

Revised Sustainable Management Criteria Summary

Santa Ynez Basin- EMA

April 29, 2021

Presented by
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Topics of Discussion

- Review revised sustainable management criteria
 - Summary of Water Code and SGMA Regulations
 - Review well impact evaluation
 - Review adjustments made based on feedback from last GSA meeting
 - Provide direction to staff on SMCs to be included in the draft GSP

Chronic Lowering of Groundwater Levels

Completed a well impact evaluation to determine what amount of groundwater level decline, relative to top of screen in municipal, agricultural, and domestic wells, is undesirable.

Set minimum thresholds based on what is undesirable.

Water Code and SGMA Regulations

Chronic Lowering of Groundwater Levels

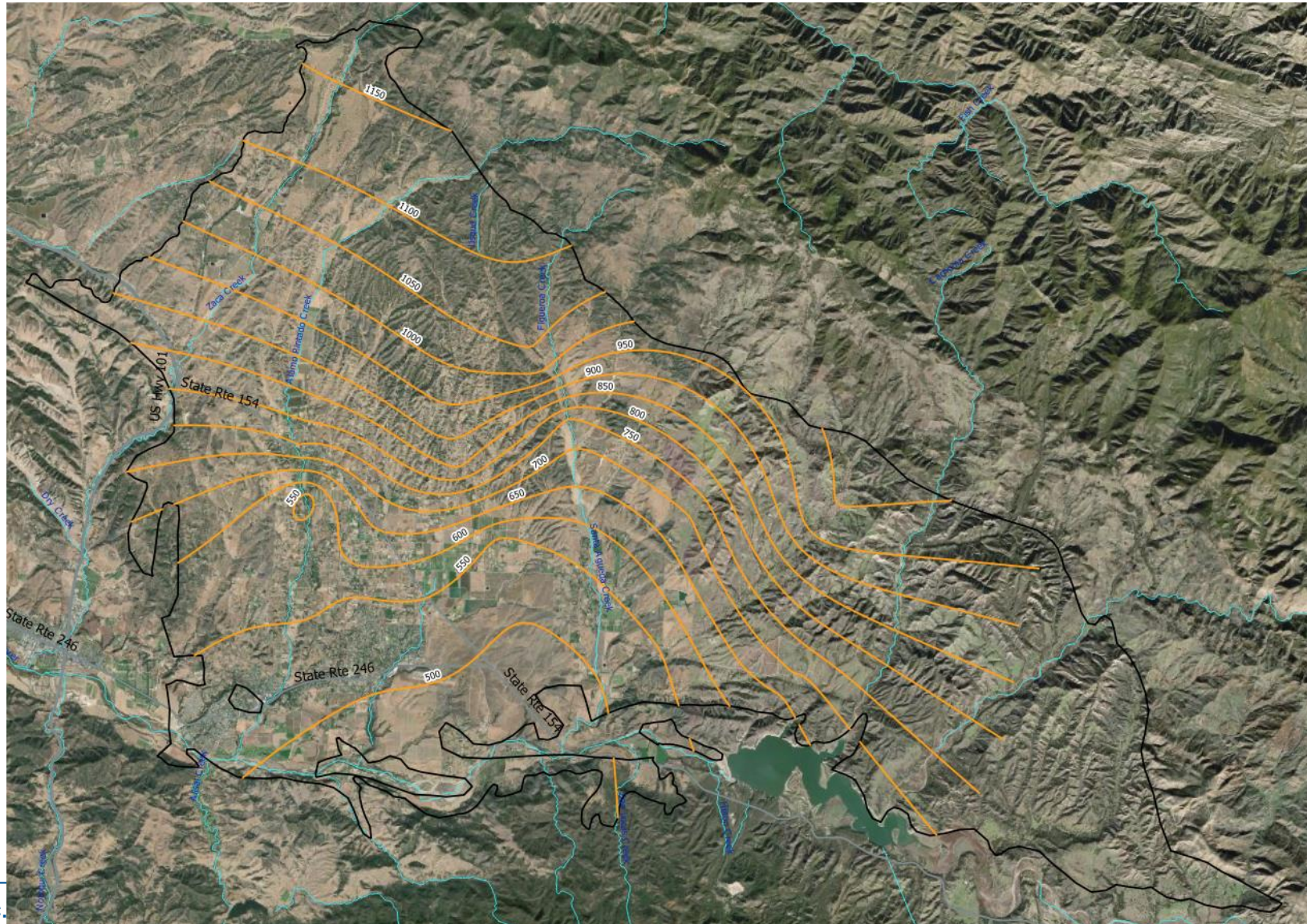
- Water Code Section 10721 Definitions.
- (x) “Undesirable result” means:
 - (1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon.
- SGMA Regulations §354.28 Minimum Thresholds
 - (1) The minimum threshold shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results.

Minimum Thresholds

Chronic Lowering of Groundwater Levels

- Minimum thresholds shall be supported by:
 - ✓ (A) rate of groundwater elevation decline based on historical trends, water year type, and projected water use in the basin
 - ✓ (B) Potential effects on other sustainability indicators

Groundwater Contours - Paso Formation 2018



Groundwater Contours – Careaga Sand 2018

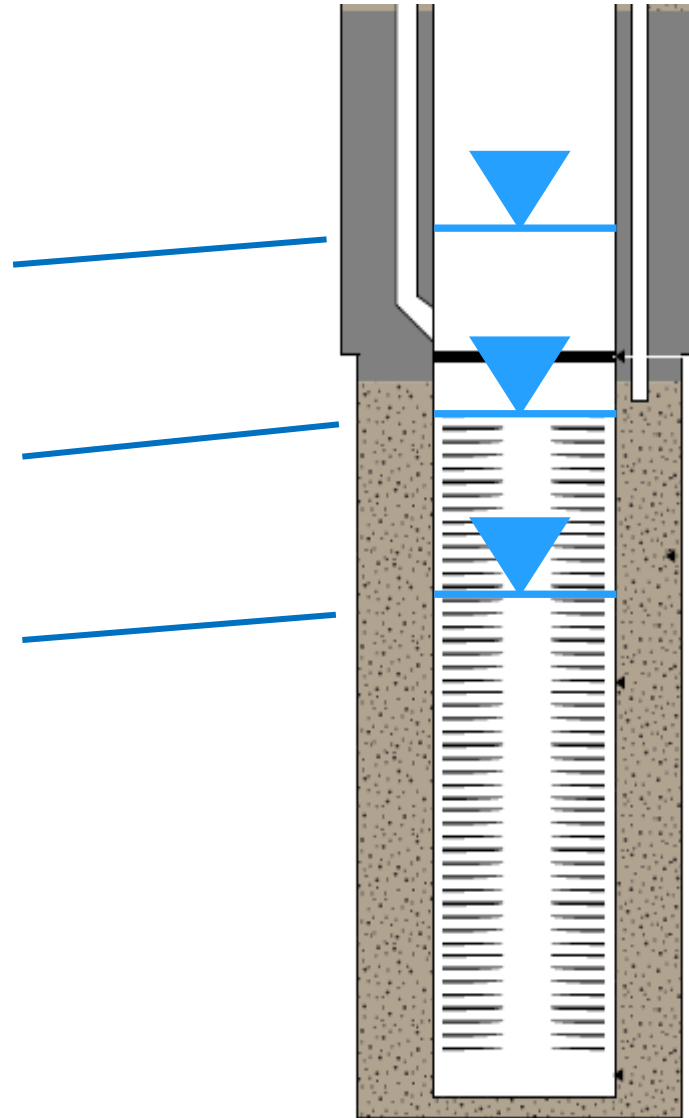


Typical Well Diagram

Water level above
top of screen

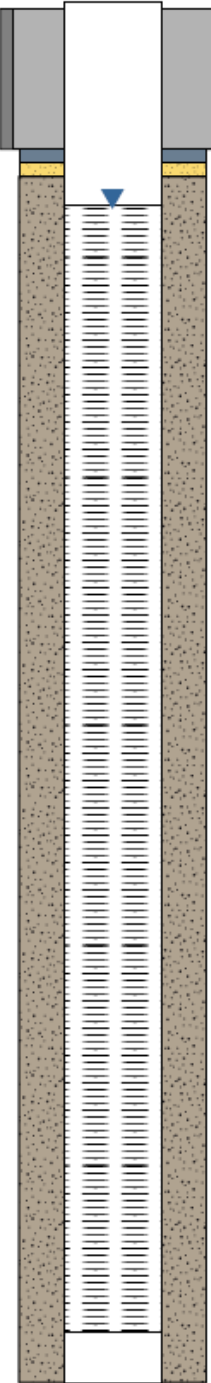
Water level at
top of screen

Water level below
top of screen

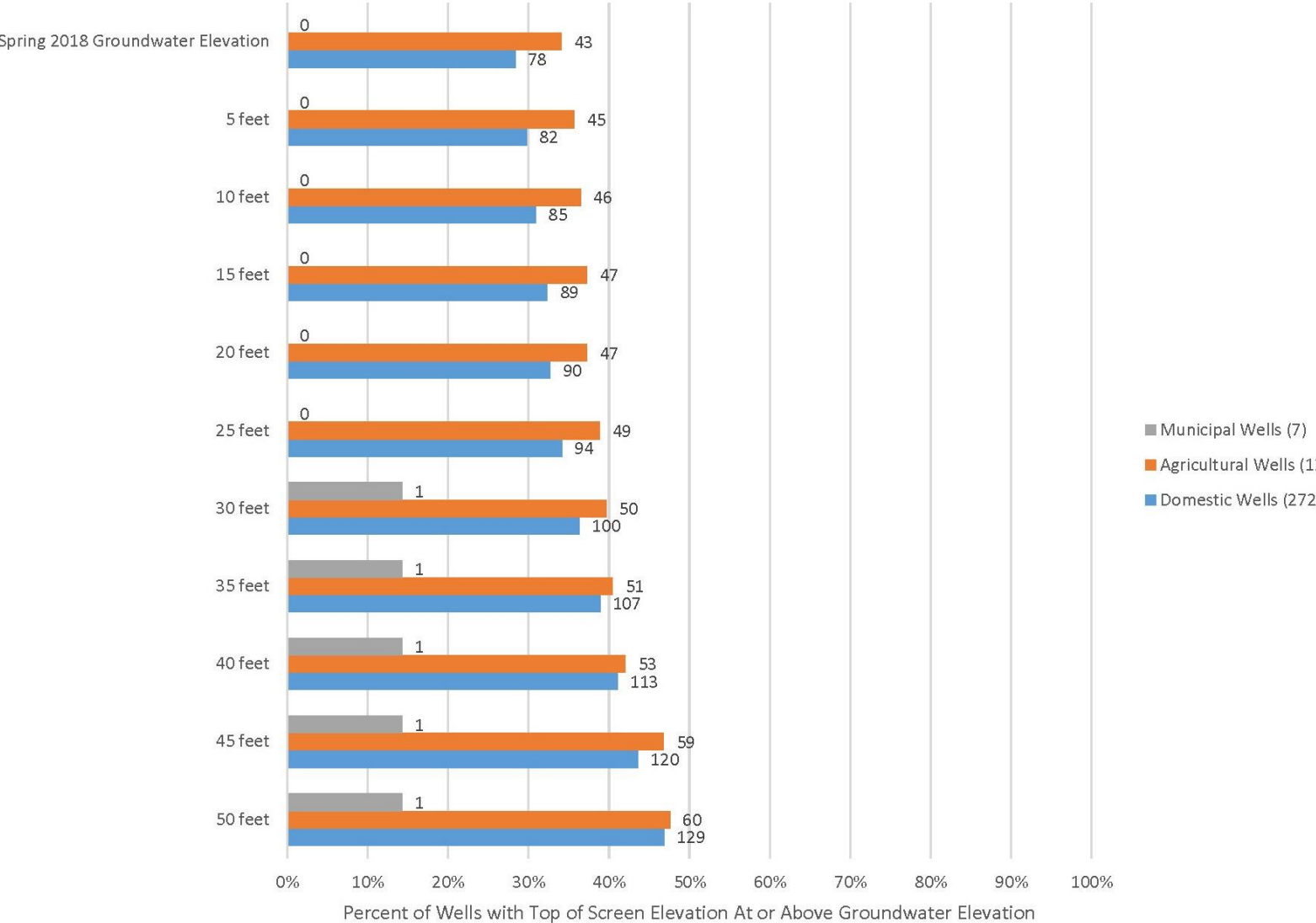


Well Impact Evaluation

Paso Robles Formation Spring 2018

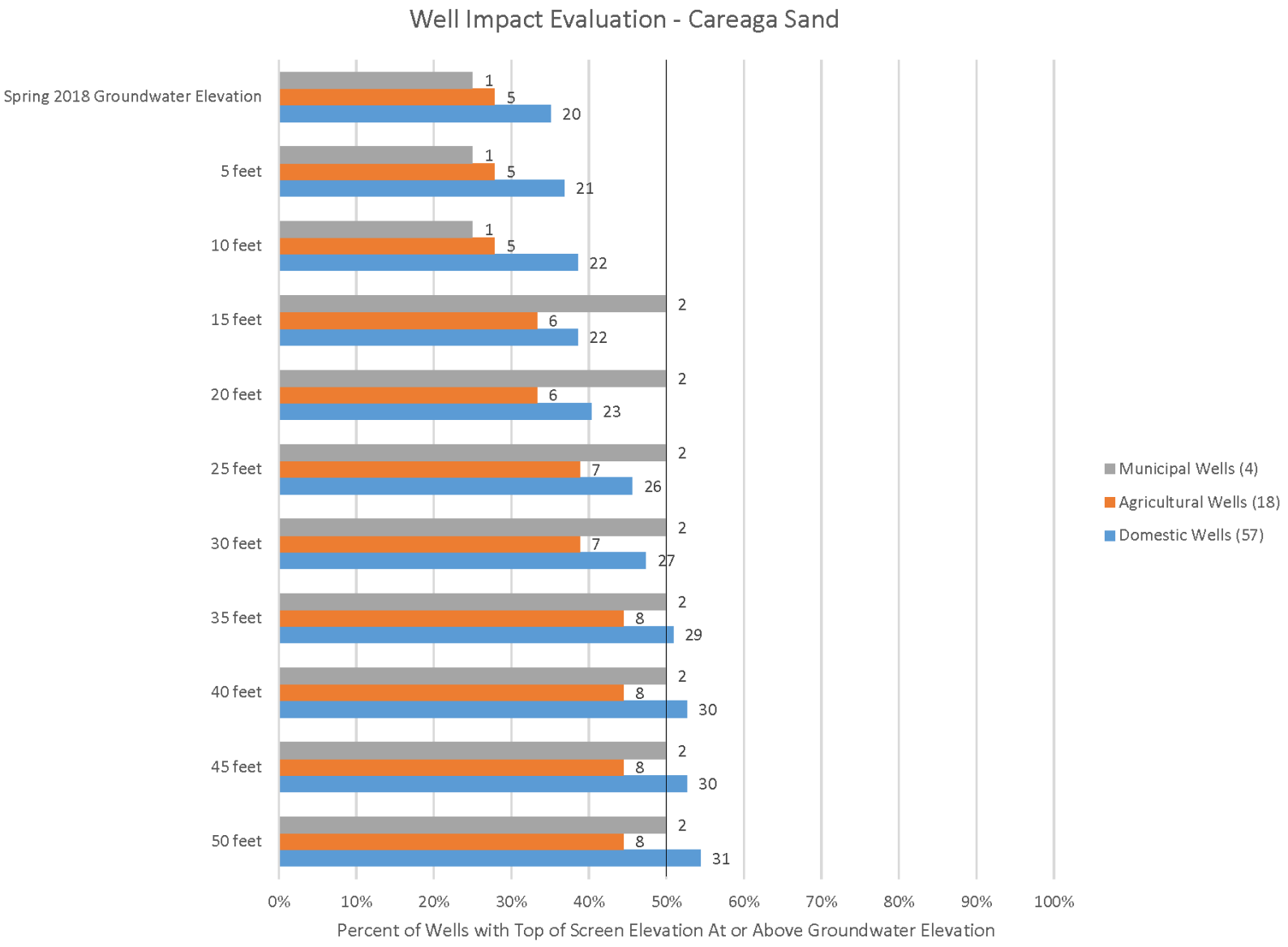
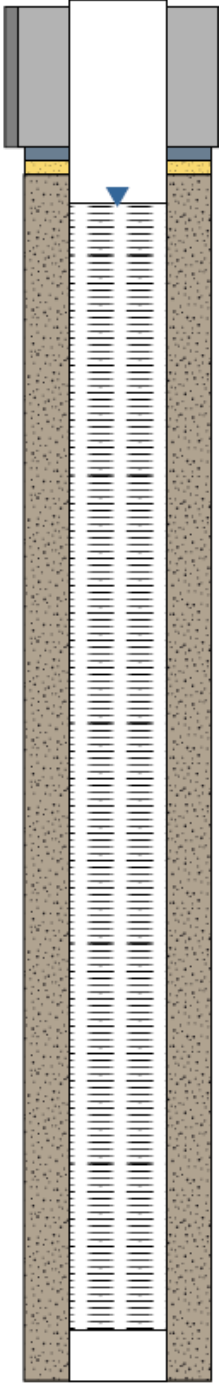


Well Impact Evaluation - Paso Robles Formation



Well Impact Evaluation

Careaga Sand Spring 2018



Sustainable Management Criteria Summary

Chronic Lowering of Groundwater Levels

Potential Undesirable Results	Minimum Threshold	Measurable Objective
<p>Water levels fall below minimum thresholds after average and above average rainfall periods.</p> <ul style="list-style-type: none">Observed in more than ___ percent of representative municipal, agricultural and domestic wells completed in the Paso Robles Formation or Careaga Sand.Confirmed by two consecutive years of average and above average rainfall. <p>Basin groundwater users experience a significant and unreasonable depletion of supply.</p>	<p>For Paso Robles Formation representative wells, elevation of groundwater equal to ___ feet below Spring 2018 water levels in ___ percent of the wells over 2 consecutive years.</p> <p>For Careaga Sand representative wells, elevation of groundwater equal to ___ feet below Spring 2018 water levels in ___ percent of the wells over 2 consecutive years.</p>	<p>Water level prior to most recent drought (March 2011) in Paso Robles Formation and Careaga Sand representative wells.</p>

Reduction of Groundwater Storage

Because groundwater storage is directly correlated to groundwater levels, utilized the sustainable management criteria for groundwater level decline as a proxy for storage.

Desire to have enough groundwater in storage to be able to pump at least the sustainable yield of the basin.

Water Code and SGMA Regulations

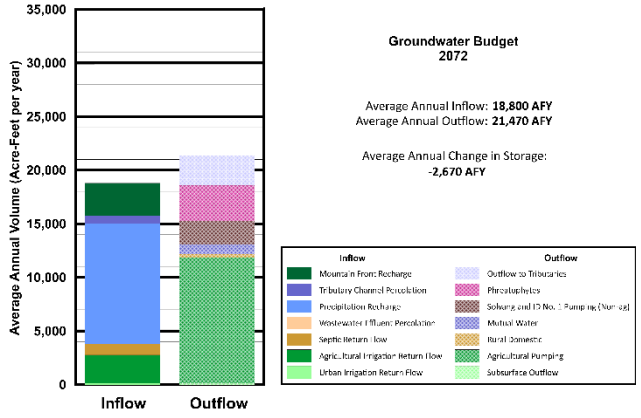
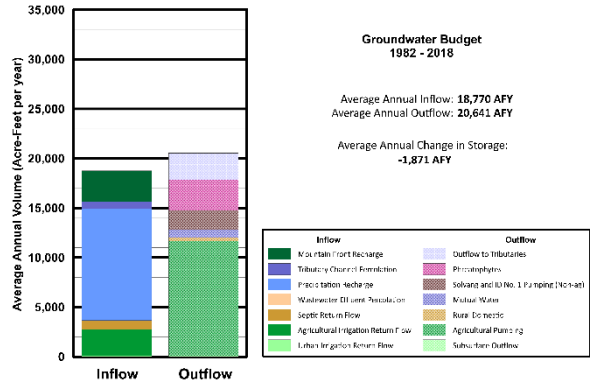
Reduction of Groundwater Storage

- Water Code Section 10721 Definitions.
- (x) “Undesirable result” means:
 - (2) Significant and unreasonable reduction of groundwater in storage.
- SGMA Regulations §354.28 Minimum Thresholds
 - (2) The minimum threshold shall be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results.
 - (d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

Minimum Thresholds

Reduction of Groundwater Storage

- Minimum thresholds shall be supported by:
 - ✓ sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.



Sustainable Management Criteria Summary

Reduction of Groundwater Storage

Potential Undesirable Results	Minimum Threshold	Measurable Objective
<p>Groundwater in storage continues to decrease over a period of three consecutive years during periods of normal or above normal rainfall.</p> <p>Unable to produce groundwater quantities equal to the sustainable yield of the EMA over three consecutive years.</p>	<p>Groundwater storage volume consistent with the groundwater level and interconnected surface water minimum thresholds. Groundwater levels are used as a proxy for storage.</p>	<p>Groundwater storage volume consistent with the groundwater level measurable objective. Groundwater levels are used as a proxy for storage.</p>

Degraded Water Quality

If contamination is detected in basin wells, the GSA will refer the matter to appropriate State regulatory agencies. The GSA is not responsible for monitoring, managing, or remediating contamination. The GSA needs to avoid moving contaminant plumes that impair water supplies.

Groundwater production or management cannot make water quality worse than it was in 2015 when SGMA was enacted. The GSA will support programs that maintain concentrations within basin water quality objectives set by the Regional Board.

Water Code and SGMA Regulations

Degraded Water Quality

- Water Code Section 10721 Definitions.
- (x) “Undesirable result” means:
 - (4) Significant and unreasonable degraded water quality, including migration of contamination plumes that impair water quality.
- SGMA Regulations §354.28 Minimum Thresholds
 - (4) The minimum threshold shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results.

Minimum Thresholds Degraded Water Quality

- Minimum thresholds shall be based on:
 - ✓ the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations determined by the Agency that lead to undesirable results.

Sustainable Management Criteria Summary

Degraded Water Quality

Potential Undesirable Results	Minimum Threshold	Measurable Objective
<p>Concentrations of regulated contaminants in representative municipal, private domestic, or agricultural wells exceed regulatory thresholds caused by pumping or GSA actions.</p> <p>Groundwater pumping causes concentrations of salts and nutrients (total dissolved solids (TDS), chloride, boron, nitrate and sulfate) to exceed Basin Plan Water Quality Objectives <u>and</u> are greater than concentrations observed in representative wells in January 2015.</p>	<ul style="list-style-type: none">• No minimum threshold set for regulated contaminants – State is responsible for management.• For salts and nutrients, any water quality objective in Basin Plan exceeded in three consecutive monitoring events <u>and</u> is greater than concentrations present when SGMA was enacted (January 2015) in more than 50 percent of representative wells.	<p>Quality of groundwater meets basin plan water quality objectives or, is not worse than concentrations present when SGMA was enacted (January 2015).</p>

Interconnected Surface Water

Identified areas where groundwater is interconnected with surface water and identified potential groundwater dependent ecosystems (GDEs) as the beneficial use of this water.

Identified the location of potential GDEs that are: a) supported by surface water that is interconnected to groundwater and b) likely could be significantly and unreasonably impacted by basin management activities.

Groundwater levels in key GDE areas are used as proxy for setting sustainability criteria for this indicator.

Water Code and SGMA Regulations

Interconnected Surface Water

- Water Code Section 10721 Definitions.
- (x) “Undesirable result” means:
 - (6) Significant and unreasonable adverse impacts on beneficial uses of the surface water.
- SGMA Regulations §354.28 Minimum Thresholds
 - (2) The minimum threshold shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results.
 - (d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

Minimum Thresholds

Interconnected Surface Water

- Minimum thresholds shall be supported by:
 - ✓ the location, quantity, and timing of depletions of interconnected surface water.
 - ✓ A description of the groundwater and surface water model used to quantify surface water depletion.

Updated Groundwater Dependent Ecosystem Analysis

Native Communities Commonly Associated with Groundwater

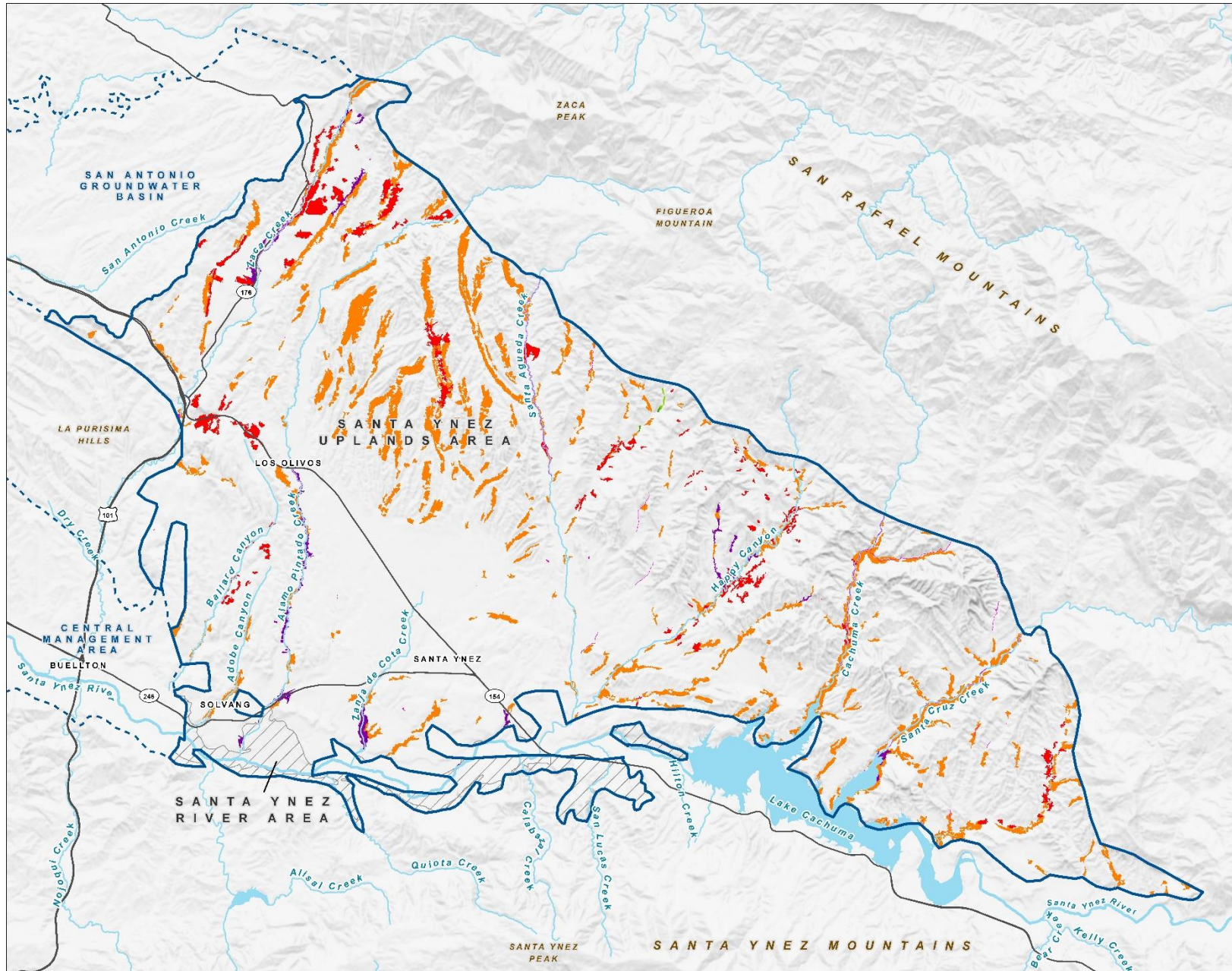
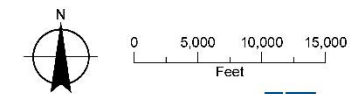


FIGURE X
Native Communities Commonly Associated with Groundwater Dataset
 Groundwater Sustainability Plan
 Eastern Management Area

LEGEND

Native Communities Commonly Associated with Groundwater (NCCAG)

- Wetland Area
- VEGETATION**
- Coast Live Oak
- Valley Oak
- Riparian Mixed Hardwood
- Riversidean Alluvial Scrub
- Willow (Shrub)
- Eastern Management Area Basin Boundary
- Santa Ynez River Area
- All Other Features**
- Major Road
- Watercourse
- Waterbody



Document Path: Y:\0748 SR County\Source Figures\002_Hydro\Status\FMA (SSP)\Additional Figures\FigureX_Native Communities Commonly Associated With GSW Dataset.mxd (alvarez)

30-foot Depth to Groundwater Screening [Spring 2015 water levels]

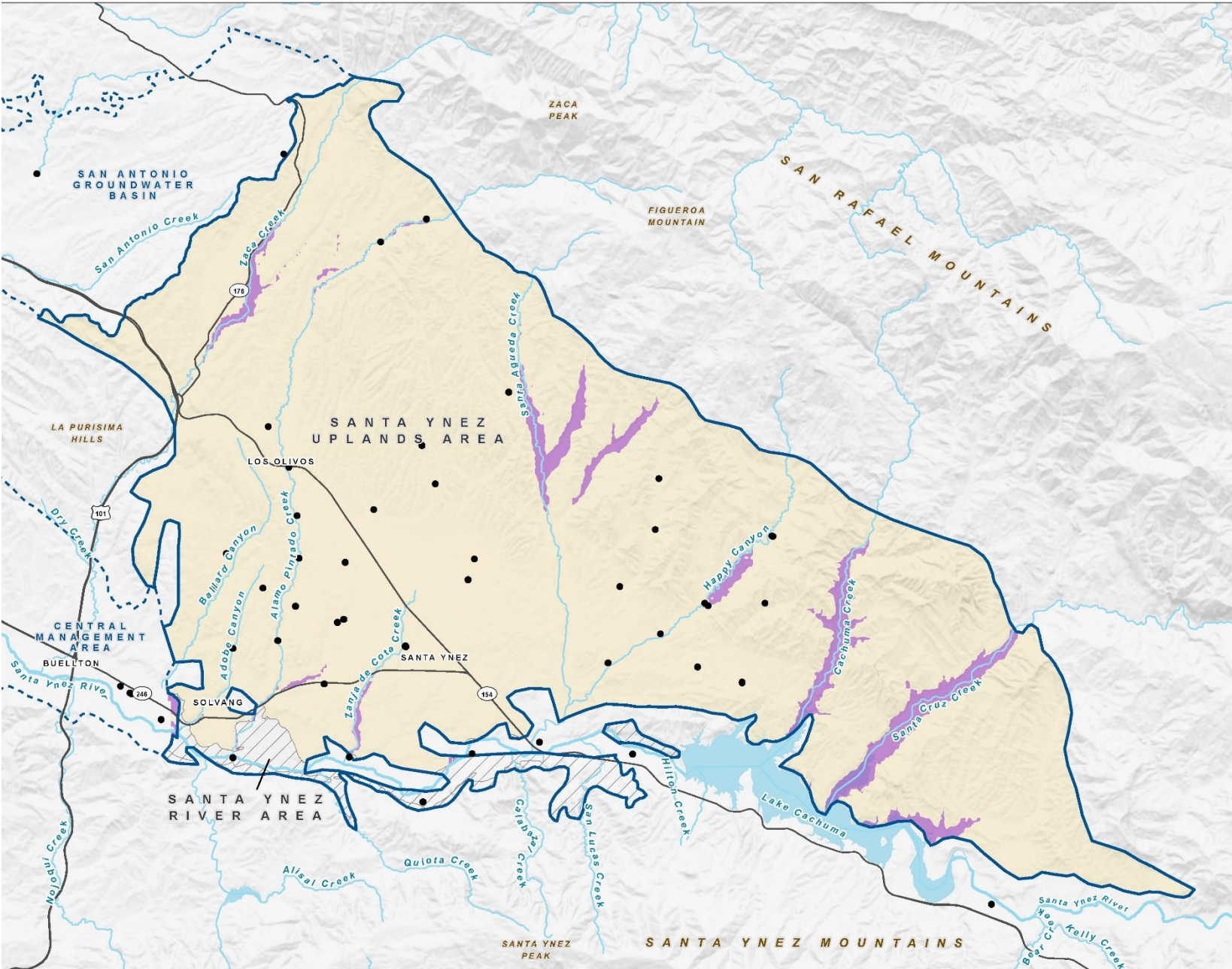


FIGURE X
Potential Groundwater Dependent Ecosystems 30 foot Depth to Groundwater Screening
 Groundwater Sustainability Plan
 Eastern Management Area

LEGEND

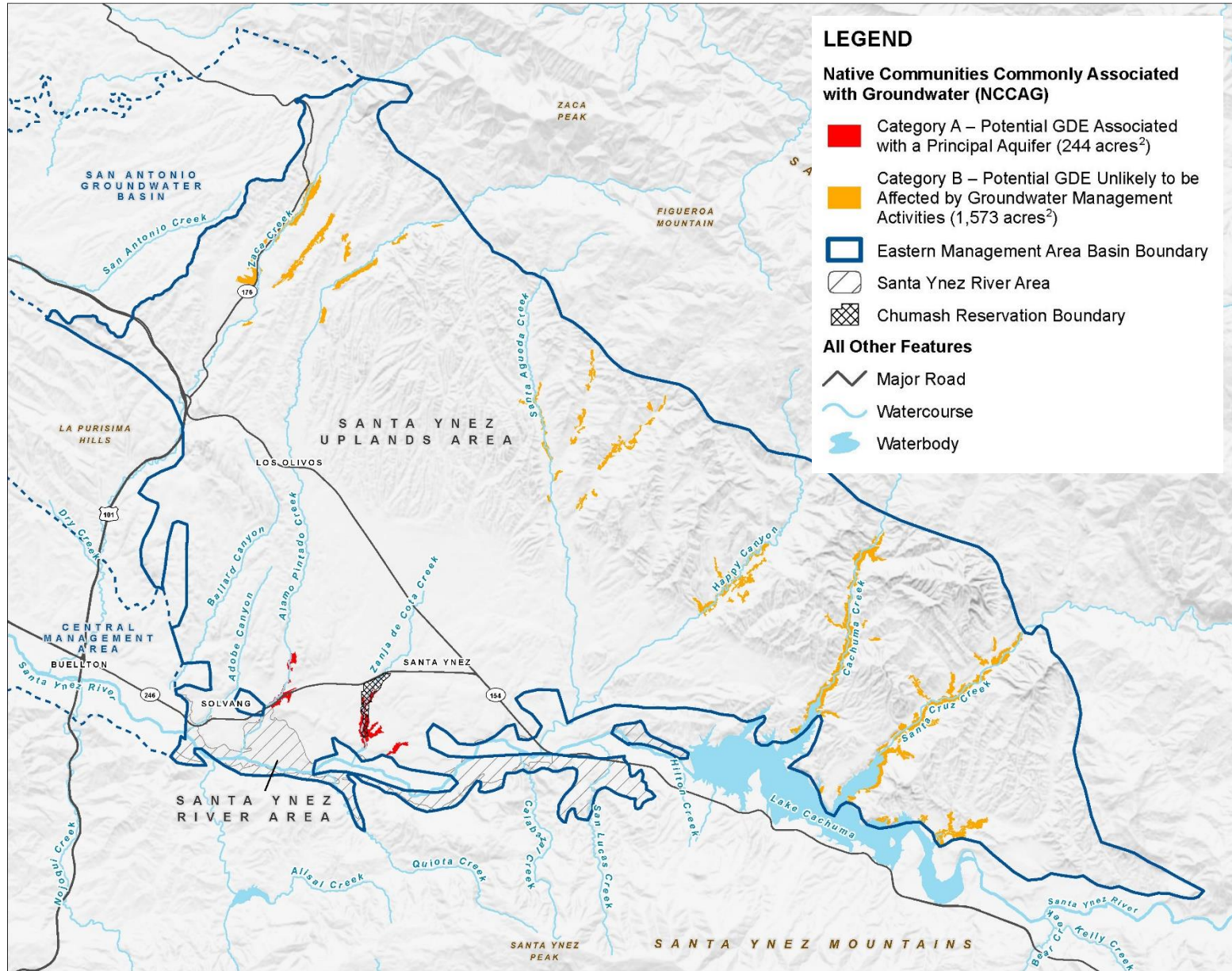
- Spring 2015 Measured Groundwater Elevations
- Spring 2015 Depth to Groundwater**
 - ≤ 30' Depth To Water
 - >30' Depth To Water
- ▭ Eastern Management Area Basin Boundary
- ▨ Santa Ynez River Area
- All Other Features**
 - Major Road
 - ~ Watercourse
 - Waterbody



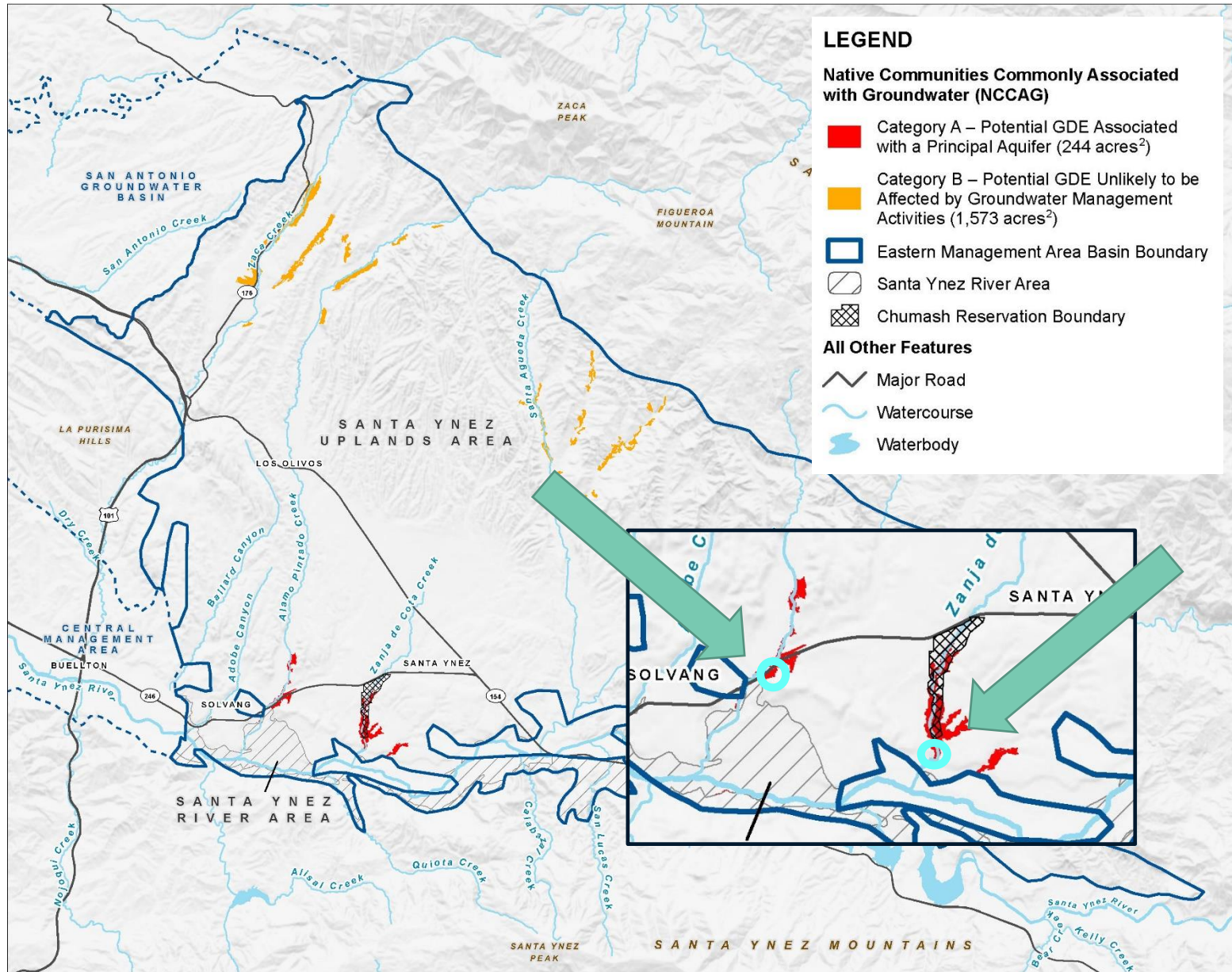
N

0 5,000 10,000 15,000
Feet

Categorized Potential GDEs



Categorized Potential GDEs



Sustainable Management Criteria Summary

Depletion of Interconnected Surface Water

Potential Undesirable Results	Minimum Threshold	Measurable Objective
<p>Category A GDEs located where groundwater is interconnected with surface water present in tributaries are significantly and unreasonably impacted as a result of groundwater use when groundwater levels drop below the maximum rooting depth of GDEs for consecutive summer and fall monitoring events.</p>	<ul style="list-style-type: none">• Depletion of interconnected surface water in Alamo Pintado Creek or Zanja de Cota Creek, as indicated by groundwater level decline of 15 feet or more below the stream bed, measured at Category A GDE piezometer locations, where demonstrated likely to result in significant and unreasonable adverse impacts to the Category A GDEs.• Groundwater levels are a proxy for this sustainability indicator.	<p>Groundwater levels within 7 feet of ground surface observed in Category A GDE areas of tributaries.</p> <p>Monitoring wells in these locations have not been installed but will be addressed in projects and management actions.</p>

Land Subsidence

Researched available subsidence data from State and Federal databases to assess whether there is evidence of subsidence occurring in the past that has impacted surface land uses.

Must be a result of groundwater extraction. Oil and gas extraction and tectonic forces may also cause subsidence.

Water Code and SGMA Regulations

Land Subsidence

- Water Code Section 10721 Definitions (emphasis added).
- (x) “Undesirable result” means:
 - (5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.
- SGMA Regulations §354.28 Minimum Thresholds
 - (5) The minimum threshold for land subsidence shall be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results

Minimum Thresholds Land Subsidence

- Minimum thresholds shall be supported by:
 - ✓ (A) Identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin.
 - ✓ (B) Maps and graphs showing the extent and rate of land subsidence in the basin.

Sustainable Management Criteria Summary

Land Subsidence

Potential Undesirable Results	Minimum Threshold	Measurable Objective
<p>Significant and unreasonable subsidence caused by groundwater extraction exceeds the annual rate observed at InSAR monitoring station located in Santa Ynez <u>and</u></p> <p>Causes damage to structures and infrastructure and substantially interferes with surface land uses.</p>	<p>Rate of subsidence exceeds 1.0 inch per year measured at the InSAR monitoring station located in Santa Ynez, caused by EMA groundwater pumping and results in damage to surface land uses.</p>	<p>Average rate of subsidence as a result of pumping.</p>

Next Steps

- Preparation and submittal of Sustainable Management Criteria Section of GSP
- Develop monitoring plan
- Develop list of possible Management Actions and Projects (next meeting)

Thank you!

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Photo Credit: Jeremy Ball, Courtesy of Longoria Wines