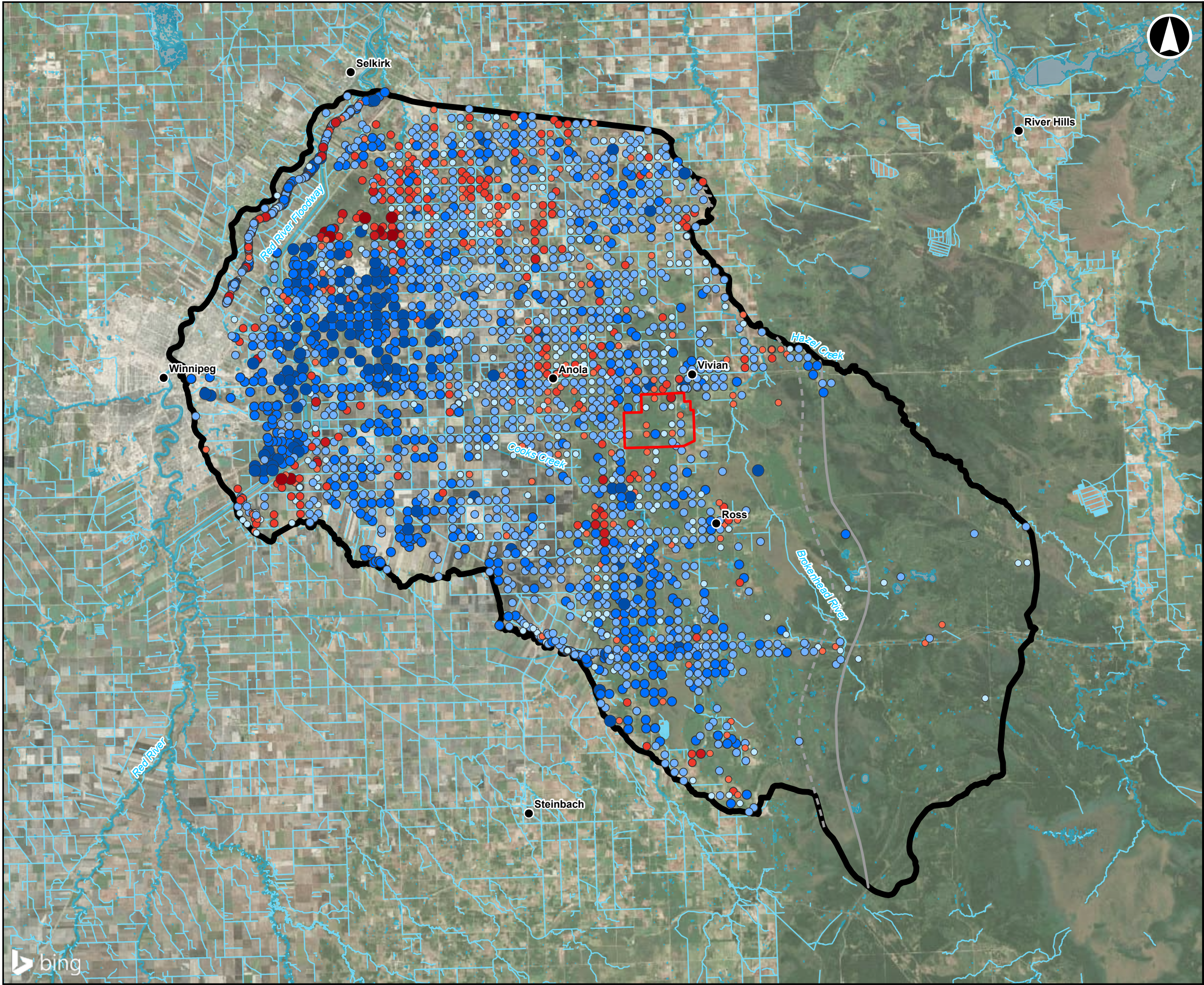




Legend

 25 Year Mine Area

 Model Domain

General Features

 Watercourse

 Waterbody

Winnipeg Sandstone Subcrop Upper Contact

 Lower Contact

 Upper Contact

Simulated Minus Observed Groundwater Elevation (i.e. Residual)

 < 10

 5 to 10

 1 to 5

 1 to 0

 0 to -1

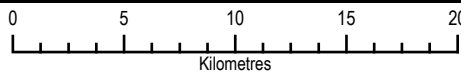
 -1 to -5

 -5 to -10

 > -10

**SIMBA PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT**

**OBSERVED MINUS SIMULATED GROUNDWATER
ELEVATION (EXISTING CONDITIONS)**



Datum: NAD 1983 UTM Zone 14N

Nov, 2024

PN#: 60730241

1:340,000
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Figure 6-3

Data Sources: ML, NRCan - Canvec
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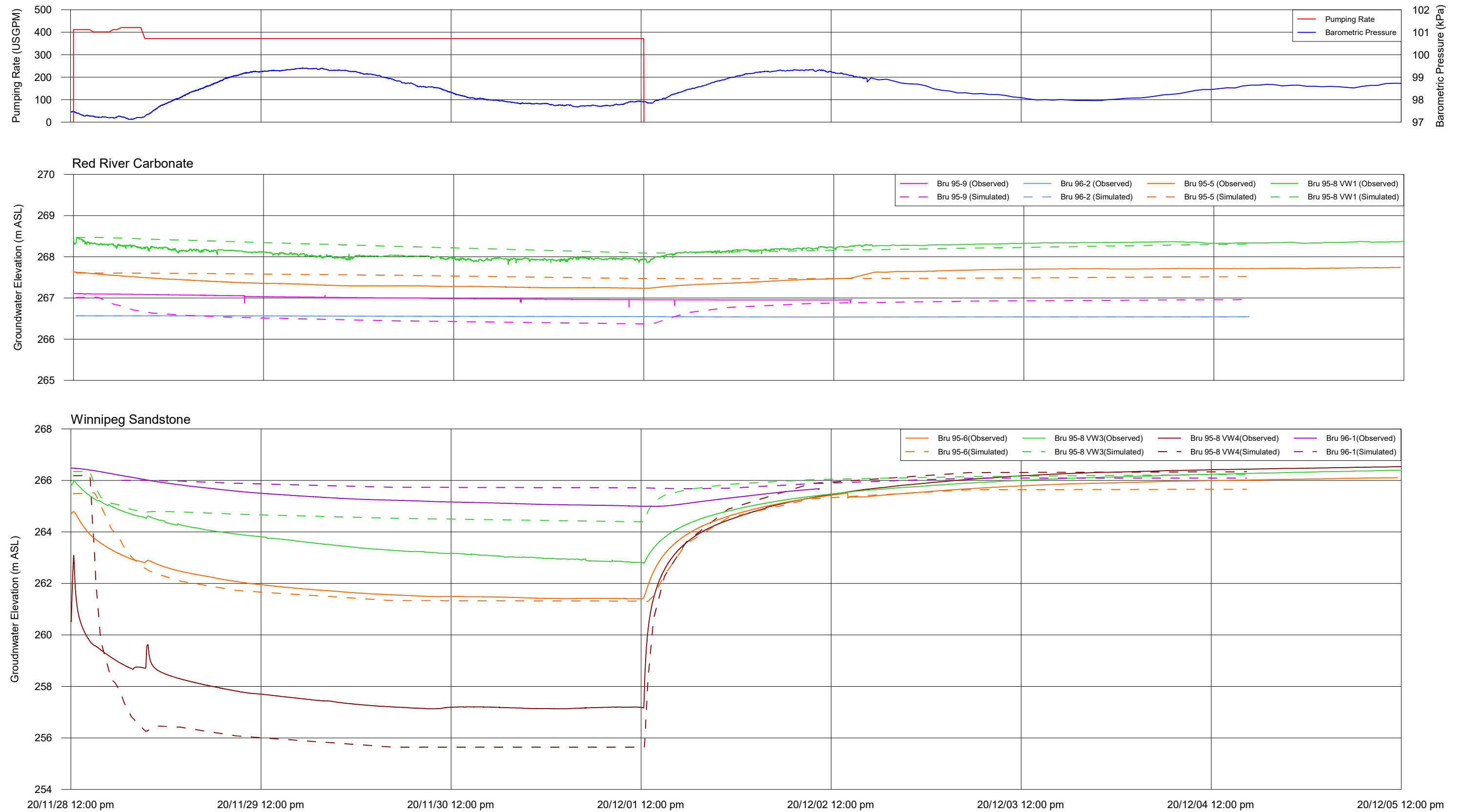
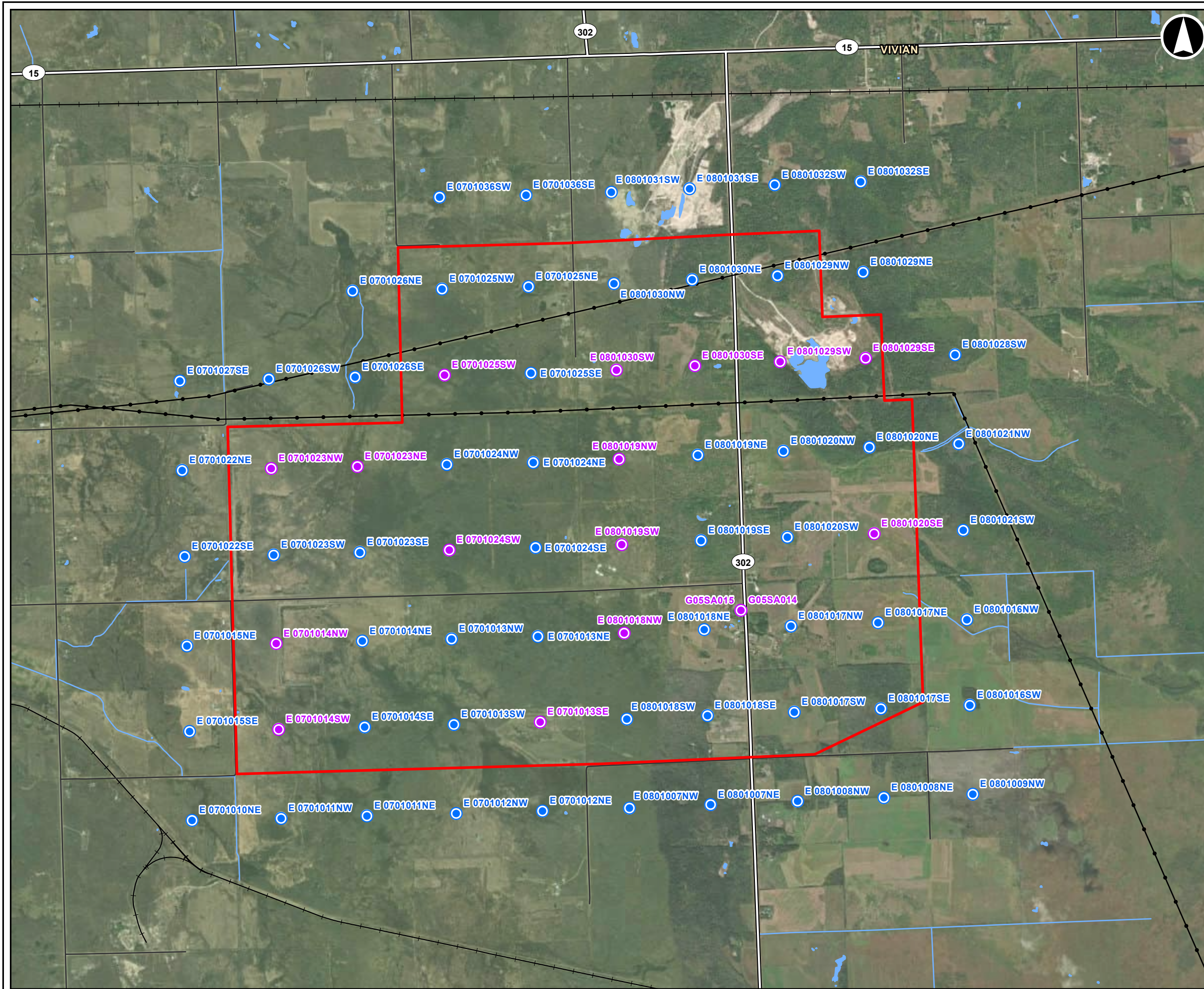


Figure 6-4. Transient Calibration Time Series Plot (Pumping Test)



Legend

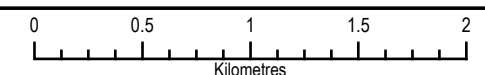
- Observation Point Location
 - Observation Point Location used on Time Series Plots (Figures 6-7 & 6-11)
 - 25 Year Mine Area
- #### General Features
- Highway
 - Road
 - Railway
 - Transmission Line
 - Watercourse
 - Waterbody

NOTE:

The highlighted wells are randomly selected for time series plots as shown in Figure 6-7 and Figure 6-11.

SIMba PROJECT SIO SILICA CORPORATION HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

OBSERVATION POINT LOCATIONS



Datum: NAD 1983 UTM Zone 14N

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Figure 6-6

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Data Sources: ML, NRCan - Canvec
Maxar

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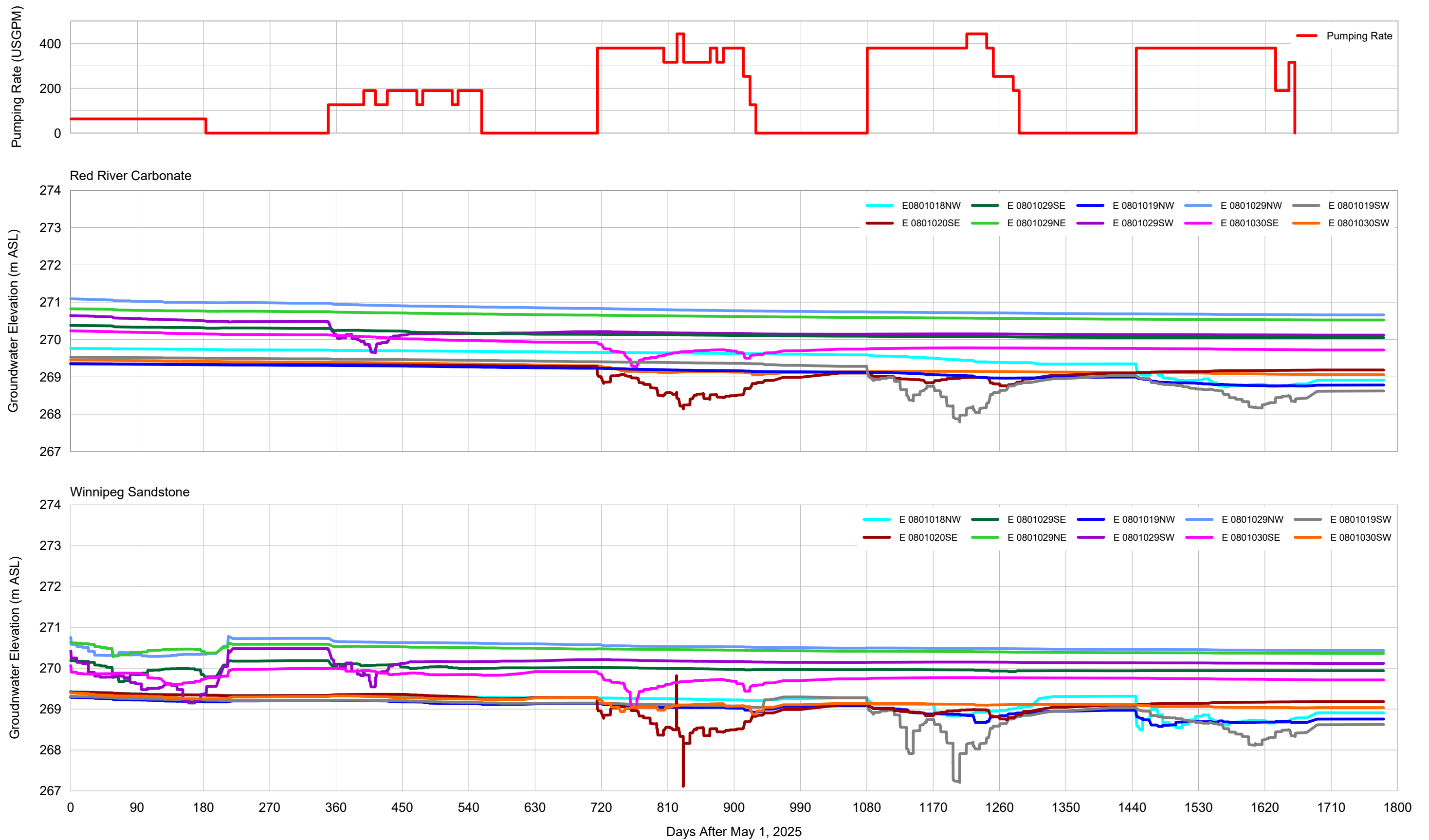
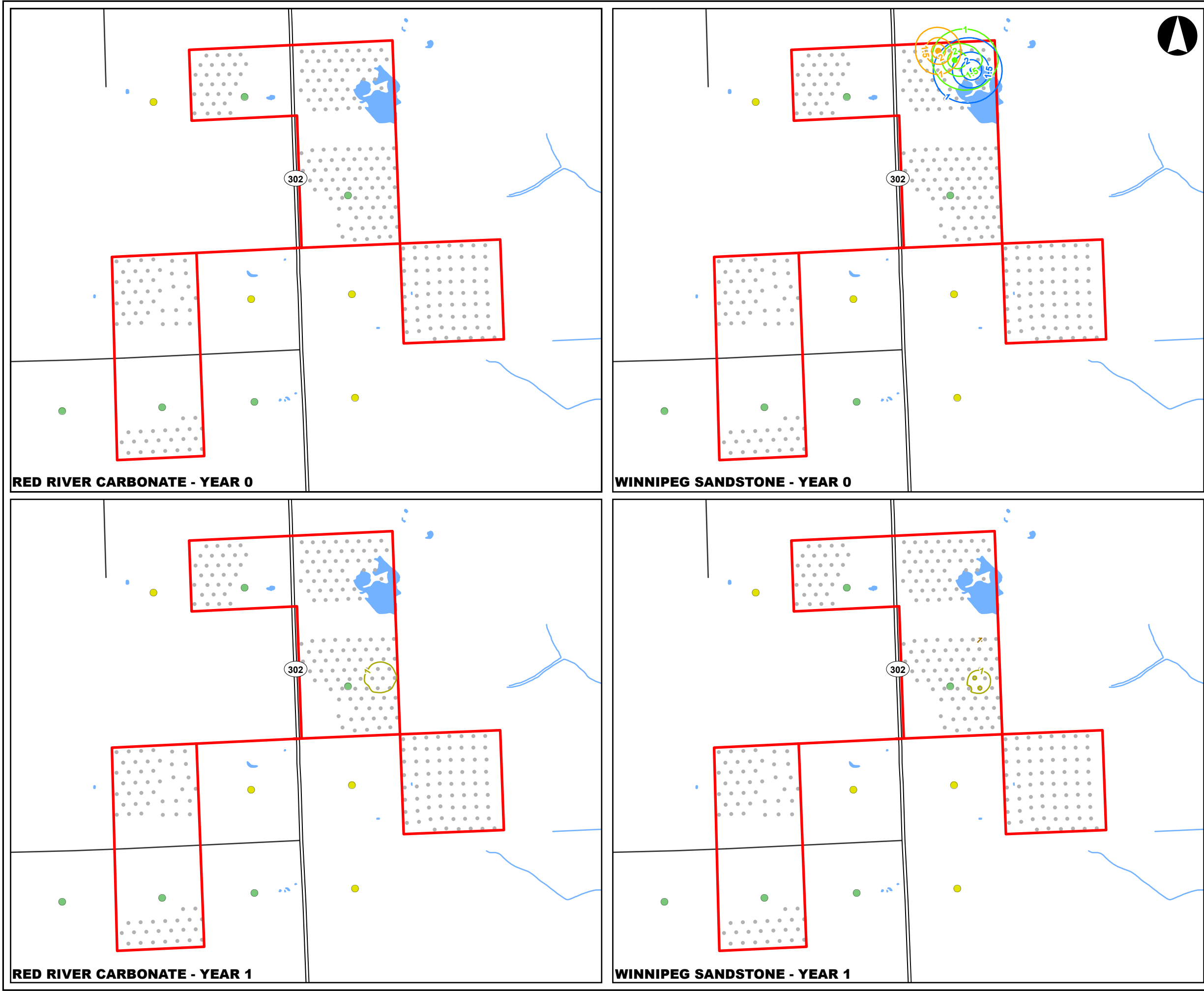


Figure 6-7. Simulated Drawdown and Recovery Hydrograph (Production Years 0 to 4)



Legend

- Production Well
- Project Area - Years 0 - 4

General Features

- Highway
- Road
- Railway
- Watercourse
- Waterbody

Existing Groundwater Users by Aquifer

- Quaternary Sediments
- Red River Carbonate
- Winnipeg Shale
- Winnipeg Sandstone
- Lower Shale / Precambrian

Drawdown Year 0

- Day 0 (No Drawdown)
- Day 30
- Day 90
- Day 180

Drawdown Year 1

- Day 360 (No Drawdown)
- Day 450
- Day 540
- Day 630 (No Drawdown)

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SIMULATED DRAWDOWN (YEAR 0 AND YEAR 1)

00.511.52

Kilometres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024

PN#: 60730241

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Figure 6-8

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Data Sources: ML, NRCan - Canvec

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\\AECOM\LOCATION\PROJECTS\SIOSILICA\SIOSILICA\HYDROGEOLOGY\REPORTS\HYDROGEOLOGY\FIGURE 6-8\FIGURE 6-8_HYDROGEOLOGY\SIMULATED DRAWDOWN_1.Y001.R1

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Legend

- Production Well
- Project Area - Years 0 - 4

General Features

- Highway
- Road
- Railway
- Watercourse
- Waterbody

Existing Groundwater Users by Aquifer

- Quaternary Sediments
- Red River Carbonate
- Winnipeg Shale
- Winnipeg Sandstone
- Lower Shale / Precambrian

Drawdown Year 2

- Day 720
- Day 810
- Day 900
- Day 990 (No Drawdown)

Downdraw Year 3

- Day 1080 (No Drawdown)
- Day 1170
- Day 1260
- Day 1350 (No Drawdown)

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SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

SIMULATED DRAWDOWN (YEAR 2 AND YEAR 3)

00.511.52

Kilometres

Datum: NAD 1983 UTM Zone 14N

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Figure 6-9

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Data Sources: ML, NRCan - Canvec

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DATE SAVED: 2024-11-21 USER: NAME PAGE CROSSMAN

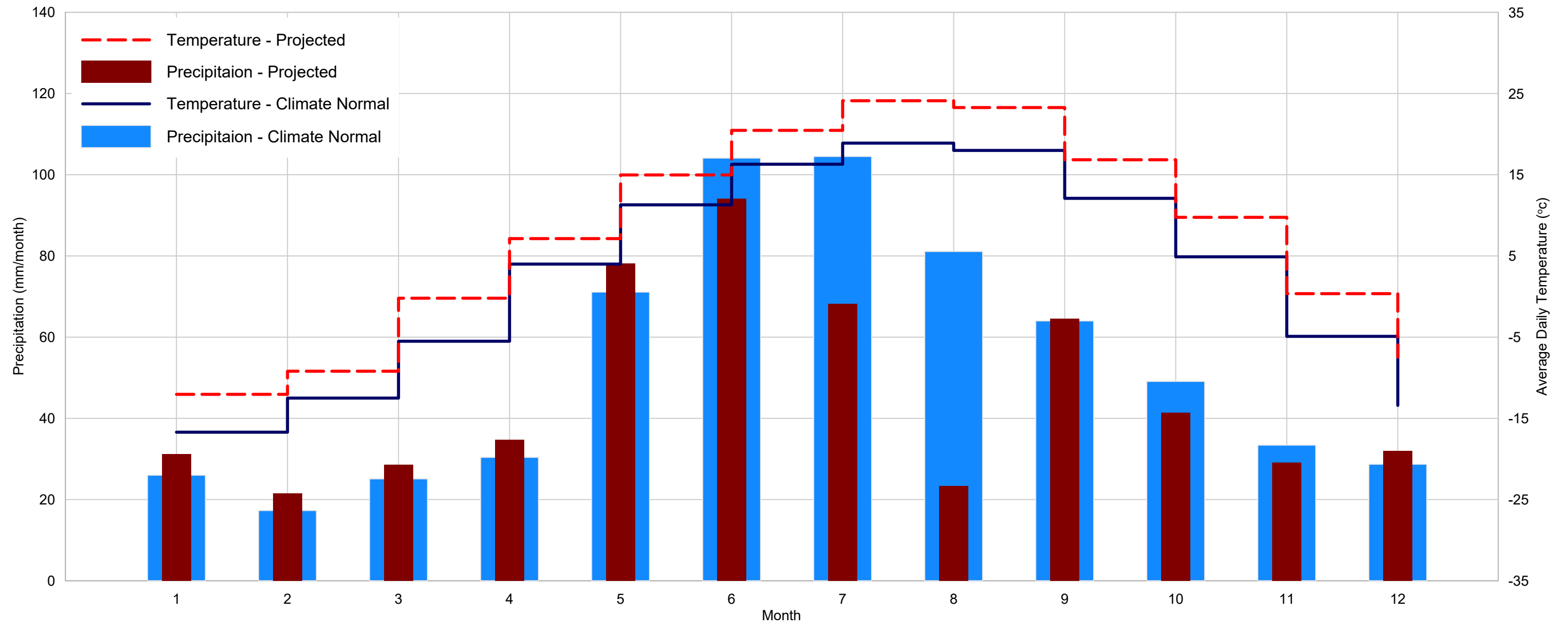
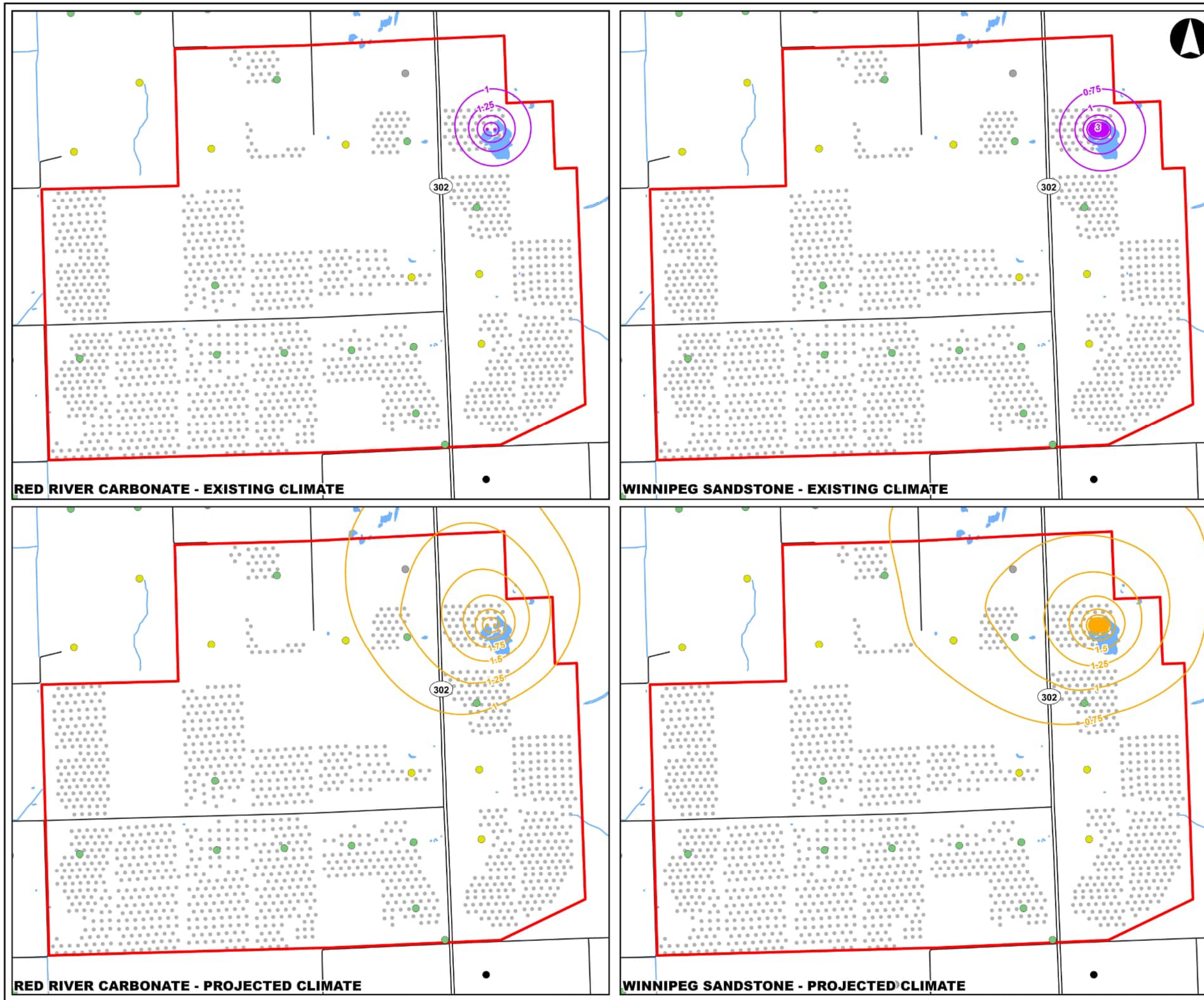


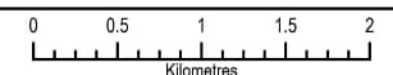
Figure 6-11. Existing and Projected Climate Conditions



- Legend**
- Production Well
 - 25 Year Mine Area
- Existing Groundwater Users by Aquifer**
- Quaternary Sediments
 - Red River Carbonate
 - Winnipeg Shale
 - Winnipeg Sandstone
 - Lower Shale / Precambrian
- General Features**
- Highway
 - Road
 - Railway
 - Watercourse
 - Waterbody
- Simulated Drawdowns**
- Existing Climate
 - Future Climate

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**SIMULATED DRAWDOWNS UNDER
EXISTING AND PROJECTED CLIMATE**



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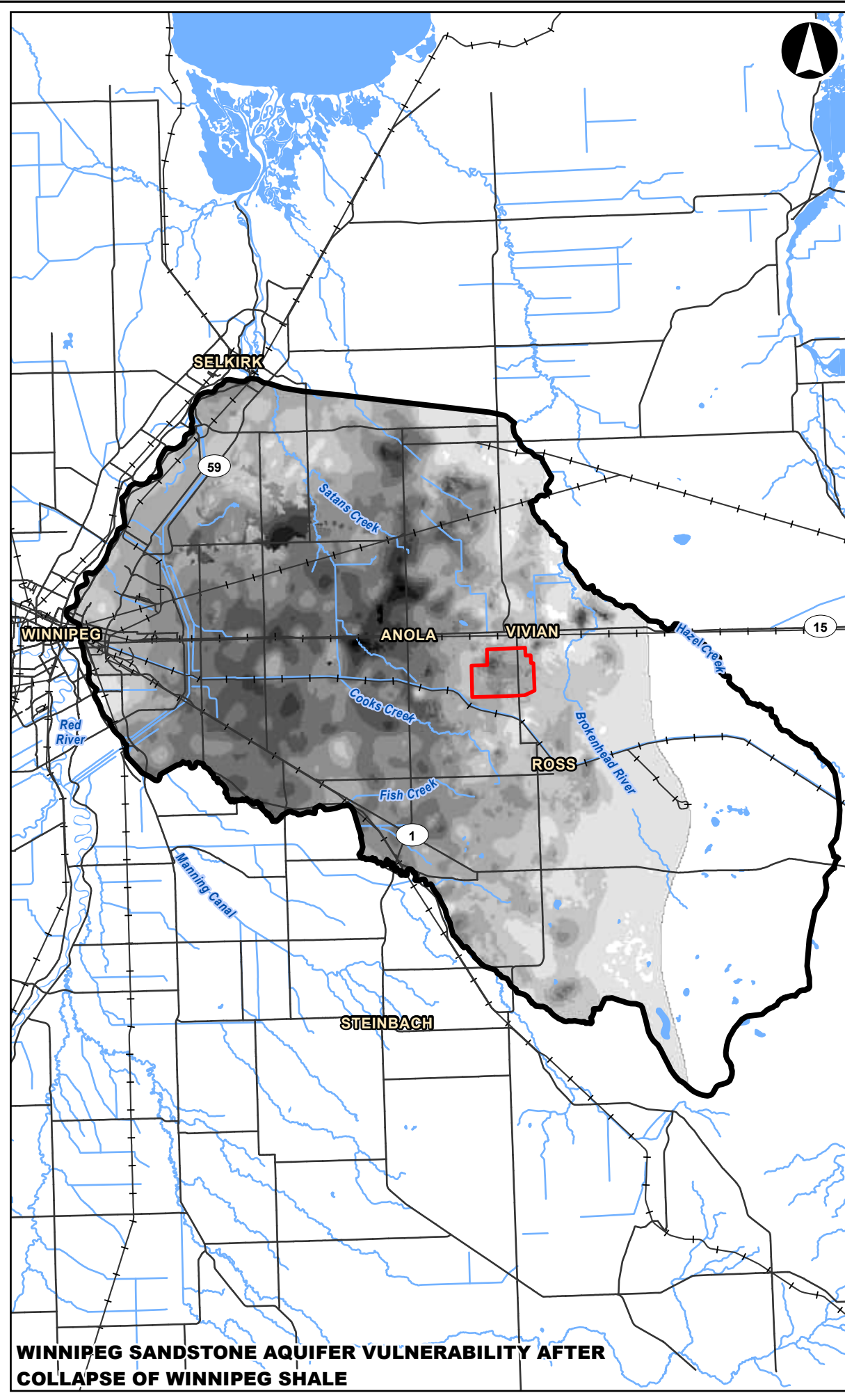
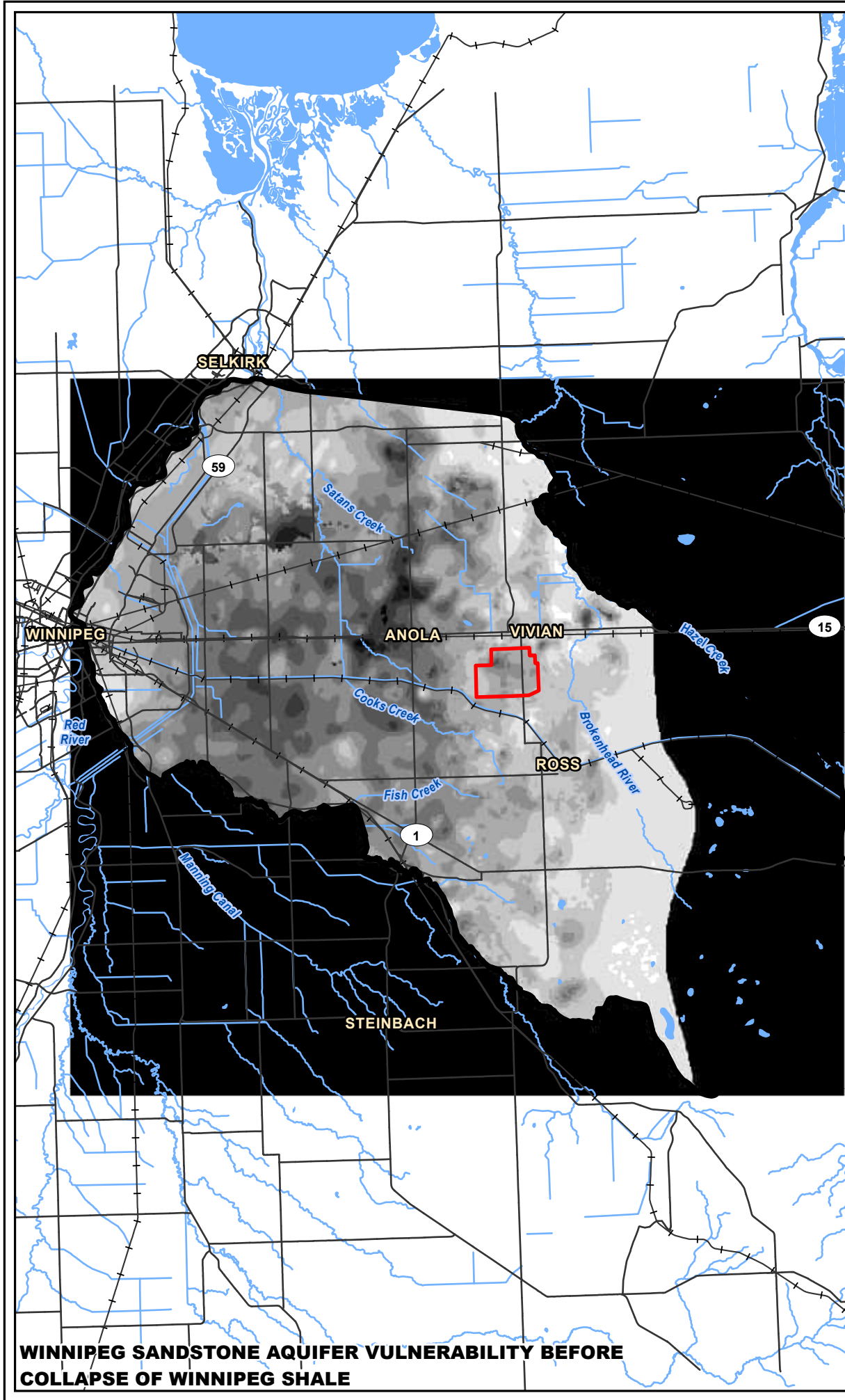
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Figure 6-12

Data Sources: ML, NRCan - Canvec

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Legend

- Groundwater Modeling Domain
- 25 Year Mine Area

General Features

- Highway
- Railway
- Watercourse
- Waterbody

Intrinsic Aquifer Vulnerability (-)

- 0 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.6
- 0.6 - 0.7
- 0.7 - 0.8
- 0.8 - 0.9
- 0.9 - 1.0

**SIMBA PROJECT
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HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT**

**CHANGE TO AQUIFER VULNERABILITY
BEFORE COLLAPSE OF WINNIPEG SANDSTONE**

0 5 10 15 20
Kilometres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024 PN#: 60730241 1:543,396
* when printed 11"x17"

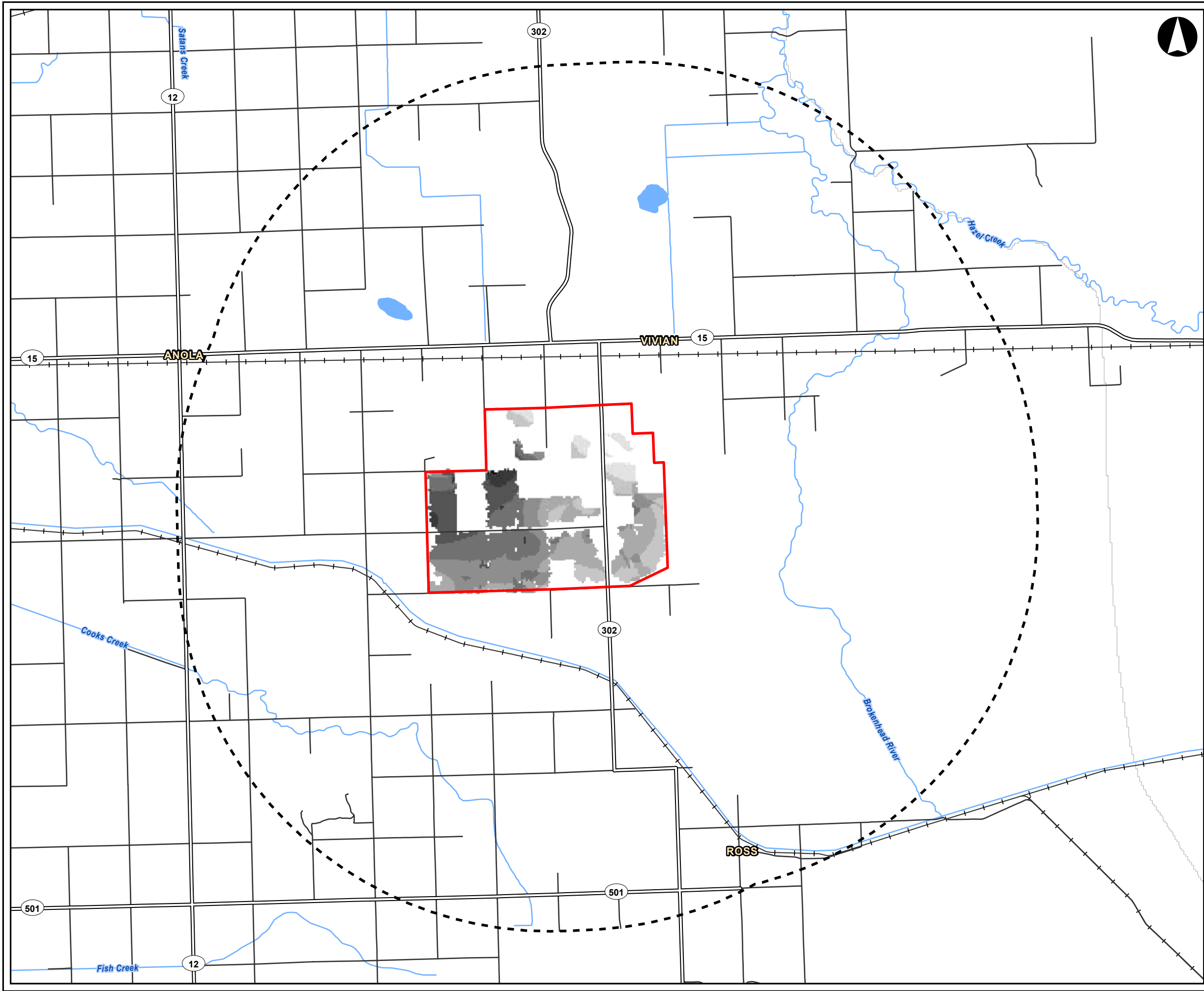
Figure 7-1

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Legend

- 25 Year Mine Area
- Regional Project Area
- General Features**
- Highway
- Road
- Railway
- ~ Watercourse
- Waterbody

Change in Intrinsic Aquifer Vulnerability (-)

- 0.001 - 0.015
- 0.016 - 0.030
- 0.031 - 0.045
- 0.046 - 0.060
- 0.061 - 0.075
- 0.076 - 0.090
- 0.091 - 0.105
- 0.106 - 0.120
- 0.121 - 0.135
- 0.136 - 0.150

**SIMBA PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT**

**CHANGE TO AQUIFER VULNERABILITY
AFTER COLLAPSE OF WINNIPEG SANDSTONE**



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Figure 7-2

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