

# THREAT ASSESSMENT

Durham Region/Havelock

Trent Conservation Coalition Source Protection Region

The information presented is still in draft form and continues to be reviewed and revised. Images presented herein may differ from those to be included in the Draft Report.



January 19, 2010

Presented To: TCC Source Protection Committee

Presented By: Lloyd Lemon, P.Geo., Senior Geoscientist

# PRESENTATION OVERVIEW

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- 1) Review of Threats Process (Updates)
- 2) Hamilton Township (Update)
- 3) Durham Region (4 systems)
- 4) Havelock (1 System)
- 5) Summary

# THREAT ASSESSMENT REQUIREMENTS

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1. List of Activities that are “Prescribed Drinking Water Threats”.
2. List of “Other Drinking Water Threats”
  - Activities or Circumstances and hazard ratings proposed by SPC under Technical Rules
3. Maps of Areas that Activities “Are or Would Be” Significant, Moderate, or Low Threats

# THREAT ASSESSMENT REQUIREMENTS

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4. Maps of Areas that Conditions that are Drinking Water Threats
  - (include Hazard Score = 10)
5. The number of locations where activities are significant drinking water threats.
6. The number of locations where conditions are significant drinking water threats.

# THREAT ASSESSMENT PROCESS

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- ä **Step 1:** Compile Vulnerability Scores & Threat Information
- ä **Step 2:** Identify any known “activities” that are not included in the List of Drinking Water Threats and propose as new Activities/ Circumstances.
- ä **Step 3:** Prepare List of Activities that “are or would be Threats”

# THREAT ASSESSMENT PROCESS

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- ä **Step 4:** Identify Conditions and Prepare List of Conditions that are or would be Threats”.
- ä **Step 5:** Prepare Maps of Areas that “Are or Would Be” Drinking Water Threats
- ä **Step 6:** Enumerate Significant Drinking Water Threats

# STEP 6

## ENUMERATE SIGNIFICANT THREATS

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ä **Step 6A:** Vulnerability Score Map to GIS

ä **Step 6B:** Update “Threat Database”

- Reference MPAC Property Data
- Add & Populate Common Field of “LandUseActivityName” for querying Table of Drinking Water Threats

# STEP 6

## ENUMERATE SIGNIFICANT THREATS

ä **Step 6C:** Consider Properties with multiple Activities (Surrogate Code):

- Residential
- Agricultural (Managed Lands)
- Mixed Commercial
- Road Salt (Impervious Surface Mapping)

# STEP 6

## ENUMERATE SIGNIFICANT THREATS

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ä **Step 6D: Prepare Maps for Evaluating:**

- Managed Lands
- Agricultural Managed Lands
- Livestock Density
- Impervious Surfaces

ä **Areas where Vulnerability Score > 4**



# MANAGED LANDS

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## ä Potential Application of :

- Commercial Fertilizer
- Agricultural Source Material (ASM)
- Non-Agricultural Source Material (NASM)

## ä Evaluation of Chemical Threats Only

# MANAGED LANDS

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## ä Includes:

- Residential (50%)
- Golf Courses
- Parks/Recreation
- Sporting Fields
- Institution
- Agriculture

## ä Does Not Include:

- Forests
- Wetlands
- Lakes/Rivers
- Pits and Quarries
- Roads
- Commercial

# MANAGED LANDS

Managed Land Area within Properties  
Intersecting Vulnerable Area

X 100 %

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Total Area of Properties Intersecting  
Vulnerable Area

**Low < 40% > Moderate < 80% > High**

# AGRICULTURAL MANAGED LAND

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## ä Includes:

- Cropland
- Fallow Land
- Improved Pasture

## ä Does Not Include:

- Specific M. L.
- Forests
- Wetlands
- Lakes/Rivers
- Pits and Quarries
- Roads
- Commercial

# LIVESTOCK DENSITY

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Sum of Nutrient Units in All Parcels  
Intersecting Vulnerable Area

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Total Area of Agricultural Managed Land  
Parcels Intersecting Vulnerable Area

X 100 %

ä < 0.5 Nutrient Units/Acre

ä > 0.5 NU/Acre ; < 1 % NU/Acre

ä > 1 NU/Acre

# IMPERVIOUS SURFACES

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- ä 1 km Grid based on SPR Centroid
- ä Proportion of Roads within Grid Area
  - $< 1 \% / \text{km}^2$
  - $> 1 \% / \text{km}^2 ; < 8 \% / \text{km}^2$
  - $> 8 \% / \text{km}^2 ; < 80 \% / \text{km}^2$
  - $> 80 \% / \text{km}^2$

# STEP 6

## ENUMERATE SIGNIFICANT THREATS

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- ä **Step 6E:** Generate Lists of Threats, Significance Rating, and Hazard Scores for Each Property
- Parcel is assigned highest Vulnerability Score intersected
  - Multiple threat activities/circumstances/parameters identified per property – show highest significance
  - Generated database can be used for management

Application of Commercial Fertilizer to Land	48	Low
Storage of Pesticide	<40	Negligible
Storage of Fuel	<40	Negligible
Application of Pesticide to Land	44	Low
Sewage System or Sewage Works	50.4	Low

Application of Commercial Fertilizer to Land	80	Significant
Storage of Pesticide	66	Moderate
Storage of Fuel	67	Moderate
Application of Pesticide to Land	74	Moderate
Sewage System or Sewage Works	84	Significant

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# Example – Threat Identification (Residential)

# STEP 6

## ENUMERATE SIGNIFICANT THREATS

### ä **Step 6F:** Prepare Table to Enumerate Significant Drinking Water Threats

- Count on parcel basis
- Can be more than 1 Significant Threat per parcel
- Significant Threats due to an Issue will be counted for each Activity for that parameter within Issues Contributing Area

# QUALITY CONTROL STEPS

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## ä Professional Judgement:

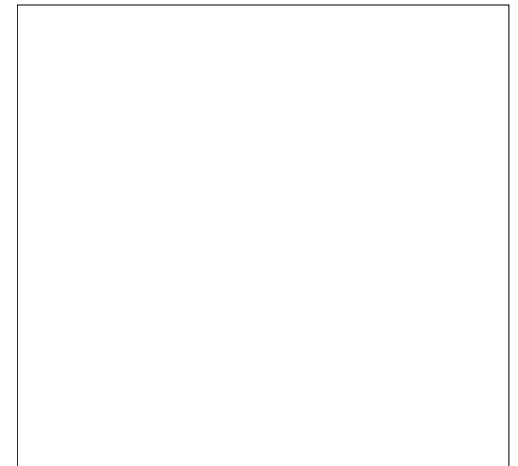
- Identified Threats are Appropriate
- Threat Activity occurs in intersected area
- Number of Threats are Appropriate
- Waste Disposal Sites / DNAPLs
- Municipal Well Sites

ä All changes are recorded in Geodatabase



Figure 3-1

# WHPA Hamilton Township



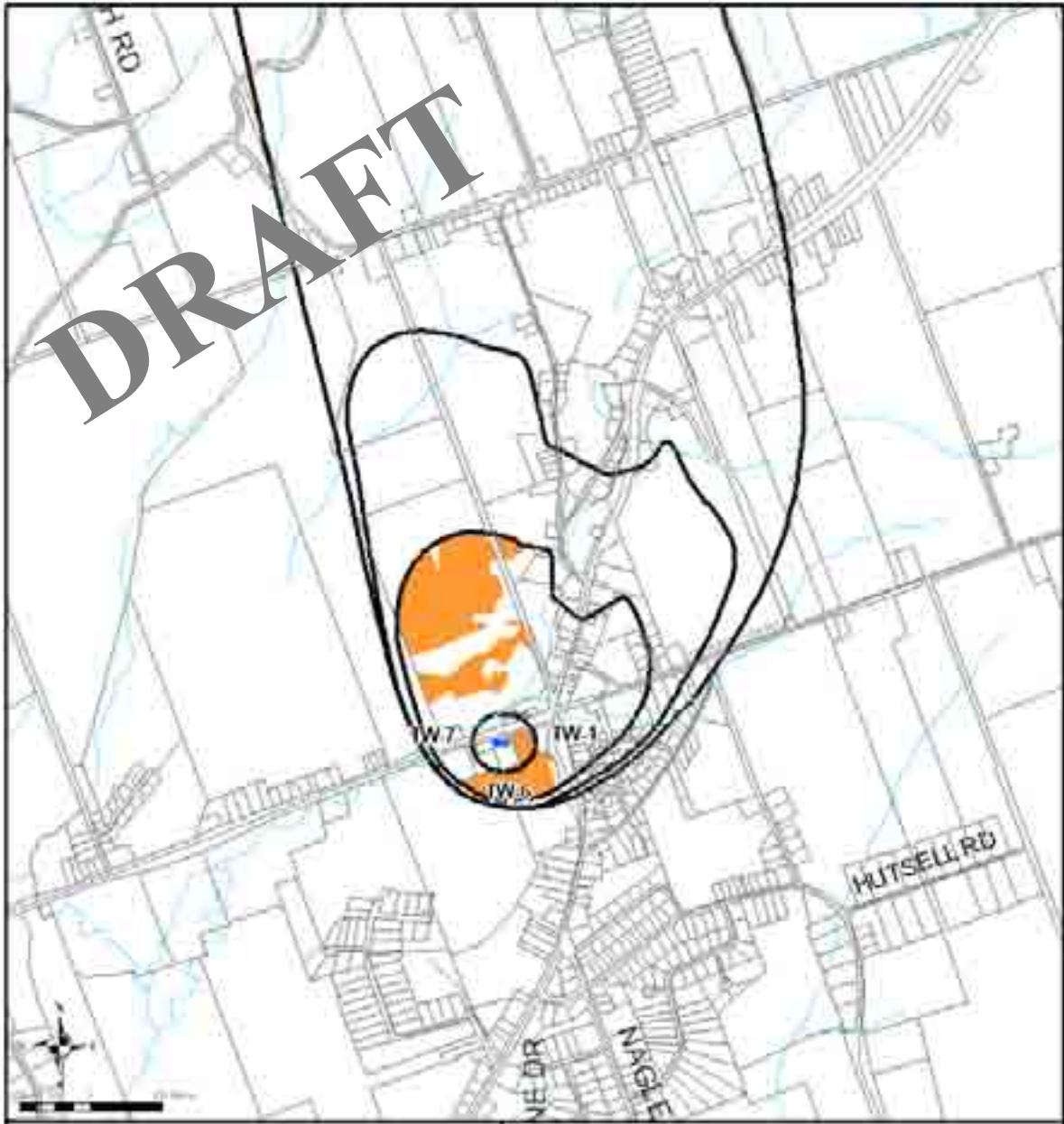


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# Managed Lands Creighton Heights



Figure 3-10

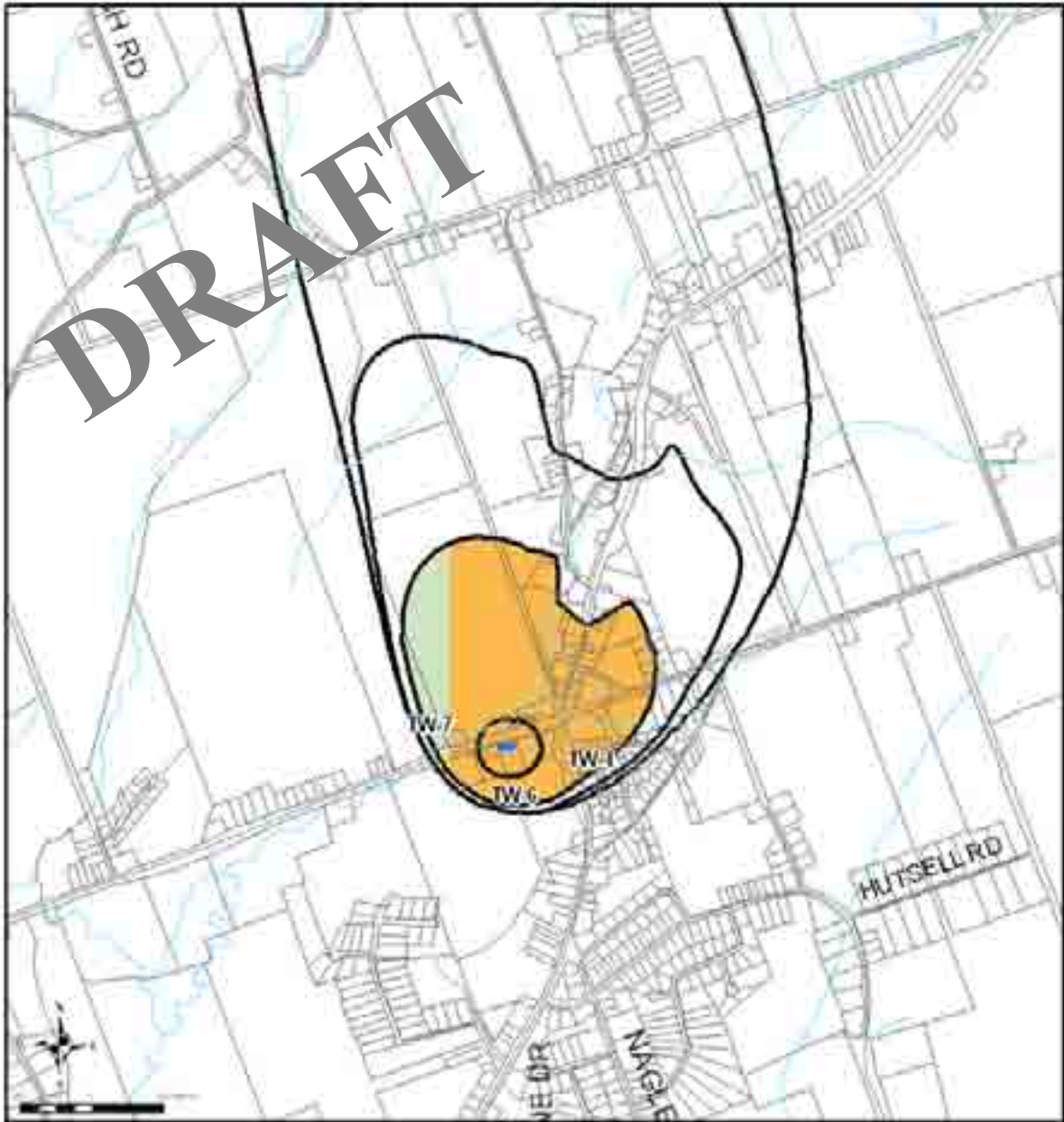


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# Livestock Density Creighton Heights

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Figure 3-11



# Impervious Surfaces Creighton Heights

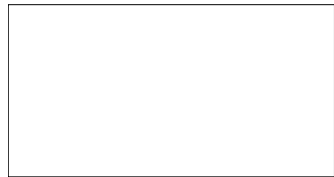


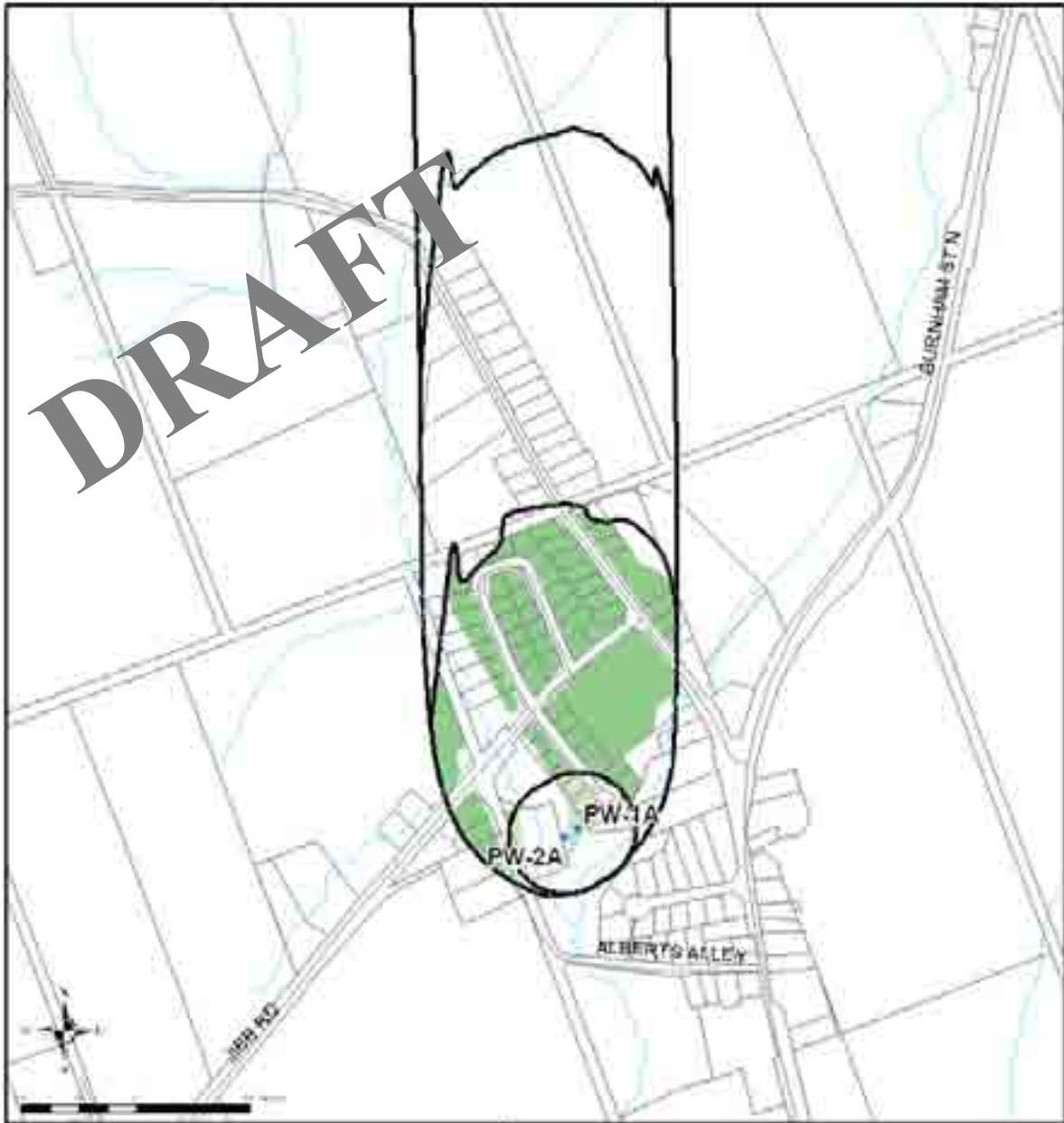
Figure 3-12

# # of SIGNIFICANT THREATS

## CREIGHTON HEIGHTS

**Significant Threat Counts By Vulnerability Score**

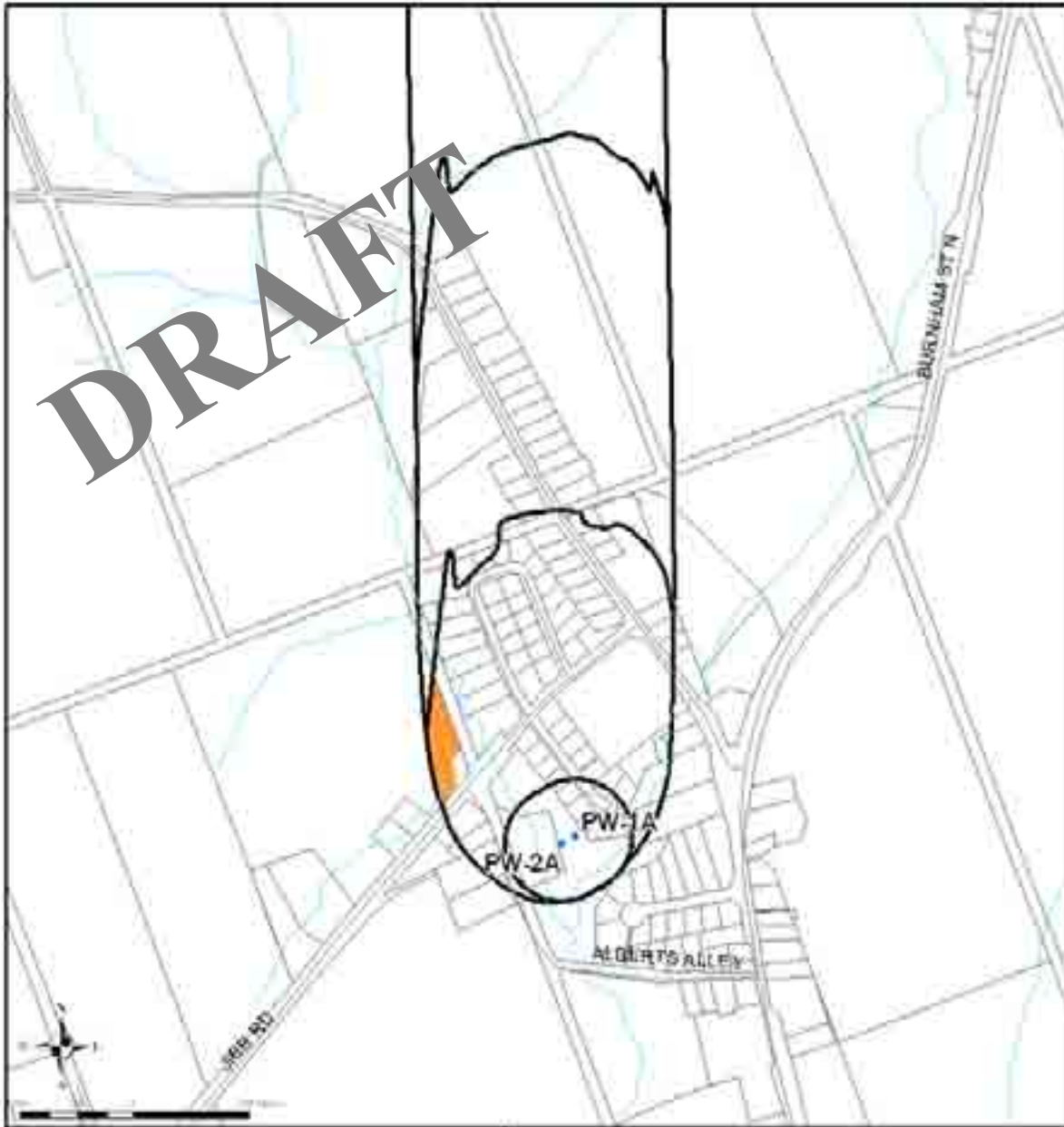
#	Threat Description	Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
		Threats	Parcels	Threats	Parcels
2	Private Sewage Disposal	3	3	0	0
4	ASM Storage	1	1	0	0
15	Fuel Storage	2	2	0	0
16	DNAPL Storage	0	0	4	4
21	Livestock Grazing/Yard	1	1	0	0
<b>Totals</b>		<b>7</b>	<b>4</b>	<b>4</b>	<b>4</b>



# Managed Lands Camborne



Figure 4-6

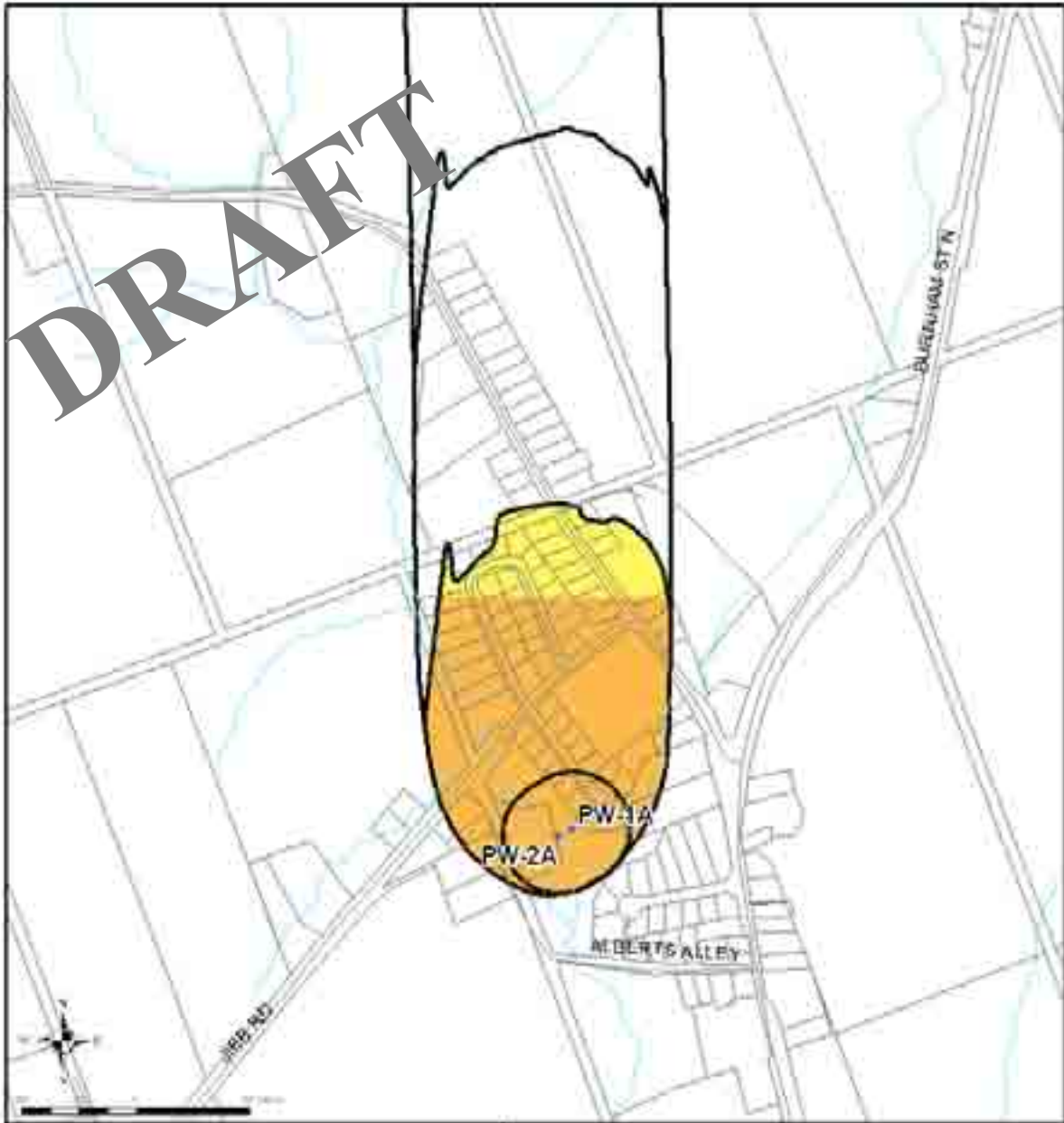


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# Livestock Density Camborne



Figure 4-7



# Impervious Surfaces Camborne



Figure 4-8

# # of SIGNIFICANT THREATS - CAMBORNE

Threat		Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
#	Description	Threats	Parcels	Threats	Parcels
2	Private Sewage Disposal	10	10	0	0
15	Fuel Storage	1	1	0	0
16	DNAPL Storage	0	0	1	1
<b>Totals</b>		<b>11</b>	<b>10</b>	<b>1</b>	<b>1</b>

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# SUMMARY

## HAMILTON TOWNSHIP

ä Low Groundwater Vulnerability

ä Low Uncertainty Assigned

ä Primarily Residential Threats

- 5 Significant Parcels – Creighton Heights
- 12 Significant Parcels – Camborne

ä Quality Control Ongoing

# THREAT ASSESSMENTS - Durham Region

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## Ganaraska Conservation

ä Orono

## Kawartha Conservation

ä Blackstock

ä Greenbank

ä Port Perry

# Durham Region Groundwater Supplies

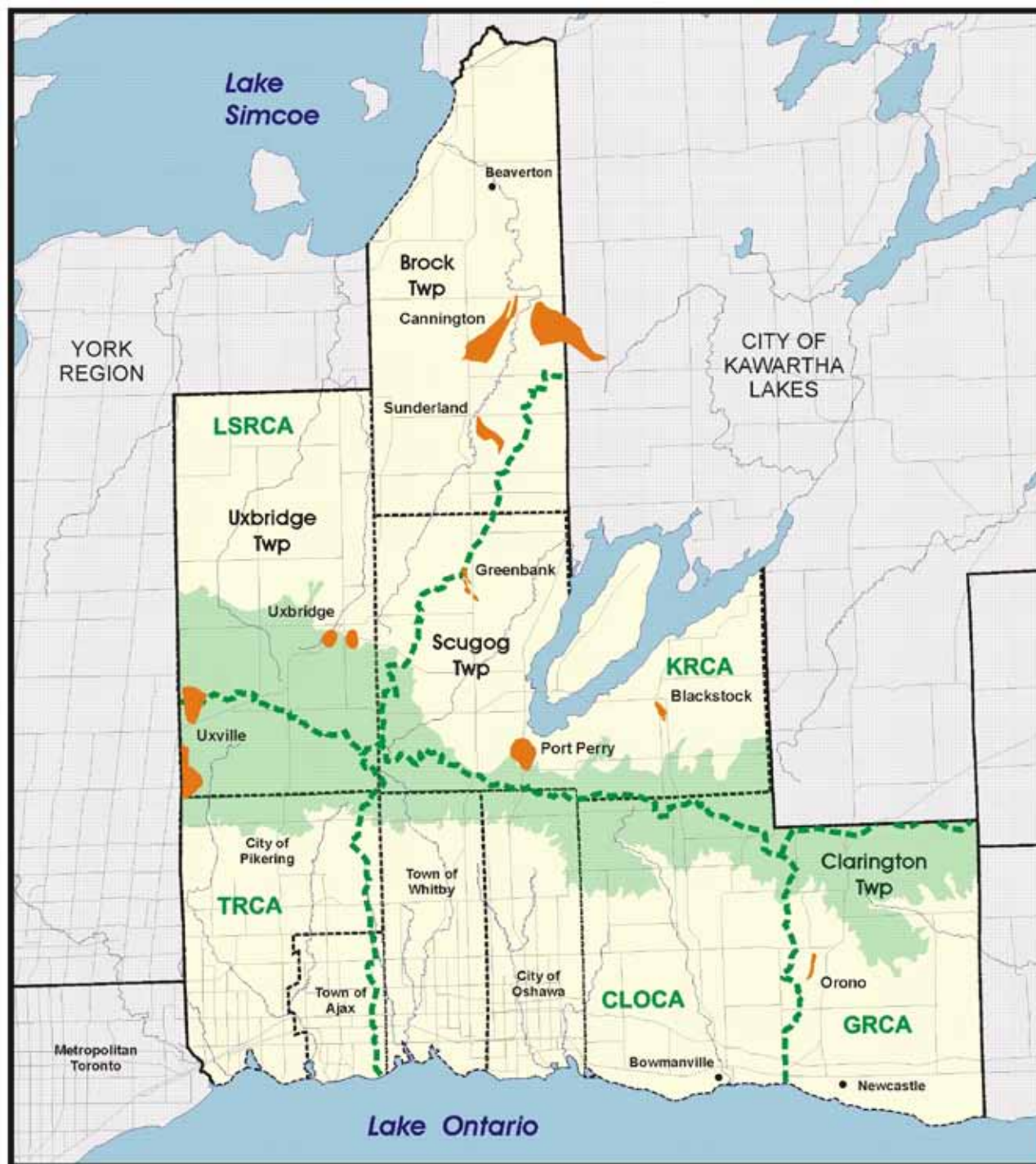
## Legend




- MUNICIPAL WELL LOCATION
- WATERBODY



Figure 1-1

# Wellhead Protection Areas



-  WELLHEAD PROTECTION AREA
-  OAK RIDGES MORAINE
-  CONSERVATION AUTHORITY BOUNDARY

# Municipal Wells - Orono

Municipal Well:	MW3	MW4	MW5
<b>Status:</b>	Active	Standby	Pending Approval
<b>Aquifer</b>	Shallow Sand and Gravel		
<b>Constructed:</b>	1986	1986	2009
<b>Depth (m):</b>	13.72	13.72	15.54
<b>Maximum Rate (L/s):</b>	15.15	15.15	15.15
<b>Static Water Level (m below pipe):</b>	1.76	0.67	1.38





# Wellhead Protection Areas – Orono

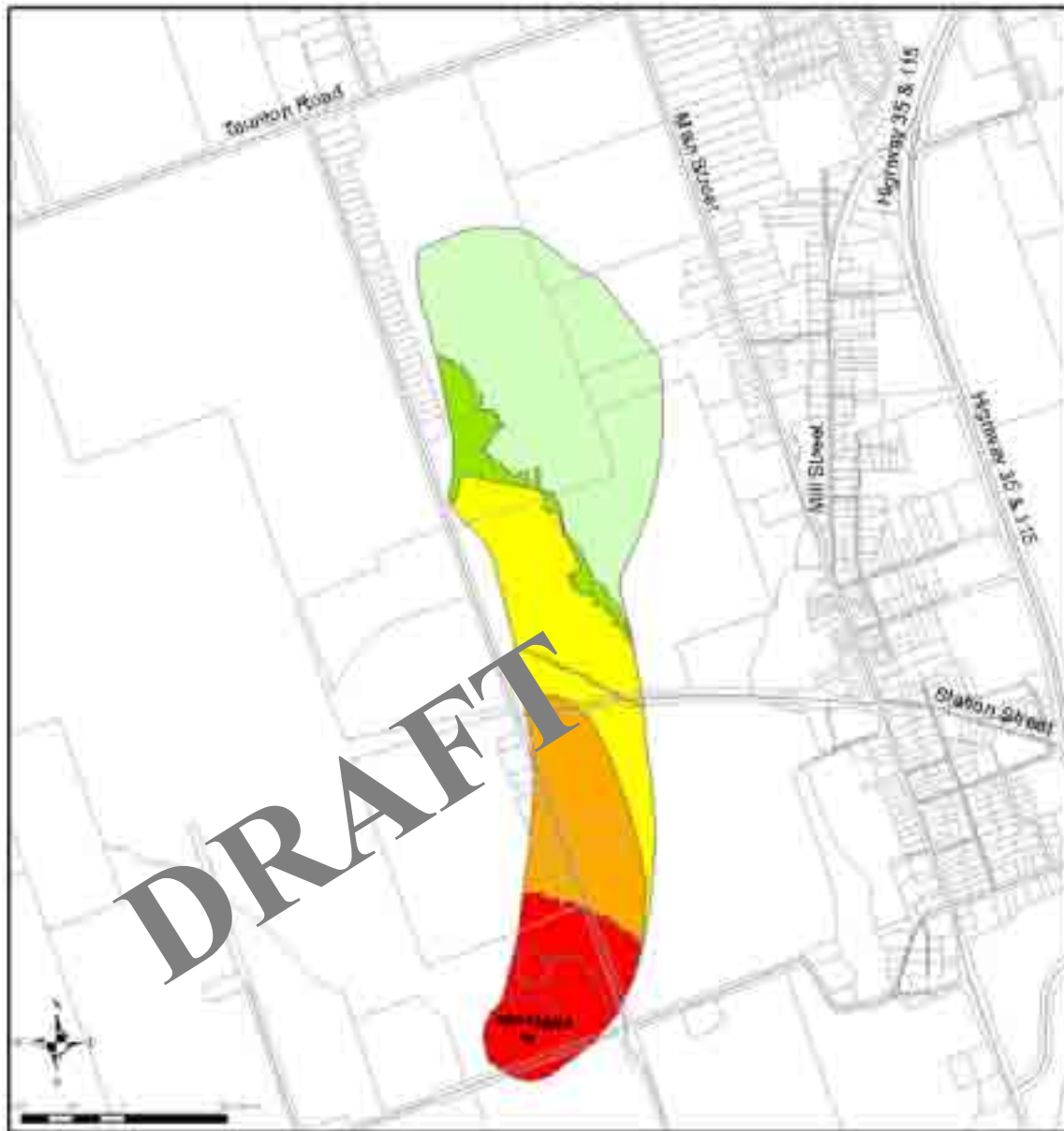
## LEGEND

- MUNICIPAL WELLS
- WELLS IN MUNICIPAL AQUIFER
- ⊕ HIGH QUALITY BOREHOLE INFORMATION
- BOREHOLE LOCATION (MOE WWIS INFORMATION)

## WELLHEAD PROTECTION AREAS

- WHPA-A: 100 METRE RADIUS
- WHPA-B: 2 YEAR TIME-OF-TRAVEL
- WHPA-C: 5 YEAR TIME-OF-TRAVEL
- WHPA-D: 25 YEAR TIME-OF-TRAVEL

Figure 5-1



# Vulnerability Score – Orono

## LEGEND

• MUNICIPAL WELLS

## VULNERABILITY SCORING

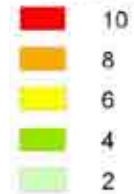


Figure 5-3

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# Areas for Significant, Moderate, or Low Drinking Water Threats: Pathogens

**Orono**

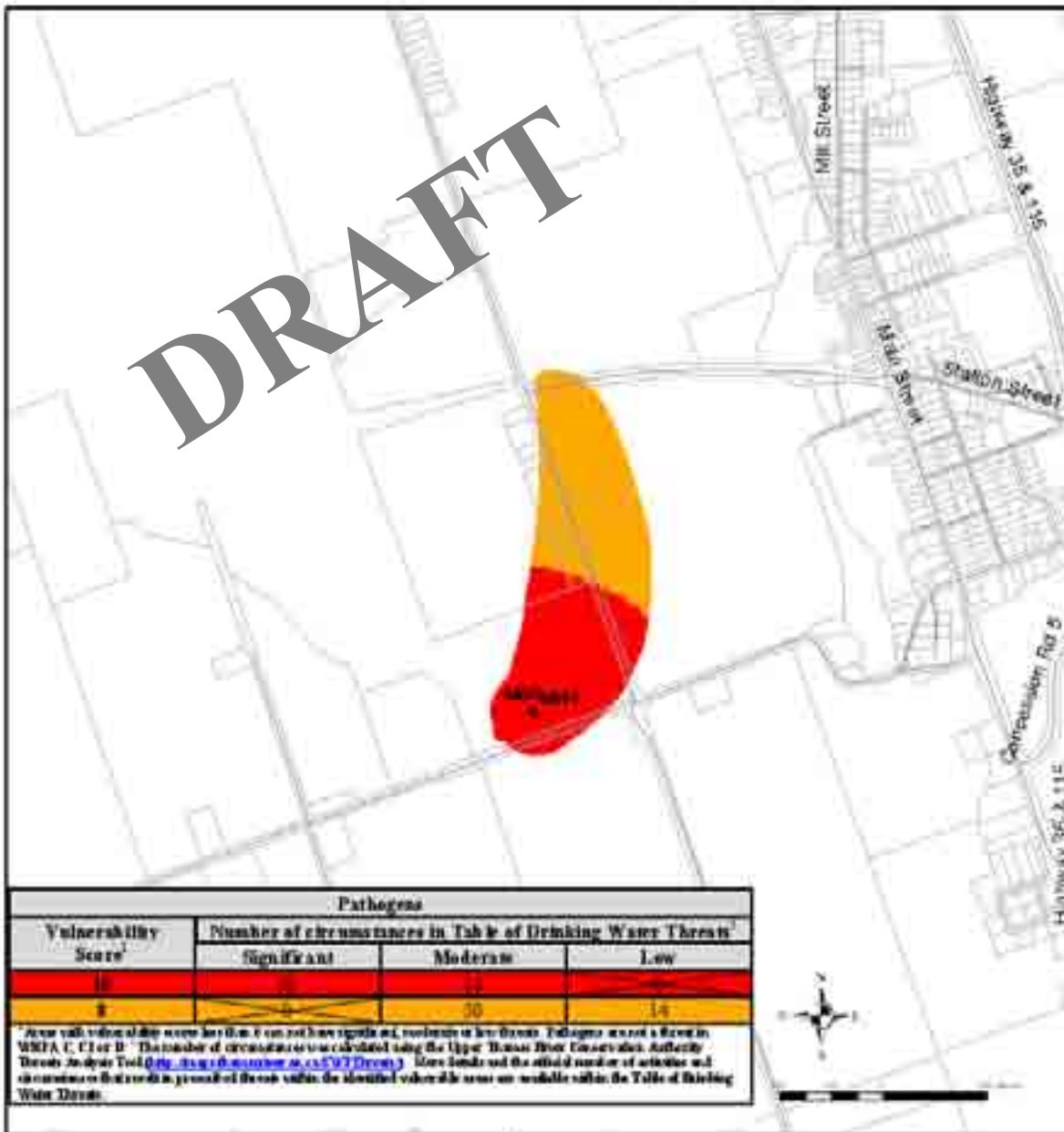
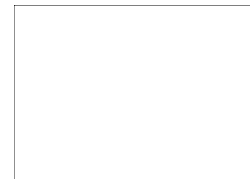


Figure 5-5

# Areas for Significant, Moderate, or Low Drinking Water Threats: CHEMICALS

Orono

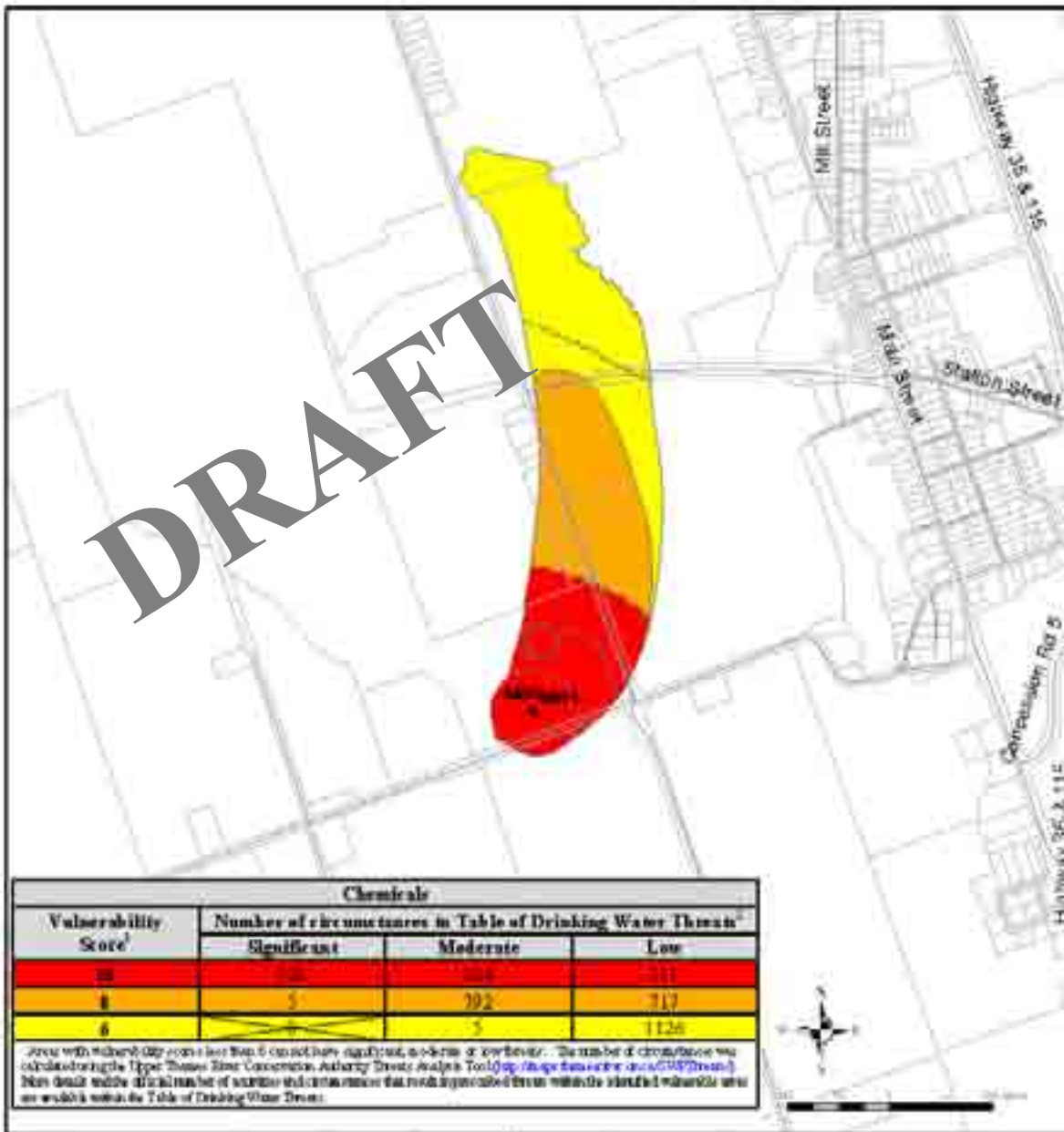


Figure 5-6

# Areas for Significant, Moderate, or Low Drinking Water Threats: DNAPLs

Orono



Figure 5-7



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# Managed Lands Orono



Figure 5-9

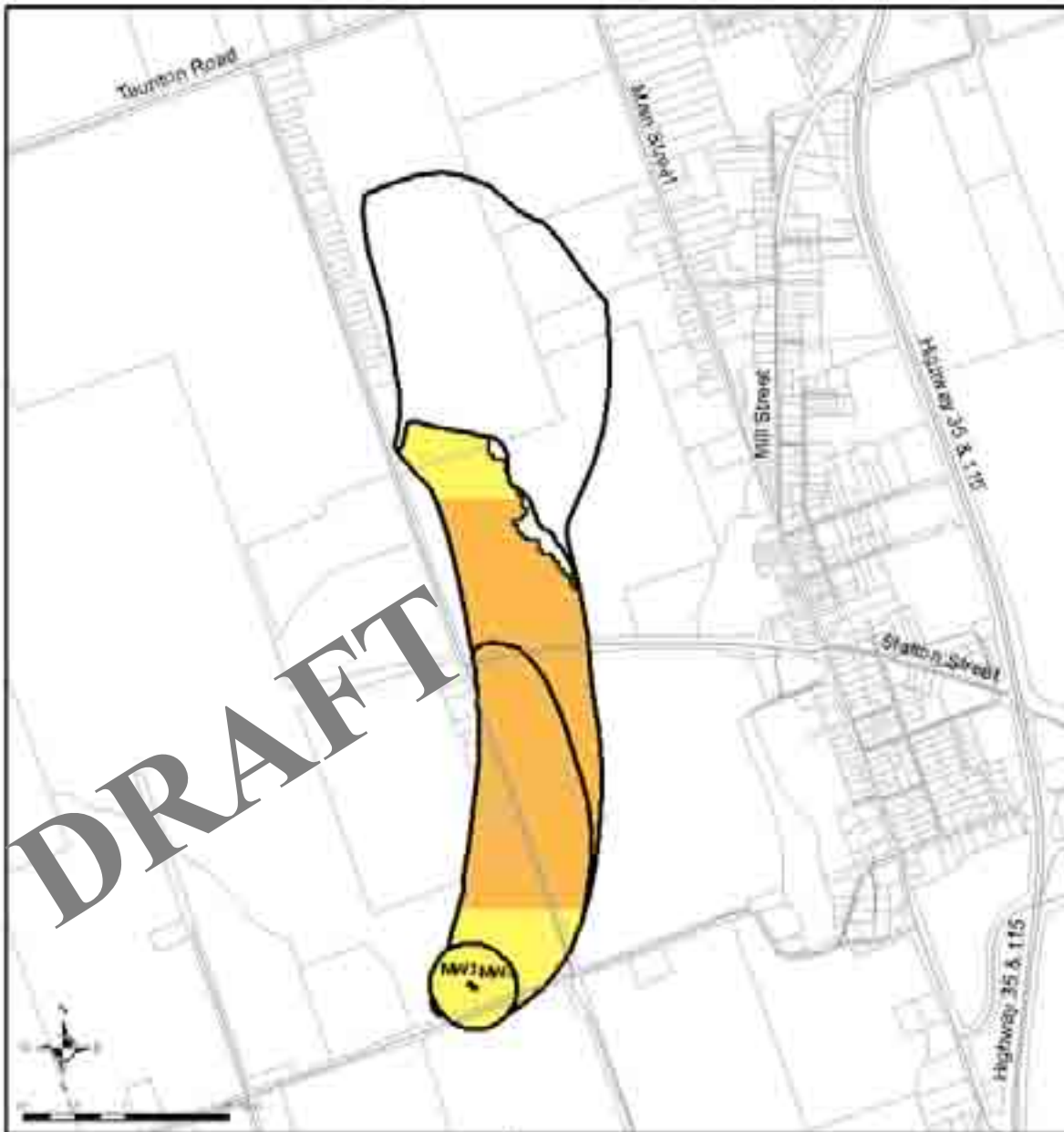


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# Livestock Density Orono

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Figure 5-10

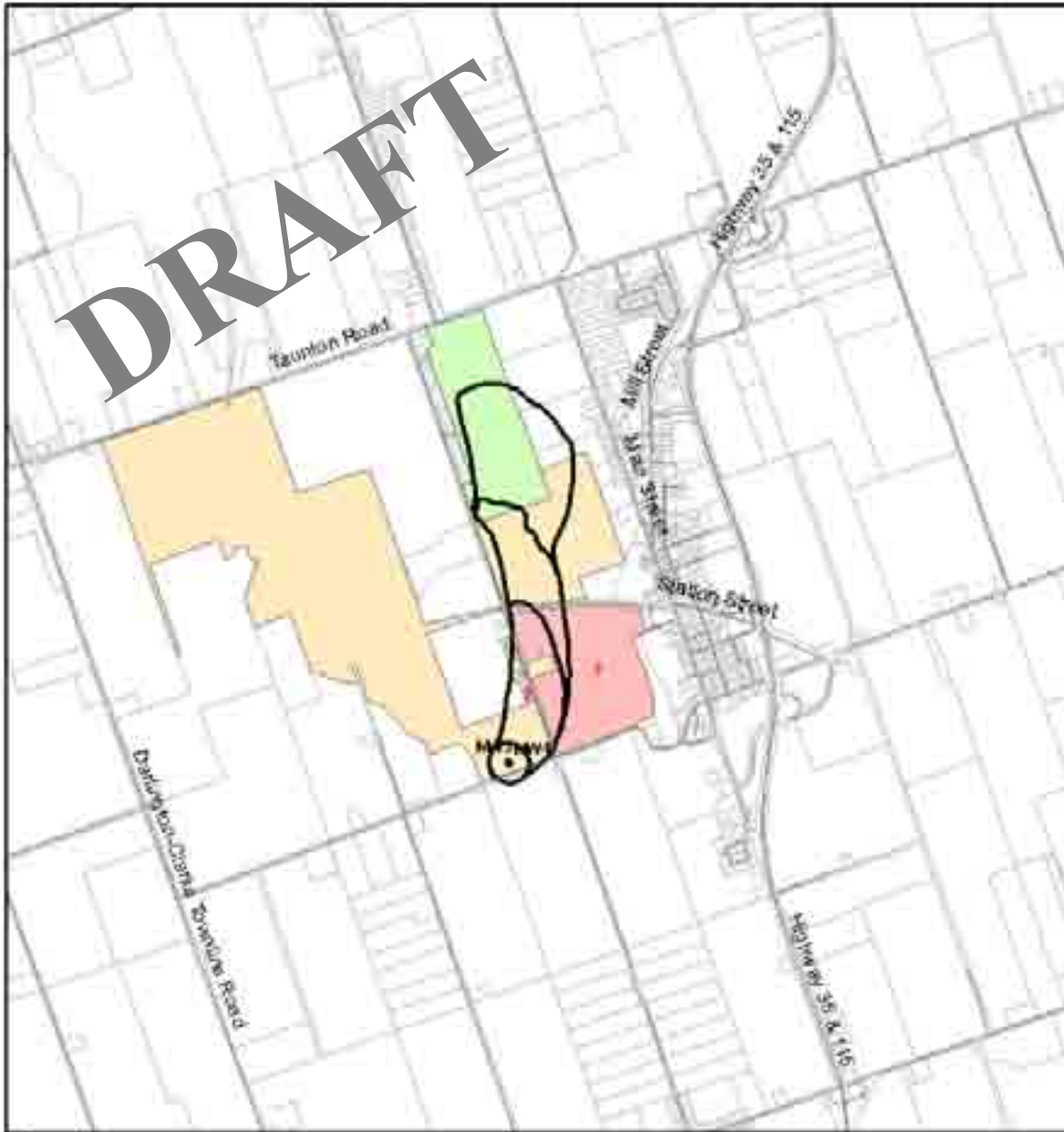


# Impervious Surfaces Orono



Figure 5-11

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# Threat Classification Orono



# # of SIGNIFICANT THREATS - ORONO

#	Threat Description	Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
		Threats	Parcels	Threats	Parcels
2	Private Sewage Disposal	1	1	0	0
3	ASM Application	1	1	0	0
6	NASM Application	1	1	0	0
10	Pesticide Application	1	1	0	0
15	Fuel Storage	1	1	0	0
<b>Totals</b>		<b>5</b>	<b>2</b>	<b>0</b>	<b>0</b>

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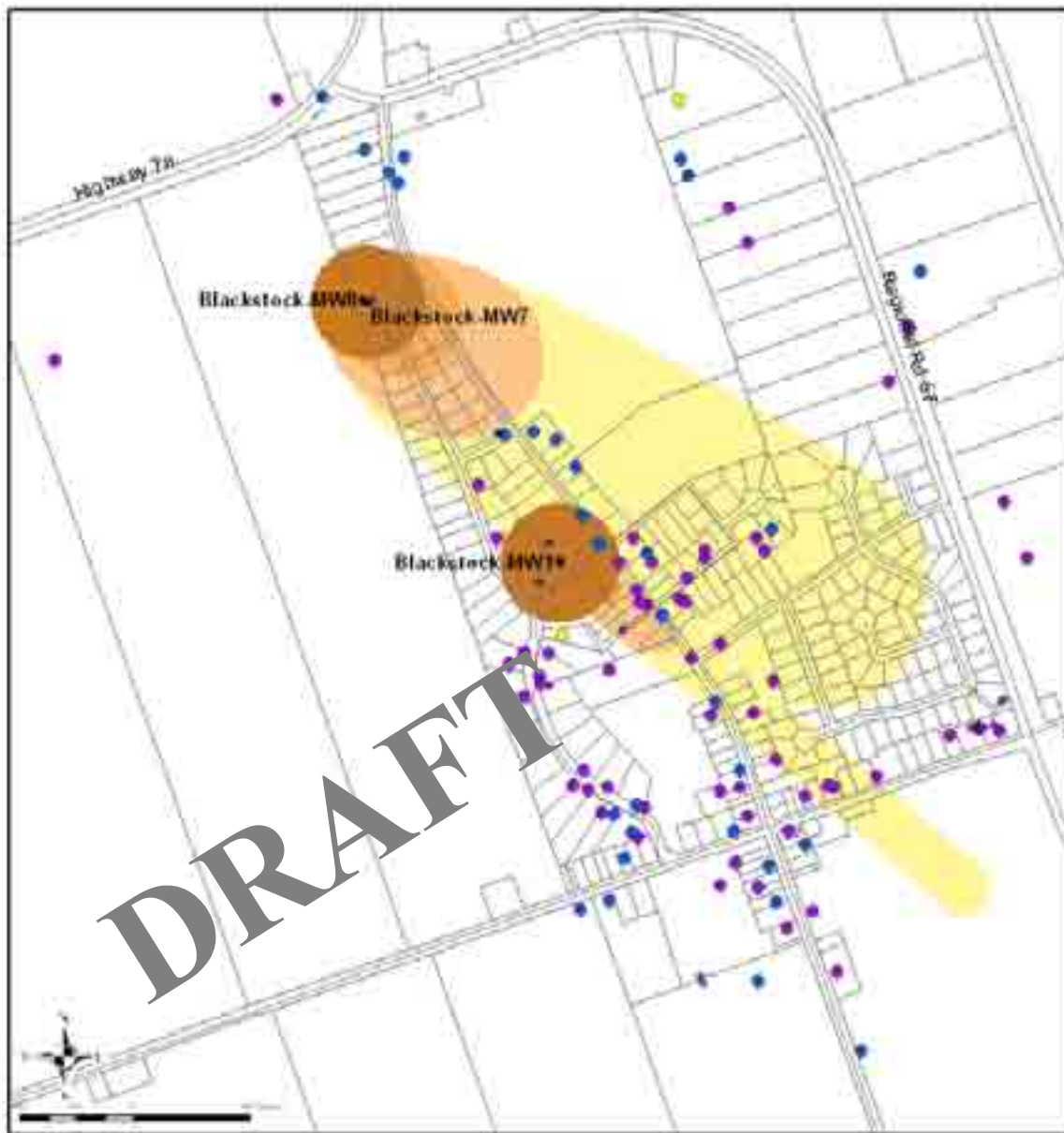
# SUMMARY - ORONO

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- **Variable Groundwater Vulnerability**
- **GUDI Condition Removed (NO WHPA-E)**
- **Low Uncertainty Assigned**
- **2 Significant Parcels**
- **Quality Control Ongoing**

# Municipal Wells - Blackstock

Municipal Well:	MW1	MW7	MW8
<b>Status:</b>	Stand-By	Not Active	Active
<b>Aquifer:</b>	Shallow	Deep Sand & Gravel	
<b>Constructed:</b>	1971	1996	1999
<b>Depth (m):</b>	28.04	58.82	51.51
<b>Maximum Rate (L/s):</b>	4.56	11.59	11.59
<b>Static Water Level (m below pipe):</b>	8.03	4.62	4.45



# Wellhead Protection Areas – Blackstock

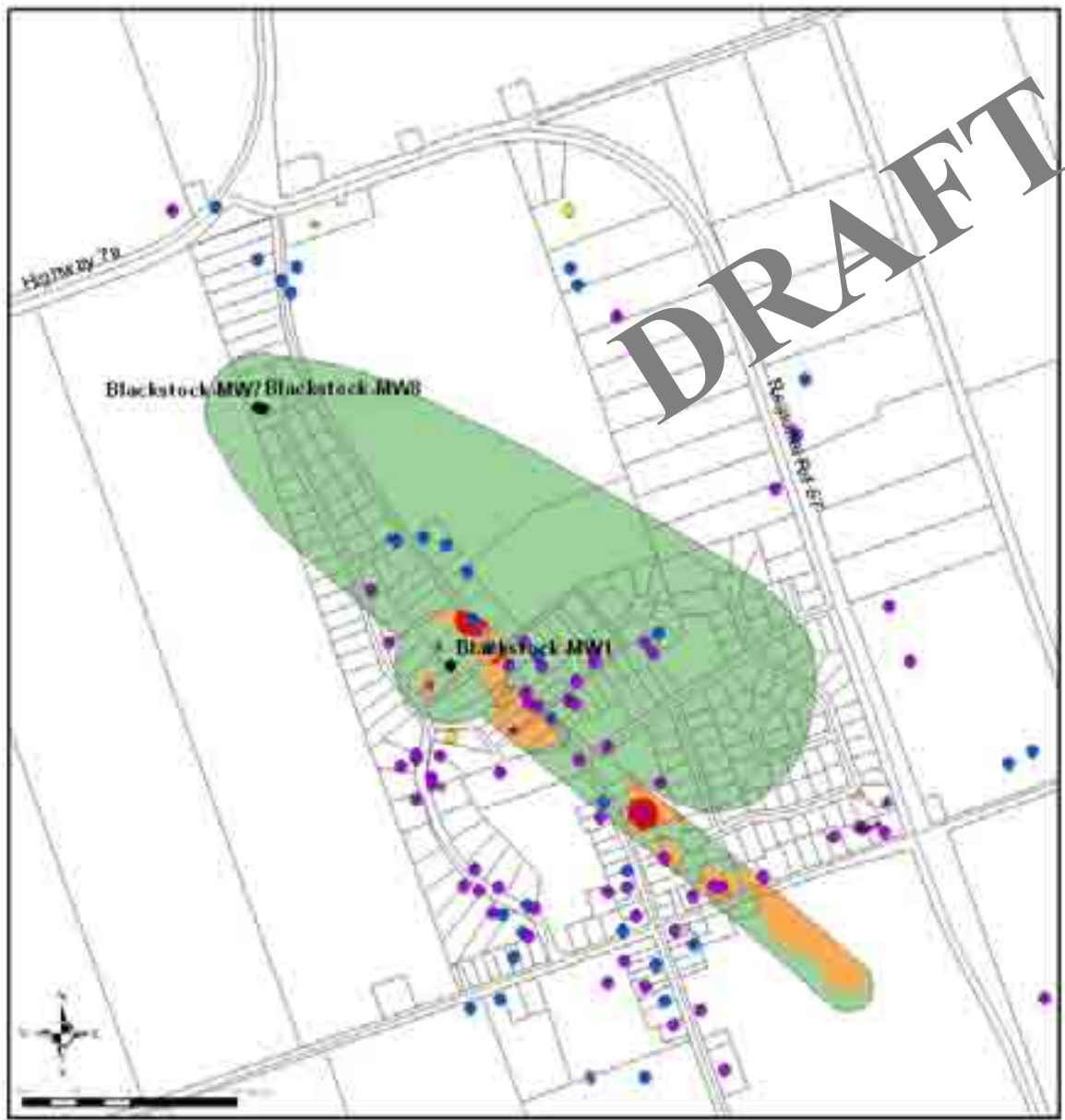
## LEGEND

- MUNICIPAL WELL LOCATION
- WELLS ABOVE MW1 AQUIFER
- WELLS IN MW7 & MWS AQUIFER
- WELLS IN MW1 AQUIFER
- BOREHOLE LOCATION (MICE WWIS INFORMATION)
- ☆ HIGH QUALITY BOREHOLE INFORMATION

## WELLHEAD PROTECTION AREAS

- WHPA-A: 100m RADIUS
- WHPA-B: 2 YEAR TIME-OF-TRAVEL
- WHPA-C: 5 YEAR TIME-OF-TRAVEL
- WHPA-D: 25 YEAR TIME-OF-TRAVEL

Figure 6-1



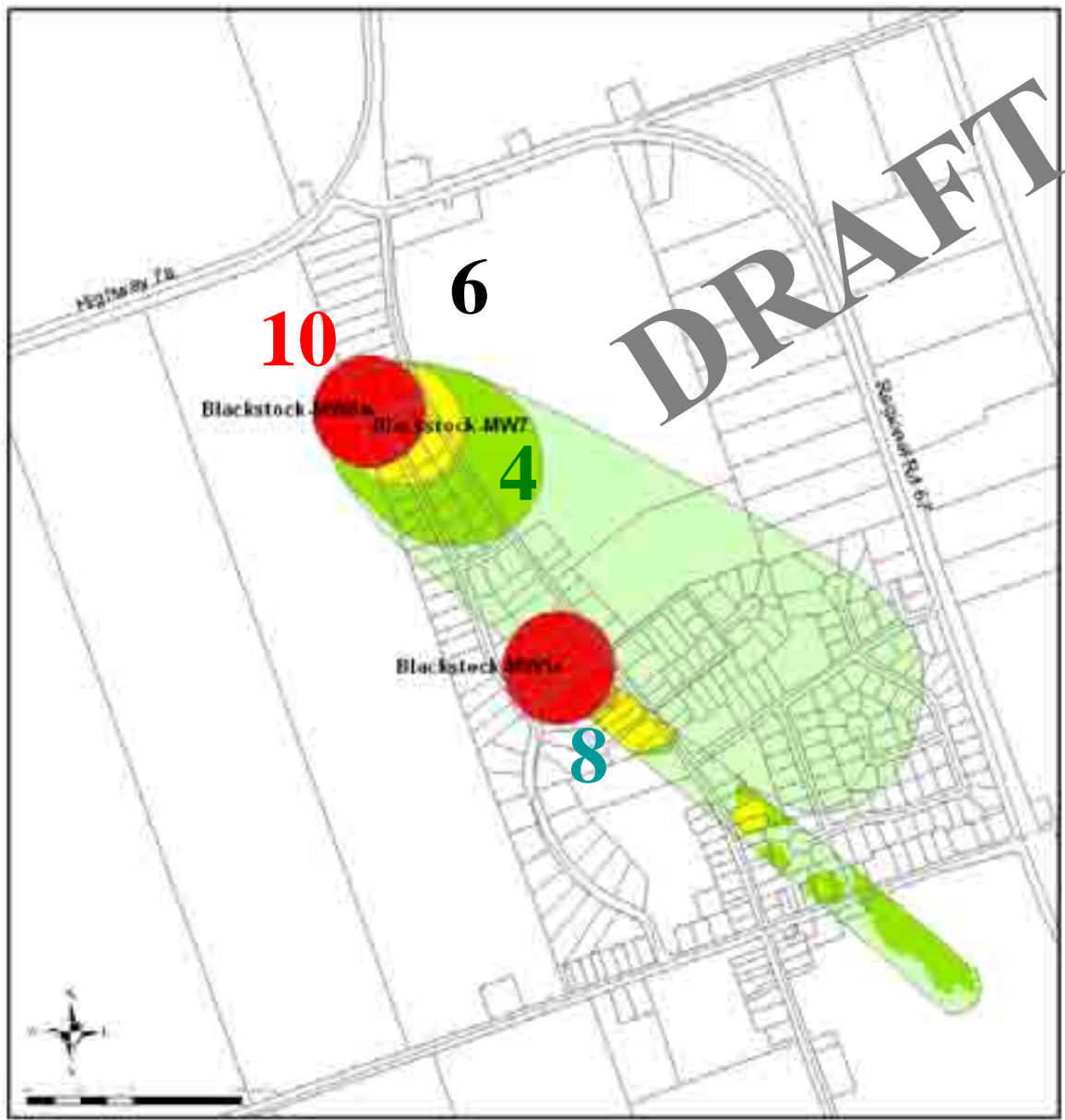
# Increased Groundwater Vulnerability Blackstock

**LEGEND**

- MUNICIPAL WELL LOCATION
- WELLS ABOVE MW1 AQUIFER
- WELLS IN MW7 & MW8 AQUIFER
- WELLS IN MW1 AQUIFER
- BOREHOLE LOCATION (MCE WWIS INFORMATION)
- ☆ HIGH QUALITY BOREHOLE INFORMATION

- AQUIFER VULNERABILITY INDEX**
- HIGH VULNERABILITY
  - MEDIUM VULNERABILITY
  - LOW VULNERABILITY

Figure 6-4



# Vulnerability Score – Blackstock

LEGEND

- WELL LOCATIONS

VULNERABILITY SCORING

Red	10
Orange	8
Yellow	6
Green	4
Light Green	2

Figure 6-5



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# Areas for Significant, Moderate, or Low Drinking Water Threats: CHEMICALS

## Blackstock

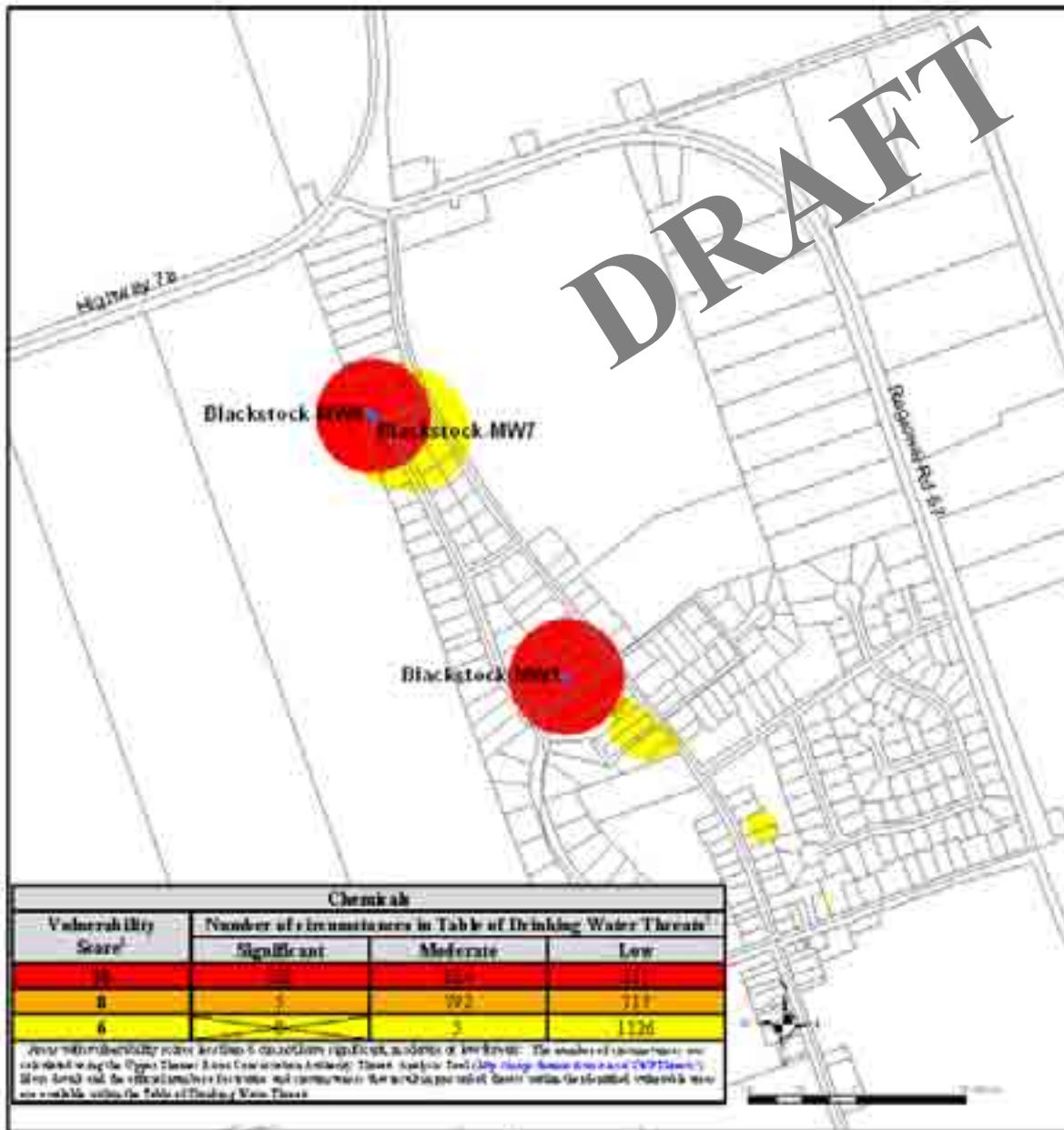
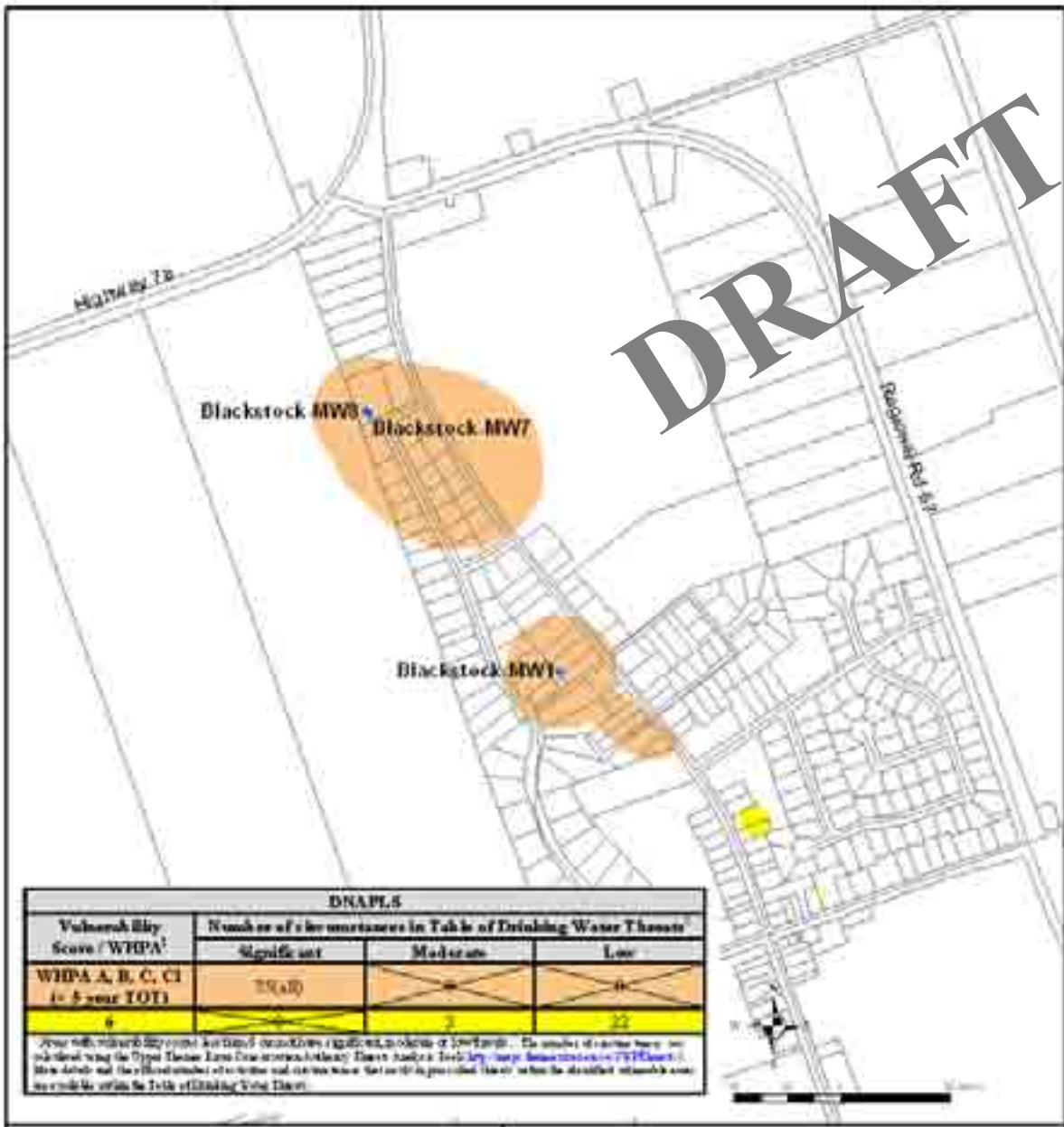


Figure 6-7



# Areas for Significant, Moderate, or Low Drinking Water Threats: DNAPLs

## Blackstock



Figure 6-8



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# Managed Lands Blackstock



Figure 6-9



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# Livestock Density Blackstock

Figure 6-10



# Impervious Surfaces Blackstock

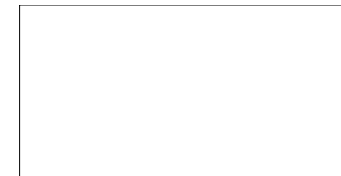
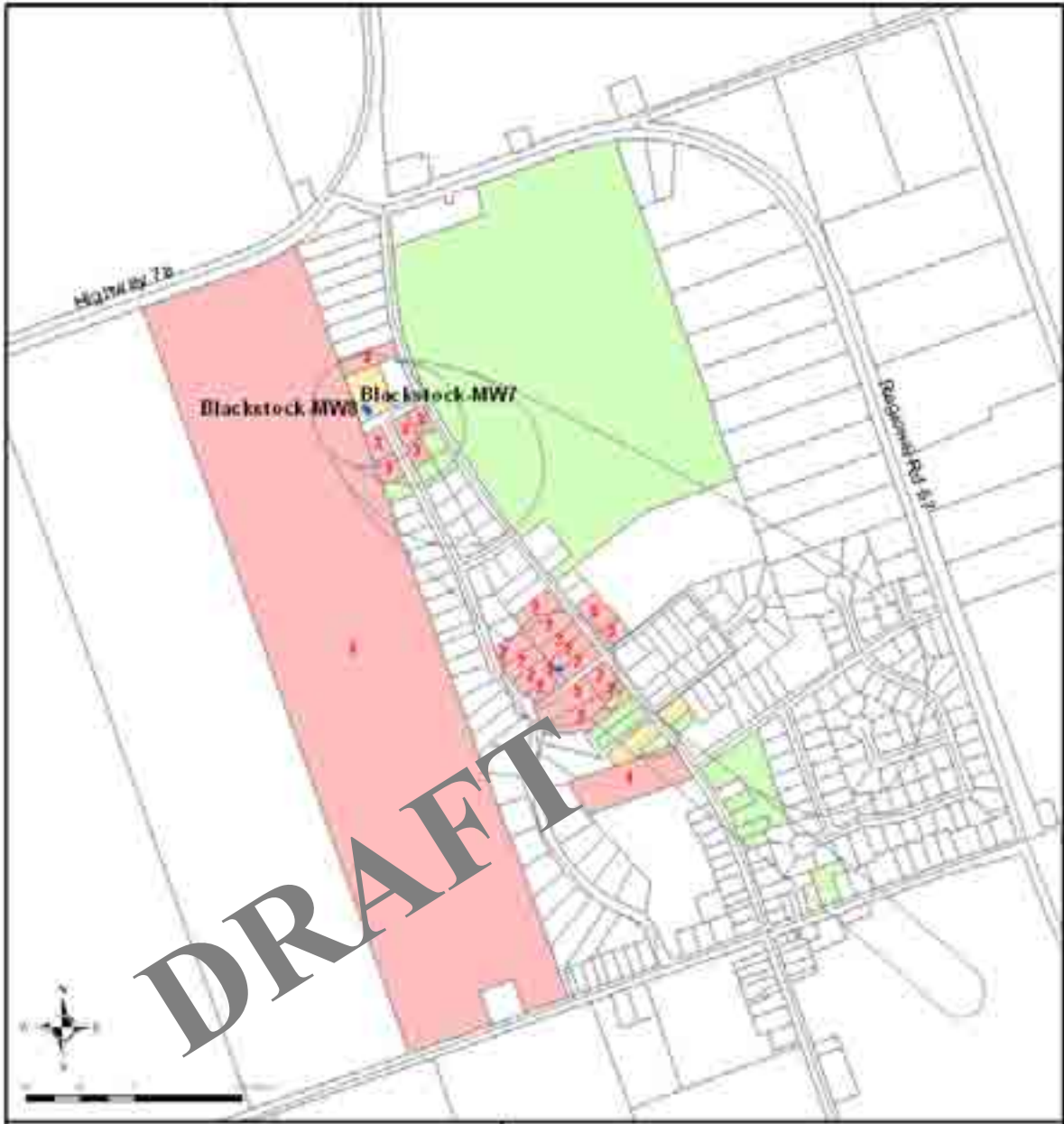


Figure 6-11



Threat  
Classification  
Blackstock



# # of SIGNIFICANT THREATS

## BLACKSTOCK

**DRAFT**

#	Threat Description	Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
		Threats	Parcels	Threats	Parcels
1	Waste Disposal	2	2	0	0
2	Private Sewage Disposal	21	21	0	0
3	ASM Application	1	1	0	0
6	NASM Application	1	1	0	0
8	Fertilizer Application	7	7	0	0
10	Pesticide	1	1	0	0
15	Fuel Storage	21	21	0	0
16	DNAPL Storage	2	2	1	1
<b>Totals</b>		<b>56</b>	<b>23</b>	<b>1</b>	<b>1</b>



# # of SIGNIFICANT NITRATE THREATS BLACKSTOCK

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#	Threat Description	Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
		Threats	Parcels	Threats	Parcels
2	Private Sewage Disposal	50	50	0	0
3	ASM Application	1	1	0	0
4	ASM Storage	1	1	0	0
6	NASM Application	1	1	0	0
8	Fertilizer Application	51	51	0	0
9	Fertilizer Storage	2	2	0	0
21	Livestock Grazing/Yard	1	1	0	0
<b>Totals</b>		<b>107</b>	<b>51</b>	<b>0</b>	<b>0</b>

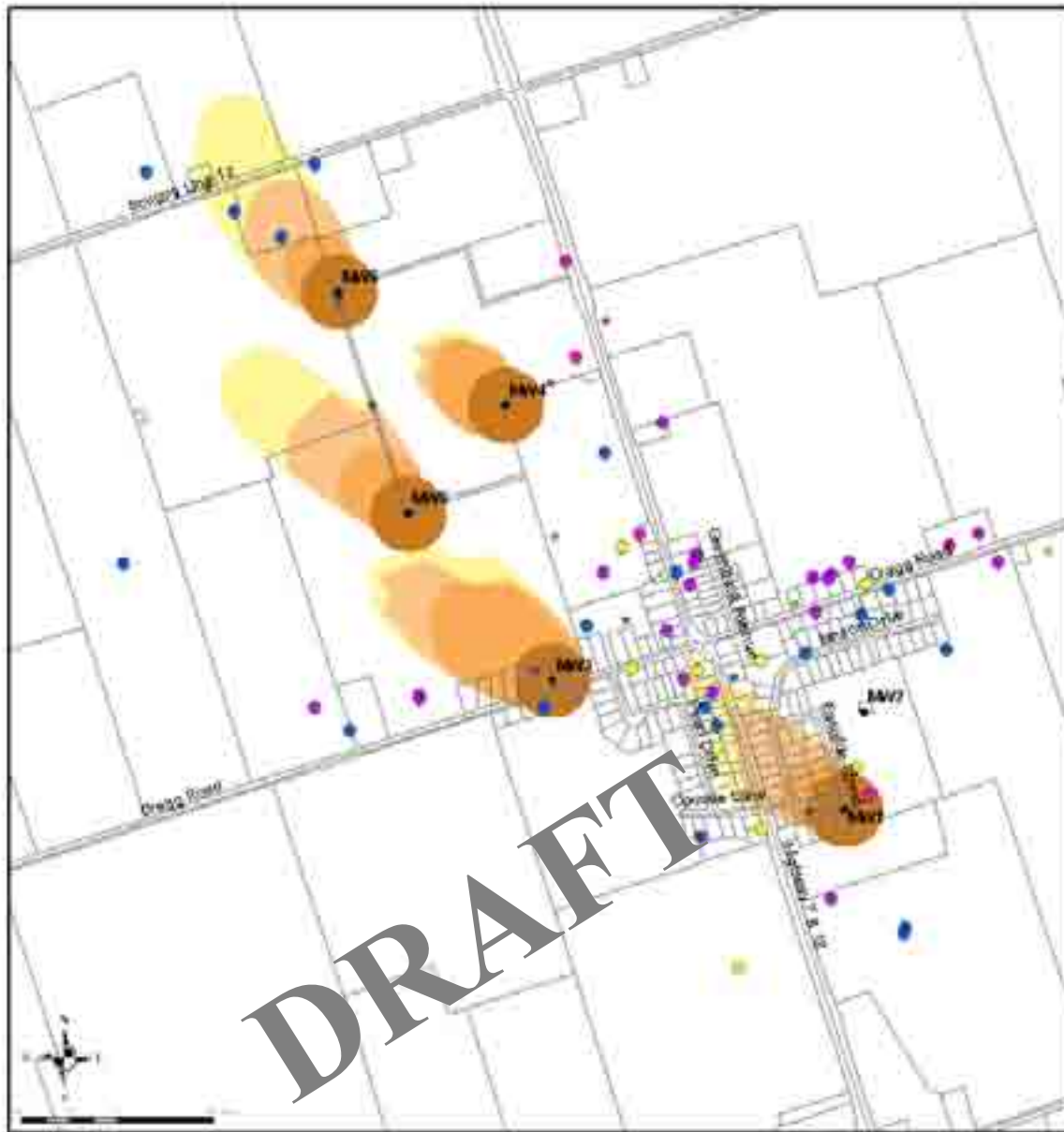
# SUMMARY BLACKSTOCK

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- ä Low Groundwater Vulnerability
- ä Low Uncertainty Assigned
- ä N-Activities for MW1 WHPA are Significant
- ä Primarily Residential Threats
- ä 26 Significant Parcels (51 for Nitrate ICA)
- ä Quality Control Ongoing

# Municipal Wells - Greenbank

Municipal Well:	MW1	MW3	MW4	MW5	MW6
Status:	Active	Active	Active	Active	Active
Constructed:	1975	1990	1989	1984	1991
Depth (m):	22.7	24.1	34.1	32.0	27.7
Maximum Rate (L/s):	1.13	1.50	1.13	1.13	1.50
Static Water Level (m below pipe):	15.54	10.97	22.86	8.23	12.80



# Wellhead Protection Areas – Greenbank

## LEGEND

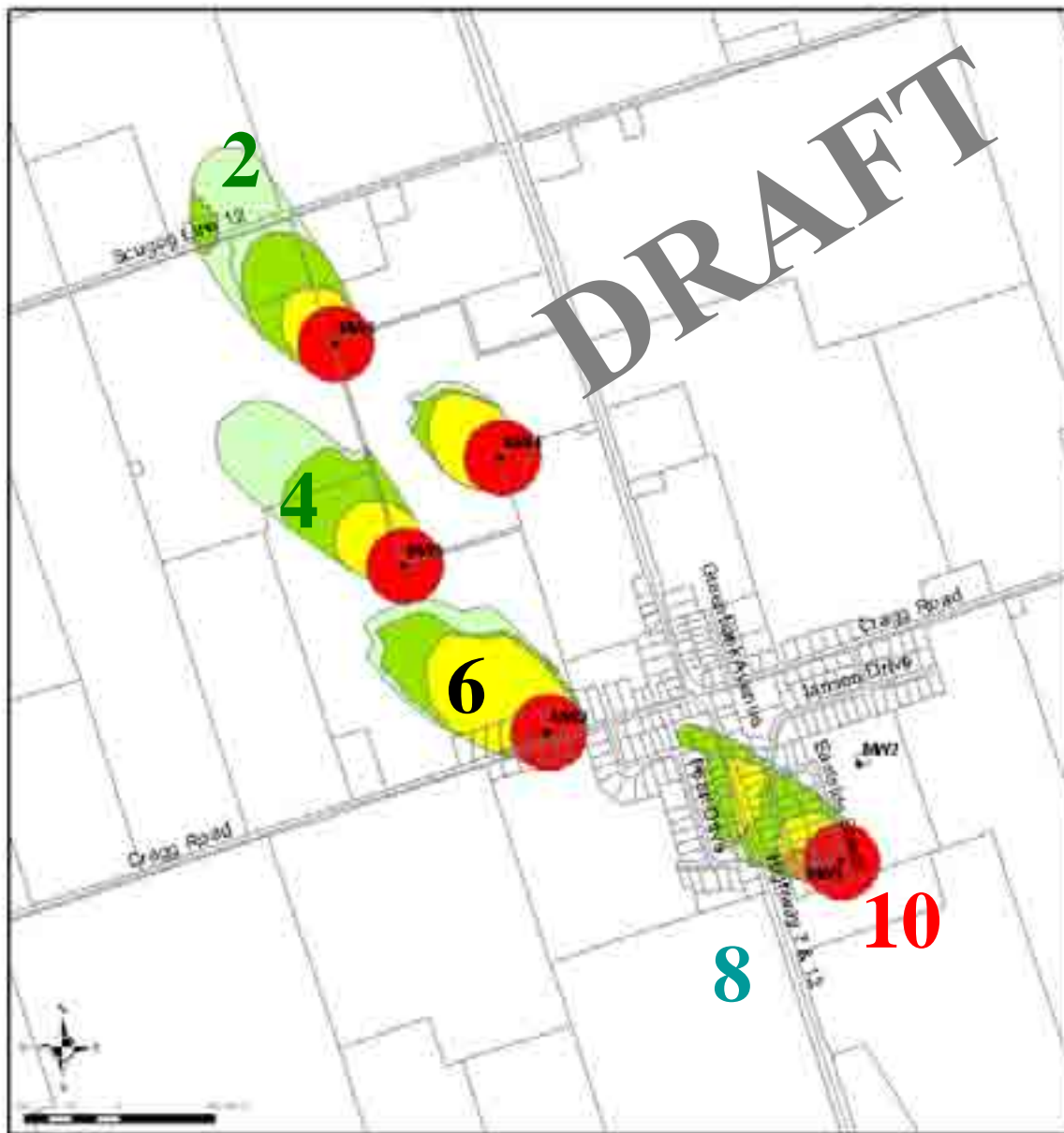
- MUNICIPAL WELLS
- WELLS ABOVE UPPER AQUIFER
- WELLS IN UPPER AQUIFER
- WELLS BETWEEN MUNICIPAL AQUIFERS
- WELLS IN INTERMEDIATE AQUIFER
- WELLS BELOW INTERMEDIATE AQUIFER
- ☆ HIGH QUALITY BOREHOLE INFORMATION
- BOREHOLE LOCATION (MOE WWIS INFORMATION)

## WELLHEAD PROTECTION AREAS

- WHPA-A: 100 METRE RADIUS
- WHPA-B: 2 YEAR TIME-OF-TRAVEL
- WHPA-C: 5 YEAR TIME-OF-TRAVEL
- WHPA-D: 25 YEAR TIME-OF-TRAVEL

Figure 7-1





# Vulnerability Score – Greenbank

## LEGEND

● MUNICIPAL WELL LOCATION

## VULNERABILITY SCORING



Figure 7-5

# Areas for Significant, Moderate, or Low Drinking Water Threats: Pathogens

## Greenbank

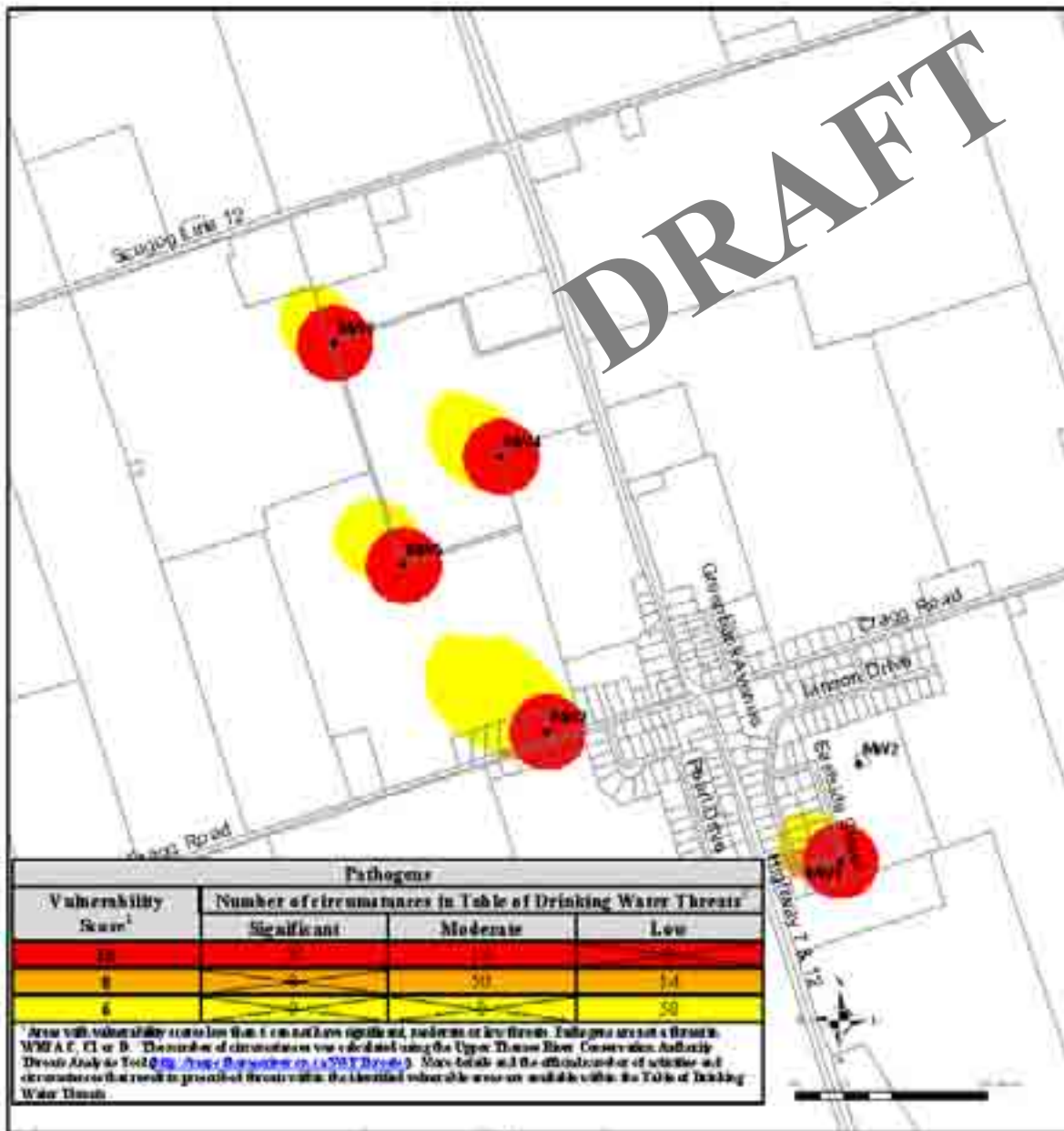


Figure 7-6

# Areas for Significant, Moderate, or Low Drinking Water Threats: CHEMICALS

## Greenbank

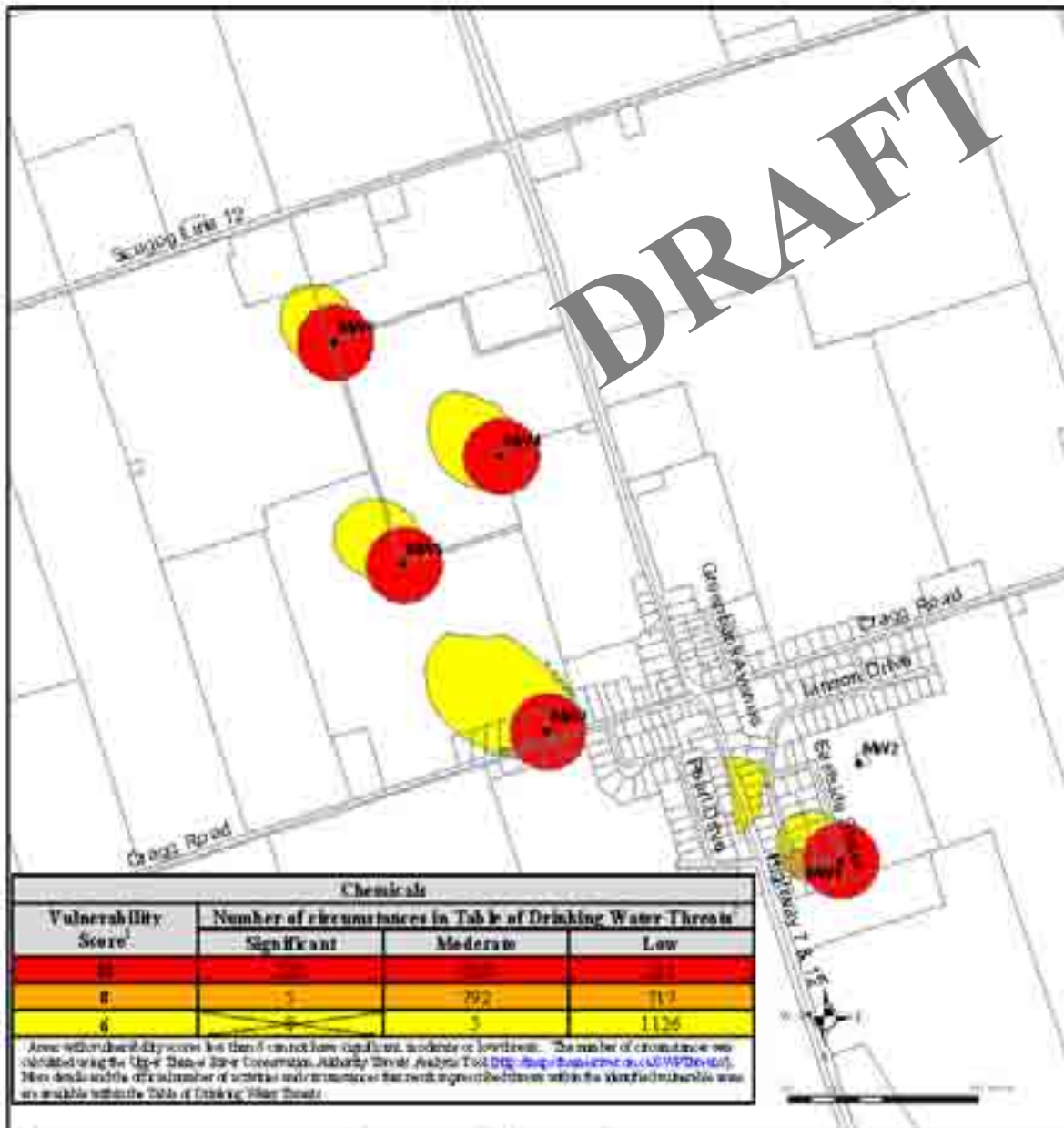


Figure 7-7

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# Areas for Significant, Moderate, or Low Drinking Water Threats: DNAPLs

## Greenbank

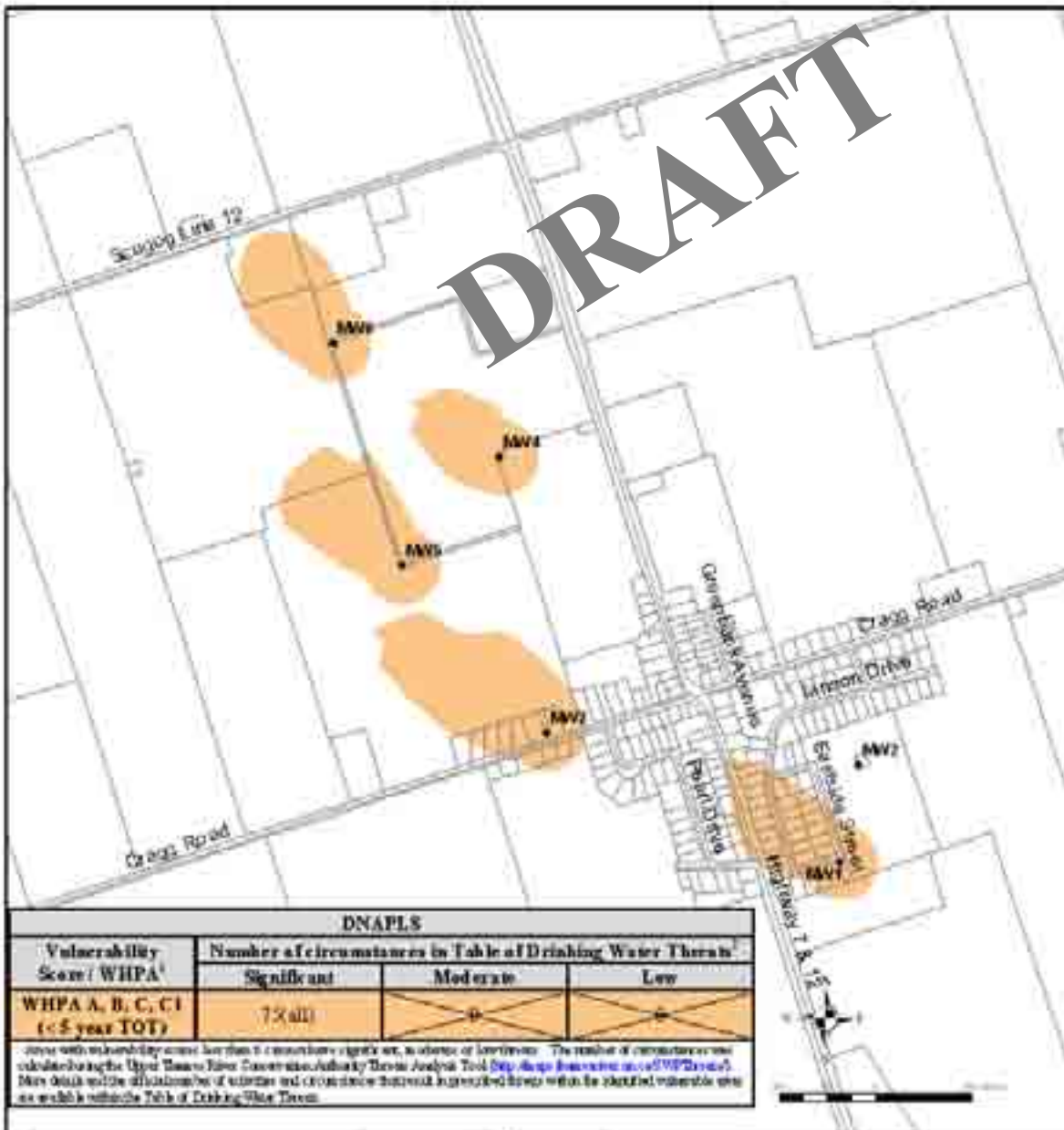


Figure 7-8



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# Managed Lands Greenbank

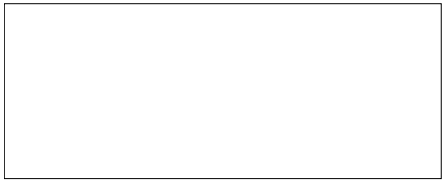
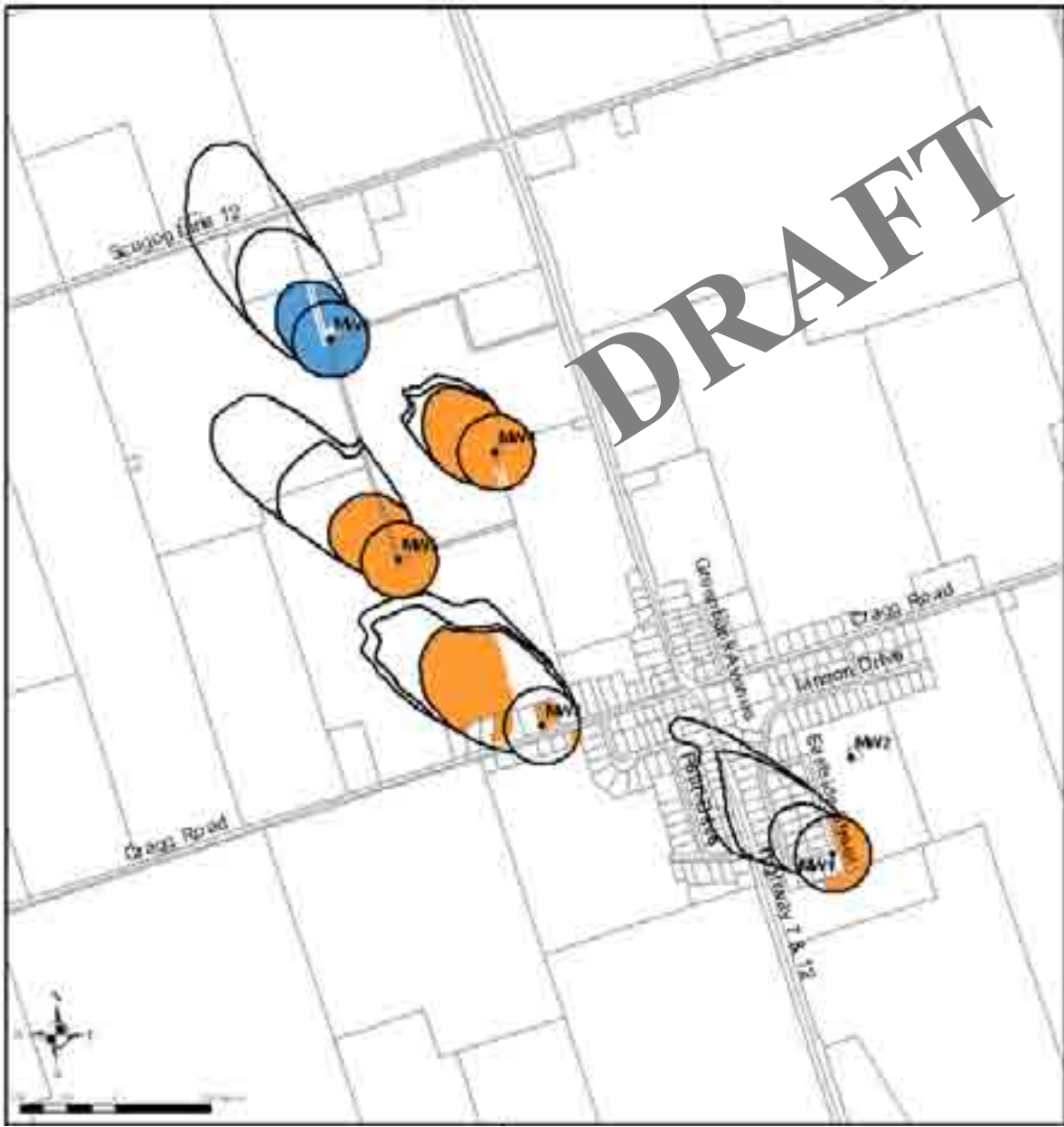


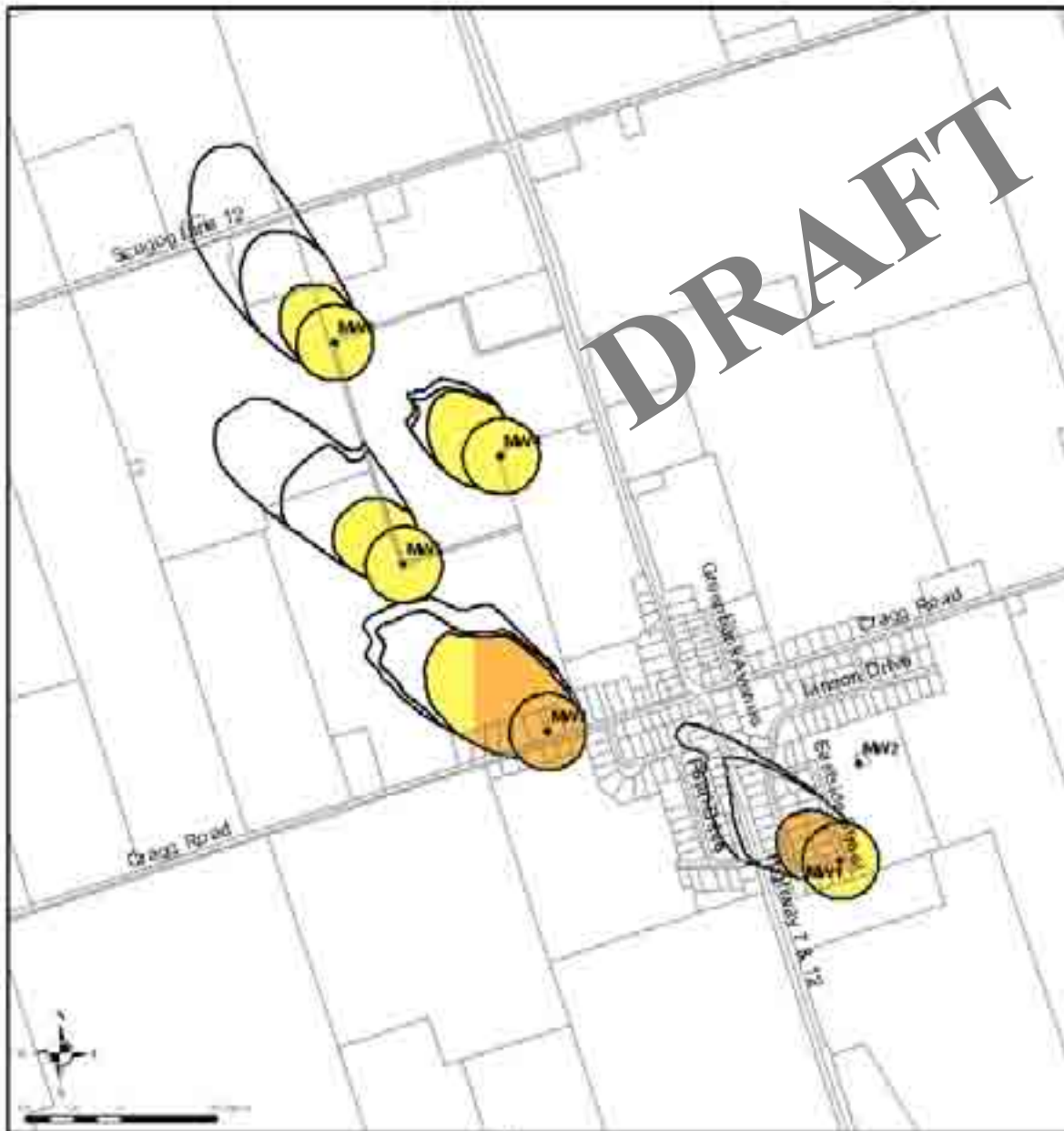
Figure 7-9



# Livestock Density Greenbank



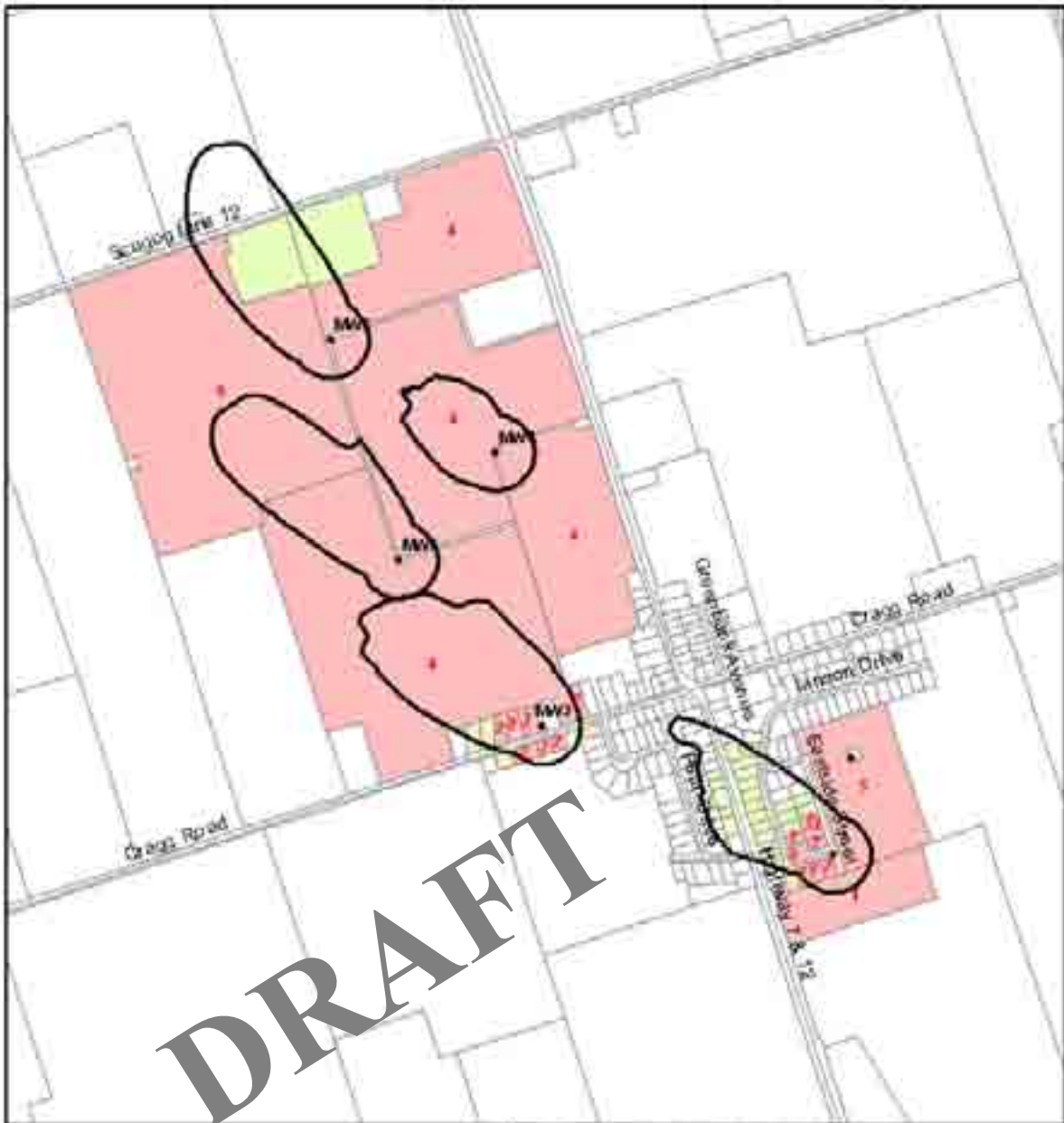
Figure 7-10



# Impervious Surfaces Greenbank



Figure 7-11



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# Threat Classification Greenbank



# # of SIGNIFICANT THREATS

## GREENBANK

#	Threat Description	Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
		Threats	Parcels	Threats	Parcels
2	Private Sewage Disposal	16	16	0	0
3	ASM Application	6	6	0	0
4	ASM Storage	1	1	0	0
6	NASM Application	6	6	0	0
8	Fertilizer Application	5	5	0	0
10	Pesticide Application	7	7	0	0
15	Fuel Storage	16	16	0	0
<b>Totals</b>		<b>59</b>	<b>22</b>	<b>0</b>	<b>0</b>

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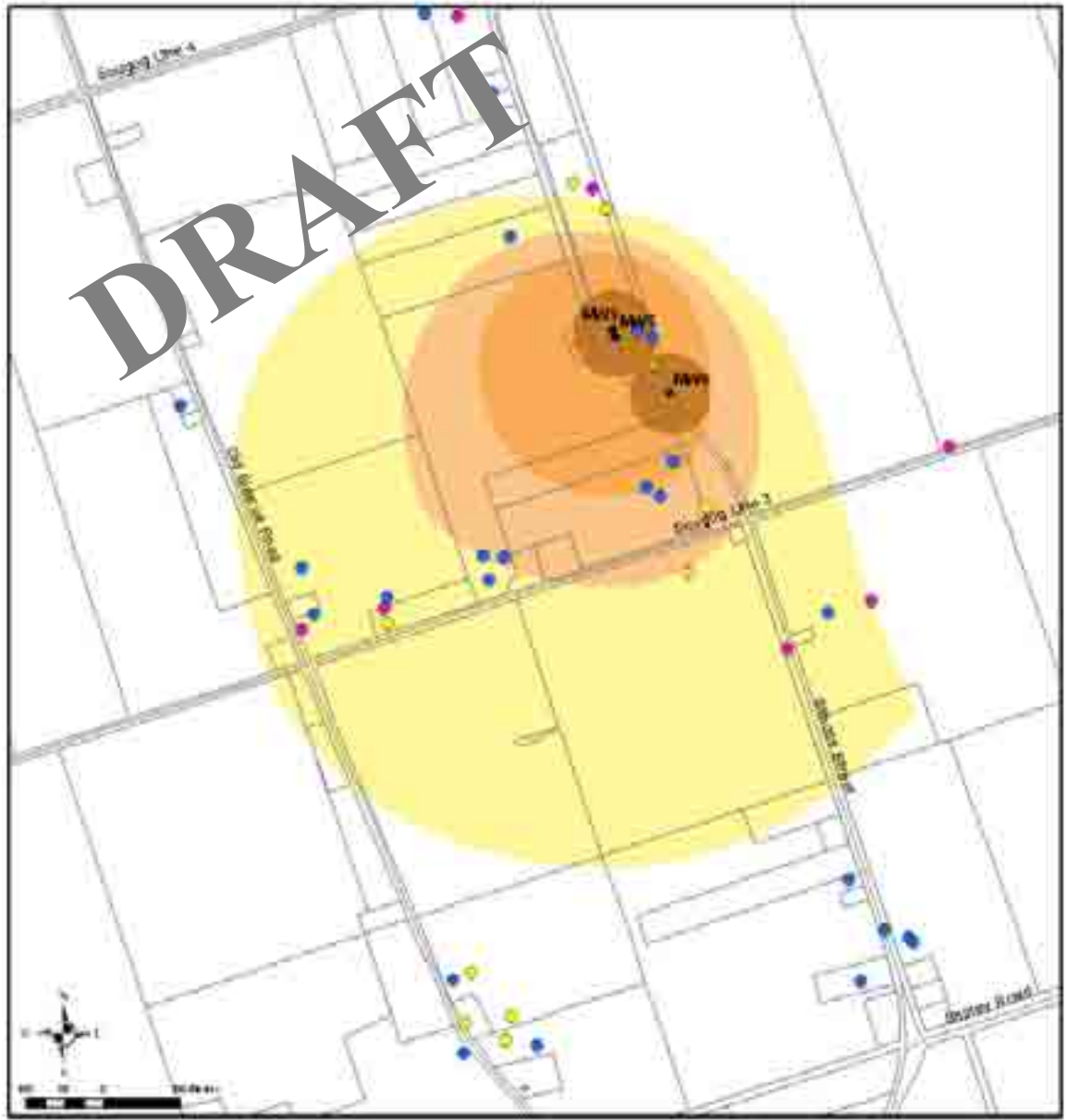
# SUMMARY GREENBANK

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- ä Low Groundwater Vulnerability
- ä Low Uncertainty Assigned
- ä Primarily Residential Threats (16/22)
- ä 6 Agricultural Threats
- ä Quality Control Ongoing

# Municipal Wells – Port Perry

Municipal Well:	MW3	MW5	MW6
Status:	Active	Active	Active
Constructed:	1967	1974	1976
Depth (m):	36.3	37.7	69.5
Maximum Rate (L/s) :	30.30	30.30	75.76
Static Water Level (m below pipe) :	3.66	9.45	7.01



# Wellhead Protection Areas – Port Perry

- LEGEND**
- MUNICIPAL WELL LOCATION
  - WELLS ABOVE MUNICIPAL AQUIFERS
  - WELLS IN MUNICIPAL AQUIFERS
  - WELLS BELOW MUNICIPAL AQUIFERS
  - BOREHOLE LOCATION (MCE WWS INFORMATION)
  - ☆ HIGH QUALITY BOREHOLE INFORMATION
- WELLHEAD PROTECTION AREAS**
- WHPA-A: 100m RADIUS
  - WHPA-B: 2 YEAR TIME-OF-TRAVEL
  - WHPA-C: 5 YEAR TIME-OF-TRAVEL
  - WHPA-D: 25 YEAR TIME-OF-TRAVEL

Figure 8-1



# Increased Groundwater Vulnerability – Port Perry

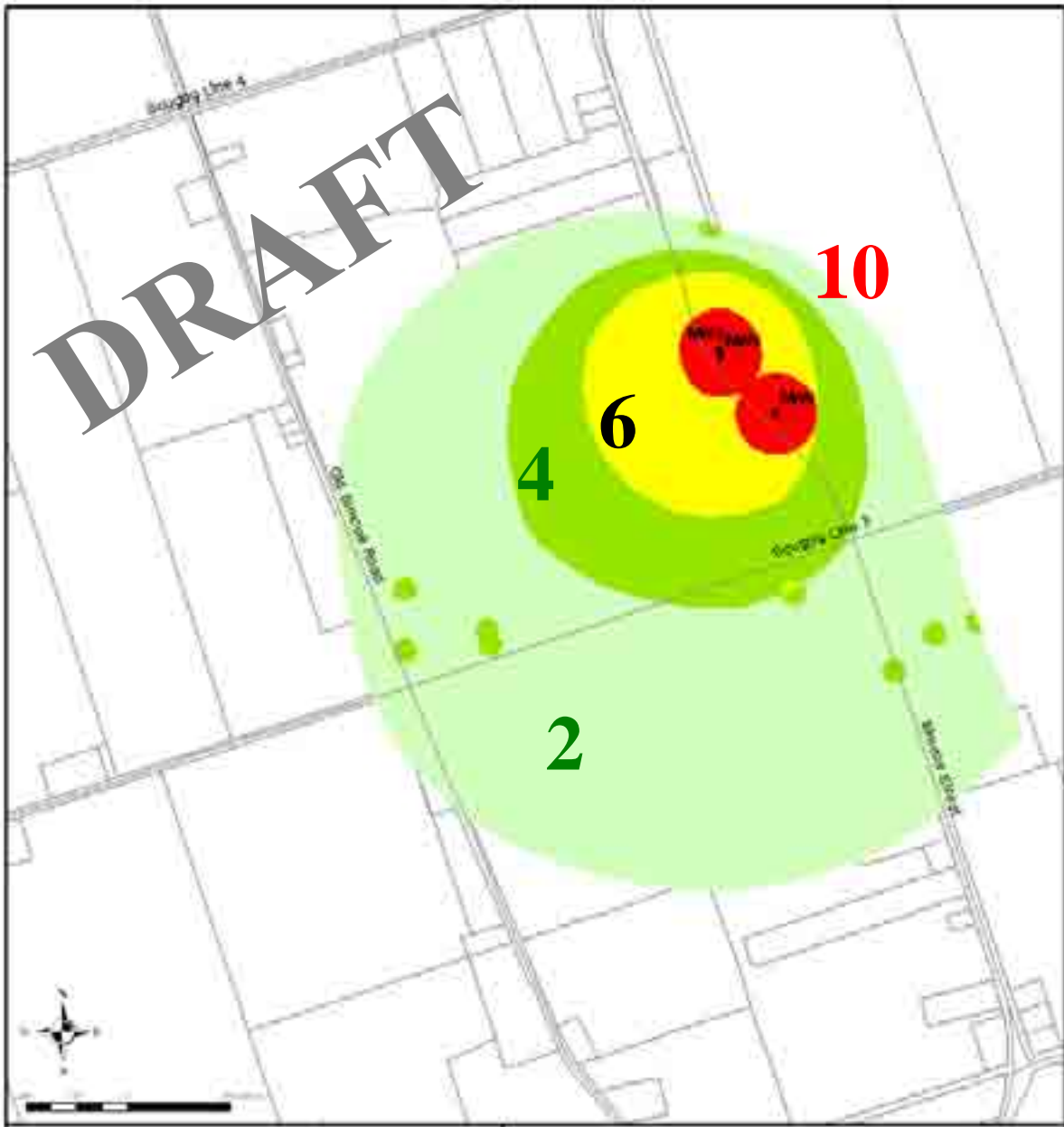
## LEGEND

- MUNICIPAL WELL LOCATION
- WELLS ABOVE MUNICIPAL AQUIFERS
- WELLS IN MUNICIPAL AQUIFERS
- WELLS BELOW MUNICIPAL AQUIFERS
- BOREHOLE LOCATION (MCE WMS INFORMATION)
- ☆ HIGH QUALITY BOREHOLE INFORMATION

## AQUIFER VULNERABILITY INDEX

- HIGH
- MEDIUM
- LOW

Figure 8-4



# Vulnerability Score – Port Perry

**LEGEND**

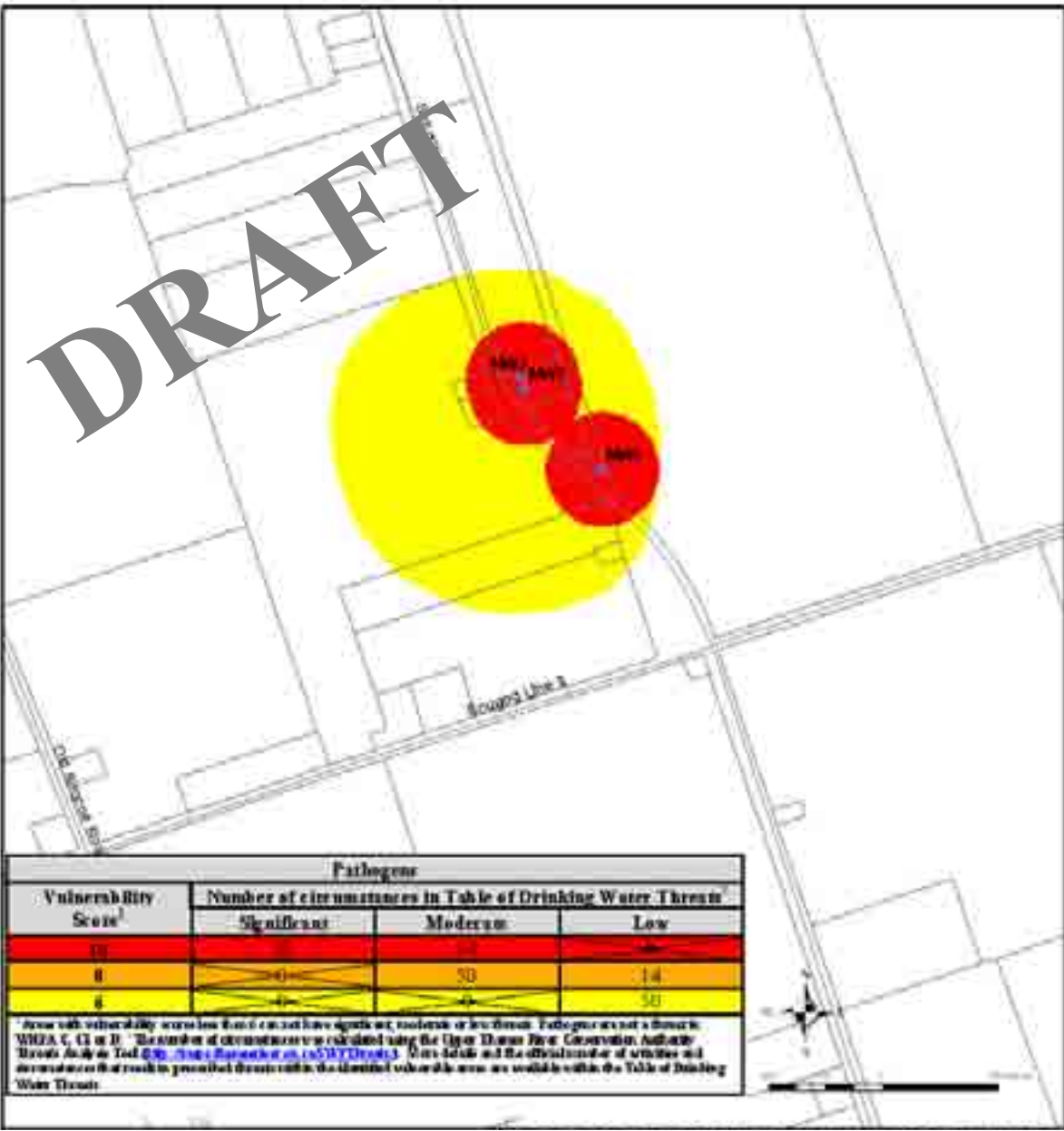
● MUNICIPAL WELL LOCATION

**VULNERABILITY SCORING**

- 10
- 8
- 6
- 4
- 2

Figure 8-5

**DRAFT**



Pathogens			
Vulnerability Score <sup>1</sup>	Number of circumstances in Table of Drinking Water Threats		
	Significant	Moderate	Low
III	1	10	14
II	1	50	50
I	1	1	50

<sup>1</sup> Areas with vulnerability scores less than I do not have significant, moderate, or low threat. Pathogens are not a threat in WQA C, G1 or H. The number of circumstances is calculated using the Upper Thames River Conservation Authority Threats Analysis Tool (2016) (https://www.ustrc.ca/5870/00001). More details and the official number of scenarios and circumstances that result in potential threats within the identified vulnerable areas are available within the Table of Drinking Water Threats.

# Areas for Significant, Moderate, or Low Drinking Water Threats: Pathogens

## Port Perry



Figure 8-6

# Areas for Significant, Moderate, or Low Drinking Water Threats: CHEMICALS

## Port Perry

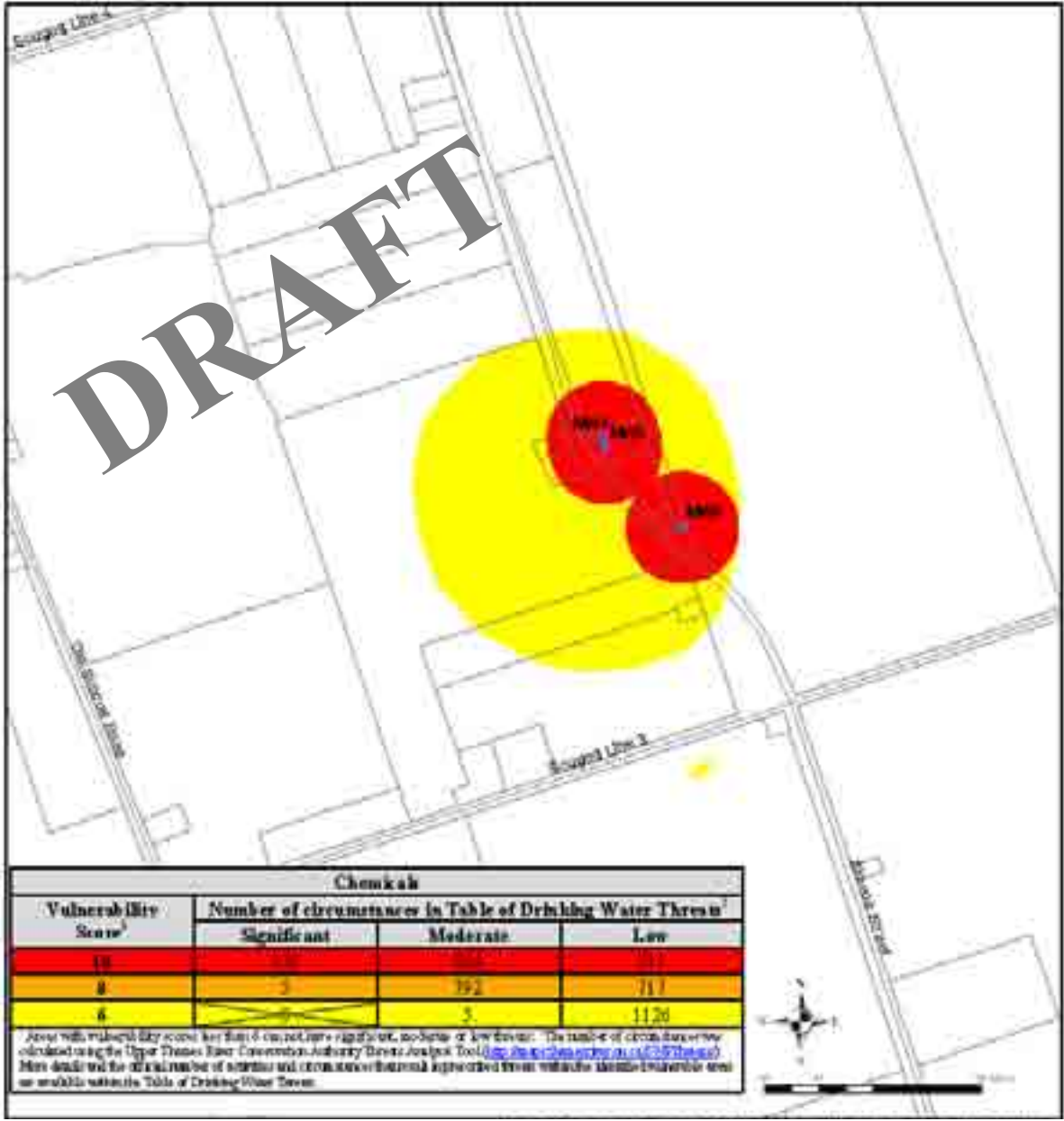


Figure 8-7





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# Managed Lands Port Perry



Figure 8-9



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# Livestock Density Port Perry

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Figure 8-10



Impervious  
Surfaces  
Port Perry

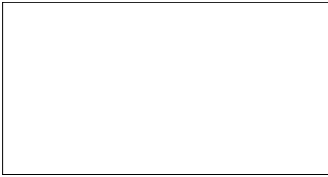
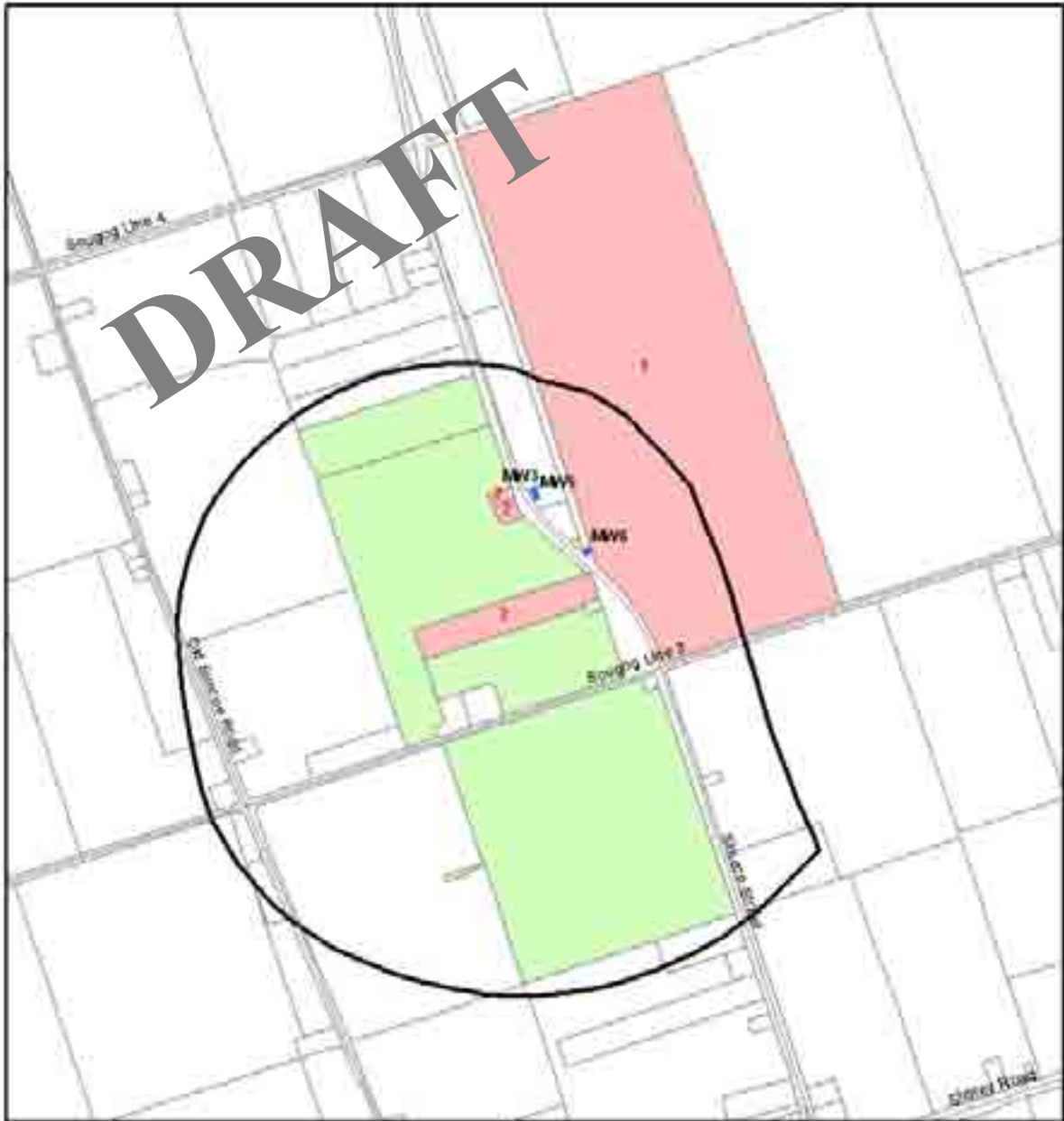


Figure 8-11



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# Threat Classification Port Perry



# # of SIGNIFICANT THREATS - PORT PERRY

Threat		Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
#	Description	Threats	Parcels	Threats	Parcels
2	Private Sewage Disposal	3	3	0	0
10	Pesticide Application	1	1	0	0
15	Fuel Storage	3	3	0	0
<b>Totals</b>		<b>7</b>	<b>4</b>	<b>0</b>	<b>0</b>

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# SUMMARY - PORT PERRY

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- ä Low Groundwater Vulnerability
- ä Low Uncertainty Assigned
- ä Primarily Residential Threats

# Municipal Wells - Havelock

Municipal Well:	Well 1	Well 3	Well 4
<b>Constructed:</b>	1956	1989	2003
<b>Aquifer:</b>	Limestone Bedrock		
<b>Depth (m):</b>	15.2	13.7	15.0
<b>Maximum Taking (m<sup>3</sup>/day):</b>	699.8	1,313.3	786.2
<b>GUDI:</b>	Yes	No	Yes
<b>Static Water Level (m below pipe – June 2003):</b>	5.10	n.a.	4.34



# Wellhead Protection Area – Havelock

## Legend

- Municipal Well
- Roads
- Waterline
- Waterbody
- WHPA-A : 100m Radius
- WHPA-B: 2 Year Time-of-Travel
- WHPA-C: 5 Year Time-of-Travel
- WHPA-D: 25 Year Time-of-Travel

Figure 4-1

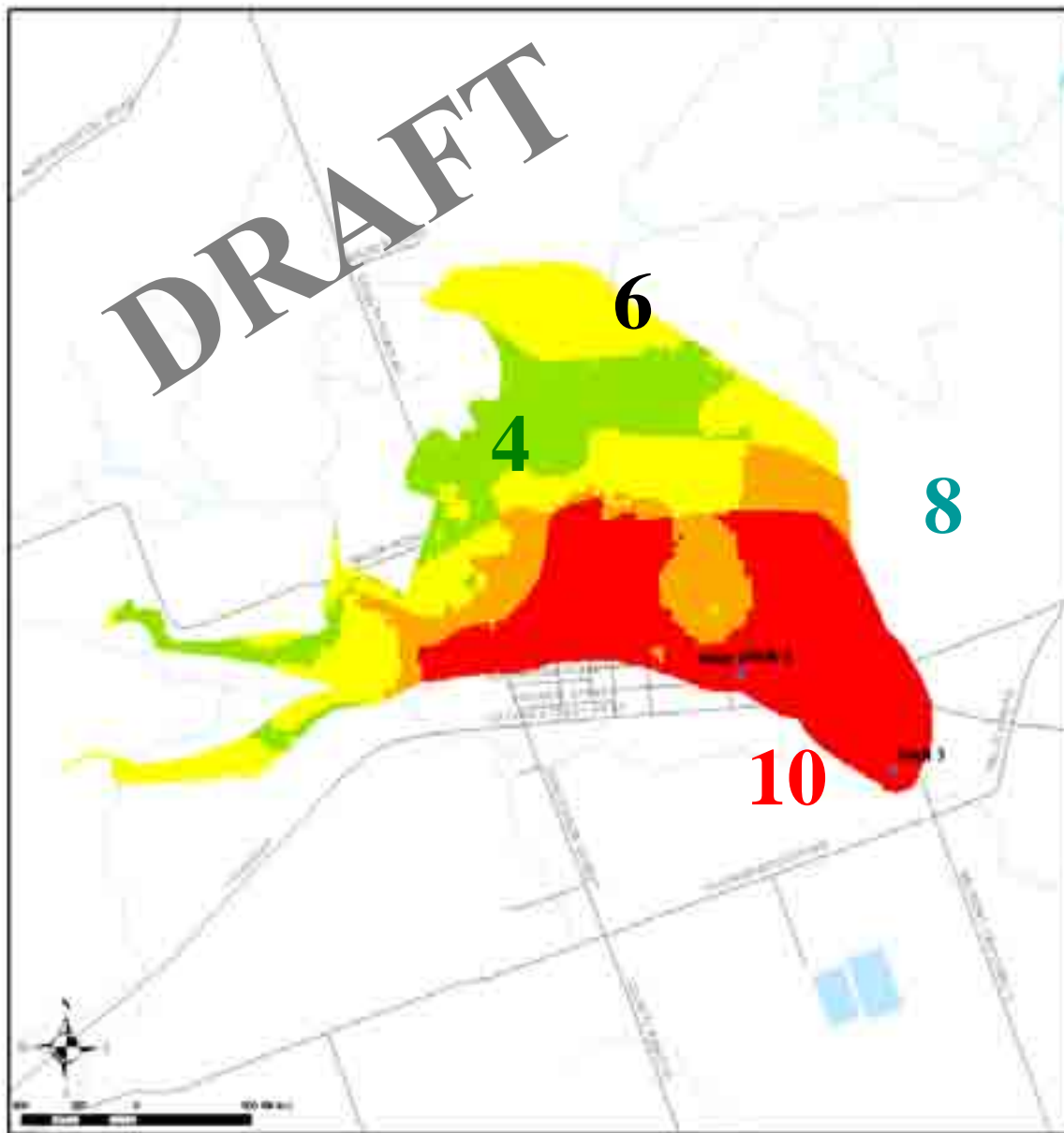


# Groundwater Vulnerability – Havelock

## Legend

- Municipal Well
- Roads
- Waterline
- Waterbody
- Aquifer Vulnerability**
  - High
  - Medium
  - Low

Figure 4-2



# Groundwater Vulnerability Score – Havelock

Figure 4-3



# Vulnerability Score WHPA-E Havelock

## Legend

- Waterline
- Waterbody
- WHPA-E
- 7.2 Vulnerability Score

Figure 4-5

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# Areas for Significant, Moderate, or Low Drinking Water Threats: Pathogens

## Havelock

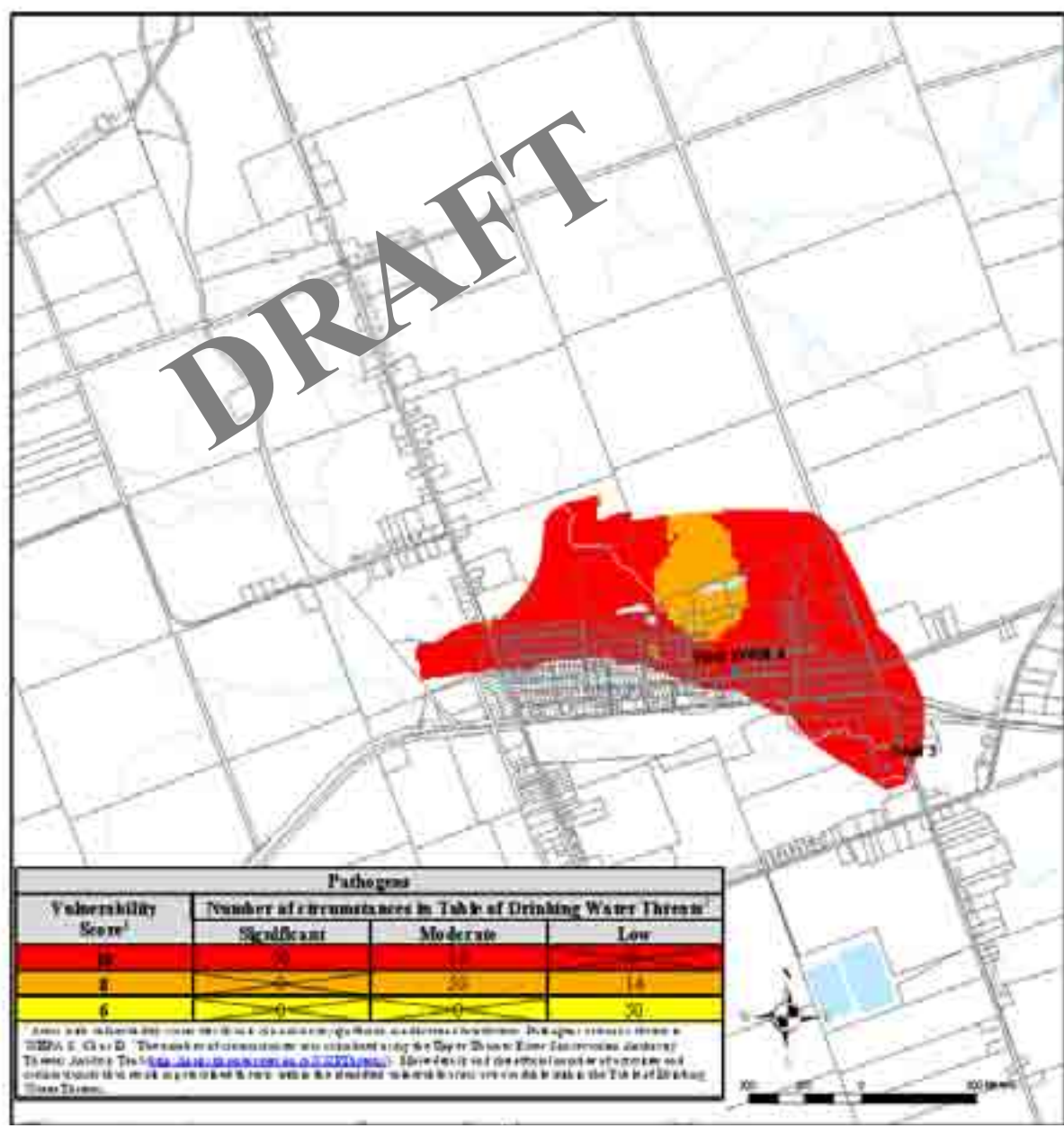


Figure 6-1

**DRAFT**

# Areas for Significant, Moderate, or Low Drinking Water Threats: CHEMICALS

## Havelock

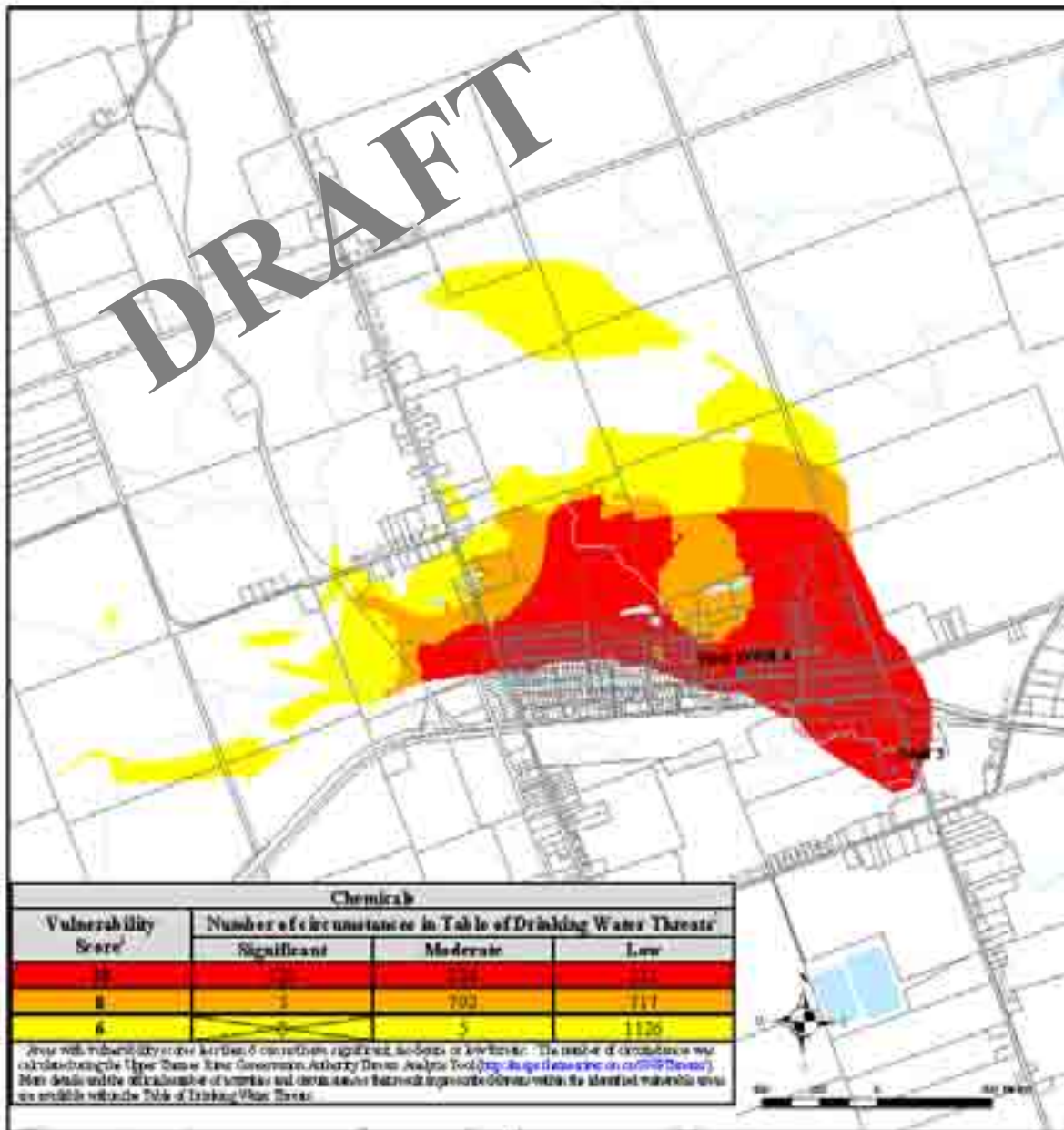


Figure 6-2

**DRAFT**

# Areas for Significant, Moderate, or Low Drinking Water Threats: DNAPLs

## Havelock

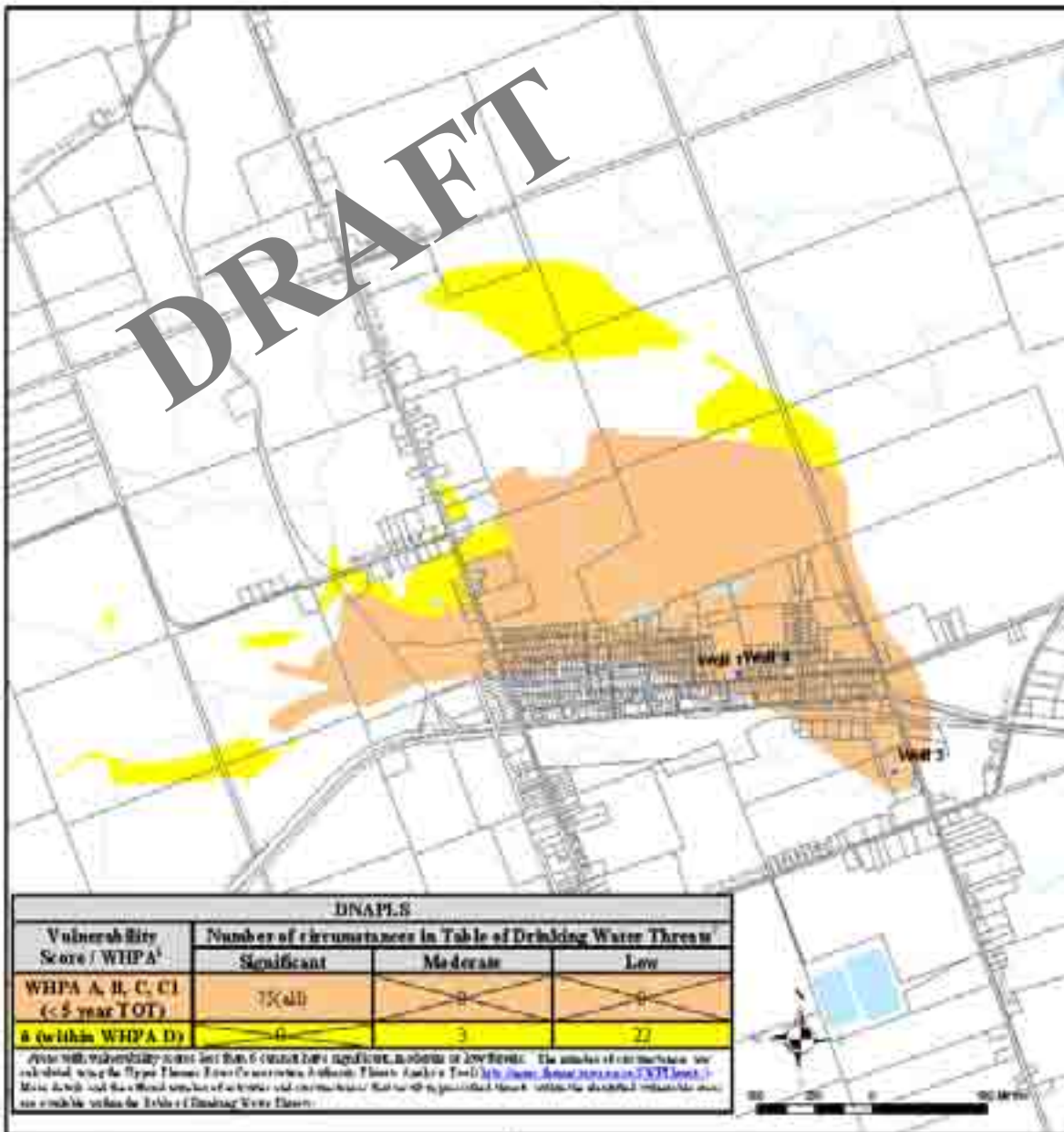
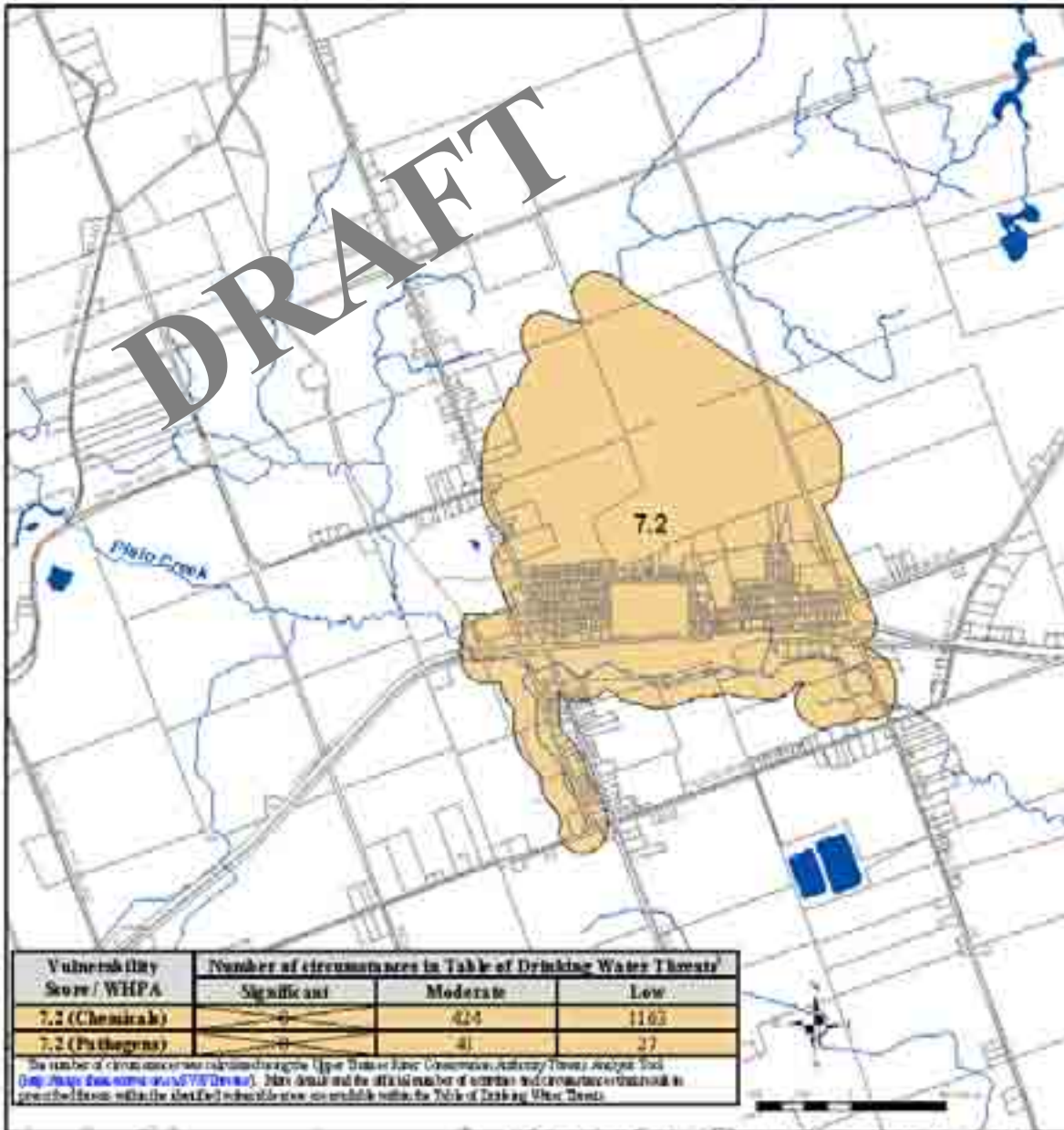


Figure 6-3

**DRAFT**



# Areas for Significant, Moderate, or Low Drinking Water Threats: WHPA-E

## Havelock



Figure 6-4



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# Managed Lands Havelock



Figure 6-5

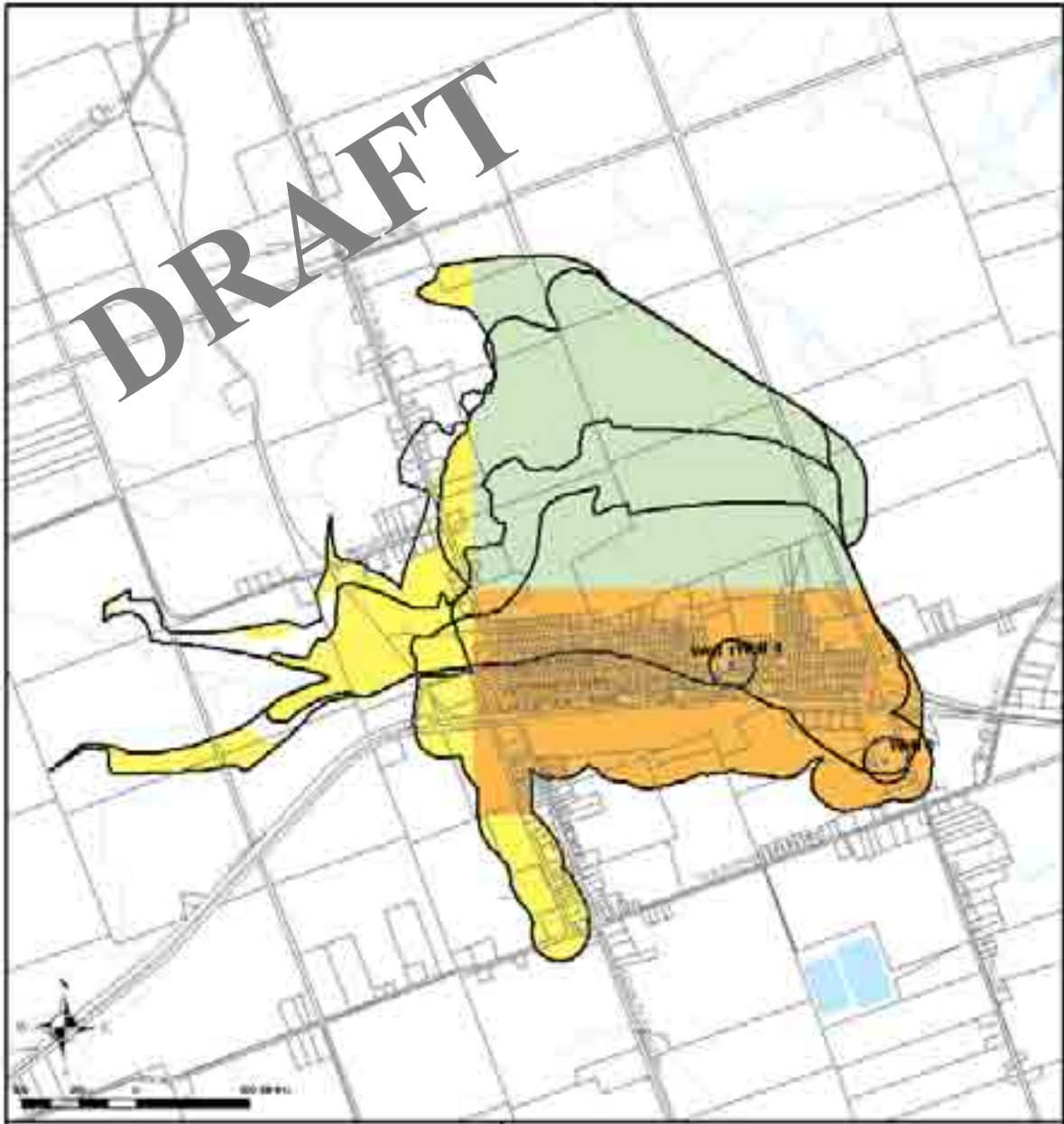


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# Livestock Density Havelock



Figure 6-6



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# Impervious Surfaces Havelock

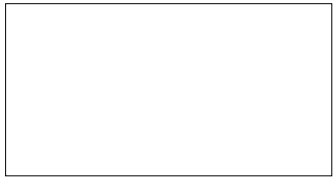
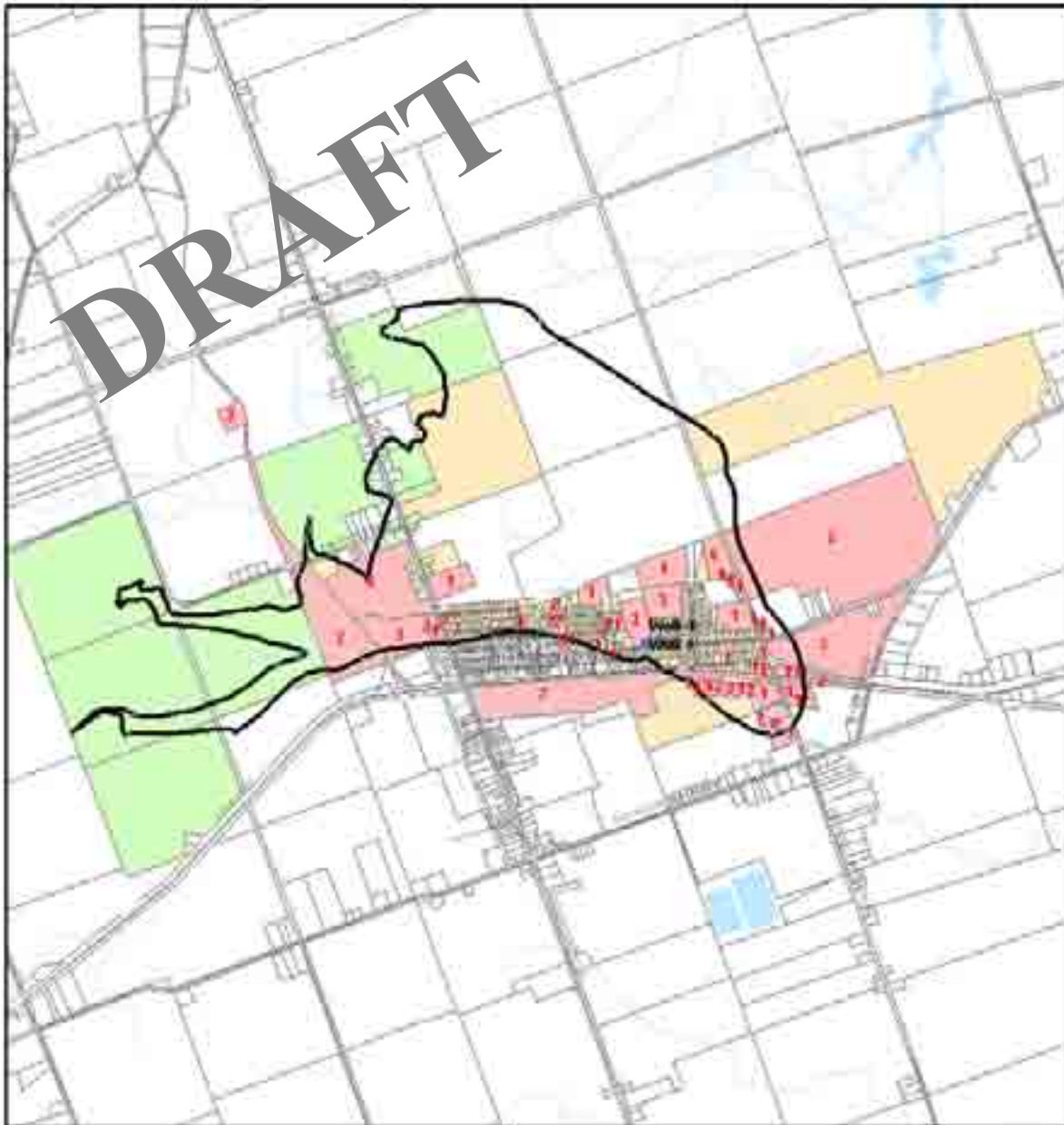


Figure 6-7

**DRAFT**



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# Threat Classification Havelock



# # of SIGNIFICANT THREATS - HAVELOCK

#	Threat Description	Significant Threat Counts By Vulnerability Score			
		VS=10		VS=8	
		Threats	Parcels	Threats	Parcels
1	Waste Disposal	34	30	0	0
2	Private Sewage Disposal	15	15	0	0
3	ASM Application	2	2	0	0
4	ASM Storage	1	1	0	0
6	NASM Application	2	2	0	0
8	Fertilizer Application	1	1	0	0
9	Fertilizer Storage	1	1	0	0
10	Pesticide Application	10	10	0	0
11	Pesticide Handling/Storage	1	1	0	0
15	Fuel Storage	8	8	0	0
16	DNAPL Storage	17	17	0	0
21	Livestock Grazing/Yard	1	1	0	0
<b>Totals</b>		<b>94</b>	<b>50</b>	<b>0</b>	<b>0</b>

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# SUMMARY - HAVELOCK

- High Groundwater Vulnerability
- High Uncertainty Assigned
- Mix of Threats
- To Review Waste Disposal Circumstances
- Quality Control Ongoing

# STATUS SUMMARY- TCC PROJECTS

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## ä Draft Reports Submitted for:

- Hamilton Township

## ä Draft Reporting Imminent:

- Havelock
- Durham Region

## ä Kawartha – Working to address Peer Review Comments

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# Thank You

**Lloyd Lemon, P.Geo.**

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