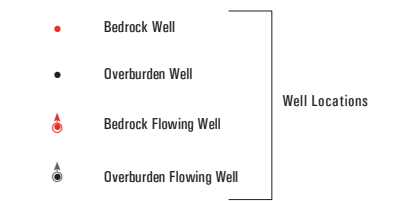
Scale: 1 : 25,000
1 cm on the map equals 250 m on the ground
Contour Interval: 5 Meters
Measure Grid Interval: 1,000 Metres

Datum: North American Datum 1983 (NAD 83)
Projection: Universal Transverse Mercator (UTM) Zone 17

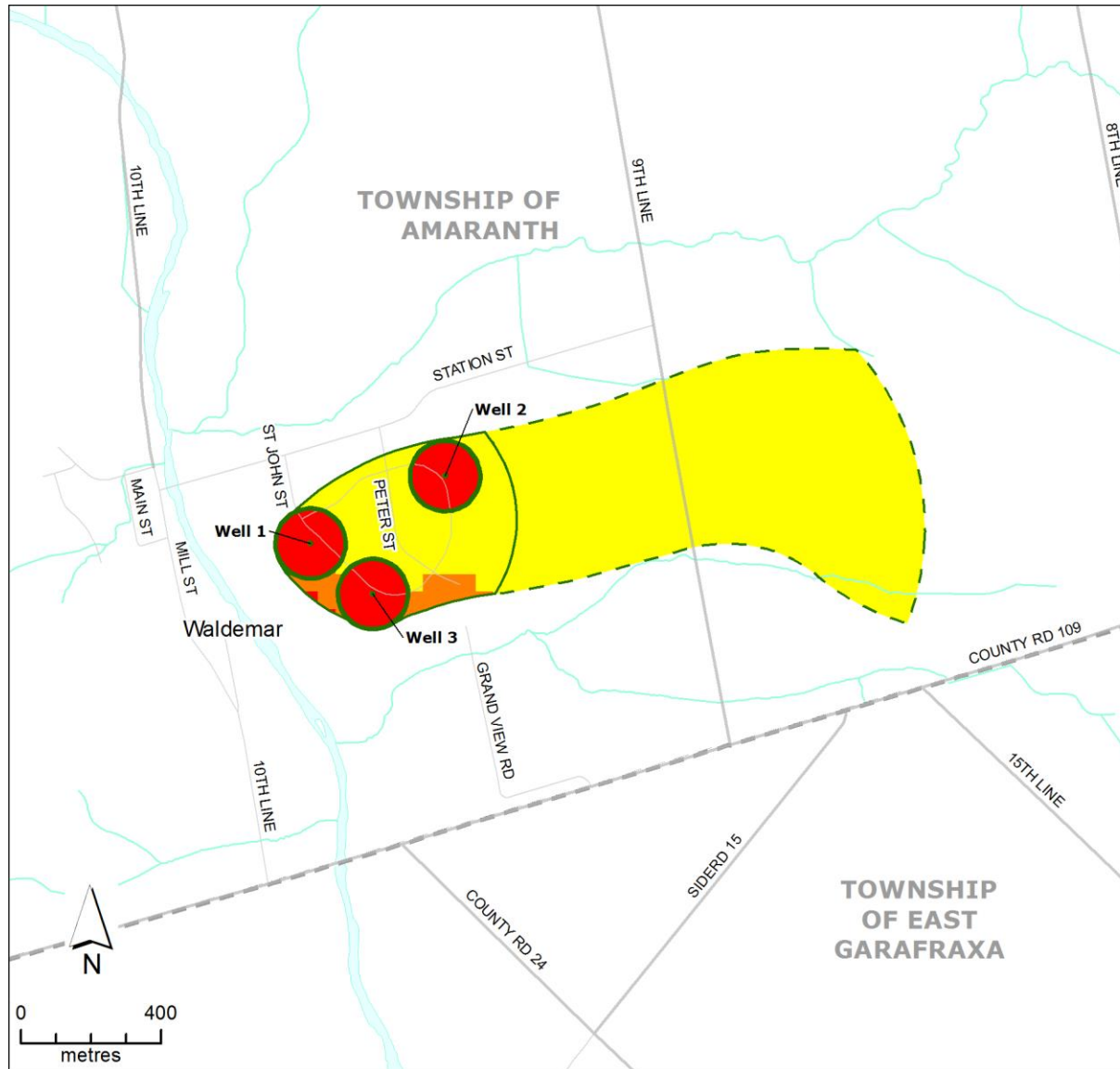
Map Compilation Date: 18 April, 2007



Zone A: Pathogen Security/Prohibition Zone - 100m Buffer Zone
Zone B: Pathogen Management Zone - 0 to 2 Year Time of Travel
Zone C: DNAPL/Contaminant Protection Zone - 2 to 5 Year Time of Travel
Zone D: Secondary Protection Zone - 5 to 25 Year Time of Travel



4.6 Schedule A: Dufferin County: Township of Amaranth, Waldemar Water Supply



Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories	Vulnerability Scores on Map		
	10	8	2,4,6
1. Waste Disposal	█	█	█
2. Sewage Systems	█	█	
3, 4. Agricultural Source Material	█	█	
6, 7. Non-Agricultural Source Material*	█	█	
8, 9. Commercial Fertilizer*	█	█	
10, 11. Pesticide	█	█	
12, 13. Road Salt*	█	█	
14. Storage of Snow	█	█	
15. Fuel	█	█	
16. DNAPLs	█	█	█
17. Organic Solvents	█	█	
18. Aircraft De-icing	█	█	
21. Livestock Area	█	█	
Local Threat Oil Pipelines	█	█	

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
 *Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

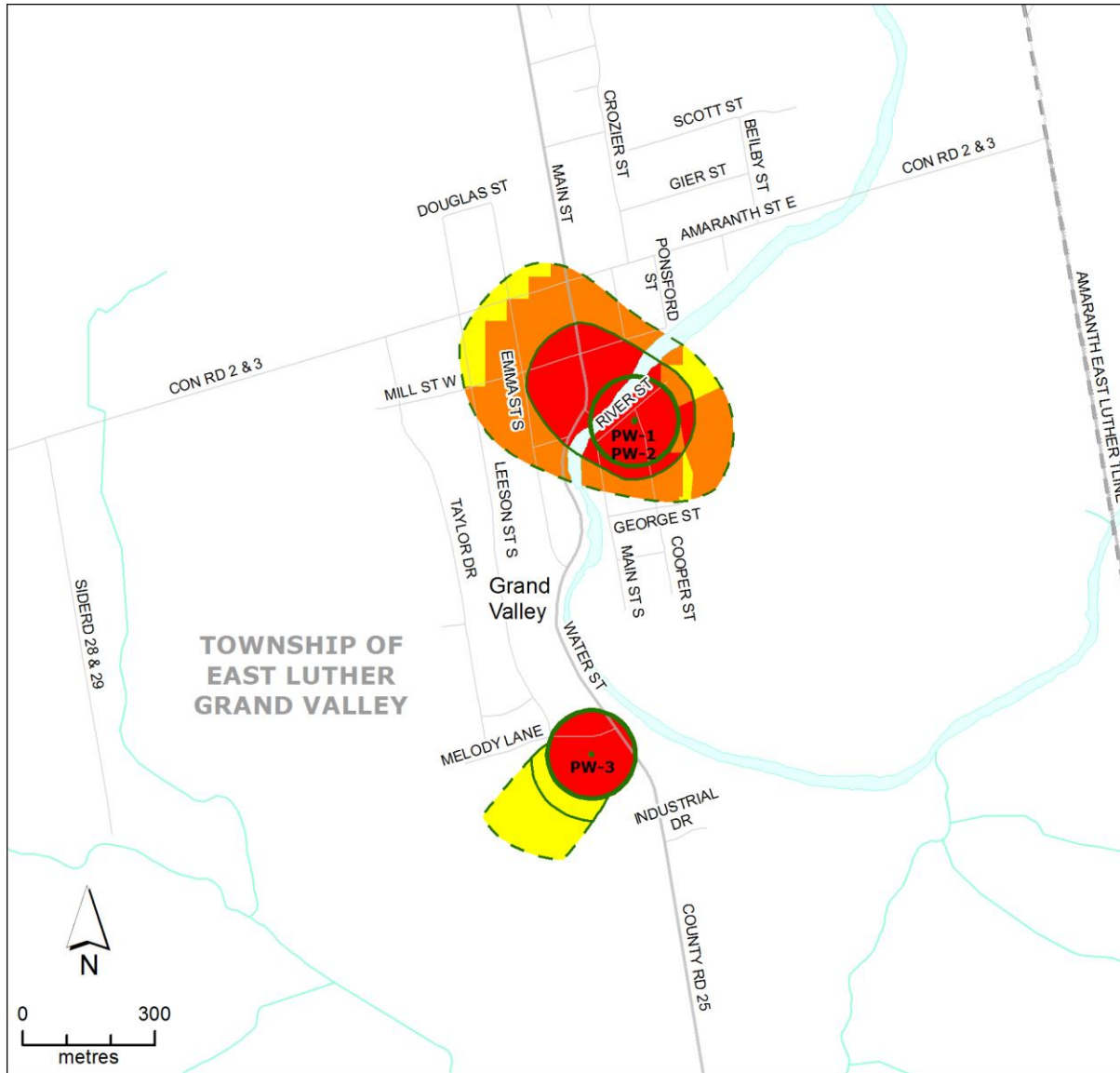
Wellhead Protection Zones:

- Well (Red circle)
- Road (Grey line)
- Minor River (Blue wavy line)
- Lake / Main River (Blue area)
- Municipal Boundary (Dashed grey line)
- WHPA-A (Green circle)
- WHPA-B (Light green circle)
- WHPA-C (Yellow circle)



1. Updated November 19, 2014
 2. Larger scale mapping of some map layers, including roads and vulnerability scores, is available at www.sourcewater.ca.
 3. This map is for illustrative purposes only. Information contained hereon is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.

5.6 Schedule A: Dufferin County, Township of Grand Valley, Grand Valley Well Supply



Significant Drinking Water Threat Policy Applicability

Significant Drinking Water Threat Policy Categories	Vulnerability Scores on Map		
	10	8	2,4,6
1. Waste Disposal	Red		
2. Sewage Systems	Red		
3, 4. Agricultural Source Material	Red		
6, 7. Non-Agricultural Source Material*	Red		
8, 9. Commercial Fertilizer*	Red		
10, 11. Pesticide	Red		
12, 13. Road Salt*	Red		
14. Storage of Snow	Red		
15. Fuel	Red		
16. DNAPLs	Red	Orange	Yellow
17. Organic Solvents	Red		
18. Aircraft De-icing	Red		
21. Livestock Area	Red		
Local Oil Pipelines Threat	Red		

Note: This table provides a summary of the activities listed in the Clean Water Act (2006) that apply as Prescribed Drinking Water Threats (PDWT) within the Non-GUDI Wellhead Protection Zones shown on this map. For details refer to the text of the Source Protection Plan and the Ministry of the Environment Drinking Water Threats Tables.
 *Application of Commercial Fertilizer, Non-Agricultural Source Material, and Road Salt may not be a significant drinking water threat in some areas due to the % managed land, livestock density, and/or % impervious surface calculations for these areas. See the text of the plan for further details.

Legend:

- Well (Green dot)
- Road (Grey line)
- Minor River (Blue wavy line)
- Lake / Main River (Blue area)
- Municipal Boundary (Dashed line)

Wellhead Protection Zones:

- WHPA-A (Green circle)
- WHPA-B (Light green circle)
- WHPA-C (Yellow circle)



1. Updated November 19, 2014
 2. Larger scale mapping of some map layers, including roads and vulnerability scores, is available at www.sourcewater.ca.
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