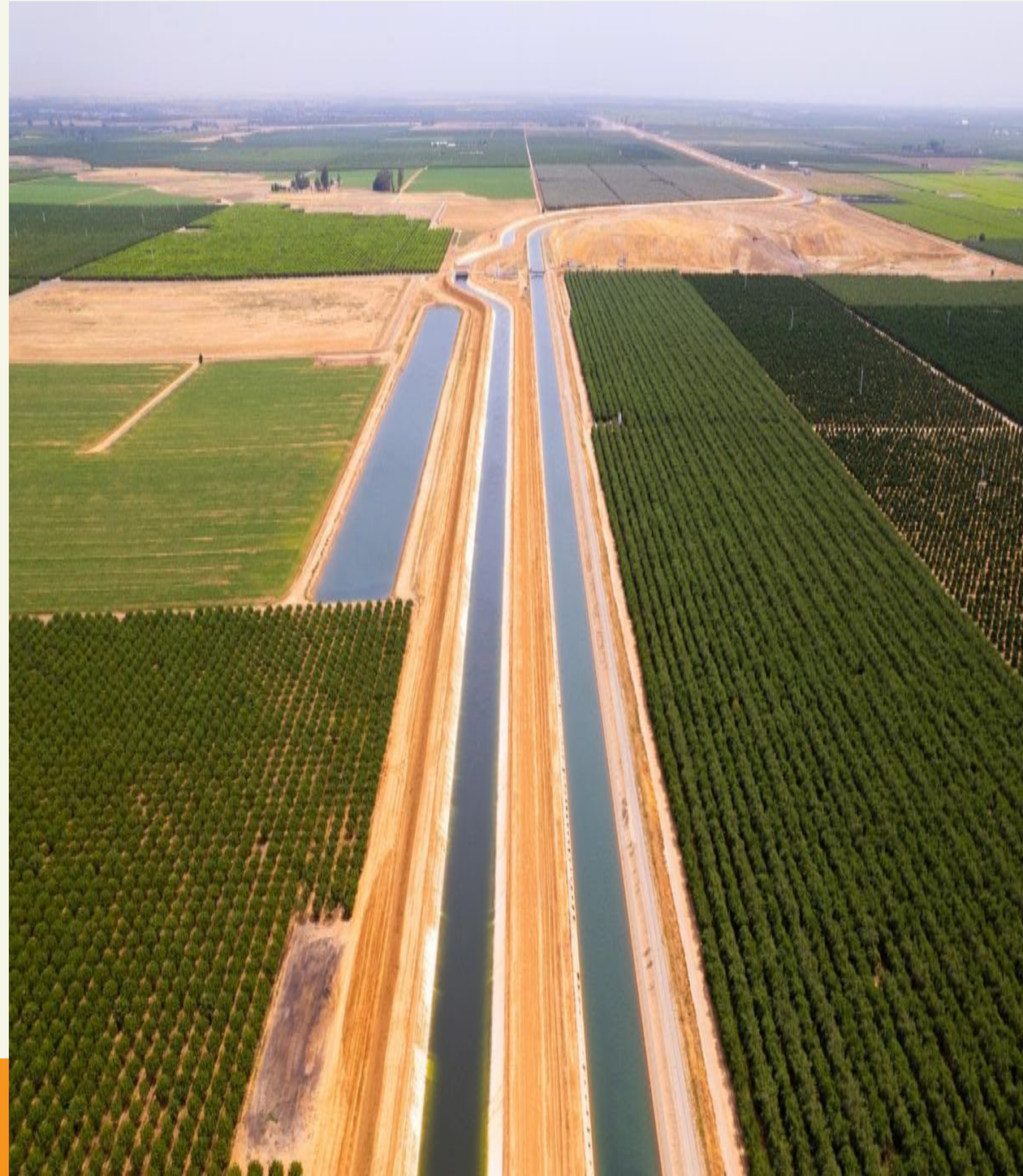
EASTERN TULE
GROUNDWATER SUSTAINABILITY AGENCY

Land Subsidence Management Area Workshop

October 31, 2024

WORKSHOP GOALS

- SGMA & GSA's Role in Implementation
- Historical land subsidence the ETGSA
- Overview LSMA Management & Monitoring Plans
- Overview of the LSMA Management Actions
- Landowner Compliance & Basinsafe Tutorial of Well Registry and Meter Data Submissions



ACRONYMS & ABBREVIATIONS

SGMA	Sustainable Groundwater Management Act
ETGSA	Eastern Tule Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
FKC	Friant Kern Canal
FWA	Friant Water Authority
LSMA	Land Subsidence Management Area

SGMA BACKGROUND

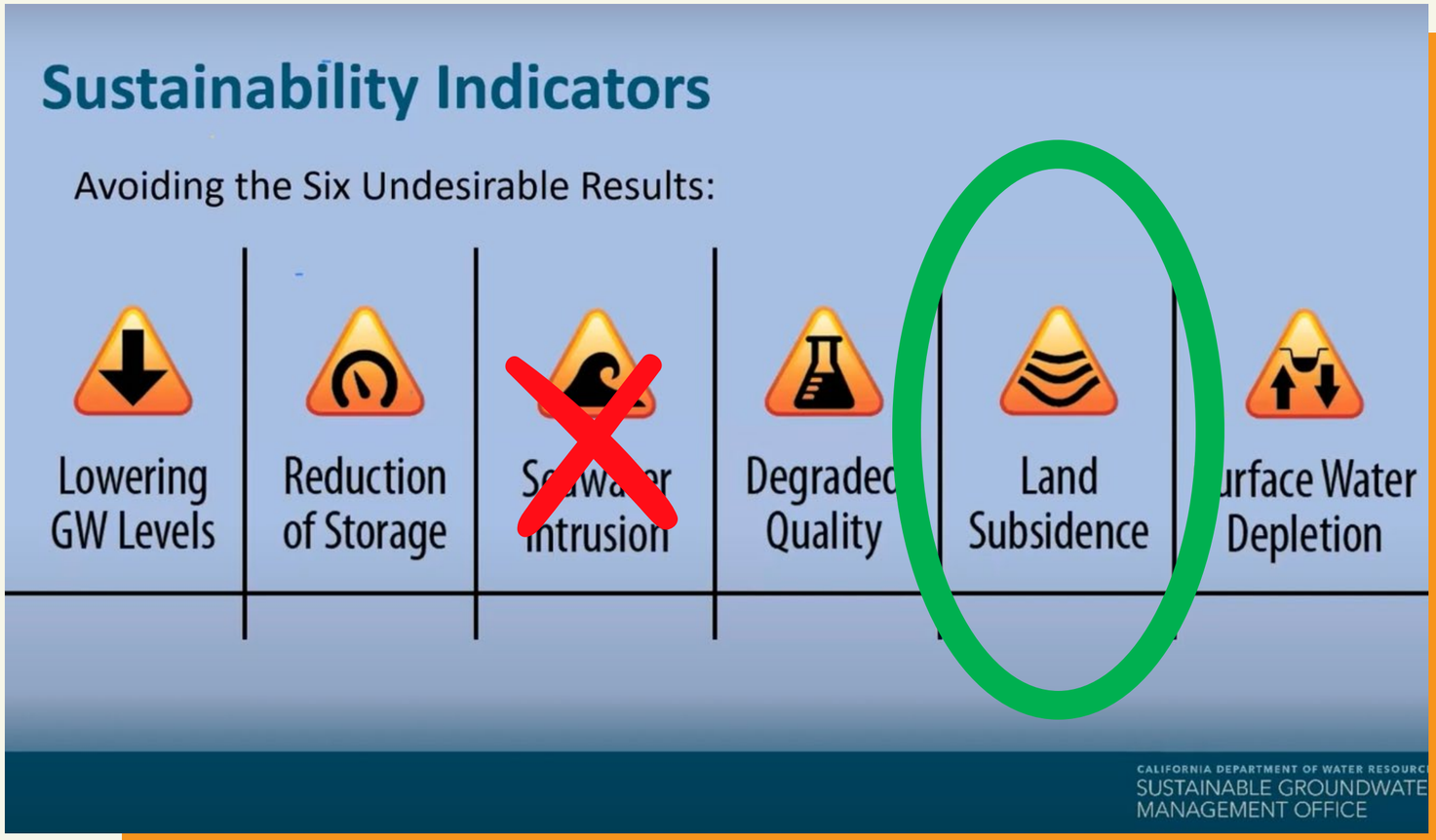
SGMA was signed into Law in 2014

Requires Local GSAs to be formed and adopt GSPs by 2020

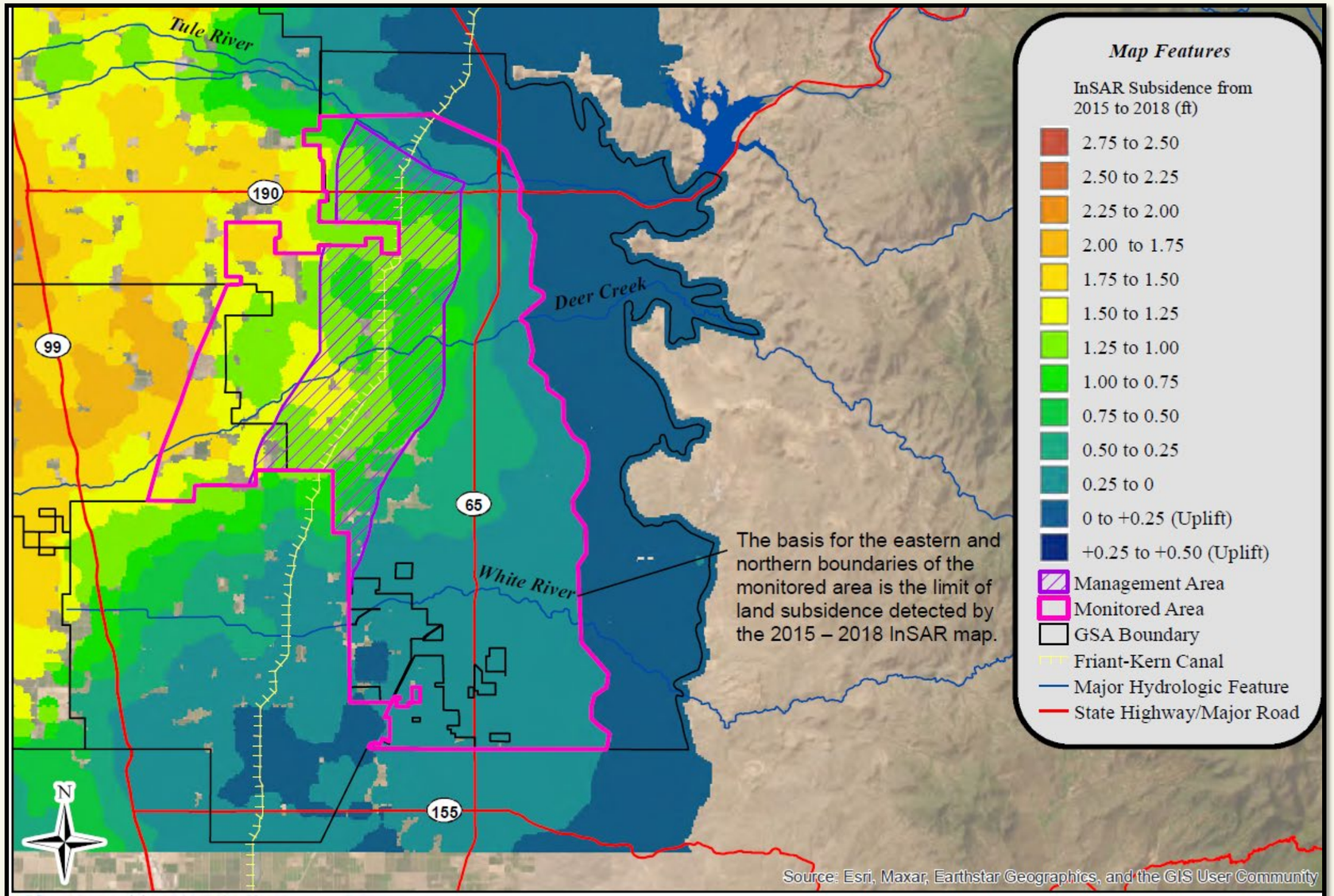
GSPs are plans that describe a GSA'S plan to manage groundwater to transition from critically overdraft conditions to sustainable conditions by 2040 while preventing **Undesirable Results** from occurring.

ETGSA'S ROLE IN IMPLEMENTATION OF SGMA

Metrics for determining sustainability:



BACKGROUND ON HISTORICAL ETGSA LAND SUBSIDENCE



Land Subsidence is the sinking of the ground surface elevations caused by compression of geological clay features in the subsurface.

One of the primary causes of land subsidence is deep aquifer pumping.

HISTORICAL ETGSA LAND SUBSIDENCE

Up to approximately 9 feet of land subsidence occurred in the ETGSA from 1951 and 2019.

This land subsidence has resulted in localized impacts to the FKC which has been identified as critical infrastructure for delivering imported irrigation water to farms in the South Valley

Reducing the flow capacity to approximately 33% of the original design

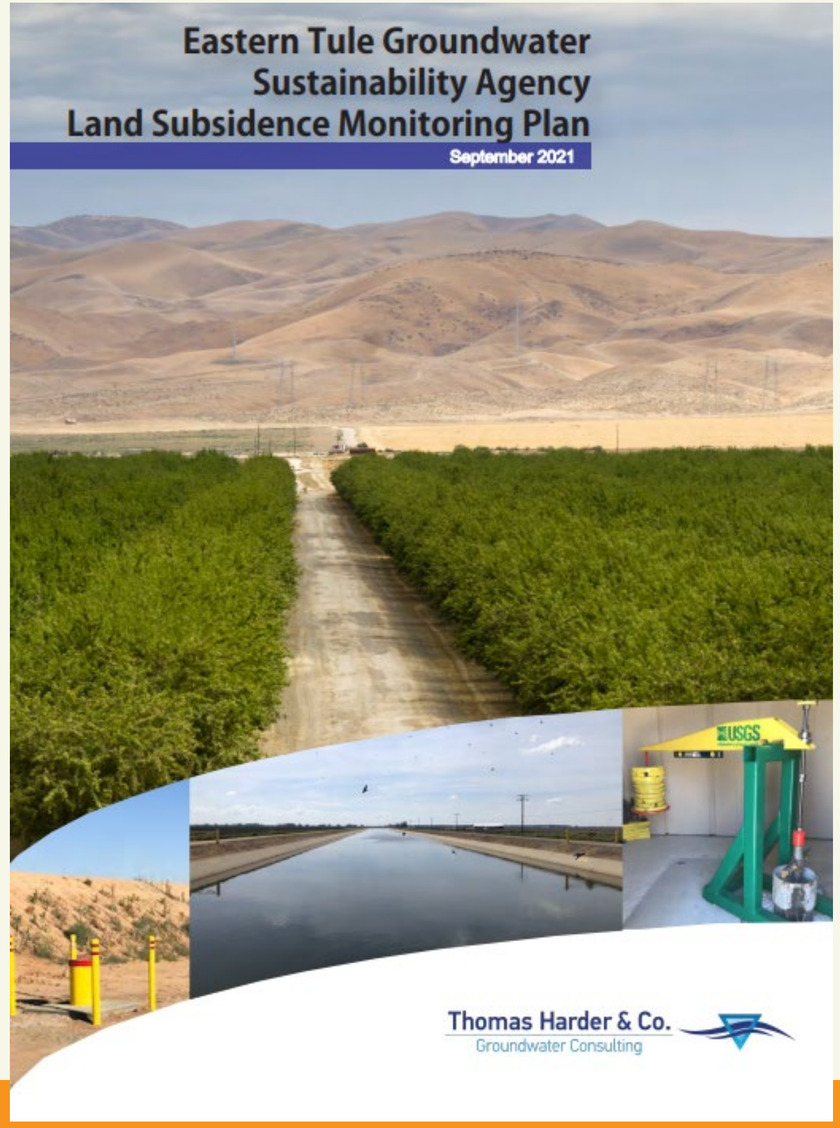
SGMA requires that impacts to critical infrastructure, such as the FKC, be considered as a part of the development of the GSP to prevent those impacts from becoming significant and unreasonable (Undesirable Result)

FKC/ETGSA SETTLEMENT AGREEMENT

ETGSA is obligated to pay 91% of Tier 1 Penalty Revenue to FWA to mitigate for ongoing subsidence impacts to the Friant Kern Canal.

ETGSA-FKC SUBSIDENCE MONITORING & MANAGEMENT PLANS

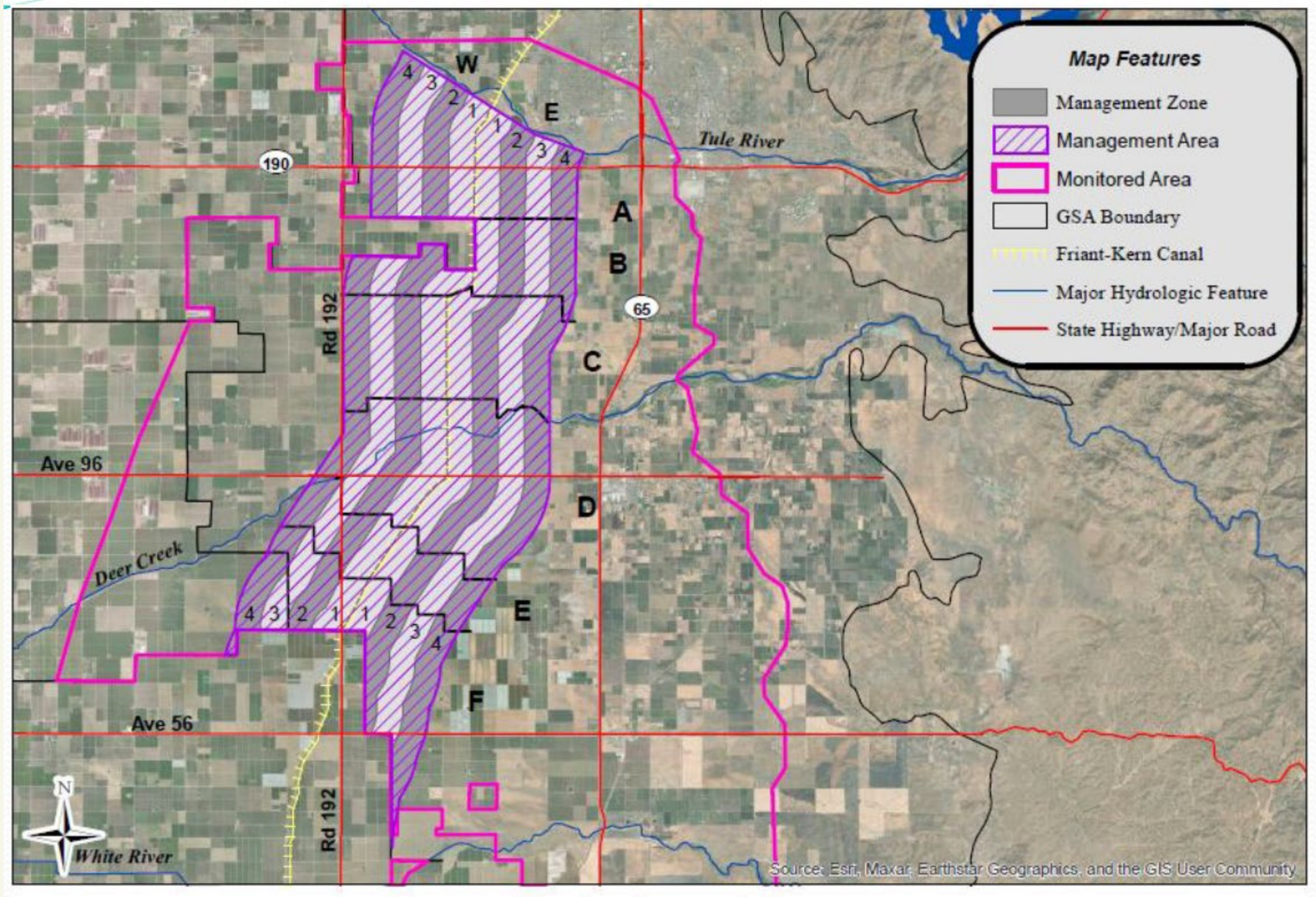
The plans outline how to monitor land subsidence and manage groundwater to prevent land subsidence on the FKC from exceeding 3 feet.



These plans are developed with input from:

- Landowners & their Technical Representatives
- ETGSA and Tule Subbasin Technical Representatives

THE LAND SUBSIDENCE MANAGEMENT AREA



48 INDIVIDUAL ZONES ON

2-MILES TO THE EAST AND WEST OF THE FKC

FOR IMPLEMENTING MANAGEMENT ACTIONS TO PREVENT LAND SUBSIDENCE FROM REACHING 3-FEET.

LAND SUBSIDENCE MANAGEMENT AND MONITORING COMMITTEE

CURRENT TECHNICAL REPRESENTATIVES FROM:

- ETGSA
- Friant Water Authority
- White Area Growers
- Pixley GSA
- Tule Subbasin TAC

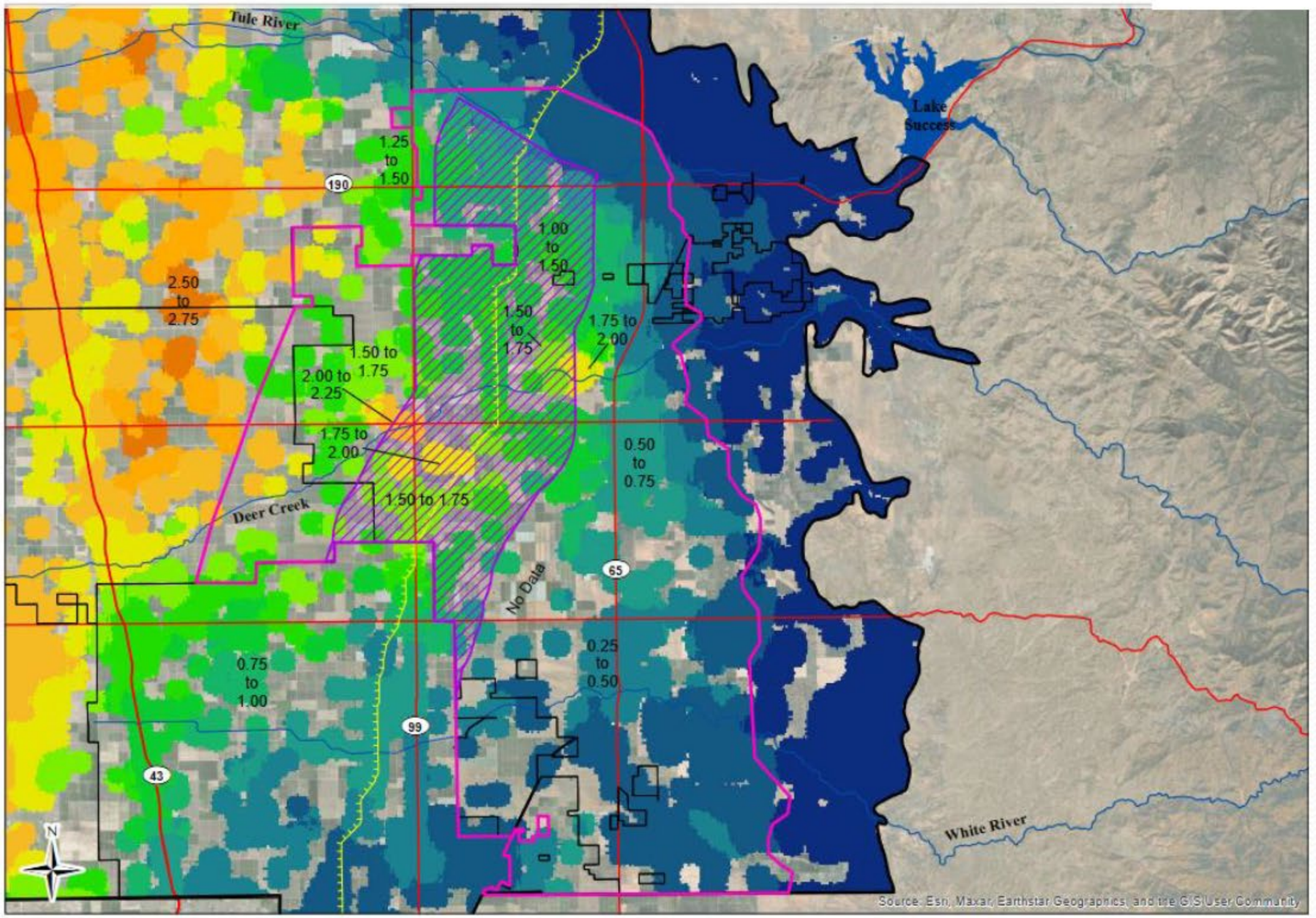
FUTURE REPRESENTATIVES FROM STATE WATER BOARD RESOLUTION:

- Department of Water Resources
- Bureau of Reclamation

- Meets biannually or more frequently as needed to review Land Subsidence monitoring data and make recommendations the ETGSA Board of Directors for implementation of Management Actions

- Prepare Annual LSMA reports that outline land subsidence conditions in the ETGSA and updates of Management Tier status of individual LS Management Zones.

LAND SUBSIDENCE IN THE ETGSA SINCE 2020



1-Jan-20 To 30-Jun-24

Map Features

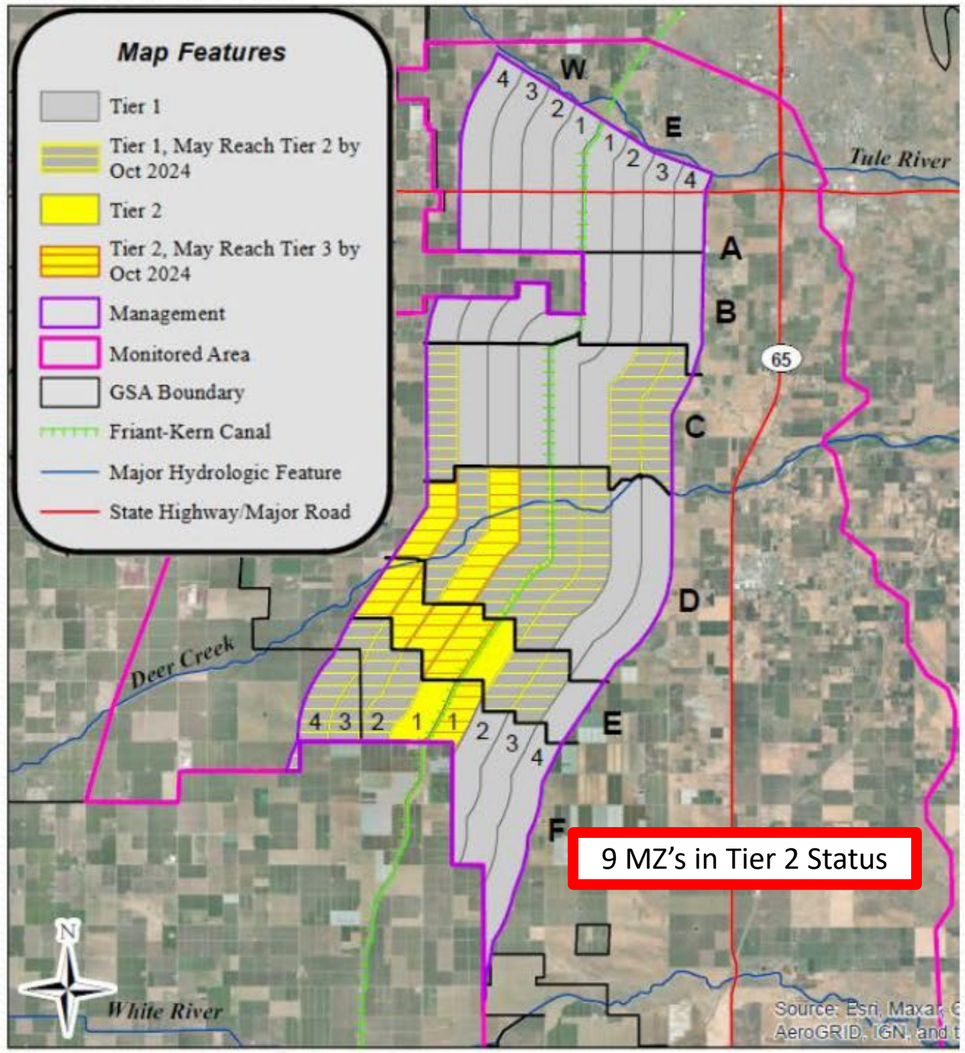
InSAR Subsidence from January 2020 to June 2024 (ft)

- 3.25 to 3.58
- 3.00 to 3.25
- 2.75 to 3.00
- 2.50 to 2.75
- 2.25 to 2.50
- 2.00 to 2.25
- 1.75 to 2.00
- 1.50 to 1.75
- 1.25 to 1.50
- 1.00 to 1.25
- 0.75 to 1.00
- 0.50 to 0.75
- 0.25 to 0.50
- 0.00 to 0.25
- < 0.00 (Uplift)
- Management Area
- Monitored Area
- GSA Boundary
- Tule Subbasin Boundary
- Friant-Kern Canal
- Major Hydrologic Feature
- State Highway/Major Road

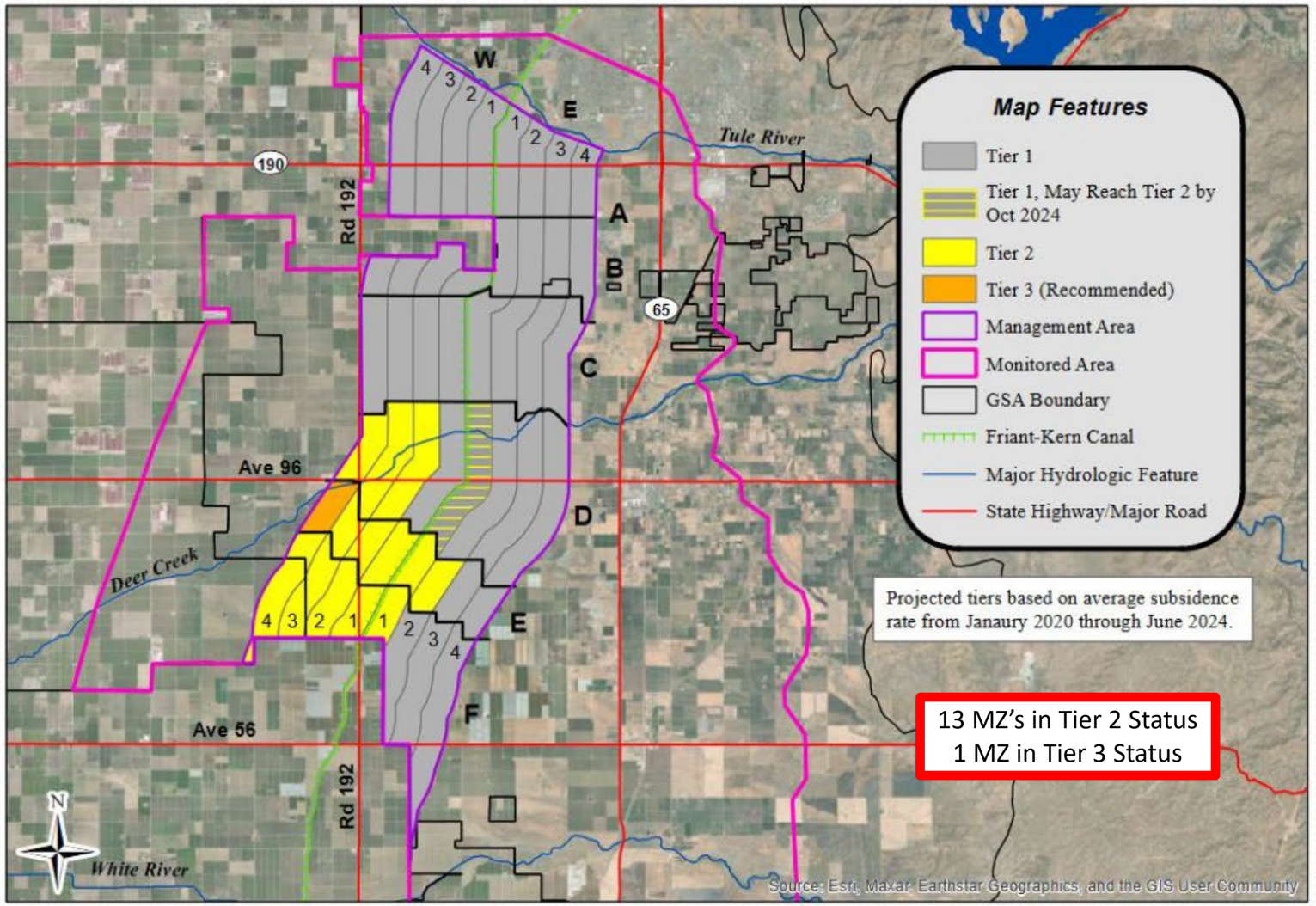
Thomas Harder & Co.
Groundwater Consulting

MANAGEMENT TIER STATUS OF LAND SUBSIDENCE MANAGEMENT ZONE

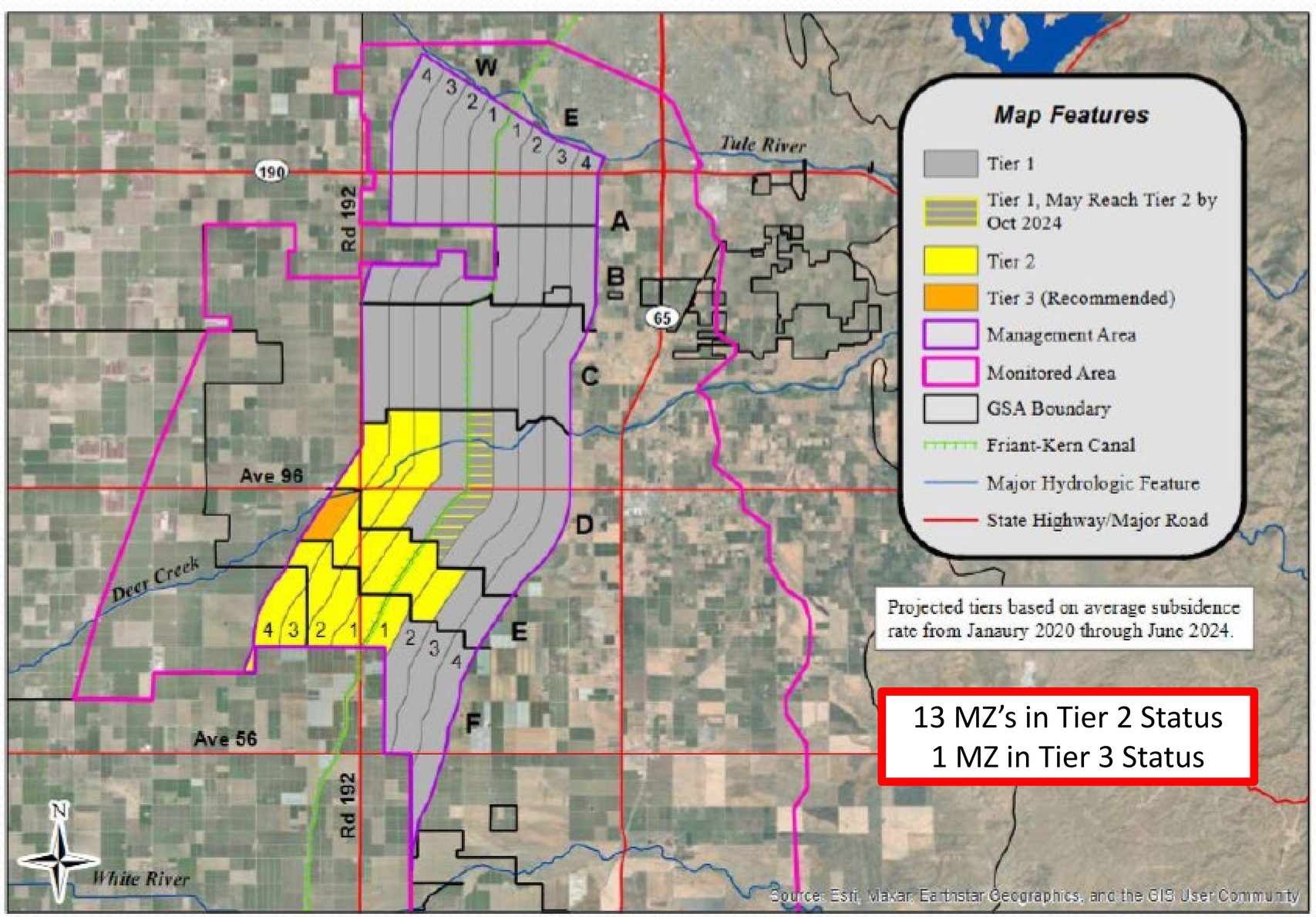
Zones Status September 2023



Zones Status June 2024



MANAGEMENT TIER STATUS OF LAND SUBSIDENCE MANAGEMENT ZONE (CONT.)



LAND SUBSIDENCE MANAGEMENT ACTIONS TIERS

Defines trigger levels & more restrictive management actions based on measured land subsidence in individual management zones.

LSMA MANAGEMENT ACTION TIER	CUMULATIVE LAND SUBSIDENCE	REQUIREMENT MANAGEMENT ACTIONS (GROUNDWATER EXTRACTION RESTRICTIONS)
TIER 1	Between: 0 ft & 1.49 ft	**All Owners with wells in Land Subsidence Tier 1 must install meters and begin reporting no later than January 1, 2025.**
TIER 2	Between: 1.50 ft & 1.99 ft	**All actions in Tier 1 apply plus the following additional management actions:** • Limit extractions within the Management Area to 60% of current year Tier 1 Penalty Allocation, allocated to lands within the Tier 2 Management Zone. • The remaining 40% of Tier 1 Penalty Allocation is available to be extracted or transferred outside of the Management Area, provided such use and transfer is otherwise consistent with the ETGSA Rules and Regulations. • Any wells implementing pumping of any water 600 ft below land surface will require a meter and reporting of the data monthly to the ETGSA staff, and subject to meter specifications as defined in the ETGSA Rules and Regulations.
TIER 3	Between: 2.00 ft & 2.49 ft	**All actions in Tier 1 and Tier 2 apply plus the following additional management actions:** • Limit extractions within the Management Area to 30% of current year Tier 1 Penalty Allocation, allocated to lands within the Tier 2 Management Zone. • The remaining 70% of Tier 1 Penalty Allocation is available to be extracted or transferred outside of the Management Area, provided such use and transfer is otherwise consistent with the ETGSA Rules and Regulations. • Any wells implementing pumping of any water 600 ft below land surface will require a meter and reporting of the data monthly to the ETGSA staff, and subject to meter specifications as defined in the ETGSA Rules and Regulations.
TIER 4	Between: 2.50 ft & 2.99 ft	**All actions in Tiers 1 through Tier 3 apply plus the following additional management actions:** • No extraction of Tier 1 Penalty Allocation within the Management Area. • Extraction of Tier 1 can occur in the Management Area if analyses and data are provided to demonstrate that it will not result in additional land subsidence.

TIER 1 MANAGEMENT ACTIONS

- Management Zones with land subsidence that has occurred between 0 feet and 1.49 feet.
- All Owners with wells in Land Subsidence Tier 1 zones must install meters and begin reporting no later than January 1, 2025.
  - New requirement acted on by the ETGSA in June 2024
- Tier 1 zones do not have restrictions on reduced allocations

TIER 2 MANAGEMENT ACTIONS

- Tier 1 Penalty Allocations shall be reduced to **60% of the allocation** provided in Section 4.03(b) for the Water Year in which the determination is made that land subsidence has occurred between 1.50 feet and 1.99 feet within an individual Management Zone.

- All Owners with wells in Tier 2 Land Subsidence must install meters and begin reporting immediately upon the Determination Date, or by January 1, 2025, which ever occurs sooner.

TIER 3 MANAGEMENT ACTIONS

- Tier 1 Penalty Allocations for lands receiving such allocation in the Land Subsidence Management Area shall be reduced to **30% of the allocation** provided in Section 4.03(b) for the Water Year in which the determination was made that land subsidence has occurred between 2.00 feet and 2.49 feet within an individual Management Zone.

- All Owners with wells Tier 3 Land Subsidence must install meters and begin reporting immediately upon the Determination Date, or by January 1, 2025, which ever occurs sooner.

TIER 4 MANAGEMENT ACTIONS

- Tier 1 Penalty Allocations shall be reduced to **0% of the allocation** provided in Section 4.03(b) for the Water Year in which the determination is made that land subsidence has occurred greater than 2.49 feet within an individual Management Zone.

  - Extraction of Tier 1 penalty allocation can occur in the Management area IF analyses and data are provided to demonstrate that it will not result in additional land subsidence.

TULE SUBBASIN PROBATIONARY DESIGNATION BY THE SWRCB

On Sept. 17, 2024, SWRCB held a probationary hearing for the Tule Subbasin GSAs on the grounds that the GSPs are not adequate in preventing Undesirable Results and achieving groundwater sustainability by 2040.

- **GSP deficiencies highlighted by the SWRCB included:**
  - Mitigation Plan lacked crucial details
  - Groundwater quality monitoring frequency needs to be increased
  - Land Subsidence Management Plans are not on track to achieve their goals

- **The probationary resolution required specific actions of the ETGSA in relation to the LSMA:**
  - ✓ ALL LSMA wells are required to be registered; AND
    - ❖ Except for - deminimis extractors
  - ✓ Flow meters are to be used to measure groundwater extractions
  - ✓ The ETGSA coordinates with Friant Water Authority, the Bureau of Reclamation, and Department of Water Resources on datasets and effective strategies to stop land subsidence from impacting the Friant- Kern Canal

HOW CAN YOU DETERMINE IF YOUR PROPERTY IS IN A LAND SUBSIDENCE MANAGEMENT ZONE WITH ADDITIONAL MANAGEMENT ACTIONS?

Visit the ETGSA Website.

Under “Resource - LSMA” will guide you to an interactive map where you can locate your property. Placing your mouse over your land will reveal data on the management zone that you are in; including your management tier status.

https://easterntulegsa.com/lsma/

Basinsafe Account.

Under the Parcel tab of your Basinsafe account.

Landowner Notice Letter.

When Management Zone Tier Status designations change, landowners are notified through hardcopy letters mailed to the County Assessor office address of record or the current address in the landowners Basinsafe account.

Call the ETGSA

ETGSA staff would be happy to assist you in determining if you are subject to additional management actions associated with the LSMA or any other ETGSA related items.

Compliance

Landowners who do not comply with management actions of the LSMA are subject to monetary penalties imposed on them by the GSA.

- This may include:
  - For each acre-foot extracted in violation of the restrictions set forth herein, the Owner shall be liable for the maximum penalty rate allowed pursuant to SGMA.
  - The quantity of water consumed while not in compliance will be deducted from the Owner's Tier 1 Penalty Allocation in future years, which may include lands outside the LSMA.
  - While in not in compliance the, all water consumed will result in imposition of Transitional Tier 2 Penalties for such consumption ($500 per acre-foot)

Require Landowner Compliance with Additional Management Actions of the LSMA

(1) Register your wells, including construction information and documentation.

Include:

- Precise Locations
- Pictures of your wells
- Well Completion Depth
- Perforation Intervals
- Casing Diameter
- Pump Size
- Lands that are Irrigated by your Well

(2) Install certified and calibrated flow meters

You must:

- Report monthly meter readings with a legible photo of reading.
- Ensure your meter is calibrated and serviced regularly to provide accurate extraction data.

Administrative / Program Updates BasinSafe Functionality

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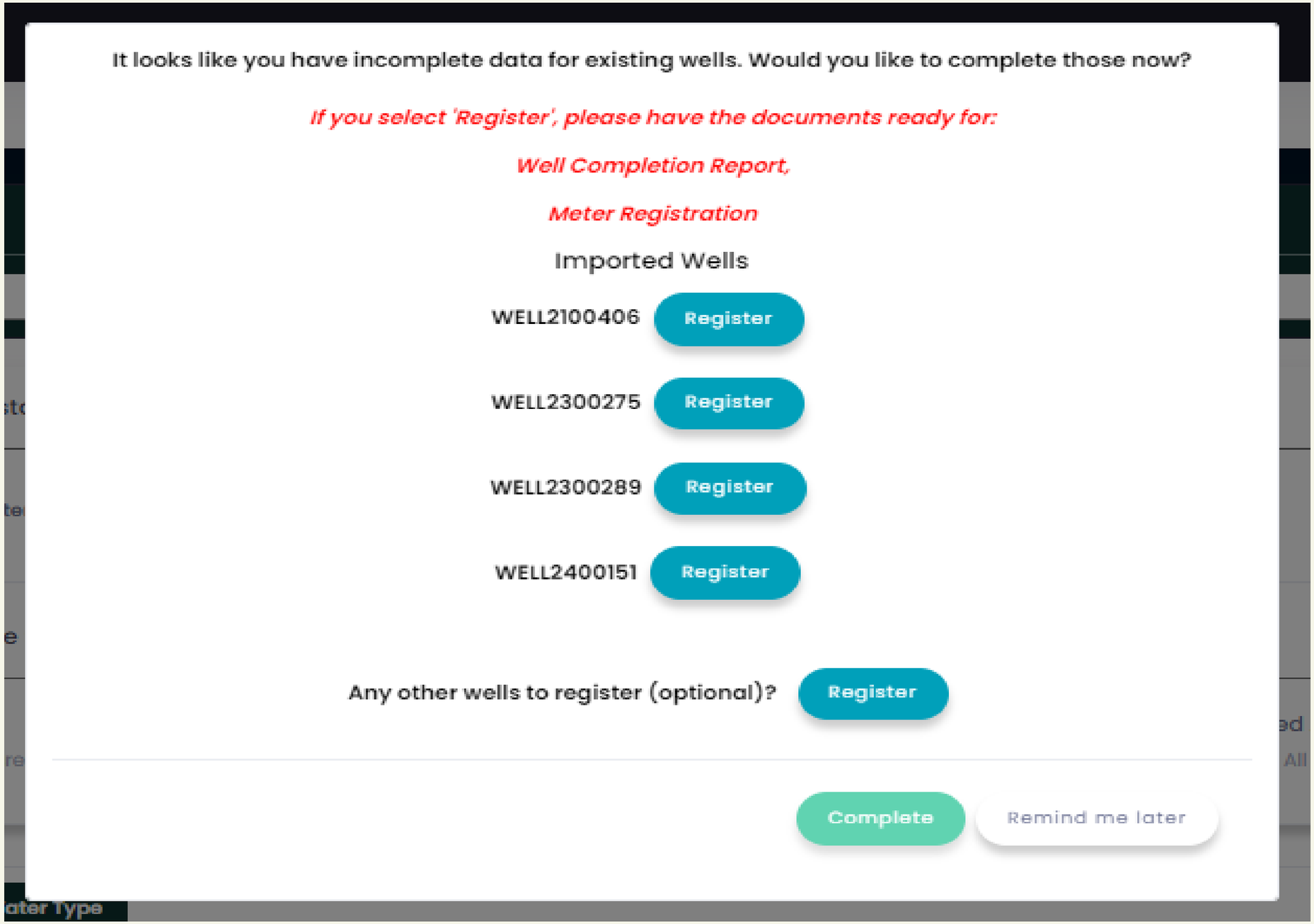
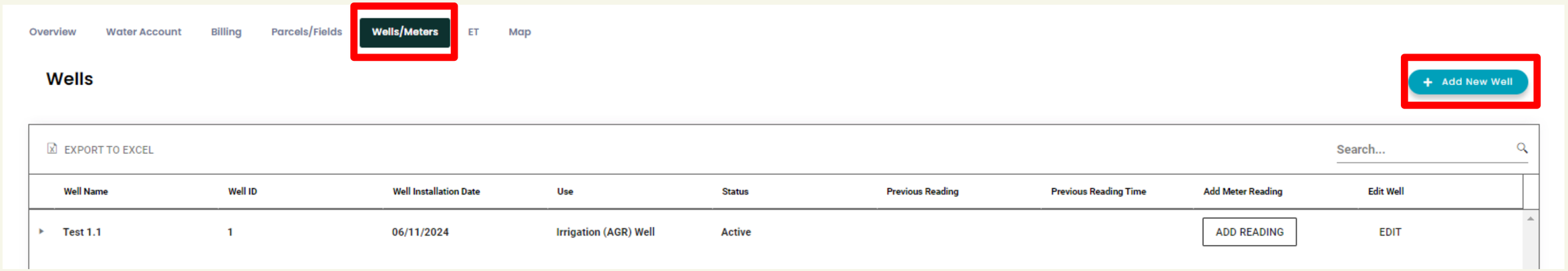
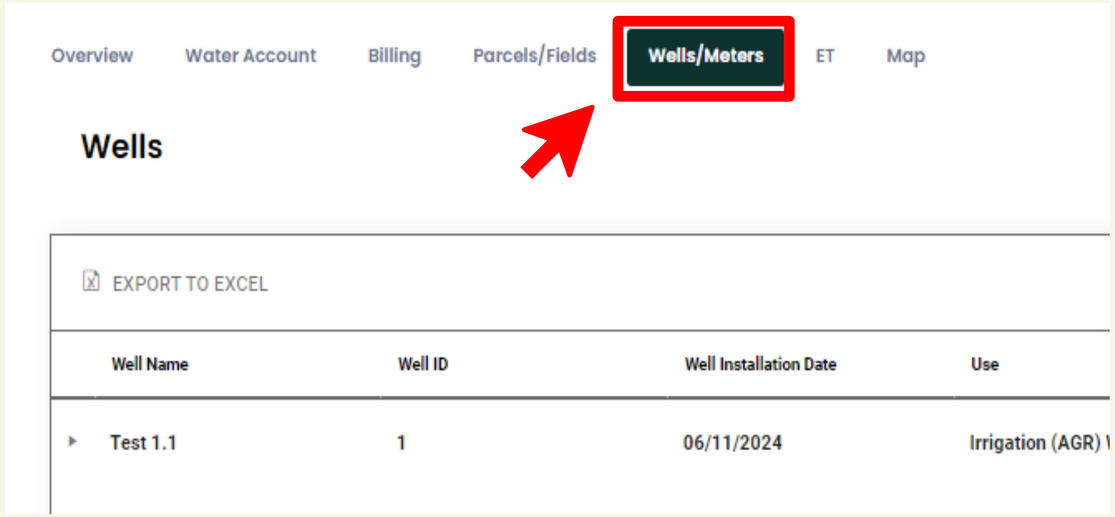
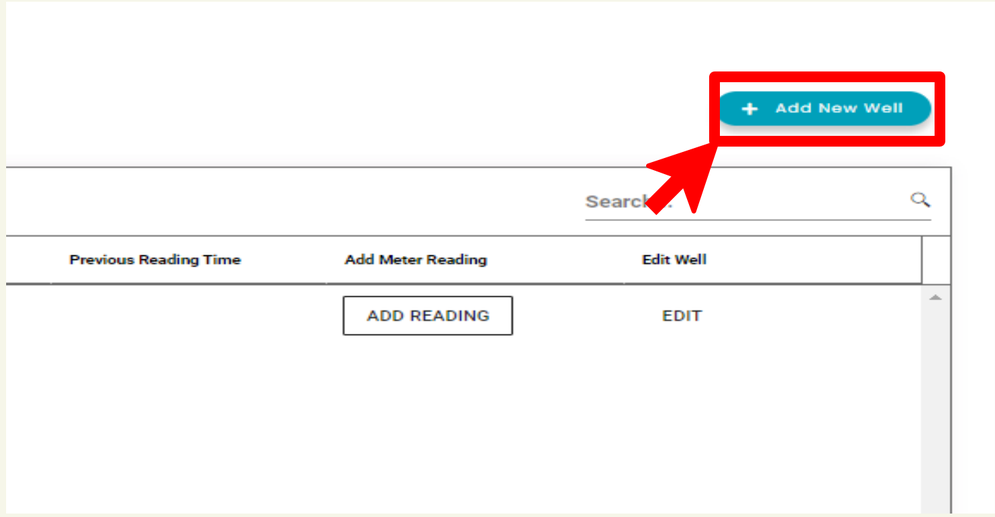
Well Registration in BasinSafe

EASTERN TULE
GROUNDWATER SUSTAINABILITY AGENCY

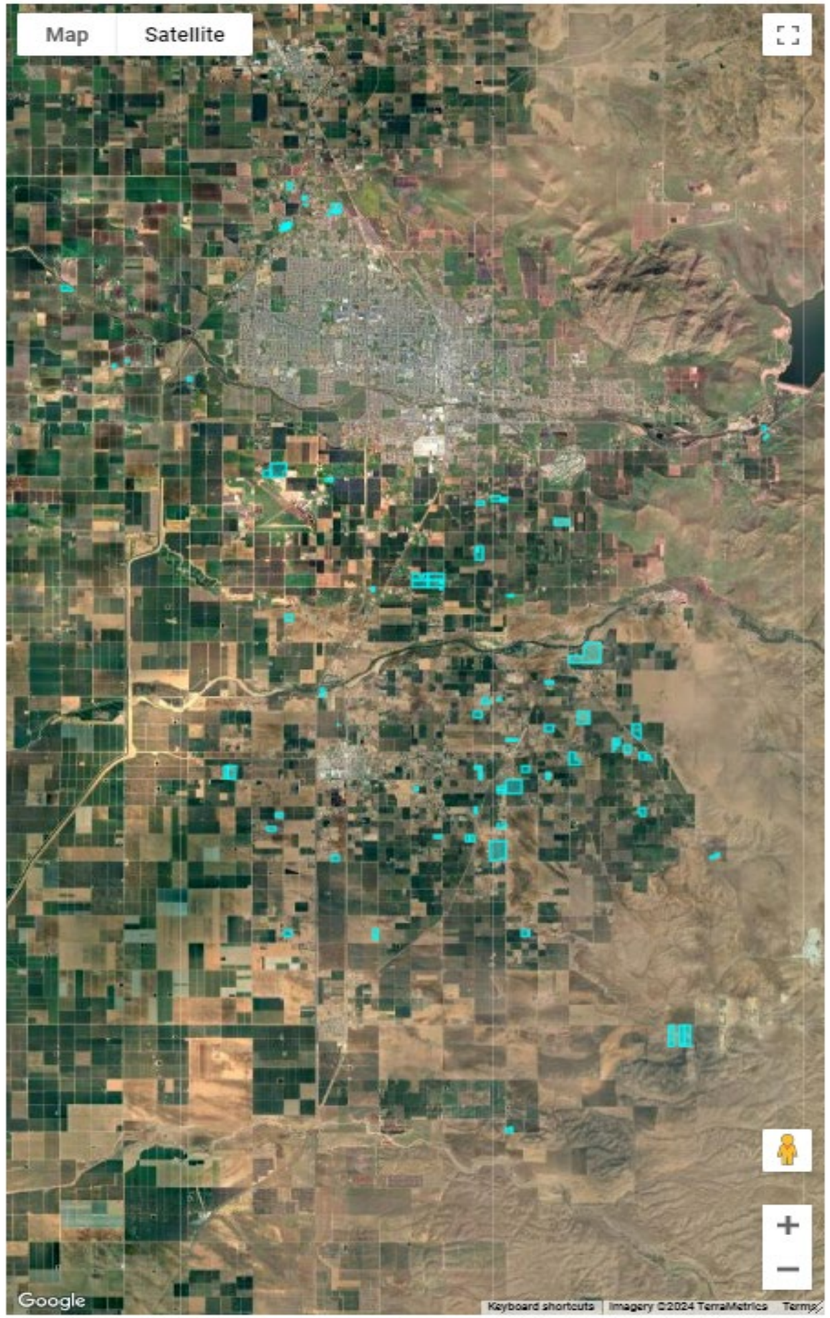

It looks like you have incomplete data for existing wells. Would you like to complete those now?
If you select 'Register', please have the documents ready for:
Well Completion Report,
Meter Registration
Imported Wells
WELL2100406
Register
WELL2300275
Register
WELL2300289
Register
WELL2400151
Register
Any other wells to register (optional)?
Register
Complete
Remind me later


Overview
Water Account
Billing
Parcels/Fields
Wells/Meters
ET
Map
Wells
+ Add New Well
EXPORT TO EXCEL
Search...
Well Name
Well ID
Well Installation Date
Use
Status
Previous Reading
Previous Reading Time
Add Meter Reading
Edit Well
Test 1.1
1
06/11/2024
Irrigation (AGR) Well
Active
ADD READING
EDIT


Overview
Water Account
Billing
Parcels/Fields
Wells/Meters
ET
Map
Wells
EXPORT TO EXCEL
Well Name
Well ID
Well Installation Date
Use
Test 1.1
1
06/11/2024


+ Add New Well
Previous Reading Time
Add Meter Reading
Edit Well
ADD READING
EDIT

Create Well



Starred fields are required (*)

Well Name: *

Well Installation Date ⓘ *
10/16/2024

Well Usage *
Irrigation (AGR) Well

Well Status *
Active

Well Information:

Total Completed Depth (ft-bgs):

Screening Interval Top Depth (ft-bgs): ⓘ

Screening Interval Bottom Depth (ft-bgs): ⓘ

Max Production (GPM):

Pump Horsepower:

Casing Diameter (inches):

Well Location (click anywhere on the map to plot well): *

Latitude: *

Longitude: *

Well Flags (click all that apply):

- ☐ Is this a De Minimis Well?
- ☐ Does this well have a construction log?
- ☐ Does this well have a Sounding Tube port?

Well ID Information (leave blank if non-applicable):

Well Completion Report ID:

CASGEM ID: ⓘ

USGS Site ID: ⓘ

PWS ID: ⓘ

GRA ID Number: ⓘ

APN Located On:

Type Here or Select From Drop Down

File Uploads (file size limit: **5MB** for .jpg, .png, .HEIC, **2MB** for PDFs):

Well Completion Report: Choose File No file chosen

Well Picture: Choose File No file chosen

Well Permit: Choose File No file chosen

Video Log Report: Choose File No file chosen

Pump Test: Choose File No file chosen

Abandonment Record: Choose File No file chosen

Starred fields are required (*)

Well Name: *

Test 1.1

Well Installation Date ? *

06/11/2024

Well Usage *

Irrigation (AGR) Well

Well Status *

Active

Well Information:

Total Completed Depth (ft-bgs):

Screening Interval Top Depth (ft-bgs): ?

Screening Interval Bottom Depth (ft-bgs): ?

Max Production (GPM):

Pump Horsepower:

Casing Diameter (inches):

Max Production (GPM):

Pump Horsepower:

Well Location (click anywhere on the map to plot well)

Latitude: *

35.9770056257609

Longitude: *

-119.005543374342

Well Flags (click all that apply):

Is this a De Minimis Well?

Does this well have a construction log?

Well ID Information (leave blank if non-applicable):

Well Completion Report ID:

CASGEM ID:

APN Located On:

236260001

File Uploads (file size limit: **5MB** for .jpg, .png, .HEIC, **2MB** for PDFs):

Well Completion Report:

test meter reading.jpg

Choose File No file chosen

Well Picture:

test meter reading 2.jpg

Choose File No file chosen

Well Permit:

Choose File No file chosen

Video Log Report:

Choose File No file chosen

Pump Test:

Choose File No file chosen

Abandonment Record:

Choose File No file chosen

Meter Registration in BasinSafe

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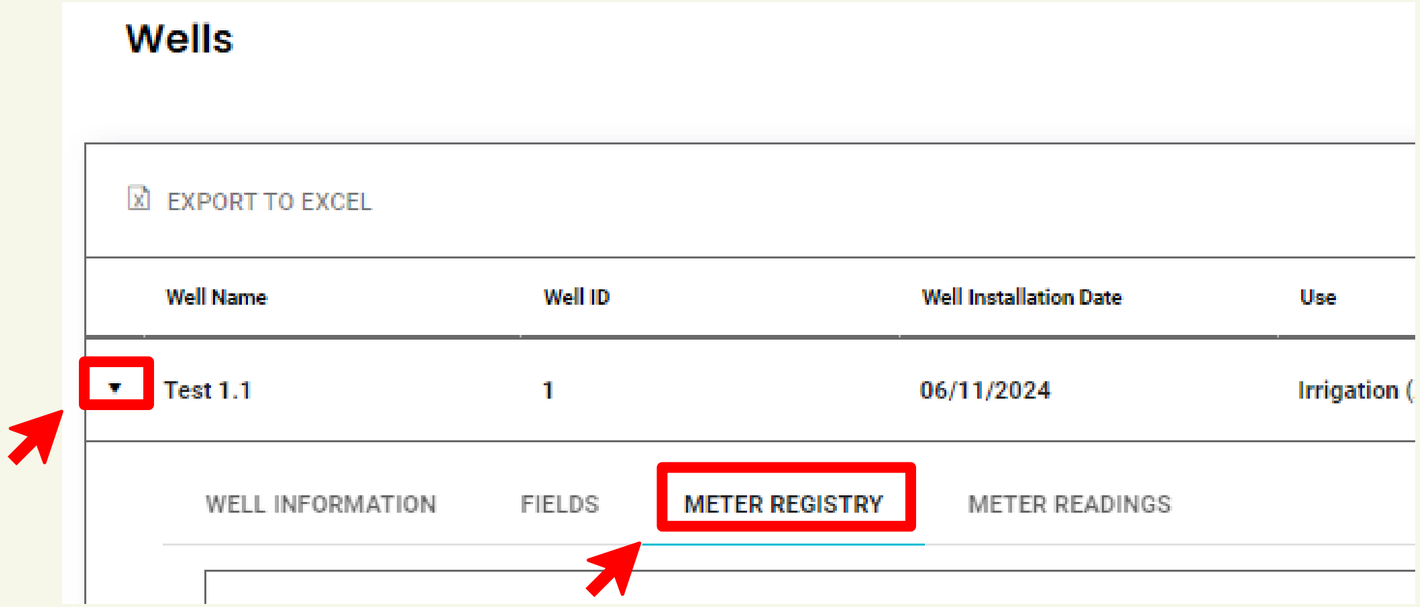
Wells


EXPORT TO EXCEL
Well Name
Well ID
Well Installation Date
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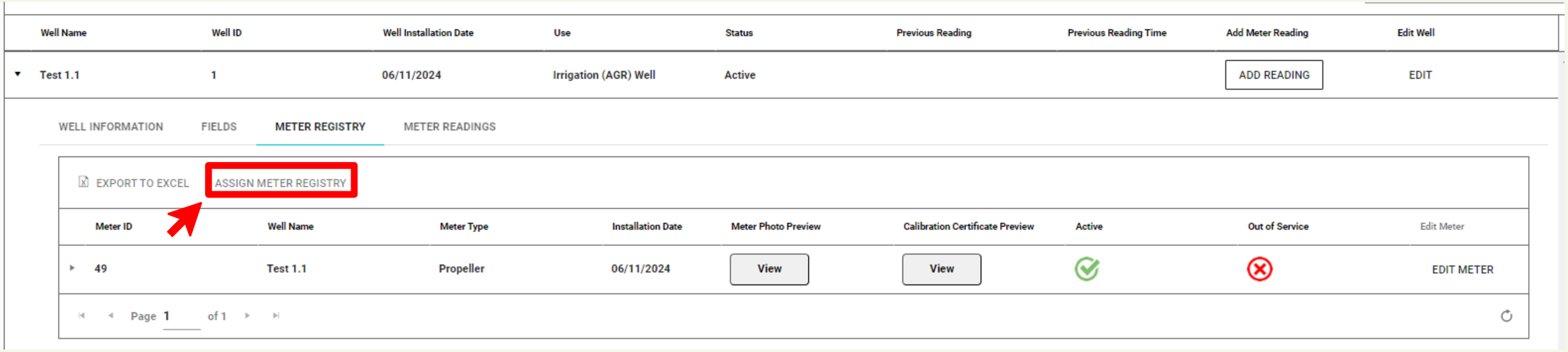
06/11/2024
Irrigation (
WELL INFORMATION
FIELDS
METER REGISTRY
METER READINGS


Well Name
Well ID
Well Installation Date
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Add Meter Reading
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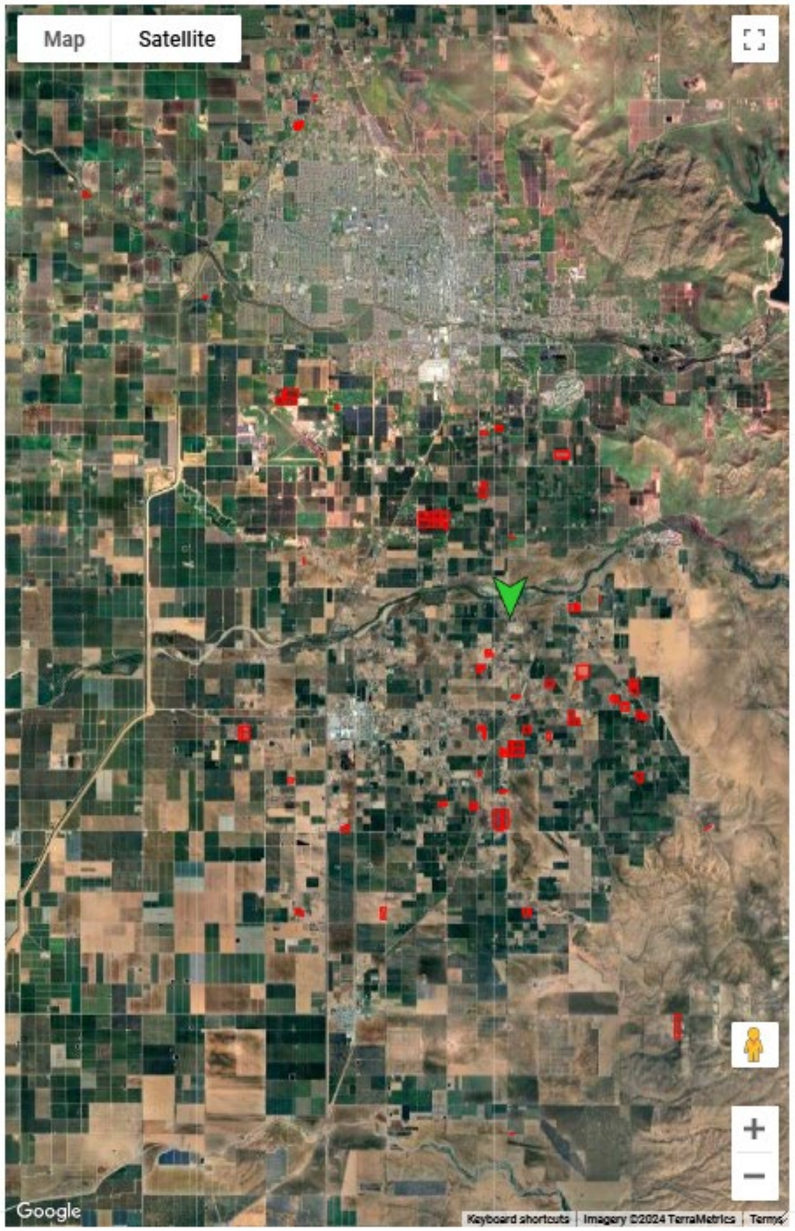
1
06/11/2024
Irrigation (AGR) Well
Active
ADD READING
EDIT
WELL INFORMATION
FIELDS
METER REGISTRY
METER READINGS
EXPORT TO EXCEL
ASSIGN METER REGISTRY
Meter ID
Well Name
Meter Type
Installation Date
Meter Photo Preview
Calibration Certificate Preview
Active
Out of Service
Edit Meter
49
Test 1.1
Propeller
06/11/2024
View
View
EDIT METER
Page 1 of 1

Create Meter Registry

Mark well service areas below:



Warning: Creating a new Meter Registry will automatically retire all existing registries if any are currently active.

Meter Information for Well: Test 1.1

Manufacturer:

Model:

Meter Type: Propeller

Serial Number:

Meter Installation Date (leave blank if unknown)

Pipe Information

Pipe Size: *

Pipe Size Unit Of Measurement: Inches

Reading Information

Flow Unit Type: CFS

Unit Of Measurement: Gallons

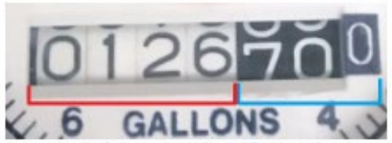
Multiplier: 1

Meter Reading Format

Total digits left:

Total digits right:

Example



*Example: **4** digits to the left and **3** to the right.*

File Uploads

Meter Photo Upload:

Choose File No file chosen

*File size limit: **5MB** (.jpg, .png, .HEIC), **2MB** (PDFs)*

Calibration Certificate:

Choose File No file chosen

*File size limit: **5MB** (.jpg, .png, .HEIC), **2MB** (PDFs)*

Is Retired?

Is This Meter Out of Service?

Cancel

Save

Well Service Area

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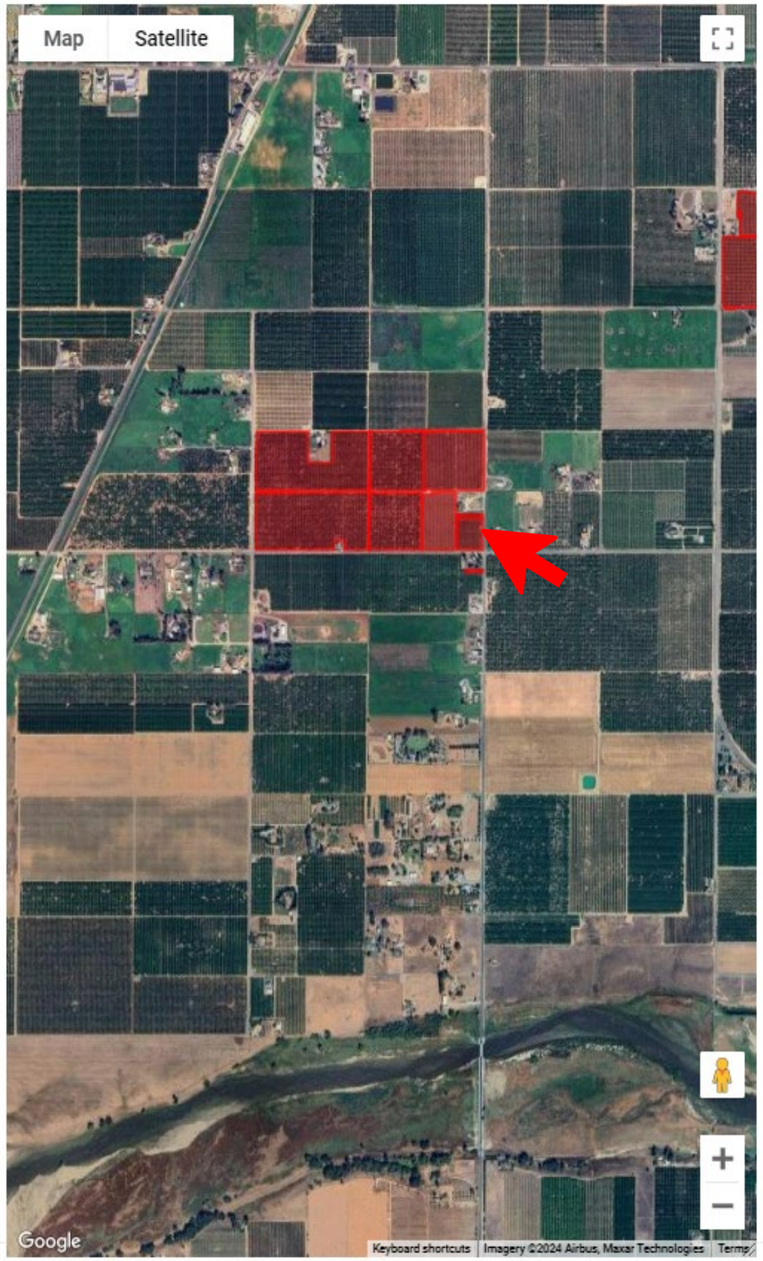
Mark well service areas below:



Meter Information for Well: Test 1.1

Manufacturer: 1.1.1

Model: 2

Serial Number: 123

Meter Insta 06/11/202

Pipe Information

Pipe Size: * 2.00

Pipe Size Ur Feet

Reading Information

Flow Unit Type: CFS

Unit Of Measurement: Gallons

Multiplier: 1.00

Meter Reading Format

Total digits left: 3

Total digits right: 2

Example: 4

File Uploads

Meter Photo Upload:

test meter reading.jpg *View*

If you want to replace the current file, choose a new file below:

Choose File No file chosen

*File size limit: **5MB** (.jpg, .png, .HEIC), **2MB** (PDFs)*

Calibrati test mete

If you wa a new file

Choose

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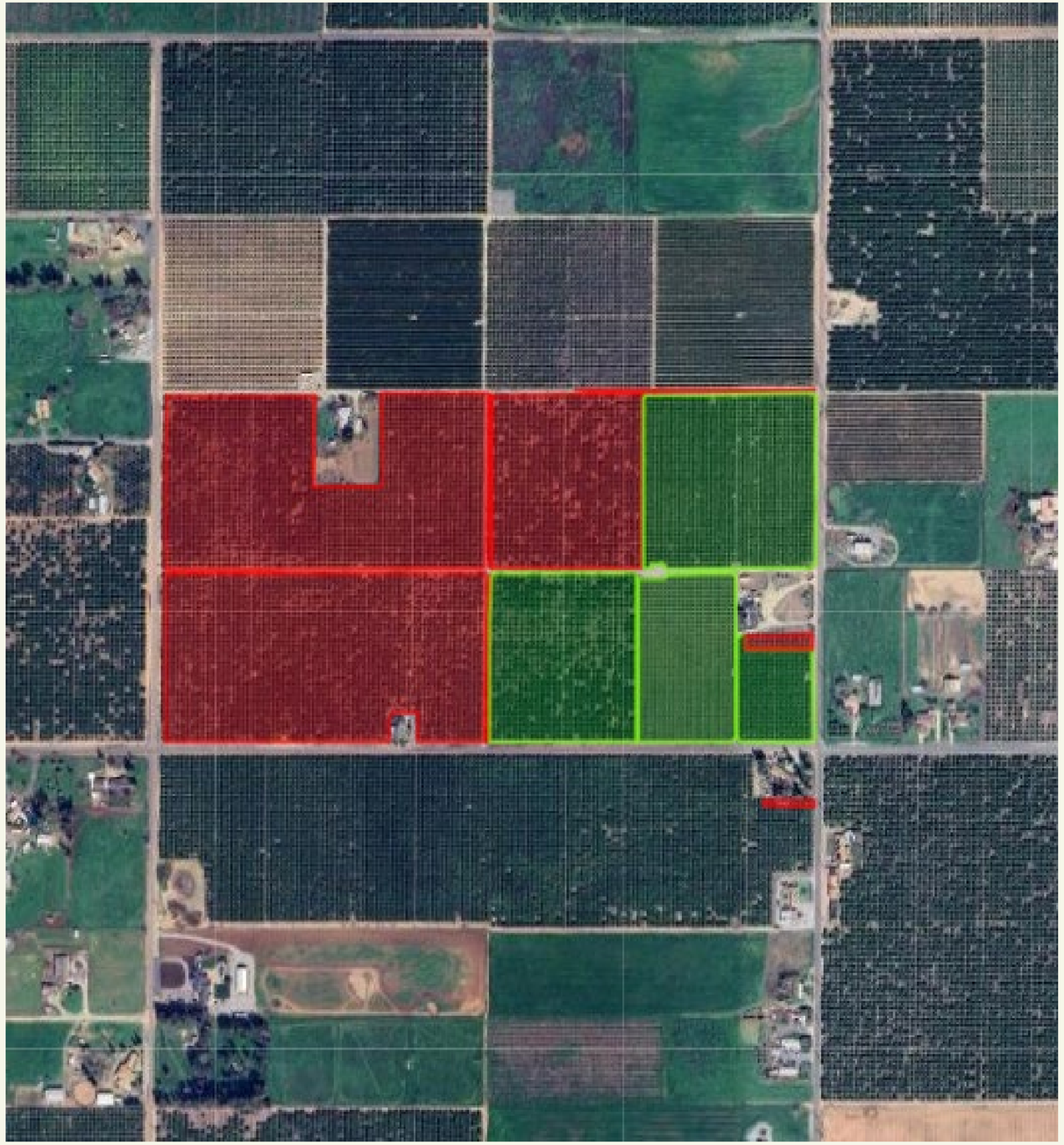
Is Retired?

Is This Met



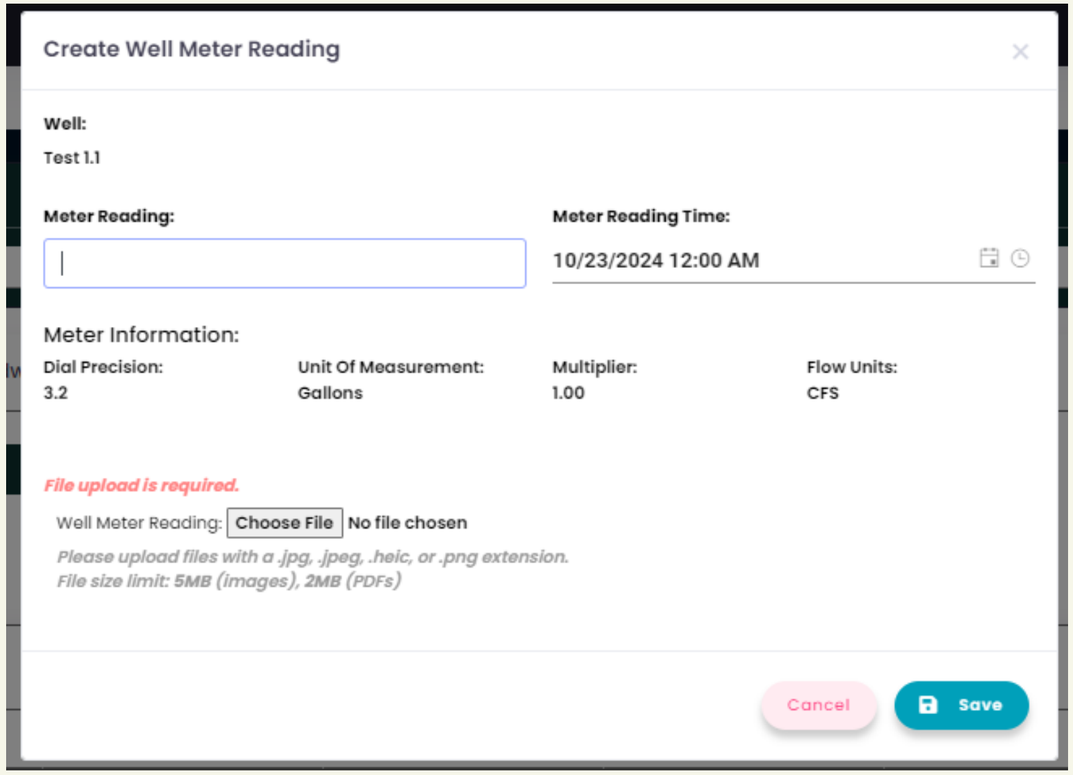
Uploading Meter Readings

EASTERN TULE
GROUNDWATER SUSTAINABILITY AGENCY

Wells

+ Add New Well

EXPORT TO EXCEL

Search...

Well Name	Well ID	Well Installation Date	Use	Status	Previous Reading	Previous Reading Time	Add Meter Reading	Edit Well
Test 1.1	1	06/11/2024	Irrigation (AGR) Well	Active			ADD READING	EDIT