

**Groundwater Monitoring Plan
Idaho-Maryland Mine Project**

**Prepared
for
Rise Grass Valley Inc.**

**Prepared
by
Itasca Denver, Inc.
143 Union Boulevard, Suite 525
Lakewood, Colorado**

#4091

February 2021



TABLE OF CONTENTS

	<u>Page</u>
LIST OF FIGURES	iii
LIST OF APPENDICES	iv
LIST OF ABBREVIATIONS	v
CERTIFICATION	vi
1.0 INTRODUCTION	1
2.0 BACKGROUND.....	4
3.0 POTENTIAL MONITORING FOR PROTECTION OF GROUNDWATER USERS	6
4.0 MONITORING WELL LOCATIONS	7
5.0 DRILLING AND MONITORING WELL INSTALLATION METHODS	9
6.0 HYDRAULIC TESTING OF MONITORING WELLS	12
7.0 LONG-TERM WATER-LEVEL MONITORING METHODS.....	13
8.0 WATER-QUALITY SAMPLING.....	14
9.0 DATA MANAGEMENT AND REPORTING	16
10.0 REFERENCES.....	18
FIGURES	
APPENDICES	

LIST OF FIGURES

- Figure 1 Proposed Groundwater Monitoring Well Locations
- Figure 2 Changes in Groundwater Levels with Time as a Result of Dewatering
- Figure 3 Example of a Groundwater Monitoring Well Construction Diagram

LIST OF APPENDICES

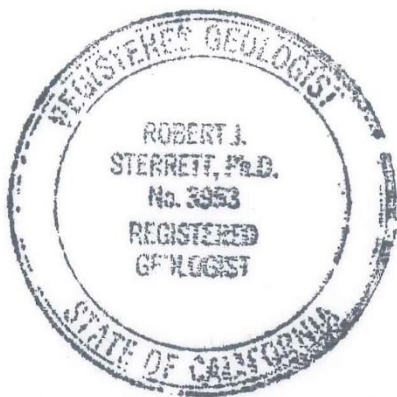
- A Approximate Places for Monitoring Locations 7 through 15

LIST OF ABBREVIATIONS

bgs	below ground surface
ft	feet
GMP	Groundwater Monitoring Plan
ORP	oxidation-reduction potential
USCS	Unified Soil Classification System

CERTIFICATION

The work that is described in this report has been undertaken under the direction of the registered geologist whose stamp and signature appear below.

A handwritten signature in blue ink that reads "Robert J. Sterrett".

Robert J. Sterrett, Ph.D., R.G.
California Registered Geologist #3953

1.0 INTRODUCTION

This Groundwater Monitoring Plan (GMP) was prepared by Itasca Denver, Inc. (Itasca) on behalf of Rise Grass Valley Inc. (Rise) for the Idaho-Maryland Mine Project (Project), located in Nevada County, California. The purpose of this GMP is to present locations, methods, and procedures for the installation of groundwater monitoring wells to provide data for assessing groundwater conditions during dewatering of mine workings and mining operation at the Project. The GMP includes the installation of monitoring wells across the Project site at 15 different locations. Each location will consist of a shallow (approximately 100 feet [ft] below ground surface [bgs]) and a deep (approximately 300 ft bgs) pair, for a combined total of 30 monitoring wells. The scope of the GMP includes the following items:

1. Groundwater monitoring-well locations will be provided with respect to predicted mining-induced drawdowns and domestic well locations.
2. The spatial distribution of monitoring wells, along with data collection and analysis procedures, will be used to validate the results of the predictive groundwater modeling.
3. The data and model will be used to assess whether mining-induced impacts occur to domestic wells in perimeter areas and to provide early warnings of unanticipated groundwater drawdowns throughout the life of mine operations.
4. The procedures and methods used to drill and construct monitoring wells will be provided.
5. The methods used for long-term water-level monitoring will be provided.
6. The methods used to sample these wells for water chemistry analysis will be presented.
7. The methods of how data from these wells will be recorded, analyzed, and reported will be presented.

The primary objective of this GMP is to collect sufficient data on groundwater levels to provide assurance to private well owners located in the vicinity of the Project that unanticipated drawdown impacts to their wells would be identified through long-term monitoring that would achieve the objectives of Policy 17.12 of the Nevada County General Plan. The GMP would allow for Rise to make actionable decisions regarding potential water-level impacts on domestic wells and other water resources in the vicinity of the Project area.

According to EMKO's analyses, the reduction of water columns in domestic wells by 20% to 40% could cause unstable well production rates. In the prediction of potential impacts of Rise mining operations on each individual domestic well, EMKO applied a 100% safety factor by using a 10% reduction of water column as the criterion for the assessment of the potential impacts. By using the 100% safety factor, EMKO (2020) has concluded that, in the perimeter areas outside of the E. Bennett area, future mining operations at the Project will not have significant impacts on groundwater supplies. However, Policy 17.12 assigns the burden of proof to Rise to demonstrate that the operation does not adversely impact the supply of water to homes or businesses. The GMP is designed to provide the necessary data to demonstrate groundwater-level changes throughout the operation of the Project and whether these changes can be attributed to the Project.

The locations of the monitoring wells were selected in order to provide spatial coverage throughout the Project and adjacent areas. Water-level monitoring, as described later in this plan, will start prior to the dewatering of the existing underground workings. Trends in water levels measured at specific locations will be interpolated between measurement locations. Changes in water levels at a particular place can then be analyzed as to whether the changes are due to natural variations, operations of domestic water-supply wells, or mine-dewatering operations.

Assessment of impacts of water-level changes in domestic wells is difficult to perform when examining each domestic well on an individual basis because of operational and depth considerations for each well. In order to understand water-level fluctuations within the well, one must know how the well is completed and screened. The fluctuations of the water levels for each domestic well are controlled by the pumping rate, and it is not easy to obtain accurate pumping rates for a domestic well over time. Measuring well yields from domestic wells as an indicator of potential impacts from mining is not recommended because well yields or specific capacities of the well will not indicate impacts due to mining. Specific capacity is defined as the pumping rate (e.g., gallons per minute) divided by the drawdown, which is usually measured in feet. Specific capacities of wells can be influenced by many factors, such as mineral encrustation of the well screen, a

malfunctioning pump, or biofouling of the well screen due to bacterial growth within the screen or well. These influences cannot be attributed to Rise's operations. The primary impact on a domestic well that may be attributed to the mining operations by Rise would be a decline of the water level in the well that is sufficient enough to reduce its use to provide an adequate water supply.

The network of monitoring wells proposed by Rise is designed to monitor groundwater-level changes on a comprehensive scale across the entire Project site, where potential groundwater changes from mining activities may occur. Itasca notes that this groundwater monitoring plan will be followed by an implementation plan that will specify the permits required for the drilling contractor, the analytical laboratory, and other operational details required to install the monitoring wells. Standard operating procedure documents that provide more details on drilling, water-level measurement, and sampling will also be produced.

2.0 BACKGROUND

The Idaho-Maryland Mine is located in Nevada County, California, and is close to the city limits of Grass Valley. The surface-land property of the Project mineral right is 175 acres and includes two industrial sites, Brunswick and Centennial. These two sites had historical mining operations from the late 19th century through the early 1950s and encompass the historical Idaho-Maryland and Brunswick Mines. Some mine workings extend to a depth of 3,300 ft bgs, and the mine workings are currently flooded. As gold mineralization is still present, the current plan of operations for Rise includes dewatering the mine workings of the mine and expanding the former underground operations to deeper depths. In order to restart mining operations, the currently flooded underground workings will be pumped dry, and the new mining operations will be conducted in both the old workings and the new proposed workings until closure. No active dewatering wells are planned for the Project. The seepage to the mine workings will be pumped through an underground sump system.

Future mining operations at the Project site are predicted to result in a drawdown of groundwater levels in the vicinity of the Project. The timing, extent, and degree of drawdowns of groundwater levels may be of concern to domestic groundwater users within the affected areas. Previous studies (Itasca 2020) have provided the predicted extents of drawdown associated with the mining activities of the Project using a numerical groundwater flow model. Figure 1 shows the predicted extents and values of drawdowns relative to domestic-well locations in the proximity of the Project.

By including a safety factor of 100% in their calculations, or 10% reduction of the current water column of each well, EMKO (2020) has concluded that, in the perimeter areas outside of the E. Bennett area, the mining operations by Rise will not have any significant impact on groundwater supplies. The analysis by EMKO indicated that reductions in the water column of a domestic well of more than 20% to 40% could cause the production rates of the well to become unstable. Rise plans to install potable water lines in the E. Bennett area to mitigate any mining-related impacts to domestic wells in this area. In perimeter areas outside of the E. Bennett area, EMKO calculated,

using predicted drawdowns from Itasca's model, that the drawdowns in wells would range from 0.3% to 6.7% of the total water column. This range is much less than the range of 20% to 40% reduction that is determined to be significant (EMKO 2020) and is lower than the 10% reduction with the inclusion of a 100% safety factor.

The predicated drawdowns in the perimeter areas, ranging from 1 to 5 ft, are very small in comparison with the normal seasonal variations of groundwater levels in wells, which range from 10 to 50 ft (EMKO 2020).

3.0 POTENTIAL MONITORING FOR PROTECTION OF GROUNDWATER USERS

As stated previously, the locations of the monitoring wells were selected in order to provide spatial coverage throughout the Project and adjacent areas. Monitoring well locations range from within areas of higher predicted drawdowns to outlying areas with minimal predicted drawdowns. In fact, two monitoring locations are outside areas of the predicted 1-ft drawdown isopleth. The dewatering of the existing mine workings, prior to the commencement of actual mining, is analogous to a large-scale pumping test that is a common tool in the field of hydrogeology to assess how drawdowns in the water-bearing zones, for example, the fractured bedrock at the Project site, propagate with time as a result of pumping. Figure 2 is an example of how groundwater levels change with time as a result of dewatering from a tunnel. The drawdown region will radiate from the area above the existing mine as pumping continues. The amount of drawdown and extents will increase with time until the amount of water extracted equals the amount of recharge within the water-bearing zone.

Monitoring wells in closer proximity to the mine will generally experience drawdowns before wells farther away. The measurements of water levels in the monitoring wells can be used to verify the groundwater drawdowns as dewatering progresses to provide sufficient time to predict adverse impacts to domestic wells before they occur so that appropriate mitigation measures can be implemented. The water-level data will also be used to validate the predictions of the groundwater flow model.

4.0 MONITORING WELL LOCATIONS

The locations of monitoring wells were determined based on the groundwater-level drawdowns that are predicted to occur as the result of mining activities, the locations of domestic wells, and access conditions. The predicted groundwater drawdowns were estimated using a numerical groundwater flow model and are presented in Itasca (2020). This report also shows the locations of domestic wells within the Project area. The predicted groundwater drawdown, domestic well locations, and proposed monitoring-well locations are presented in Figure 1.

The proposed monitoring well locations were selected to be in proximity to areas where the greatest groundwater drawdowns are predicted to occur in the vicinity of identified domestic wells. Groundwater drawdowns in areas to the northwest of the Project are within the City of Grass Valley. Though groundwater drawdowns in this northwest area may occur as presented in Itasca (2020), the predicted drawdowns do not have material effects on domestic wells, as water supply is provided by a municipal distribution system. Some monitoring wells are located away from areas of predicted drawdowns to serve as background locations to monitor seasonal and long-term groundwater levels in areas that are not predicted to be affected by mining activities. These monitoring wells consist of wells 2, 3, 12, and 15, as shown in Figure 1.

Each monitoring well location presented in Figure 1 will consist of a shallow and a deep well installation. This “shallow/deep” pairing method is designed to assess changes in vertical water levels and gradients that may occur as the result of mining activities. Shallow monitoring wells will be installed to depths of approximately 100 ft, and deep monitoring wells will be installed to depths of approximately 300 ft. The exact installation depths will vary between each well pair and will be determined based on observed groundwater conditions during the field installation activities. Each pair of shallow and deep monitoring wells will be laterally separated from each other by a distance of 10 to 20 ft.

Fifteen monitoring well locations were selected, with nine (well numbers 7 through 15 in Figure 1) on county right-of-way lands to minimize issues associated with private-property access and physical access. Six of the locations (well numbers 1 through 6 in Figure 1) are sited on property owned by Rise. Locations may be moderately adjusted to minimize disruption to road users or county preferences and still achieve the objectives of the GMP. Appendix A shows approximate aerial and ground-level places for proposed monitoring-well locations 7 through 15. These locations are outside the properties controlled by Rise.

5.0 DRILLING AND MONITORING WELL INSTALLATION METHODS

Drilling at each location will be performed using an appropriate method based on the anticipated depth to water and bedrock. Although this method is to be determined based on logistical and operational constraints, it is likely to be either a reverse air rotary or percussive method.

Each monitoring well will be constructed to the following specifications:

1. Each monitoring well will be installed vertically with centralizers.
2. Nominal well diameter will be 4 inches and borehole diameters will be nominally 8 inches.
3. Casing and well screens will consist of flush threaded SCH80 PVC using no couplings or solvent material for assembly.
4. Screen slot size will be 0.02 inches (020 slot), with horizontal factory-cut slots.
5. Total screen length will vary from 10 to 20 ft, depending on anticipated seasonal, long-term, and mine-induced changes in groundwater levels at that specific location. In general, a 10-ft screened section will be used in the deep wells and a 20-ft screened section in the shallow wells.
6. An appropriately sized filter pack will be installed around the well screen and will extend to 3 ft above the top of the screened zone and surround the bottom of the well.
7. Above the screened interval, a blank PVC riser will extend to the ground surface. The PVC riser will also be flush threaded, and each joint will be sealed with an appropriate O-ring gasket on the threads.
8. Wells will be completed as flush-mounted, traffic-rated, and weatherproof enclosures at the ground surface. Wells in areas that are not high-traffic zones will be completed as above-ground installations.
9. Each well that is not in a roadway will be completed with a surface pad that slopes away from the well casing or well vault to shed incident ponding water. This surface pad will consist of concrete poured in a form and appropriately tooled in a professional and orderly manner. If the well location is in a roadway, the well completion will conform to the surrounding materials (e.g., asphalt).
10. Monitoring wells will be equipped with a locking cap and security access system. Wells will be secured using a single-key weather-resistant lock on the surface protective casing or on the compression cap within the well vault.

11. Each well will have a notched and marked survey location on the inner well casing that will serve as the datum point and elevation control mark.
12. All well construction materials will be new and delivered in factory-sealed plastic wrap to ensure they are clean.

Figure 3 shows a schematic diagram for a flush-mounted monitoring well design that incorporates the points mentioned above.

Prior to drilling, each well location will undergo a subsurface utility-location survey to ensure no damage to subsurface utilities or infrastructures will occur as a result of drilling. The top 5 ft of material at each location will be hand augured or excavated to confirm the absence of subsurface utilities. Well locations may be relocated to avoid subsurface utilities, if identified.

Wells will not be located in areas where drilling is deemed unsafe due to overhead utilities, ground conditions, traffic, or other potential access-related hazards. All drilling locations will be assessed for vehicular and pedestrian traffic hazards, and a traffic control plan will be implemented, if required.

Drilling and well installation activities will be performed under the supervision of a California-Registered Geologist. All activities will conform to applicable state, municipal, and county regulations. Drilling and well installations will be performed by a California-licensed driller. Drilling will be done during daytime hours to ensure minimal disruption from noise.

After the drilling is completed, each borehole will be surveyed with a downhole camera to assess geologic conditions within the borehole. It is anticipated that the borehole turbidity should be sufficient for the use of the optical televiewer method. However, an acoustic televiewer method may be used if optical methods are ineffective.

During drilling operations, drill cuttings will be logged by a geologist. Logging will consist of Unified Soil Classification System (USCS) classifications for soil-type geologic materials and rock

classifications for bedrock materials. The presence or absence of groundwater will be noted, including perched water-table conditions as well as saturated groundwater conditions.

All drilling and excavation cuttings or waste materials will be containerized and properly disposed off-site. Cuttings and excavated materials from drilling sites with known metals impacts (e.g., the Brunswick Industrial Site) will be disposed according to regulations and guidelines. The ground surface in the vicinity of the borings will be covered with ground cloths to contain cuttings or other waste materials.

Well installation will consist of the following steps:

1. Completion of drilling activities to the appropriate depth.
2. Installation of the PVC well string (basal point, screen, riser).
3. Installation of the filter pack material in the annular space around the screen using a wash-down tremie method and tag line technique.
4. Placement of a layer of finer-grained sand overlying the filter pack sand as a grout intrusion barrier.
5. Placement of a bentonite layer above the filter pack using a gravity washdown or tremie method. The bentonite layer will be 5 ft in thickness. Bentonite material will consist of compacted chips or pellets, as appropriate.
6. Installation of a bentonite and cement grout material to surface. This grout will be pumped in as a liquid slurry.
7. Completion of the surface pad using concrete or other appropriate material. Surface pad concrete will extend into the monitoring well annular space to a depth of twice the anticipated freeze/thaw boundary or to a depth of 5 ft, whichever is greater.

Approximately 24 to 48 hours after each monitoring well is constructed, the well will be developed using a wireline bailer and submersible pump until field parameters of the removed fluid (e.g., turbidity, specific conductance, and pH) have stabilized and at least five well bore volumes have been removed. Slow-yielding wells may require multiple development efforts.

6.0 HYDRAULIC TESTING OF MONITORING WELLS

After each monitoring well has been installed and developed, the wells will undergo a hydraulic test to obtain hydraulic-conductivity information. Hydraulic testing will consist of a rising- and falling-head displacement test, commonly referenced as a slug test. The hydraulic test will be performed using a mechanical slug introduction/withdrawal method. Water levels during the hydraulic test will be measured using a downhole data-logging transducer supplemented by manual measurements using an electric water-level probe.

Data from the hydraulic tests will be analyzed using a variety of techniques depending on the hydrogeologic conditions of each well. The end result of these analyses will be a calculation of the hydraulic conductivity across the screened-zone interval for each well. These data can be used to supplement groundwater modeling updates and estimates of groundwater drawdowns related to mining activity.

7.0 LONG-TERM WATER-LEVEL MONITORING METHODS

Each monitoring well will be equipped with a downhole submersible data logger that will record water levels over time. The data logger will be programmed to collect water-level information on a periodic basis, such as once every 1 to 4 hours. The data logger will be placed at an appropriate depth, depending on the depth to groundwater, using a stainless-steel deployment cable suspended from the well cap. To retrieve water-level information, the data logger will be removed and the collected information will be downloaded to a field computer. The transducer will be non-vented and the retrieved data will be corrected using a surface-mounted barometric pressure data logger. A single surface barometric pressure recorder will be sufficient for the entire Project area, as barometric variations across the Project area will be minimal.

Water-level data will be collected from each data logger on a quarterly basis (every 3 months). These data will be used to construct graphs of water levels over time across the Project area. Rise plans to collect the measured groundwater levels for a minimum of 12 months before dewatering the existing flooded mine workings. Measured water levels over a 12-month time interval should be able to provide for baseline groundwater levels.

8.0 WATER-QUALITY SAMPLING

Because the mining activities will only lead to the drawdown of groundwater and thus not provide recharge to the domestic wells, the mining activities at the Project site should not affect the water quality of the domestic wells. However, Rise plans to collect water samples from installed monitoring wells for inorganic chemistry analysis. Although the goal of the GMP is primarily focused on groundwater-level monitoring, the wells may be periodically sampled for water-chemistry purposes, as judged appropriate. After completion of the initial installations, development, and hydraulic testing, each well will be sampled for water chemistry during an initial background sampling event. After the initial sampling, the wells will be sampled on a quarterly basis for the following three periods:

1. One year prior to the dewatering of the flooded underground workings,
2. During the dewatering of the flooded underground workings, and
3. During the first year of underground maintenance pumping after the flooded underground workings have been dewatered.

After the quarterly sampling events of these three periods, Rise plans to reduce the sampling frequency to twice per year depending on the monitored groundwater levels and quality conditions and approval from Nevada County.

Sampling will be performed using low-flow, low-drawdown methods as presented in the appropriate US Environmental Protection Agency or California State guidance documents. Specifically, sampling protocols will follow guidance documents for the State of California, including “Guidelines for Hydrogeologic Characterization of Hazardous Substances Release Sites, volumes 1 and 2” (Cal/EPA DTSC 1995) and “Representative Sampling of Groundwater for Hazardous Substances, Guidance Manual for Groundwater Investigations” (Cal/EPA DTSC 2008). Sampling will be performed using a positive displacement pump, such as a pneumatic bladder pump or equivalent. A sample will be collected after sufficient low-flow-rate purging has been performed and physical

parameters, such as pH, temperature, oxidation-reduction potential (ORP), and specific conductance, have stabilized. These parameters will be measured using a zero-air-contact flow cell, and samples will be placed directly into sample containers with the proper preservatives and without headspace in each container. Samples will consist of filtered and unfiltered aliquots. Samples will be cooled and shipped, under chain-of-custody procedures, on the day of collection to a California-certified analytical laboratory for analysis.

The specific constituents included in all sampling events will consist of the following parameters:

1. Field Parameters: pH, specific conductance, temperature, dissolved oxygen, ORP, hardness, and total alkalinity. These parameters will be determined in the field during sample collection and will also be determined via bench techniques by the analytical laboratory.
2. Major Cations: Sodium, potassium, calcium, and magnesium.
3. Major Anions: Chloride, sulfate, and bicarbonate.
4. Dissolved and Total Metals: Aluminum, antimony, manganese, arsenic, mercury, barium, nickel, beryllium, cadmium, selenium, silver, chromium, cobalt, thallium, copper, vanadium, iron, zinc, lead, and cyanide.
5. Nitrogen and Nutrient Compounds: Ammonium, nitrate, nitrite, phosphate, and total organic carbon.

9.0 DATA MANAGEMENT AND REPORTING

After completion of the initial well installations, hydraulic testing, and initial background sampling, a Groundwater Monitoring System Installation Report will be produced. This report will detail the following information:

1. Actual monitoring well installation locations, including location survey coordinates. These data will be recorded in tabular and graphical format. The graphical format will include a map of the installed well locations superimposed upon a map or aerial photograph. The locations of domestic wells, Project boundaries, and other relevant features will be included on this map. The map will serve as the basis for constructing potentiometric surface maps for baseline water levels.
2. Well-construction details, including actual screen interval depths, borehole diameters, and other construction details. This information will be compiled in tabular and graphical format. The installation details of each well will be summarized graphically on a well-completion diagram.
3. Borehole logs of material types encountered during drilling, including geological descriptions, depths, and USCS material classifications.
4. Hydraulic testing results, including field methods and raw data, analysis methodology, plots of test results, and a tabular listing of hydraulic test results.
5. Results of the background water-quality sampling analysis, including an appendix providing laboratory results, QA/QC sampling results, and chain-of-custody records. Water-quality results will be tabulated and will serve as reference background chemistry data.

Groundwater-level information obtained from the Project groundwater monitoring wells will be collected on a quarterly basis and used to generate the following information:

1. Water-level hydrographs for each well showing the water-level variations over the monitoring period and a comprehensive well hydrograph showing long-term water levels for each well over the entire monitoring period.
2. Potentiometric-surface contour maps showing the groundwater elevations across the site. These may be produced for a subset of the shallow wells and a second subset for the deeper wells if it is judged that the shallow and deep well systems are in separate water-bearing zones. Alternatively, a combined potentiometric map that includes both shallow and deep

well pairs may be constructed if it is judged that the shallow and deep wells are installed within the same water-bearing zone.

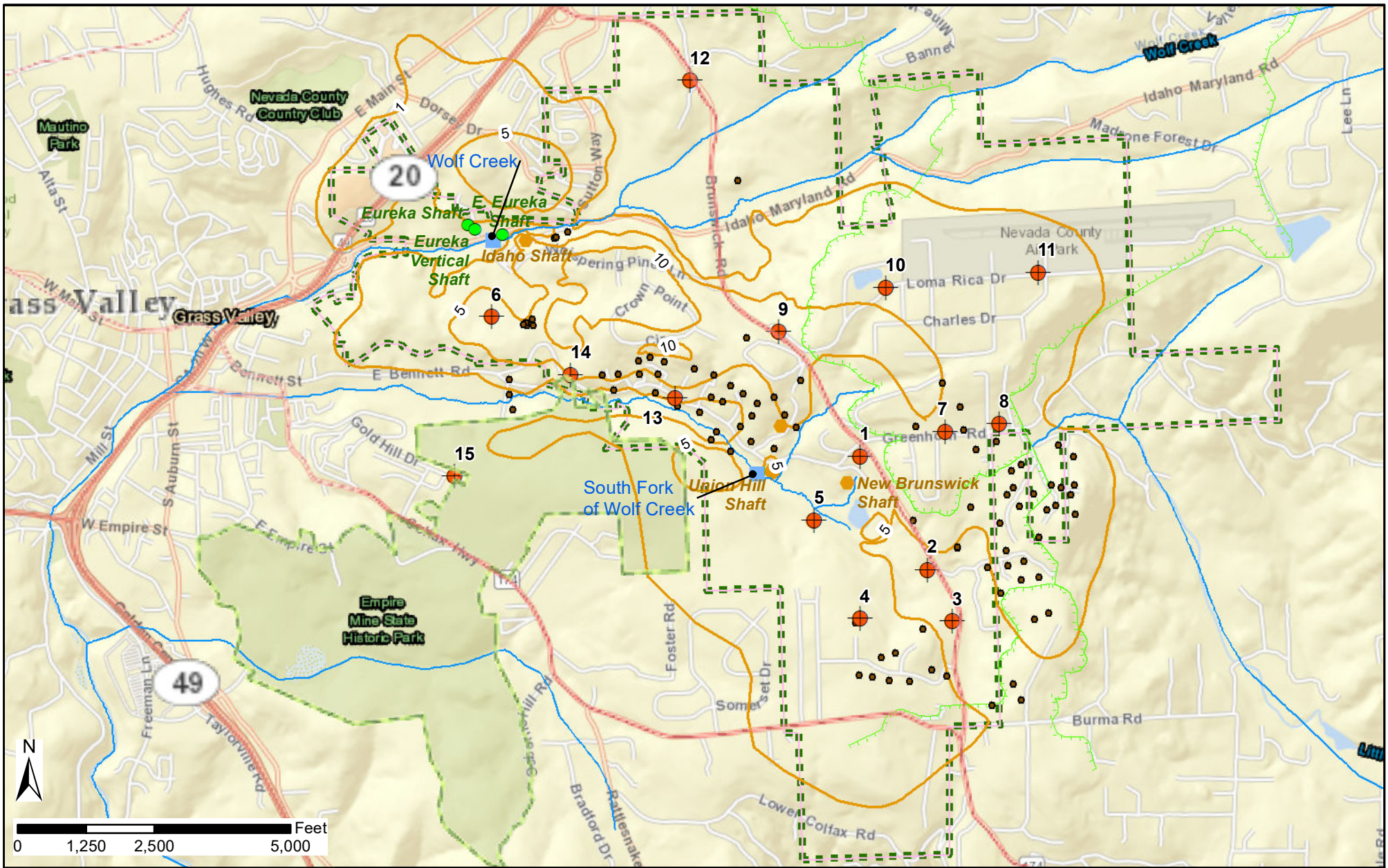
3. A projected water-level impact assessment for individual domestic wells will be performed once dewatering of the underground mine workings commences, based on responses of the measured groundwater levels of the Project monitoring wells. The projected groundwater drawdown will be estimated for each domestic well in the Project area. This impact assessment will be performed by tabulating the variation of the measured water levels from the Project monitoring wells over the monitoring period and during the dewatering of the underground mine workings and mining operations. For each domestic well, a projected and seasonally averaged water level will be estimated based on the domestic well location and the background potentiometric conditions, which will serve as a baseline groundwater level and will be developed prior to the initiation of dewatering of the underground mine workings.

Once these wells are installed and the initial background information is collected, Rise can make decisions regarding additional water-quality sampling activities, including locations, parameter lists, and frequencies, as appropriate. Water-level and water-quality data will be entered into an appropriate data management system. This data-management system will be updated on a quarterly basis upon receipt of the field and laboratory data.

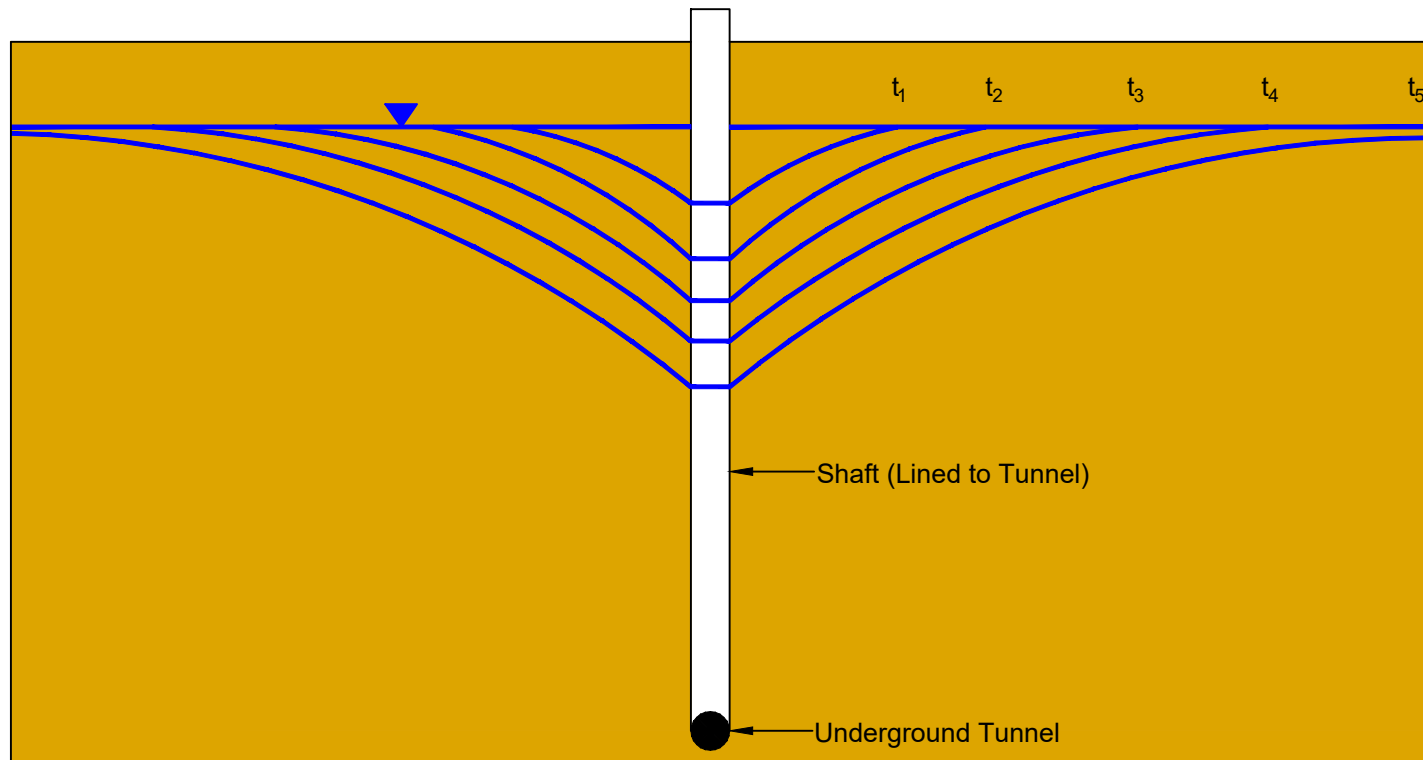
Rise plans to submit the quarterly monitoring reports to Nevada County in paper and electronic formats after each monitoring event. The reports will summarize the monitoring activities, the monitoring data, discussion of the background conditions, and changes to background and other groundwater conditions. Based on the analysis of the monitoring data, recommendations on the adjustment of the monitoring-well network, the monitoring frequency, and reporting format and frequency will be presented in a revised monitoring plan.

10.0 REFERENCES

- Cal/EPA DTSC. 1995. Guidelines for hydrogeologic characterization of hazardous substances release sites, volumes 1 and 2. California Environmental Protection Agency, Department of Toxic Substances Control.
- Cal/EPA DTSC. 2008. Representative sampling of groundwater for hazardous substances, guidance manual for groundwater investigations. California Environmental Protection Agency, Department of Toxic Substances Control.
- EMKO. 2020. Groundwater hydrology and water quality analysis report for the Idaho-Maryland Mine Project, Nevada County, California. Report prepared for Rise Grass Valley Inc. by EMKO Environmental, Inc., March.
- Itasca. 2020. Predictions of groundwater inflows to the underground mine workings at the Idaho-Maryland Mine. Report prepared for Rise Grass Valley Inc., by Itasca Denver, Inc. November.

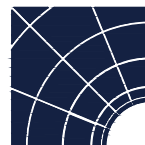


Legend Proposed Well Location Drawdown (ft) - End of Future Mining Mineral Rights Boundary Streamflow Monitoring Location	Wells Drains Shafts NID Canals Creeks	PROJECT NO.	4091	 ITASCA Denver, Inc.	Proposed Groundwater Monitoring Well Locations	
		BY	ES			
		CHECKED	HL		FIGURE NO. 1	
		DRAWN	NP			
		DRAWING NAME	ProposedWells			
DRAWING DATE	Dec. 18, 2020					
REVISION DATE						



Note: t_1 is early time and t_5 is later time

PROJECT NO.	4091
BY	RJS
CHECKED	HL
DRAWN	RJN
DRAWING NAME	GW
DRAWING DATE	16 DEC 2020
REVISION DATE	

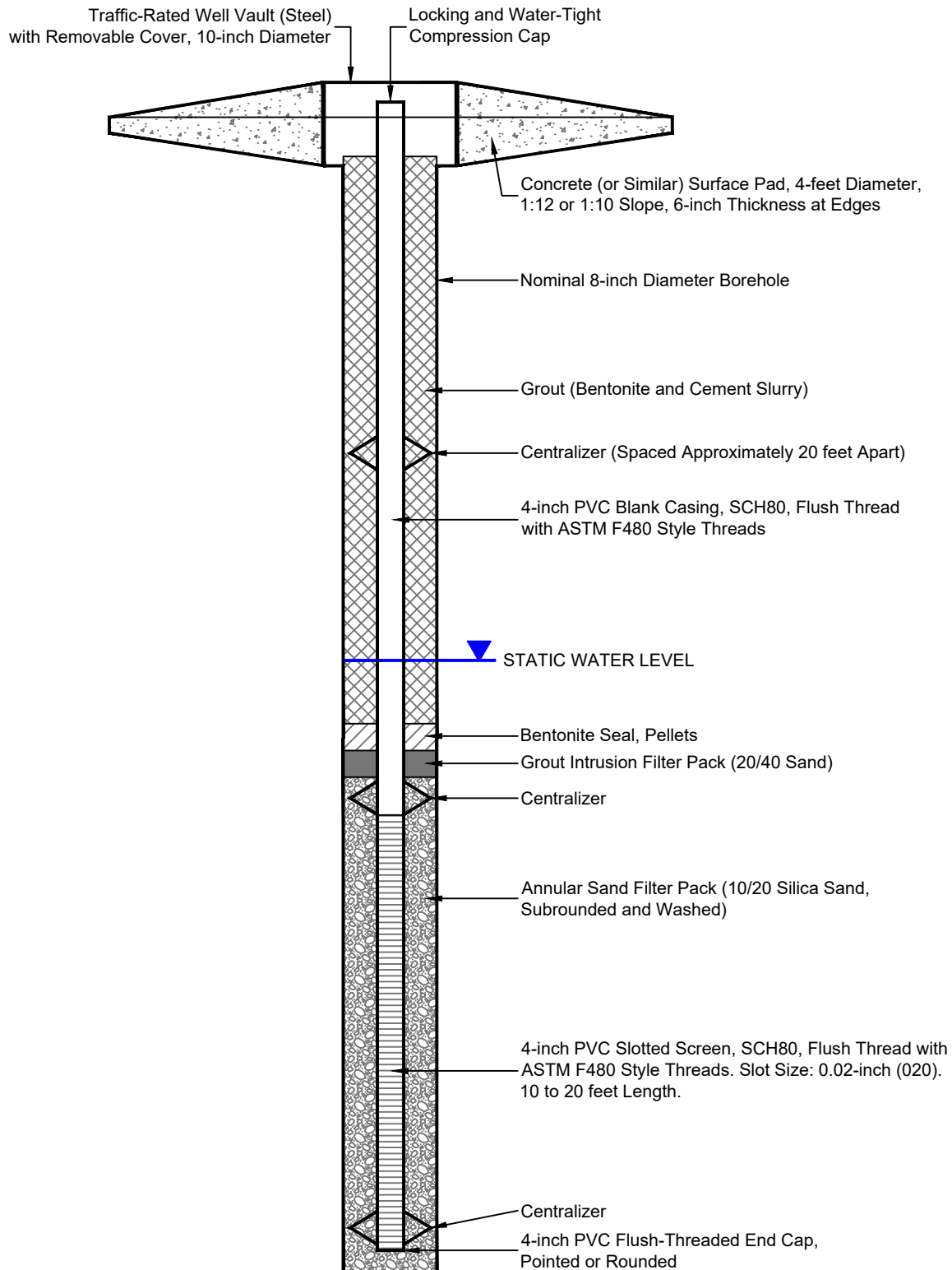


ITASCATM
Denver, Inc.

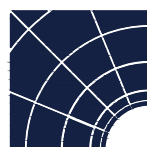
Changes in Groundwater Levels with
Time as a Result of Dewatering

CLIENT:
Rise Grass Valley Inc.

FIGURE NO.
2



PROJECT NO.	4091
BY	EES
CHECKED	HL
DRAWN	RJN
DRAWING NAME	WELL
DRAWING DATE	16 DEC 2020
REVISION DATE	



ITASCA[™]
Denver, Inc.

Example of a Groundwater Monitoring Well Construction Diagram

CLIENT:
Rise Grass Valley Inc.

FIGURE NO.
3

APPENDIX A

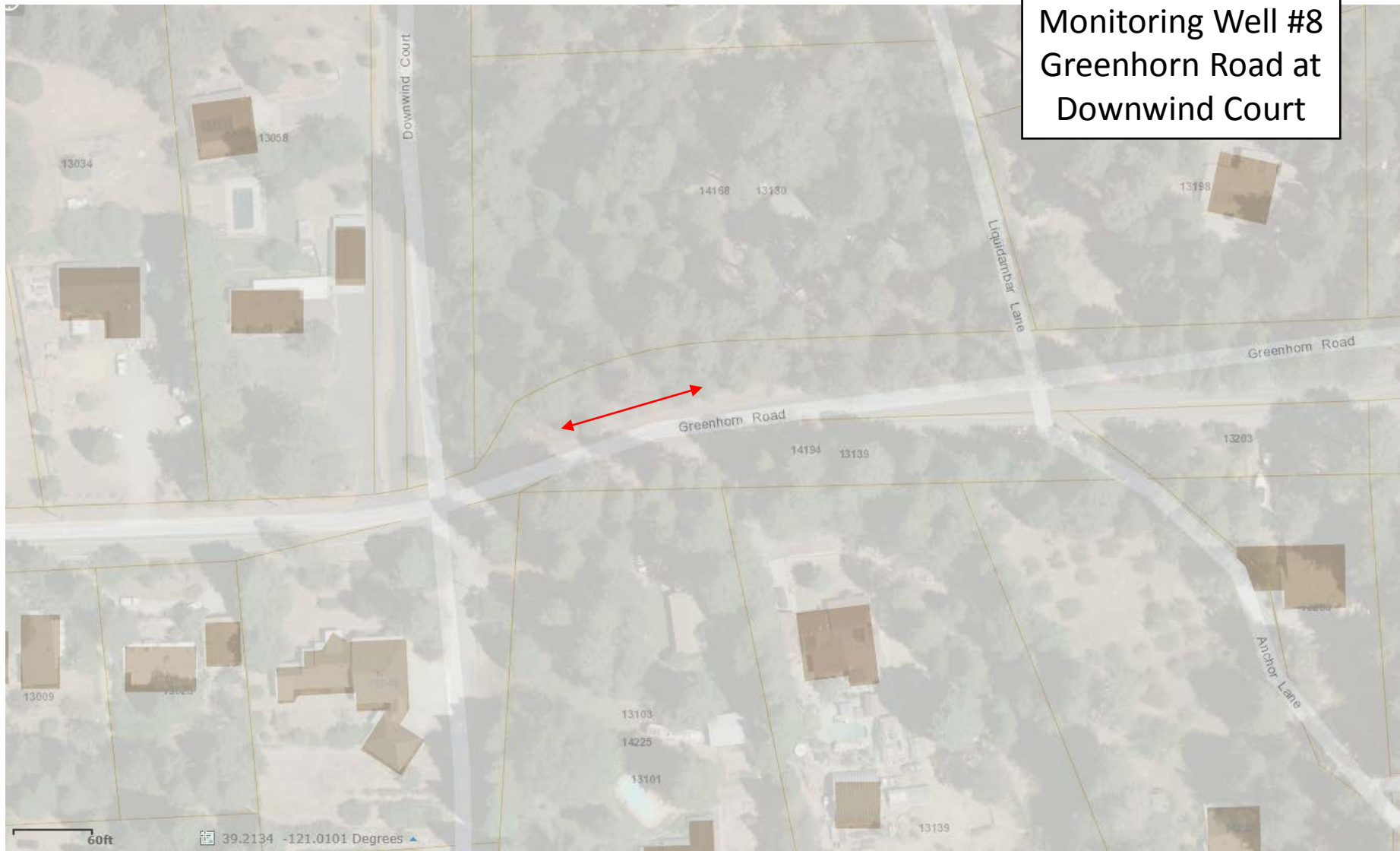
Approximate Places for Monitoring Locations 7 through 15



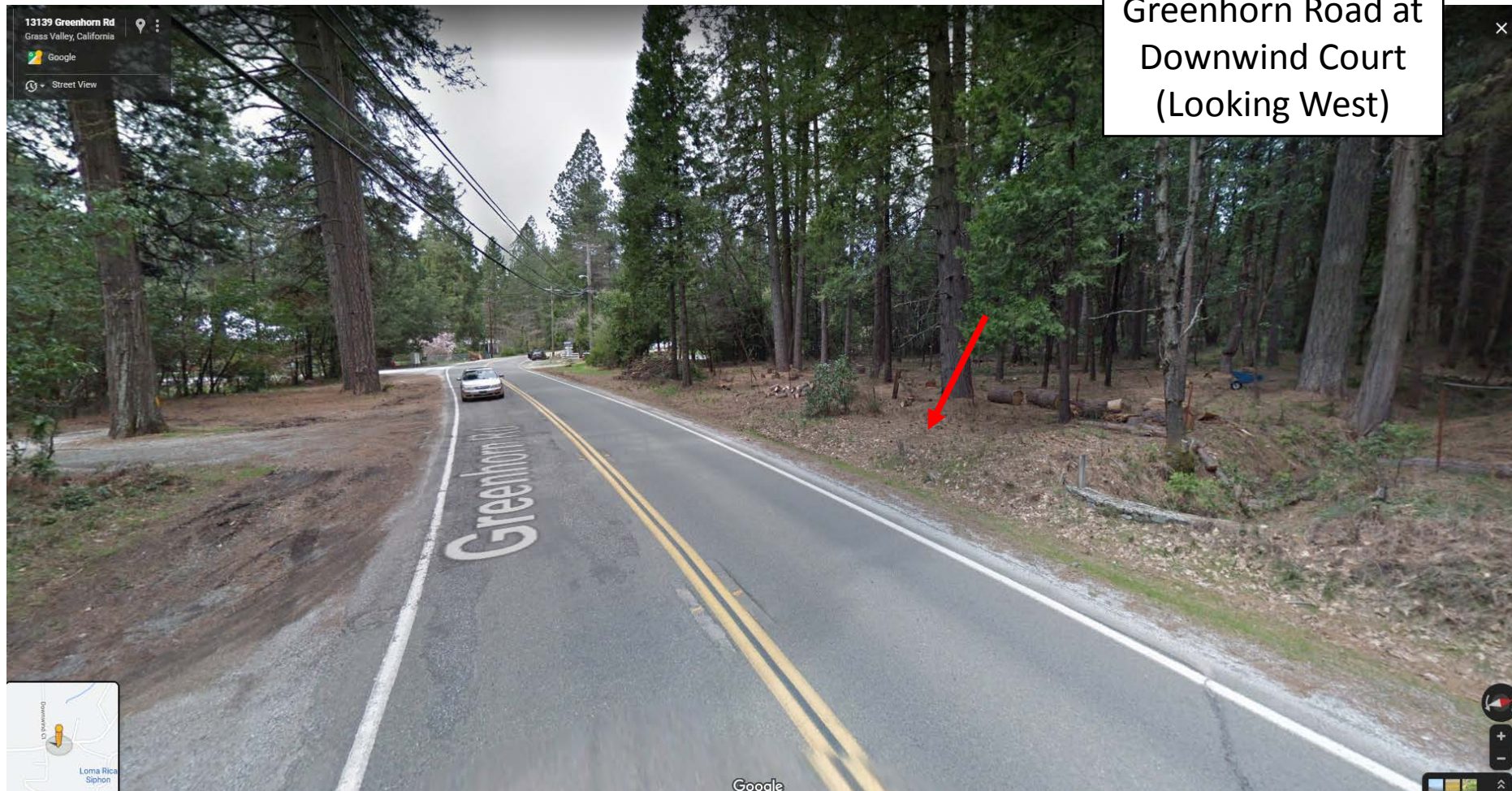


Monitoring Well #7
Greenhorn Road at
Star Drive
(looking East)

Monitoring Well #8
Greenhorn Road at
Downwind Court



Monitoring Well #8
Greenhorn Road at
Downwind Court
(Looking West)



Monitoring Well #9
Loma Rica Drive at
Brunswick Road



Monitoring Well #9
Loma Rica Drive at
Brunswick Road
(Looking NW)





Monitoring Well #10
Loma Rica Drive
before industrial park

Monitoring Well #10
Loma Rica Drive
before industrial park
(looking NE)

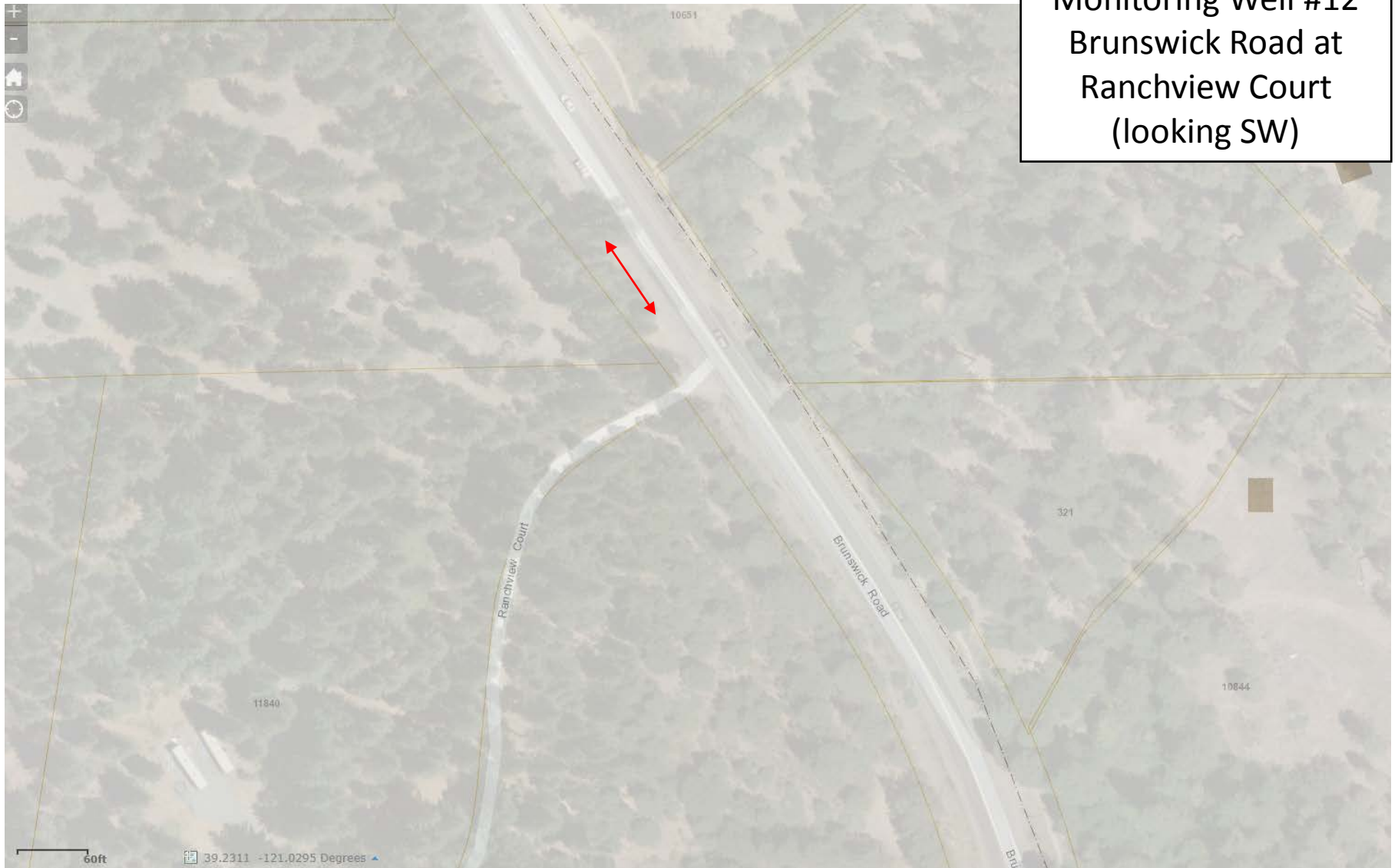




Monitoring Well #11
Loma Rica Drive at
Charles Drive
(looking West)



Monitoring Well #12
Brunswick Road at
Ranchview Court
(looking SW)



Monitoring Well #12
Brunswick Road at
Ranchview Court
(looking SW)



Monitoring Well #13
E. Bennett Road at
Arbutus Lane
(looking SE)



Monitoring Well #13
E. Bennett Road at
Arbutus Lane
(looking SE)





Monitoring Well #14
E. Bennett Road near
transmission line
(looking SE)





Monitoring Well #15
Gold Hill Drive – End
of Road
(Looking SE)

