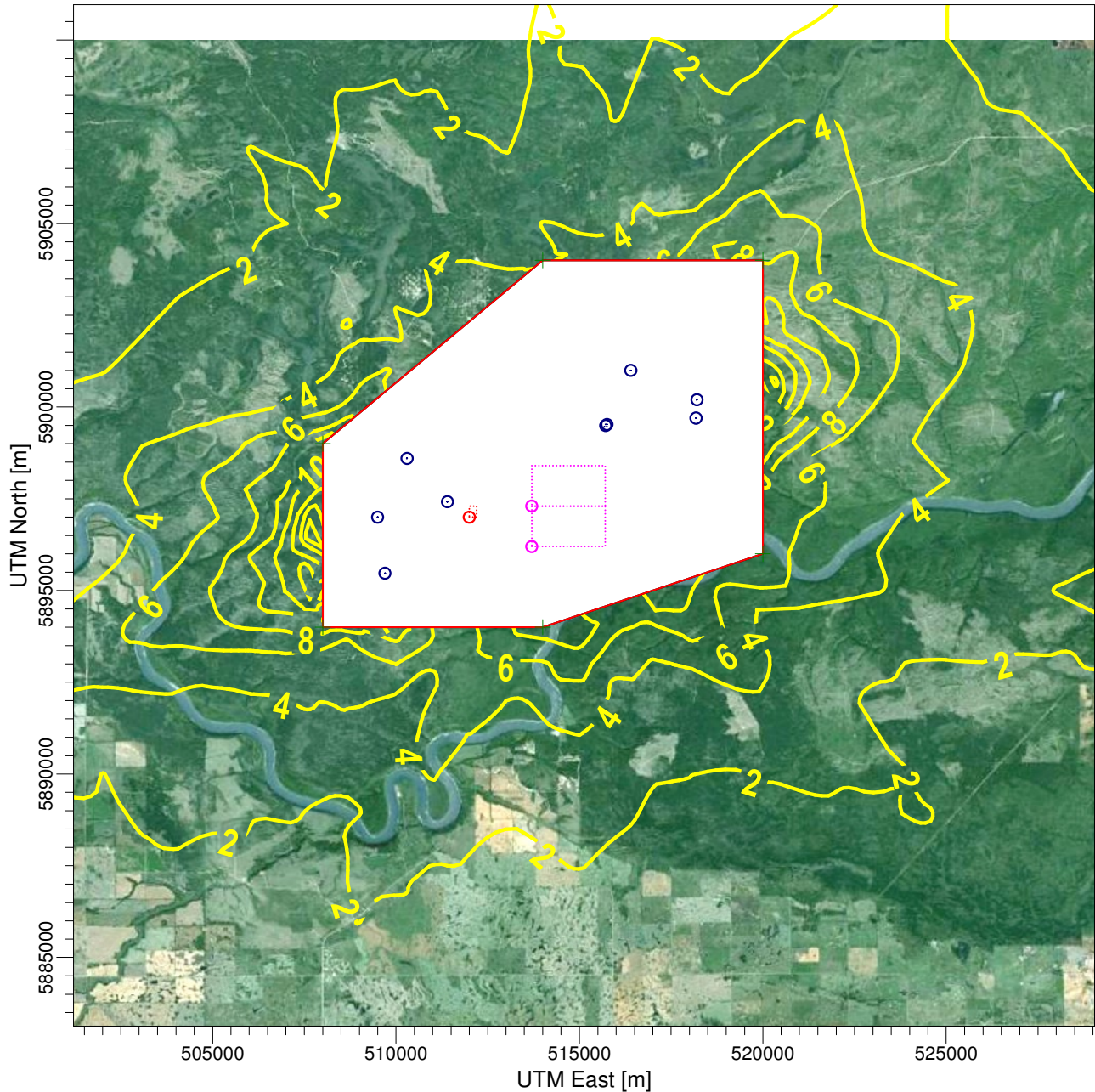




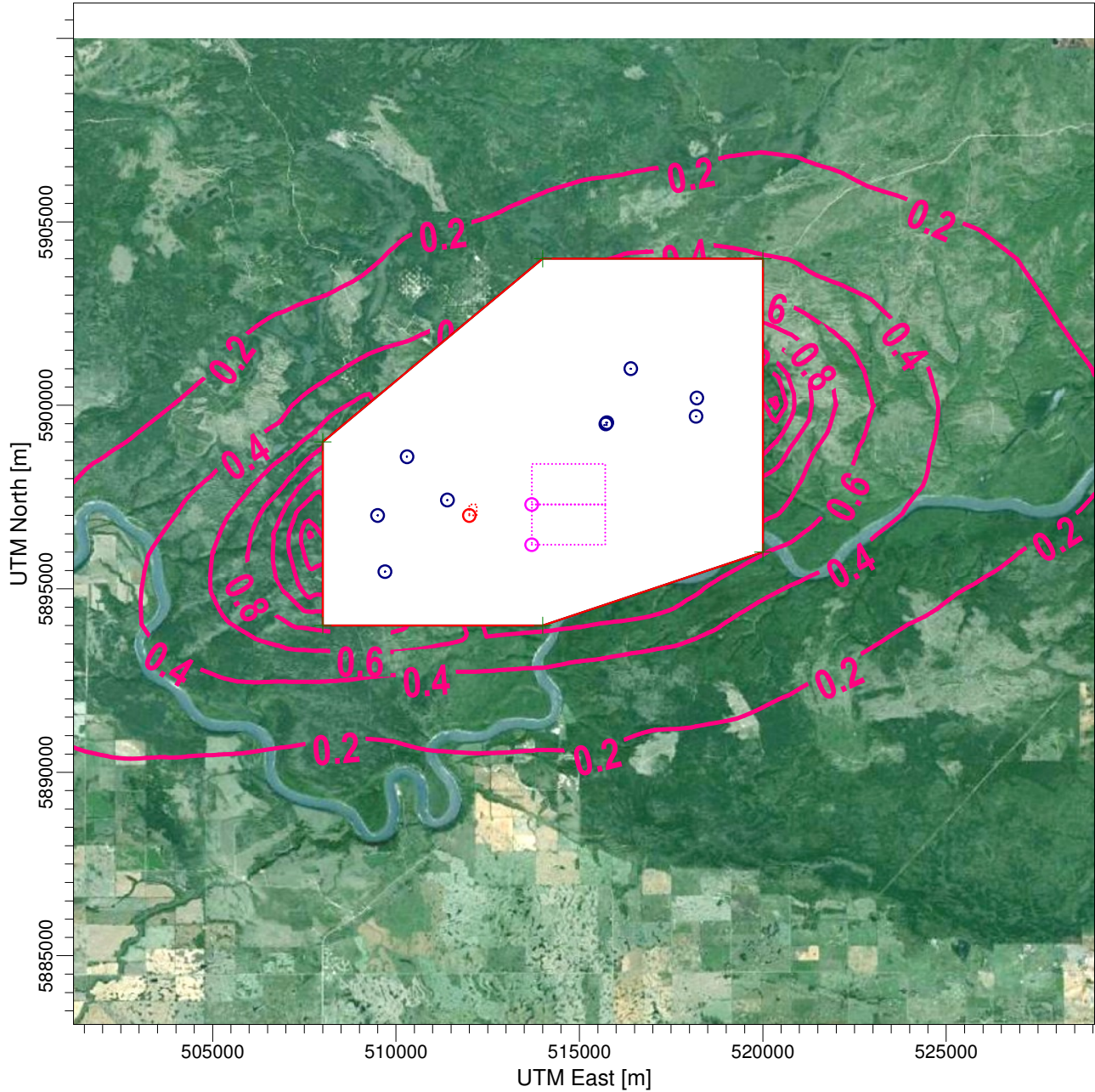
Figure 6.2.2-1: Typical Overburden Stripping Scenario

**Dispersion Modelling of Particulate Matter
24-hour Average**



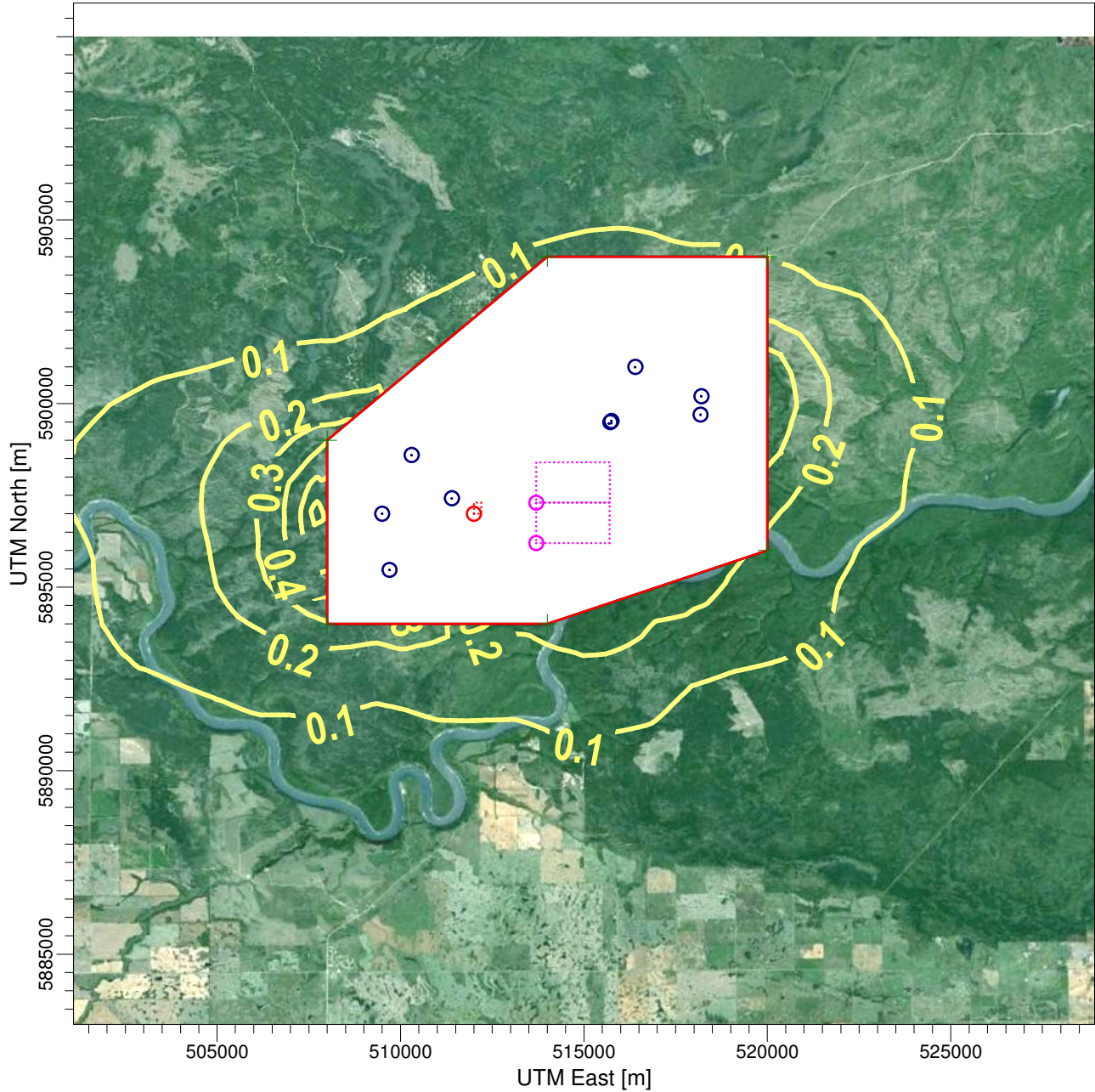
<p>COMMENTS:</p> <p>The highest concentrations of total suspended particulate (TSP) in $\mu\text{g}/\text{m}^3$ beyond the fence line during the 24-hour period.</p> <p>AAQO for TSP 24-h average is $120 \mu\text{g}/\text{m}^3$.</p>	<p>SOURCES:</p> <p>12</p>	<p>Star-Orion South Diamond Project</p>		
	<p>RECEPTORS:</p> <p>1064</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>		
	<p>OUTPUT TYPE:</p> <p>Concentration</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0 5 km</p>		
	<p>MAX:</p> <p>19.51431 $\mu\text{g}/\text{m}^3$</p>	<p>DATE:</p> <p>11/12/19</p>	<p>Figure 6.2.2-2</p>	

Dispersion Modelling of Particulate Matter Annual Average



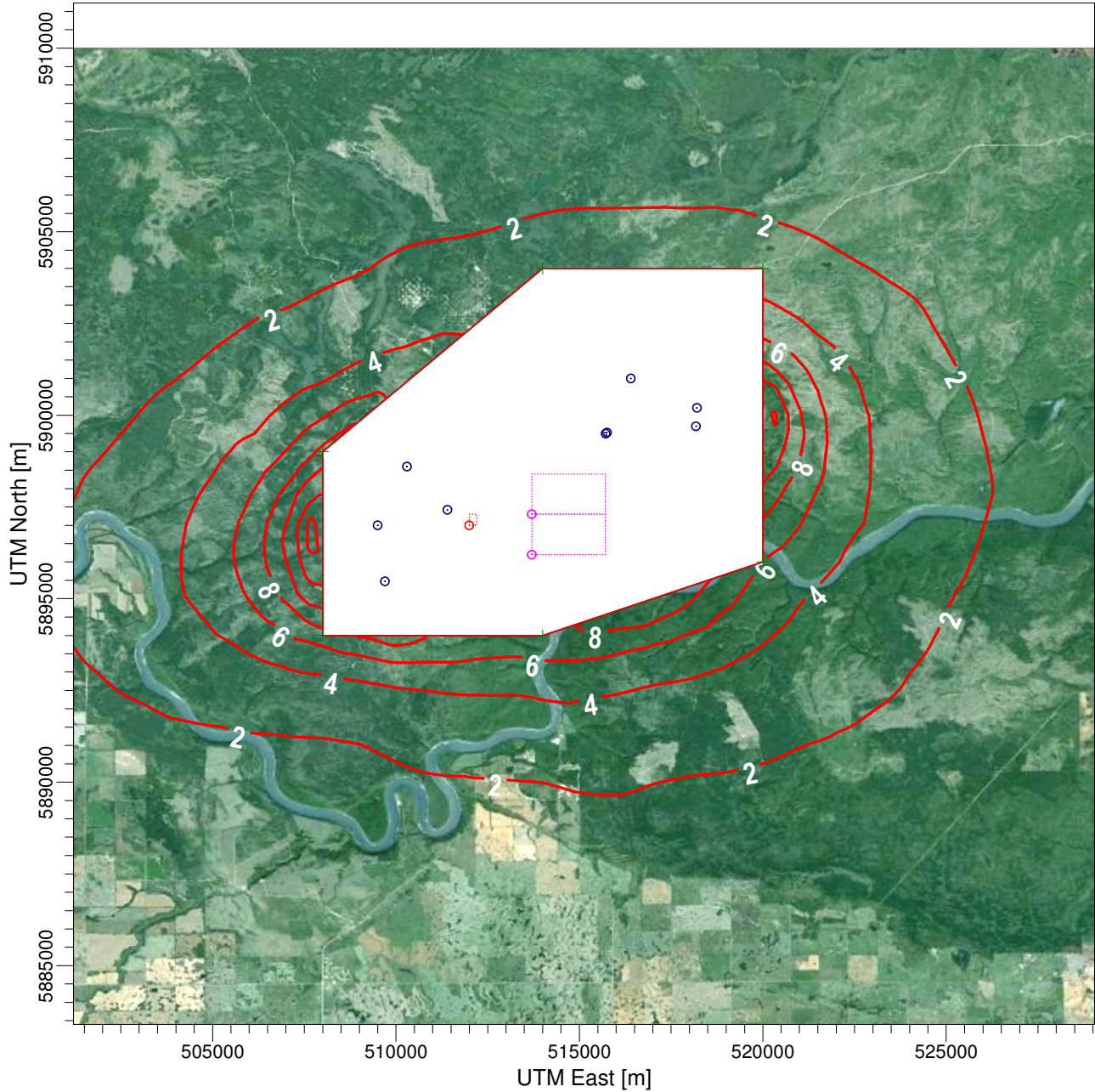
<p>COMMENTS:</p> <p>Annual highest concentrations of total suspended particulate (TSP) in $\mu\text{g}/\text{m}^3$ beyond the fence line.</p> <p>AAQO for TSP annual average is $70 \mu\text{g}/\text{m}^3$.</p>	<p>SOURCES:</p> <p>12</p>	<p>Star-Orion South Diamond Project</p>		
	<p>RECEPTORS:</p> <p>1064</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>		
	<p>OUTPUT TYPE:</p> <p>Concentration</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0 5 km</p>		
	<p>MAX:</p> <p>1.64297 $\mu\text{g}/\text{m}^3$</p>	<p>DATE:</p> <p>11/12/19</p>	<p>Figure 6.2.2-3</p>	



**Dispersion Modelling of Particulate Matter
Monthly Dust Deposition**



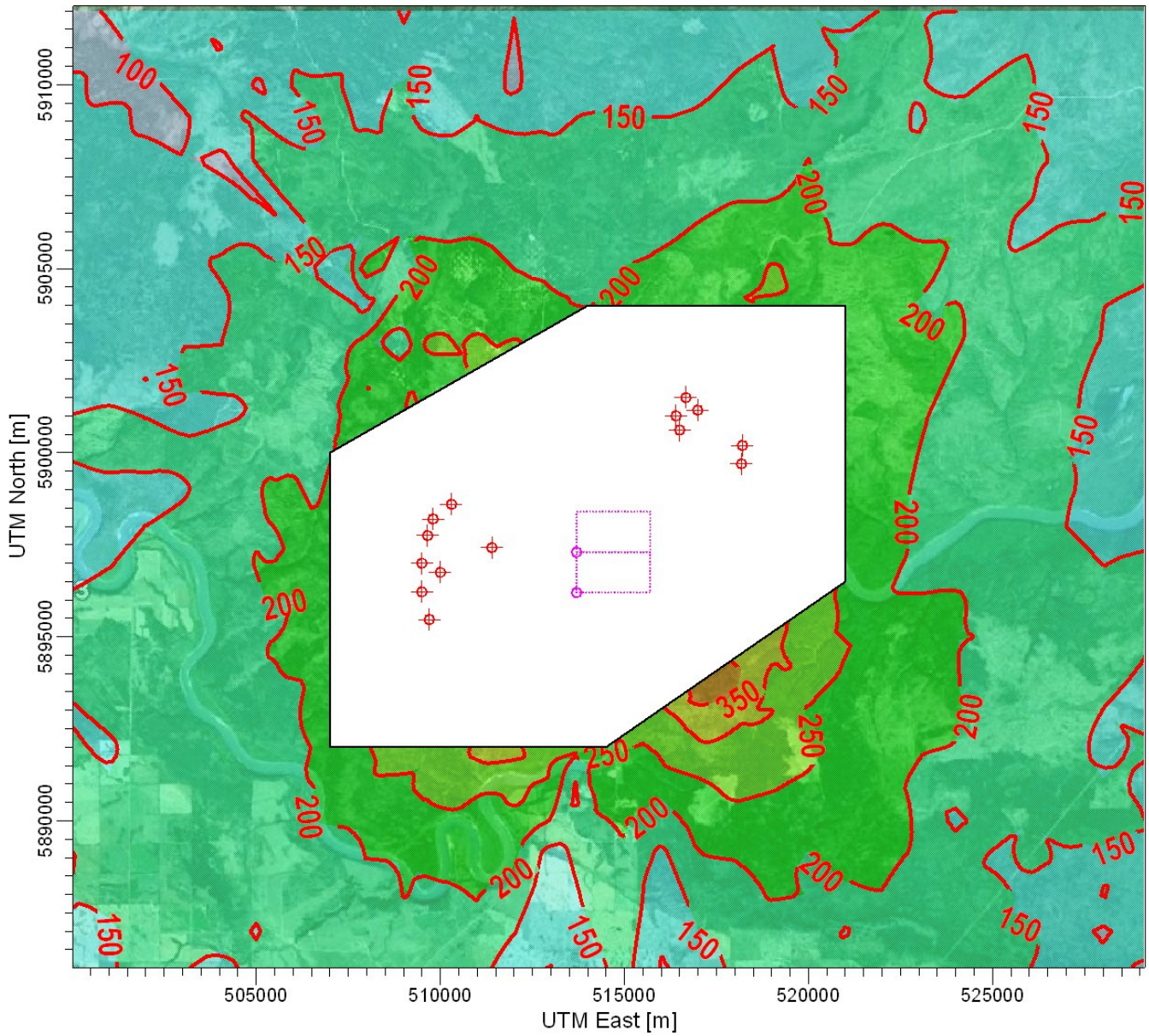
<p>COMMENTS:</p> <p>Particulate matter monthly deposition g/m² beyond the fence line.</p> <p>AAQO for monthly dust deposition is 20 g/m².</p>	<p>SOURCES:</p> <p>12</p>	<p>Star-Orion South Diamond Project</p>	
	<p>RECEPTORS:</p> <p>1064</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>	
	<p>OUTPUT TYPE:</p> <p>Dry Depos.</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0 5 km</p>	
	<p>MAX:</p> <p>0.63579 g/m²</p>	<p>DATE:</p> <p>11/12/19</p>	<p>Figure 6.2.2-4</p>

Dispersion Modelling of Particulate Matter Annual Dust Deposition



<p>COMMENTS:</p> <p>Annual particulate matter precipitation rate in g/m² beyond the fence line.</p> <p>Annual dust precipitation objective has not been developed.</p>	<p>SOURCES:</p> <p>12</p>	<p>Star-Orion South Diamond Project</p>	
	<p>RECEPTORS:</p> <p>1064</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>	
	<p>OUTPUT TYPE:</p> <p>Dry Depos.</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0  5 km</p>	
	<p>MAX:</p> <p>14.55627 g/m²</p>	<p>DATE:</p> <p>11/12/19</p>	<p>Figure 6.2.2-5</p>

**Dispersion Modelling of Nitrogen Oxides
One-hour Average**



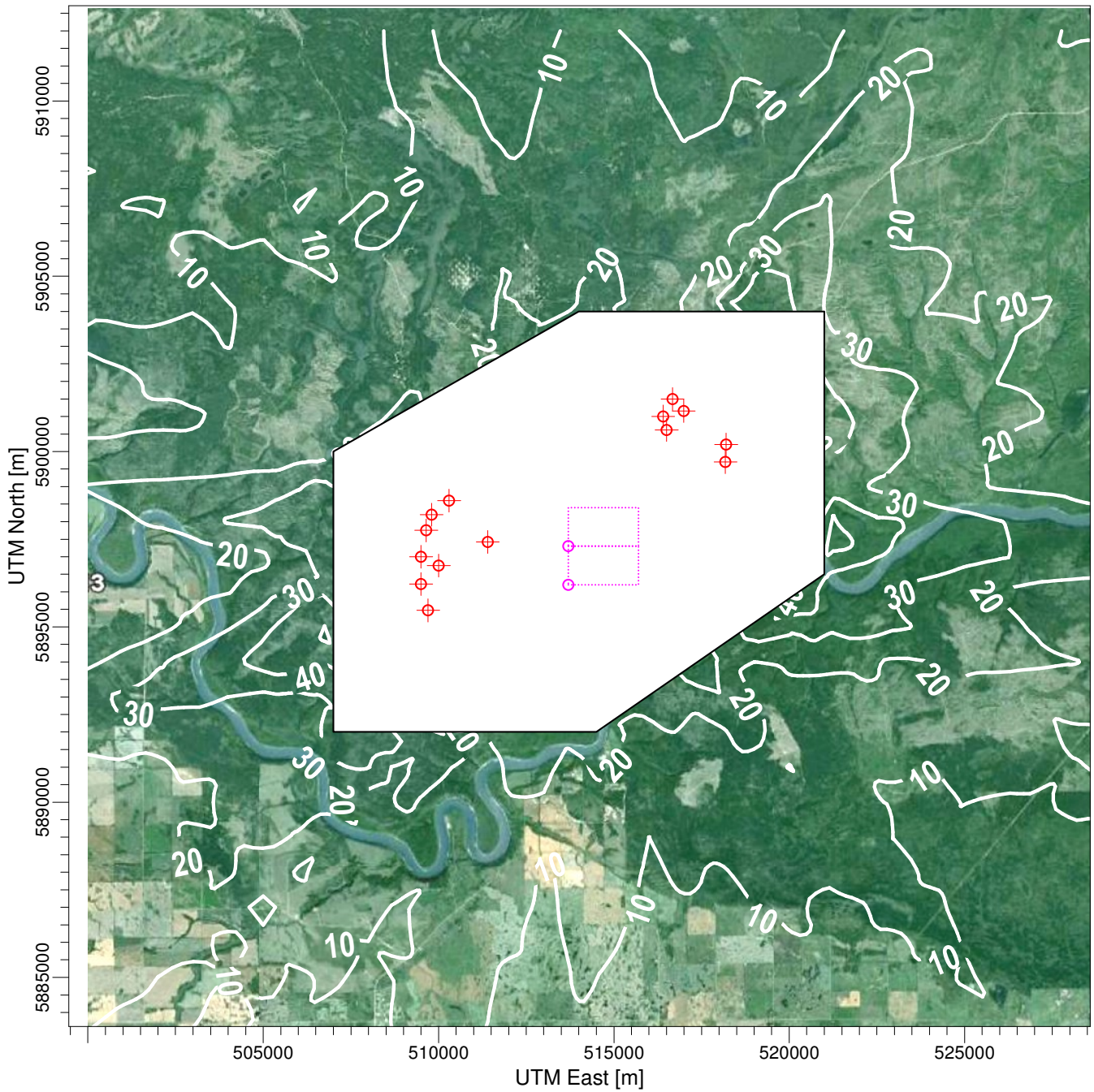
PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL

ug/m³



<p>COMMENTS:</p> <p>The highest concentrations in $\mu\text{g}/\text{m}^3$ beyond the fence line.</p> <p>AAQO for NO₂ 1-h average is 400 $\mu\text{g}/\text{m}^3$</p>	<p>SOURCES:</p> <p>16</p>	<p>Star-Orion South Diamond Project</p>		
	<p>RECEPTORS:</p> <p>1051</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>		
	<p>OUTPUT TYPE:</p> <p>Concentration</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0 5 km</p>		
	<p>MAX:</p> <p>398.05378 $\mu\text{g}/\text{m}^3$</p>	<p>DATE:</p> <p>11/12/15</p>	<p>Figure 6.2.2-6</p>	

**Dispersion Modelling of Nitrogen Oxides
24-hour Average**



COMMENTS:

The highest concentrations in $\mu\text{g}/\text{m}^3$ beyond the fence line.

AAQO for NO_2 24-h average is $200 \mu\text{g}/\text{m}^3$

SOURCES:

16

RECEPTORS:

1051

OUTPUT TYPE:

Concentration

MAX:

53.53844 $\mu\text{g}/\text{m}^3$

Star-Orion South Diamond Project

AMEC PROJECT NO:

SX03733

SCALE:

1:175,000

0 5 km

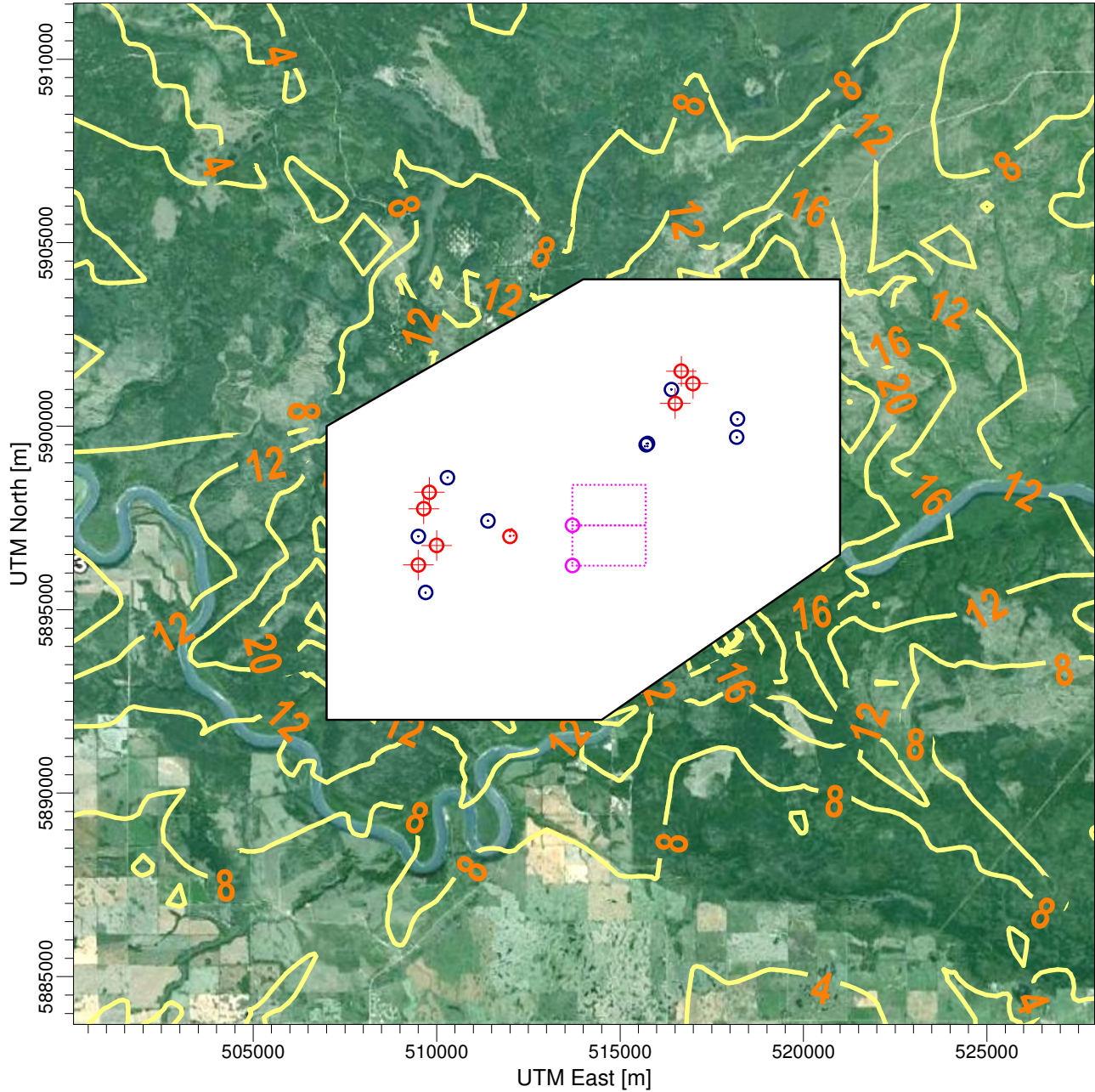
DATE:

11/12/15



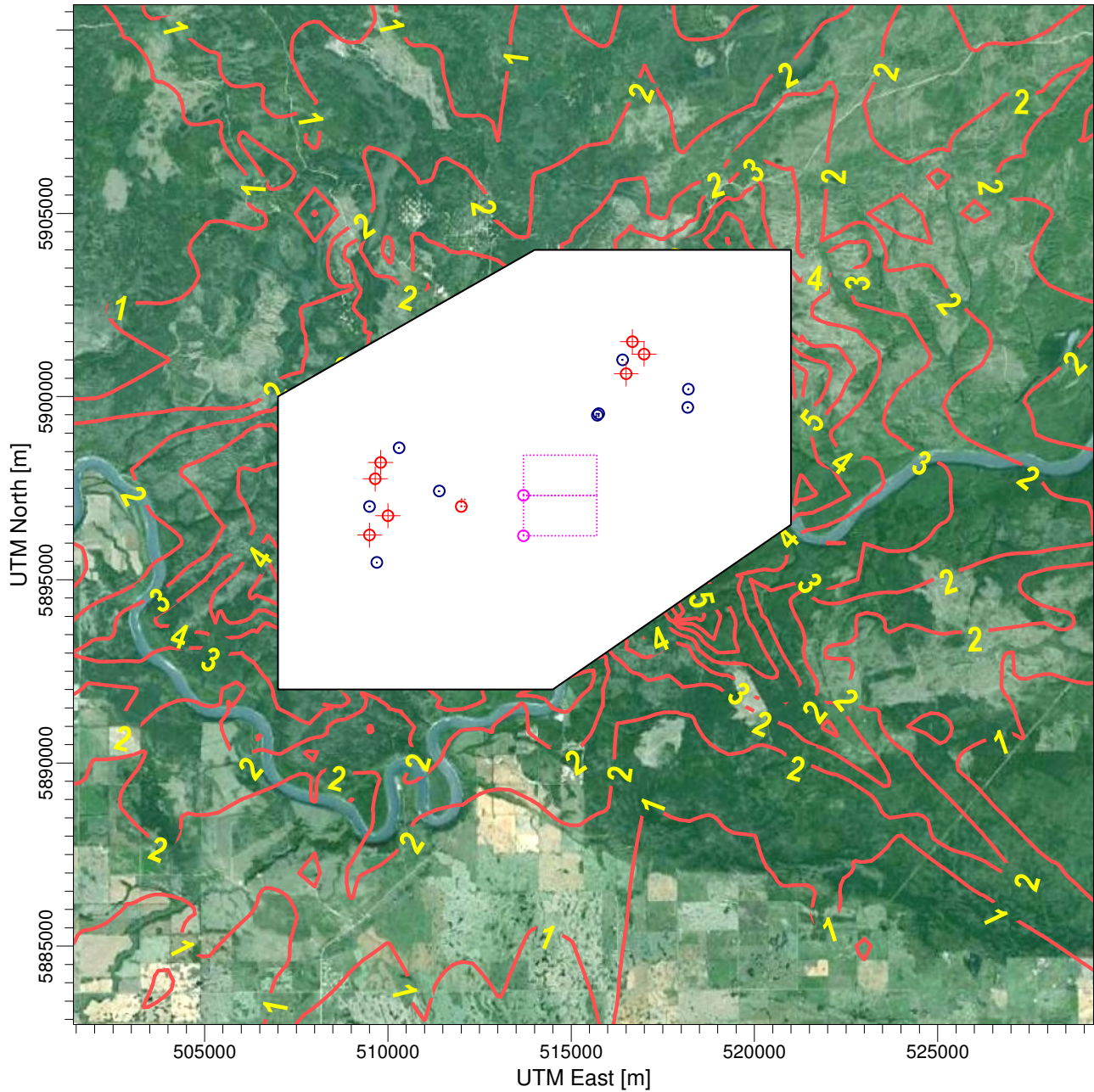
Figure 6.2.2-7

**Dispersion Modelling of PM10
24-hour Average**



<p>COMMENTS:</p> <p>The highest concentrations in $\mu\text{g}/\text{m}^3$ beyond the fence line.</p> <p>The AAQO for PM10 24 h average is $50 \mu\text{g}/\text{m}^3$</p>	<p>SOURCES:</p> <p>19</p>	<p>Star-Orion South Diamond Project</p>	
	<p>RECEPTORS:</p> <p>1292</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>	
	<p>OUTPUT TYPE:</p> <p>Concentration</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0 5 km</p>	
	<p>MAX:</p> <p>28.54014 $\mu\text{g}/\text{m}^3$</p>	<p>DATE:</p> <p>11/12/16</p>	<p>Figure 6.2.2-8</p>

**Dispersion Modelling of PM2.5
24-hour Average**





<p>COMMENTS:</p> <p>The highest concentrations in $\mu\text{g}/\text{m}^3$ beyond the fence line.</p> <p>The AAQO for PM2.5 24 h average is $30 \mu\text{g}/\text{m}^3$</p>	<p>SOURCES:</p> <p>19</p>	<p>Star-Orion South Diamond Project</p>	
	<p>RECEPTORS:</p> <p>1292</p>	<p>AMEC PROJECT NO:</p> <p>SX03733</p>	
	<p>OUTPUT TYPE:</p> <p>Concentration</p>	<p>SCALE:</p> <p>1:175,000</p> <p>0  5 km</p>	
	<p>MAX:</p> <p>6.17414 $\mu\text{g}/\text{m}^3$</p>	<p>DATE:</p> <p>11/12/16</p>	<p>Figure 6.2.2-9</p>



Figure 6.2.2-10: Typical Application of Dust Suppressant

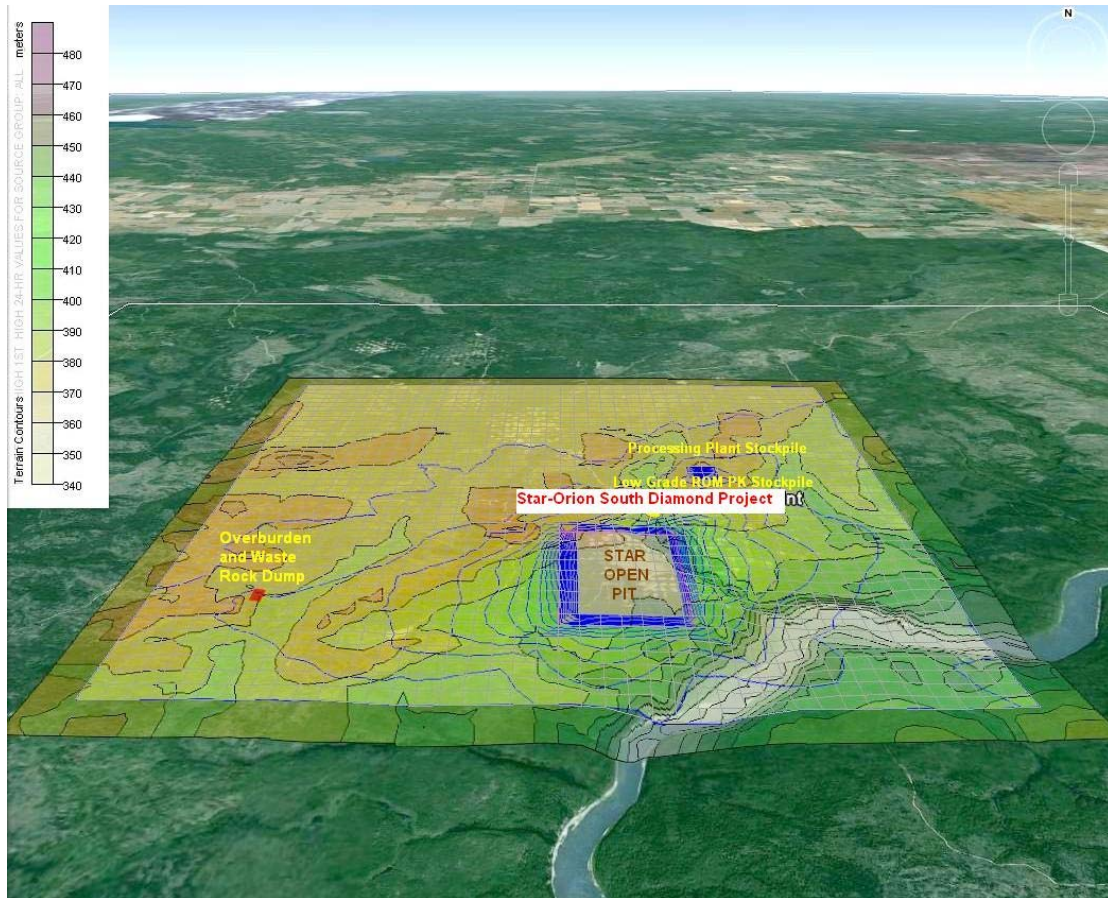


Figure 6.2.2-11: Project Study Area