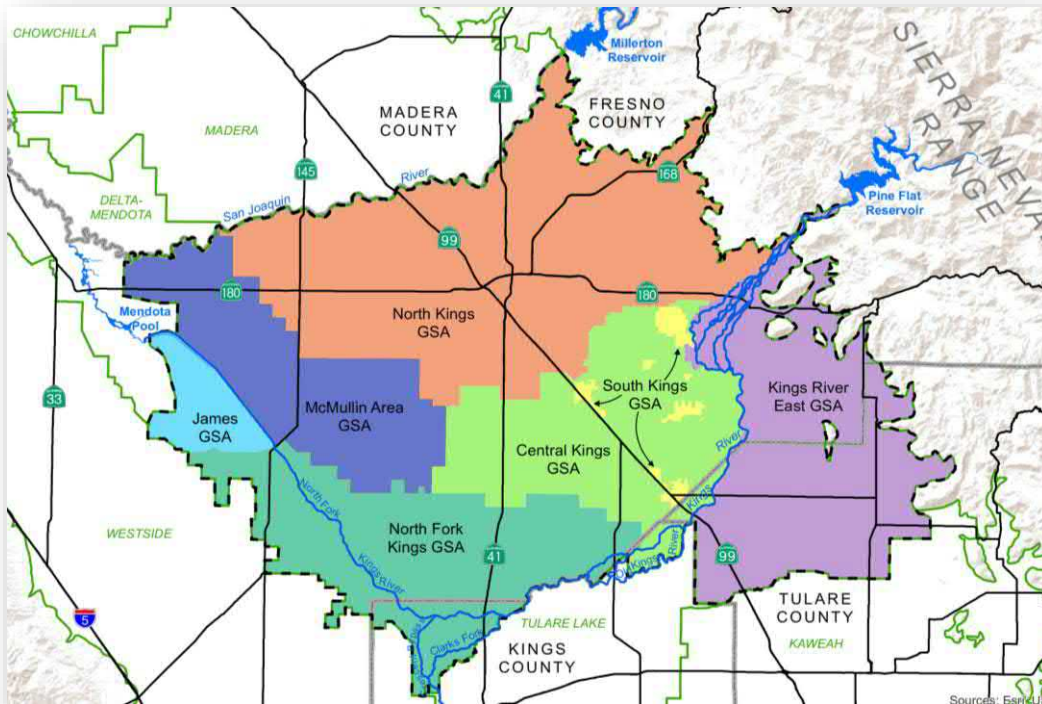


Kings Subbasin

Groundwater Sustainability Agencies



Groundwater Sustainability Annual Report

April 2021

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Appendices

Appendix A – Water Supply Data

Appendix B – Groundwater Level Data

Appendix C – Groundwater Monitor Well Hydrographs

Appendix D – Groundwater Contour Maps – Water Surface Elevations

Abbreviations

| | |
|-----------------|--|
| AF | Acre-Foot |
| AF/YR..... | Acre-Foot Per Year |
| Coalition | Kings River Water Quality Coalition |
| CVDRMP | Central Valley Dairy Representative Monitoring Program |
| CVP | Central Valley Project |
| DWR | Department of Water Resources |
| EDT | Electronic Data Transfer |
| ET..... | Evapotranspiration |
| FID | Fresno Irrigation District |
| GAMA..... | Groundwater Ambient Monitoring and Assessment |
| GSA..... | Groundwater Sustainability Agency |
| GSP | Groundwater Sustainability Plan |
| ILRP..... | Irrigated Lands Regulatory Program |
| JID..... | James Irrigation District |
| KRCD..... | Kings River Conservation District |
| KRWQC..... | Kings River Water Quality Coalition |
| NGS..... | National Geodetic Survey |
| SGMA | Sustainable Groundwater Management Act |

Executive Summary

This is the annual report prepared for the Kings Subbasin. The Kings Subbasin has seven Groundwater Sustainability Agencies (GSAs) (see **Figure 1-1**), all of whom prepared and submitted individual Groundwater Sustainability Plans (GSPs). The seven GSAs have worked cooperatively since 2016 to coordinate the development of their GSPs and have jointly prepared this single annual report for the entire Kings Subbasin.

This report has been prepared in accordance with the requirements for annual reports as identified in the GSP Emergency Regulations (i.e., California Code of Regulations section on Groundwater Sustainability Plans). Included in the body of the report are the regulation requirements. The outline of this report is similar to the structure headings used in the common outline used for each of the GSPs within the basin. The following is a short listing of what is included in each of the sections:

- Section 1 Introduction – A brief introduction of the intent and purpose of this report.
- Section 2 Land Use – A description of recent available land use data used in the report for the estimation of groundwater pumping.
- Section 3 Groundwater Pumping – An estimation of the GW pumping within the basin and a description of how the estimation was calculated.
- Section 4 Sustainable Management Criteria – A update as to the status of each of the Sustainability Indicators applicable to the basin, including groundwater levels (hydrographs and contours), estimation of groundwater storage change, groundwater quality data, land subsidence and surface to groundwater interconnection.
- Section 5 Monitoring Network – A description of any changes or problems with the monitoring network.
- Section 6 – An update of project and management actions undertaken during the reporting period.

This annual report includes data from Water Year 2020 (Oct 2019 to Sept 2020), however in several places additional data from 2015 to 2020 is included.

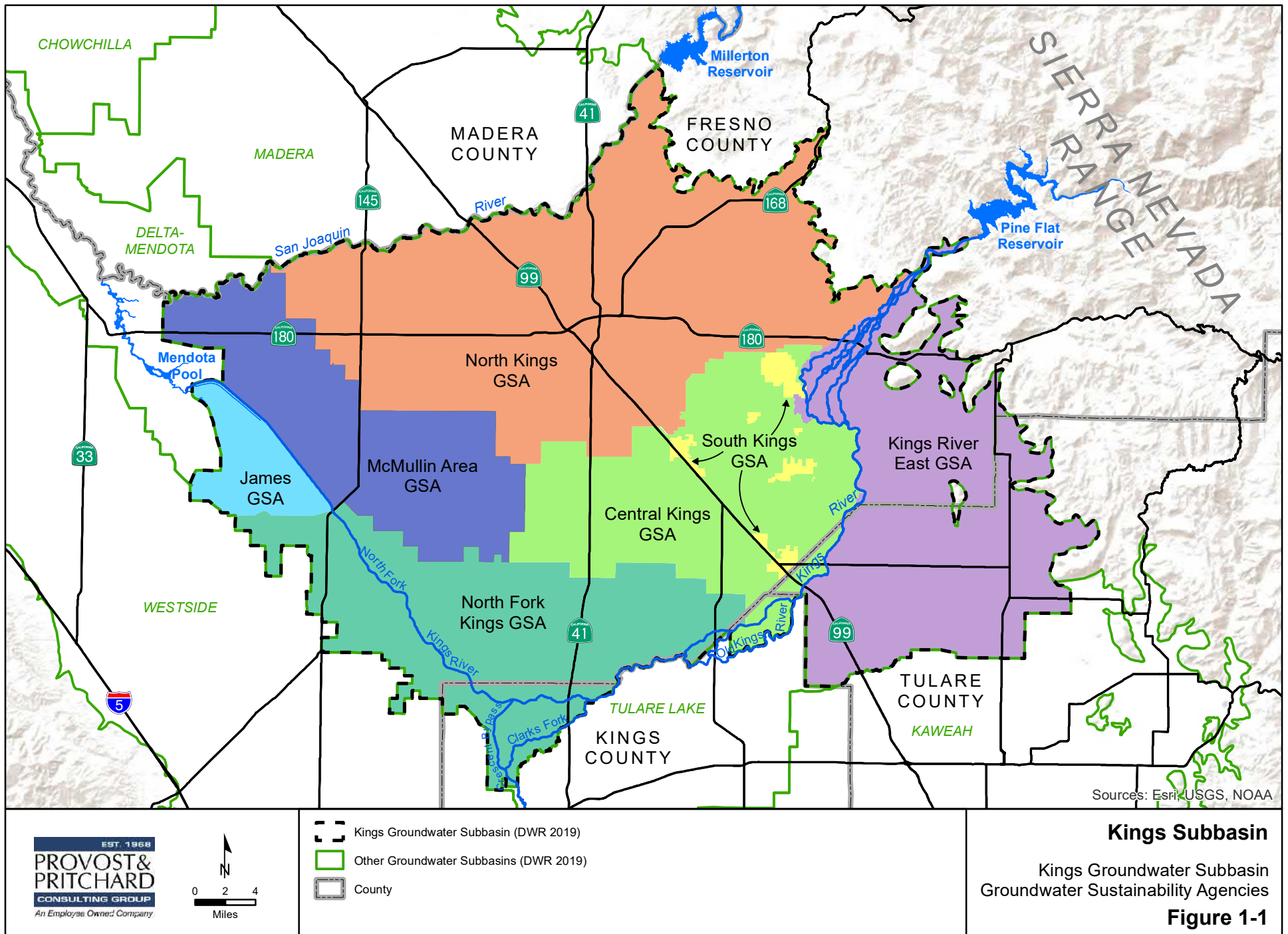
1 Introduction

356.2(a) General information, including an executive summary and a location map depicting the basin covered by the report.

The Sustainable Groundwater Management Act (SGMA) requires groundwater sustainability agencies (GSAs) to submit annual reports to DWR each April 1 following adoption of a groundwater sustainability plan (GSP). This is the annual report prepared for the Kings Subbasin. The Kings Subbasin has seven Groundwater Sustainability Agencies (GSAs) (see **Figure 1-1**), all of whom prepared and submitted individual Groundwater Sustainability Plans (GSPs). The seven GSAs have worked cooperatively since 2016 to coordinate the development of their GSPs and have jointly prepared this single annual report for the entire Kings Subbasin.

This report has been prepared in accordance with the requirements for annual reports as identified in the GSP Emergency Regulations (i.e., California Code of Regulations section on Groundwater Sustainability Plans). GSP annual reports provide information on groundwater conditions and implementation of the plan for the prior water year. The period covered by this report is October 1, 2019 through September 30, 2020, however there are portions of the report that cover from 2015 to 2020.

The structure of this annual report is similar to the common heading structure used for all of the GSPs in the basin. For additional clarification or information on the basin plan area or conditions, please refer to the GSPs. As acknowledged by the Department of Water Resources, it is important to note that there are still some data gaps and missing information as the GSAs continue to gather information for better analysis and decisions.



2 Land Use and Surface Water Supplies

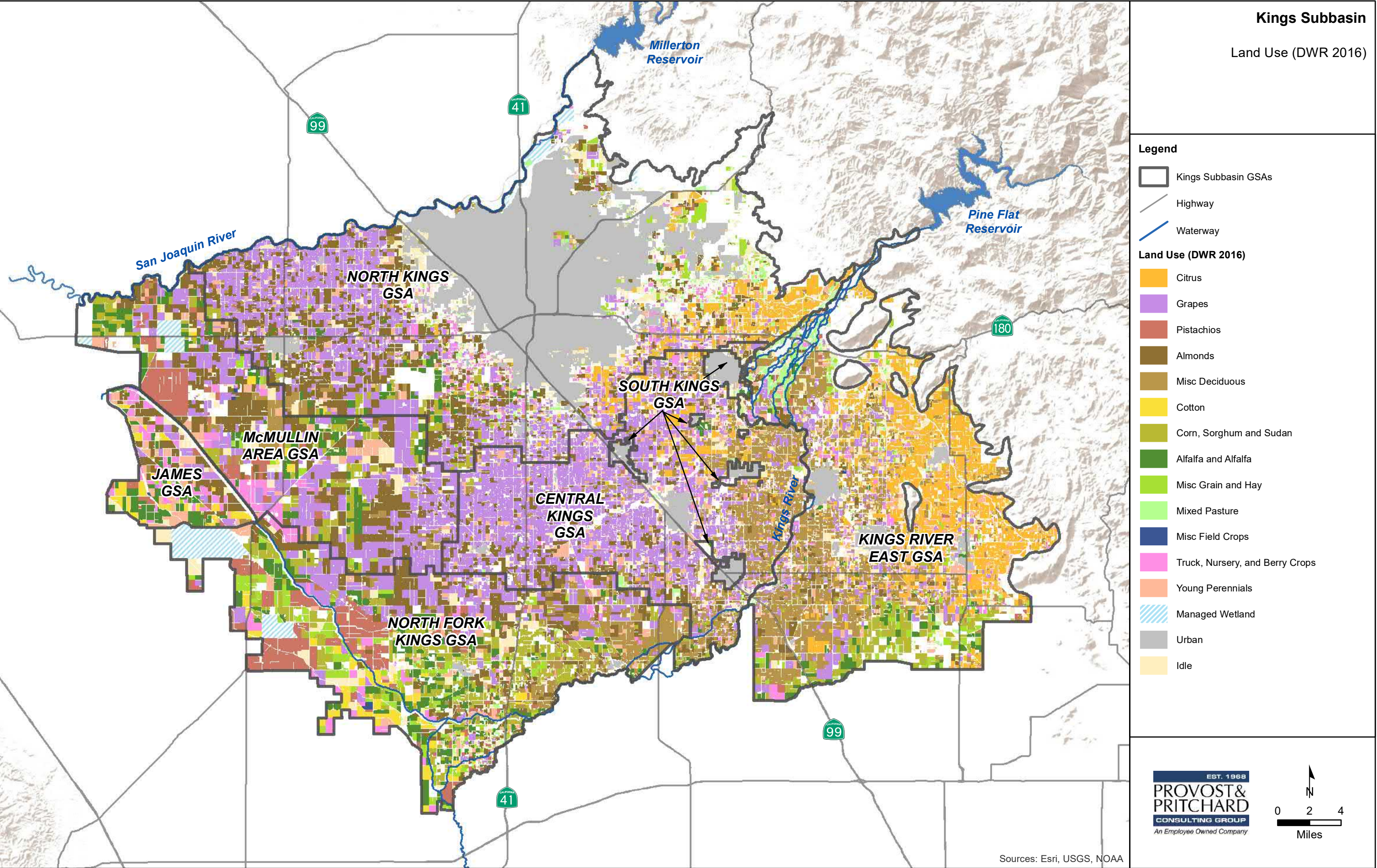
356.2(b) (3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

2.1 Overview of Surface Water Supplies in Kings Basin

Surface water in the Kings Basin comes from several sources, including the Kings River and San Joaquin River, with smaller amounts imported from other areas. The Kings River provides about 85% of the surface water used in the Kings Basin. Central Valley Project water from the Friant Unit comprises about 10% of surface water use. The remaining surface water include South of Delta CVP water, San Joaquin River Settlement water, and riparian diversions from the Kings and San Joaquin Rivers.

2.2 Recent Land Use Data

Historically, DWR Land Use Maps have been utilized for land use data in the Kings Basin. These maps were used in developing all the Groundwater Sustainability Plans in the Subbasin, and for consistency, were also used in estimating water demands for this report. The most recent DWR land use mapping was prepared in 2016. This is considered the best available information for 2020. **Figure 2-1** is the DWR Land Use Map for 2016.



Crop water demands for agricultural areas were calculated based on the land use map, estimated evapo-transpiration rates, and effective precipitation estimates. Evapotranspiration was based on DWR values published in DWR Bulletin 160 (DWR, 2019) for 1998-2011, with reference ETo adjusted for 2020 based on the California Irrigation Management Information System (CIMIS) station at Parlier. Effective precipitation was based on an empirical formula from DWR (1989). Annual precipitation contours were generated from several local weather stations, and the monthly distribution throughout the Basin was assumed to be similar to the long-term monthly distribution at the Fresno Airport Weather Bureau station.

The 2016 DWR Land Use Map was compared to the 2014 DWR Land Use maps for consistency and changes in land use. In general, the total irrigated area has slightly decreased. Unit evapotranspiration rates are also higher than previous periods.

2.3 Description of Hydrology for Period

Table 2-1 shows the hydrologic year type for water years 2015 to 2020 based on an index created for the Kings Groundwater Sub-basin. The water year types were defined based on percentage of average long-term Kings River diversions to the Kings Subbasin from 1955-2020. The water year types include: Dry (<75%), Normal (75%-125%) and Wet (>125%). This index is used since Kings River water provides the majority of surface water in the Kings Groundwater Sub-basin and is considered a good overall indication of wetness and correlates with the amount of groundwater required to be pumped. Several years prior to 2020 are shown since they influence antecedent conditions, including groundwater levels, soil moisture content and surface water storage. Water years 2017-2019 were overall wetter than average but were preceded by an extremely dry period. Overall, the last five years result in near average conditions, but they include an extreme dry and an extreme wet year, which together may not equate to average pumping or recharge conditions.

Table 2-1 – Water Year Type (2015-2020)

| Water Year | % Historical Diversions | Water Year Type |
|-------------|-------------------------|-----------------|
| 2015 | 20% | Dry |
| 2016 | 74% | Dry |
| 2017 | 158% | Wet |
| 2018 | 99% | Normal |
| 2019 | 150% | Wet |
| 2020 | 74% | Dry |
| Average | 96% | Normal |

Note: Water Year includes October of previous year to September of current year

2.4 Surface Water Deliveries

Table 2-2 summarizes the surface water source and surface water uses in the Kings Basin in water year 2020.

Table 2-2 – Kings Basin Surface Water Deliveries (WY2020)

| Source | Volume (AF) |
|-------------|-------------|
| Kings River | 810,000 |
| Other | 148,000 |
| Total | 958,000 |

Notes:

1 - 'Other' Water Sources include Friant CVP water, South of Delta CVP water, Schedule 2 San Joaquin River Settlement water, riparian diversions from the Kings River and San Joaquin River, recycled water, and other surface water supplies.

2- Values rounded to nearest 1,000 AF, values may differ due to rounding errors

Table 2-3 summarizes surface water use by water use sector.

Table 2-3 – Kings Basin Surface Water Use (WY2019)

| Water Use | Volume (AF) |
|------------------|-------------|
| Direct Use | 2,216,000 |
| Managed Recharge | 96,000 |
| Total | 2,312,000 |

Notes:

1 – Direct use includes urban and agricultural use

2 – Managed Recharge only includes intentional recharge. Other sources of groundwater recharge including canal seepage, pipeline leakage and wastewater effluent recharge occur in the Subbasin but are not included in the value above, because they do not fall under DWR's definition of Managed Recharge.

3 – Values rounded to the nearest 1,000 AF, values may differ due to rounding errors

Accuracy

Accuracies of measured and estimated water surface and groundwater supplies are based on confidence intervals for water budgets developed by Cal Poly Irrigation Training and Research Center (1999).

Surface water diversions for agricultural and urban uses are measured with flumes or weirs with accuracies of about +/-5%. Surface water for intentional recharge is based on deliveries to recharge basins. Some recharge basins are metered with accuracy estimated at +/-5%. Some recharge deliveries were not metered and were estimated based on deliveries to metered basins or observations by field staff, with overall accuracies estimated at +/- 25%. Overall, intentional recharge deliveries have an estimated accuracy of +/-15%.

More detailed surface water data is provided in **Appendix A**, including the DWR Surface Water Supply table with details added for each GSA.

3 Groundwater Pumping

356.2(b) (2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

Following are discussions on the types of groundwater pumping in the Kings Groundwater Basin, including the pumping volumes, source of the information, measurement method and level of accuracy.

3.1 Urban Groundwater Use

Urban groundwater use includes pumping for cities and other municipalities, collectively called Municipal and Industrial (M&I) use, and rural domestic pumping. M&I groundwater pumping is metered and recorded with accuracies of +/- 5%.

Rural domestic groundwater pumping is not measured and was estimated based on census data in rural areas, and an assumed 0.5 AF/capita/year based on typical indoor water usage and landscaped areas in the region. These estimates have an accuracy of +/-20% and only comprises a small portion of the total urban demands. This was the same method used in the GSPs prepared for the Kings Basin.

3.2 Irrigation Groundwater Use

Groundwater is used extensively for crop irrigation throughout the Kings Basin. In James GSA, there are private irrigation wells, and all irrigation groundwater is pumped by wells owned and operated by James Irrigation District (JID). JID also owns and operates some wells in McMullin Area GSA that deliver groundwater to the JID system. The JID wells are all metered with measurement accuracy of +/-5%.

Irrigation groundwater in the other GSAs is pumped from private wells that are not metered. Pumping from these wells was estimated through a water budget approach, which has an estimated accuracy of +/- 15%. This is also called the 'Land Use' method, since it is based largely on the water demands of the land use. Following are discussion on how this method was employed.

In a simple situation, groundwater pumping = crop applied water demands – surface water deliveries. However, in many areas surface water deliveries to growers differ from headgate diversions due to system losses and deliveries for intentional recharge. In these situations, irrigation groundwater pumping is estimated using the following formula:

Private Irrigation Pumping = (Crop evapotranspiration – effective precipitation) / irrigation efficiency
– Surface water deliveries to growers

where:

Surface Water Deliveries to Growers = Headgate diversions – System losses – Intentional recharge
and

System Losses = Channel evaporation + Channel seepage + Reservoir evaporation + Reservoir seepage + Operational Spills

As a result, private irrigation pumping was calculated with the following formula:

Private Irrigation Pumping = (Crop evapotranspiration - effective precipitation) / Irrigation efficiency
 – Headgate diversions + Channel evaporation + Channel seepage + Reservoir evaporation +
 Reservoir seepage + Operational spills + Intentional recharge

These calculations were performed for each GSA for water year 2020 (see calculations in **Appendix A**).

No groundwater is pumped for environmental use or other uses not described above.

3.3 Groundwater Pumping Volumes

Table 3-1 summarizes the volumes of estimated groundwater for each measurement method.

Table 3-1 – Groundwater Measurement Methods (WY 2020)

| Water Sector | Method | Volume (AF) | Accuracy |
|----------------------|-----------|-------------|----------|
| Agricultural | Land Use | 1,151,000 | +/-15% |
| M&I and Agricultural | Metered | 157,000 | +/-5% |
| Rural Domestic | Estimated | 45,000 | +/-20% |
| - | Total | 1,353,000 | - |

Note: Values rounded to the nearest 1,000 AF, values may differ due to rounding errors

These values are also presented by GSA in the DWR Groundwater Extraction Methods table found in **Appendix A**

Table 3-2 summarizes the groundwater pumped by water use sector in water year 2020

Table 3-2 – Groundwater Pumping by Water Use Sector (WY 2020)

| Source | Volume (AF) |
|--------------------------|-------------|
| Urban ¹ | 155,000 |
| Agriculture ² | 1,198,000 |
| Total | 1,353,000 |

1 – Urban use includes M&I and rural domestic pumping

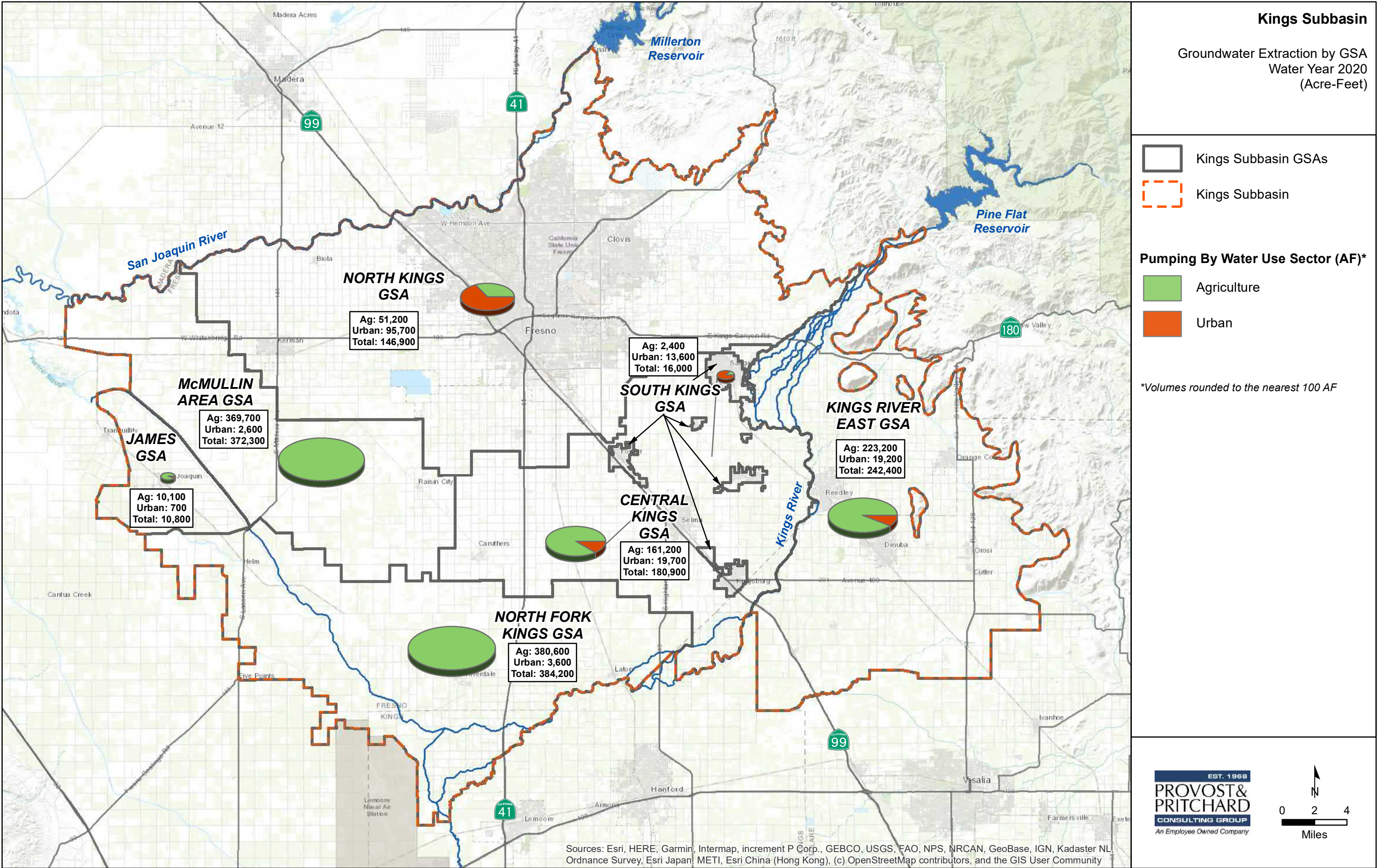
2 – Agricultural use includes crop irrigation and dairy water use

3 - Values are rounded to the nearest 1,000 AF, values may differ due to rounding errors

These values are also presented by GSA in the DWR Groundwater Extractions table found in **Appendix A**.

3.4 Geographic Distribution of Groundwater Pumping

Figure 3-1 shows estimated groundwater pumping (agricultural and urban) for each of the seven GSAs.



3.5 Total Water Use

356.2(b) (4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

Table 3-3 summarizes total water use by water use type and sector for WY2020

Table 3-3 – Summary of Total Water Use for WY 2020 (AF)

| Description | Urban | Agriculture | Total |
|---------------|---------|-------------|-----------|
| Groundwater | 155,000 | 1,198,000 | 1,353,000 |
| Surface Water | 145,000 | 813,000 | 958,000 |
| Total | 300,000 | 2,011,000 | 2,311,000 |

Notes:

1 - Surface water includes contract diversions, riparian diversions and recycled water used for both recharge and direct use

2 – Values rounded to the nearest 1,000 AF; values may differ slightly from other reported values due to rounding errors

These values are also presented by GSA in the DWR Total Water Use table found in **Appendix A**. Refer to discussions in previous sections for information on measurement methods and accuracy.

The data presented in **Table 3-3** is a short snapshot of water conditions, and not necessarily representative of long-term average hydrology. This information was not used to develop a 2020 annual water budget for comparison to change in groundwater storage. An annual water budget would likely not be accurate due to time lags in various forms of recharge, and inaccuracies that tend to balance out over longer time periods. However, this information will eventually be used in a long-term multi-year water budget analysis.

4 Sustainable Management Criteria

4.1 Sustainable Goal

As identified in Section 4.1 of each of the GSPs, the sustainability goal of the Kings Subbasin and each GSA is to ensure that by 2040 the basin is being managed to maintain a reliable water supply for current and future beneficial uses without experiencing undesirable results. This goal will be met by balancing water demand with available water supply to stabilize declining groundwater levels without significantly and unreasonably impacting water quality, land subsidence, or interconnected surface water. The goal of the basin is to correct and end the long-term trend of a declining water table understanding that water levels will fluctuate based on the season, hydrologic cycle, and changing groundwater demands within the basin and its proximity.

4.2 Groundwater Levels

356.2(b) (1) (A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.

356.2(b) (1) (B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

The Kings Subbasin monitoring network includes hundreds of wells used for developing groundwater contour maps and estimating change in storage. As identified in the GSPs of the subbasin, a subset of these wells includes one hundred and twenty-four (124) indicator wells (Sustainable Management Criteria or SMC) wells in the Kings Subbasin for which Interim Milestones, Measurable Objectives and Minimum Thresholds have been set (**Figure 4-1**). **Appendix B** contains the groundwater elevation and depth to water data in tabular format for spring and fall for the years 2015 to 2020. **Appendix C** contains hydrographs for the indicator wells. These hydrographs graphically show Interim Milestones, Measurable Objectives, Minimum Thresholds and the trend line over the hydrologic base period from 1997 to 2012. The hydrographs have inset maps showing the location of the well within the GSA. Additional information on the hydrographs includes the well names (local and/or state names as available) and the ground surface elevation.

In general, since 2015, water levels continued to decline at the end of a historic drought and in some cases reaching lowest points recorded in fall 2016. After the wet 2016/2017 winter groundwater levels generally rose through spring 2017 and continued to increase in some areas even through fall of 2017. Since 2017 some wells have continued to see increases in water levels, while some showed declines after the normal 2017/2018 winter. Some rebound occurred in the spring 2019 data after the wet 2018/2019 winter. From spring 2019 to fall 2020 water levels generally decreased as evidenced by the estimated storage change from fall 2019 to fall 2020, discussed below. Subbasin wide the general trend is decreasing water levels in normal to dry years and increasing water levels in wet years.

There are only a few locations in the Subbasin where wells are known to be perforated solely below the Corcoran clay or the deeper confined portion of the aquifer east of the Corcoran clay. Newer community wells are typically sealed across shallow contaminated water and probably reflect hydraulic conditions in deeper groundwater. To date there is insufficient geographic distribution of data from wells known to be perforated below the Corcoran clay where it is present or from deeper wells east of the Corcoran clay to contour the lower aquifer zone or deep groundwater. The Subbasin will continue to gather data to continue to better define the confined aquifer, but for now, only mapping of the unconfined aquifer has been prepared.

4.2.1 Water Level Maps/Contours

Water surface elevation contour maps were generated for the fall of each year from 2015 to 2020 and spring 2020 based on the available water level data and are included in **Appendix B**. The seasonal high and seasonal low groundwater conditions for 2020 are presented in **Appendix D** as the spring 2020 and fall 2020 water surface elevation contours maps along with the fall groundwater contour maps from 2015 to 2019. At the time of the Water Year 2018-2019 annual report compilation of the fall 2019 had not been completed but is included in tabular format in this year's annual report.

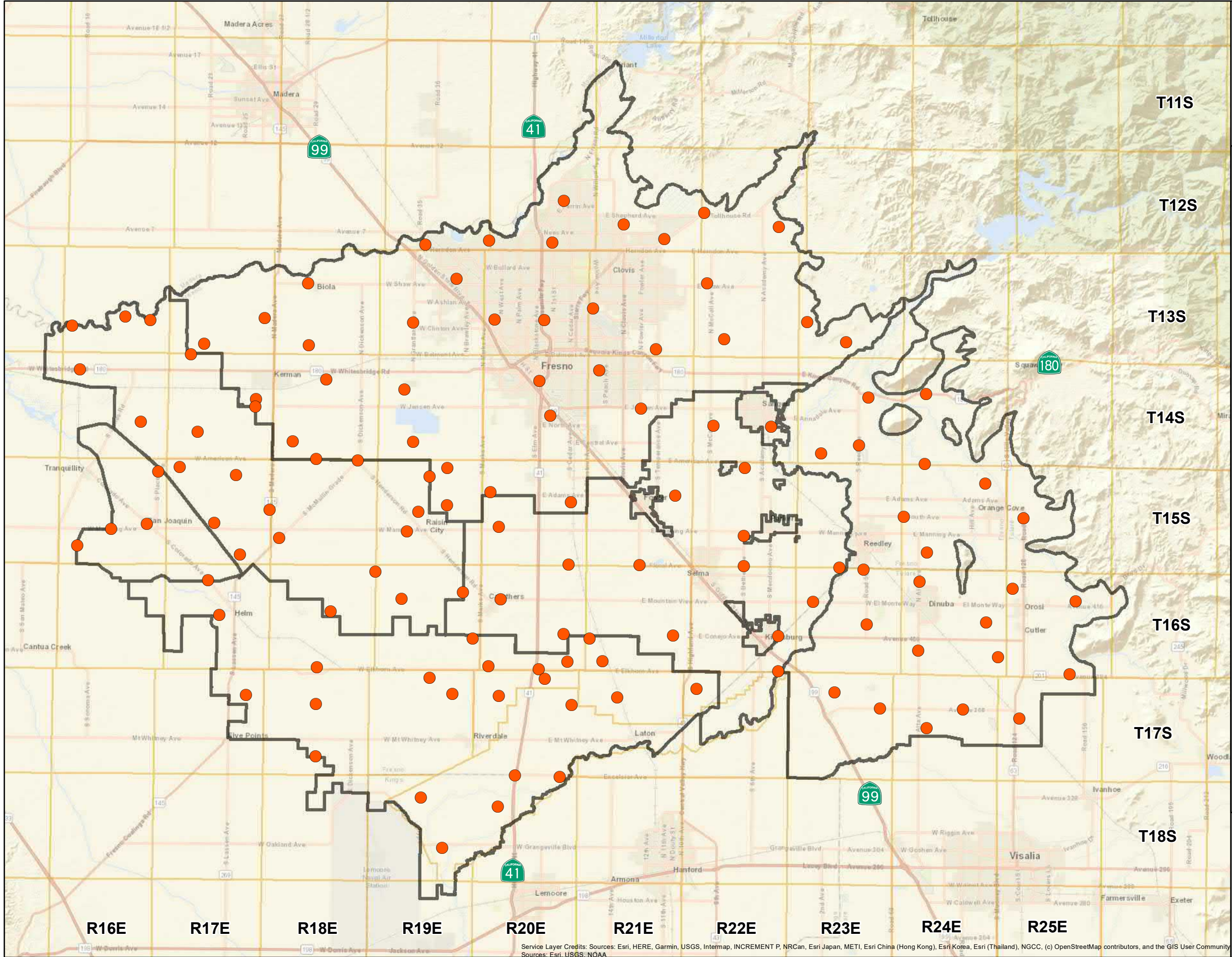
The water surface elevation contours represent the unconfined aquifer above the Corcoran clay and above the conceptual base of unconfined groundwater east of the Corcoran clay. In areas of the

Subbasin where the shallow A clay is present these contours are meant to represent the portion of the aquifer below it but above the Corcoran clay.

The number of wells evaluated in the Kings Subbasin to develop the groundwater surface elevation contours varied from about 608 in Fall 2016 to about 727 wells in Fall 2020. Additional well data was also evaluated outside of the Kings Subbasin but the number of wells with data available outside the Subbasin was variable and not included in the total number.

The process used to generate the contours was similar to what was used by the Subbasin for development of the GSPs. Well locations and groundwater elevations were plotted on the Kings Subbasin maps for the fall of each year from 2015 to 2020 and spring 2020. Groundwater level elevations that appeared inconsistent with the majority of other wells in an area were typically not used. Wells with significantly different water levels may be perforated in the confined portion of the aquifer or in shallow groundwater above the A clay where it is present or other local clays. In some locations where a well reading was significantly different than other wells in the immediate vicinity, it was discarded because it was believed that these readings were likely erroneous or anomalous (well pumping nearby, well recently pumped, oil, etc). Effort was made to use the same wells year over year in this evaluation so that the storage change calculations, described below, were not unduly affected by the use of data from different wells or data from wells that did not have data in other year(s).

Groundwater elevation contours were generated utilizing ArcGIS software and then the contours were reviewed and edited for consistency, and to remove apparently anomalous data. It should be noted that data was used, even if the data point was new or had not been used in other maps in the period, if the data was reasonably consistent with the contours. This is done so that through time more wells are used in the contouring process to better define the groundwater surface. ArcGIS used the groundwater surface elevation and the 10 meter horizontal resolution USGS National Digital Elevation Model (**Appendix D**) to create depth to water surfaces for the evaluated years for use in the storage change estimation discussed below.



Kings Subbasin Coordinated Effort

Water Level Monitoring Network

Figure 4-1

Legend

- Indicator Well
- Groundwater Sustainable Agency
- Township/Range

EST. 1968

PROVOST & PRITCHARD

CONSULTING GROUP

An Employee Owned Company

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Miles

4.3 Groundwater Storage

356.2(b) (5) (A) Change in groundwater in storage maps for each principal aquifer in the basin.
356.2(b) (5) (B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

Technical Memorandum 2 in the Kings Subbasin GSPs identifies the current specific yield values used in storage change calculations for the Kings Subbasin. The specific yield units from this process are illustrated on **Figure 4-2**. Specific yield values also vary by depth and Technical Memorandum 2 describes specific yield at depth intervals from 10'-50', 50'-100', 100'-200' and 200'-300', and below 300 feet. Storage change was estimated based on changes in storage above 400' below the groundwater surface. It should be noted that previous storage change estimates were prepared based on changes from spring to spring, however the storage change discussed below and shown on **Figure 4-3**, below, are from fall to fall to better temporally align with the October 1 to September 30 water year period.

The process for estimating the groundwater storage change from fall 2015 to fall 2020 was the same process utilized by all the GSAs in the basin in preparation of their GSPs and included the following steps:

1. The final wells selected from the water surface elevation review and contouring process were used to create depth to water surfaces, as described above.
2. Using the depth to water surfaces, the average depth to water value was determined for each unique specific yield unit. The average depth to water was determined using ArcGIS Spatial Analyst.
3. For each specific yield unit, the average depth to water of that area was used to determine the height of water above 400 feet for each depth zone.
4. The height of water in each depth zone was multiplied by the specific yield for that depth zone and then by the total acreage within that Specific Yield unit.
5. Values for each depth zone were added to determine total volume in storage above 400 feet.
6. The groundwater in storage volume by specific yield units were totaled by GSA to estimate the GSA total for that year.
7. Steps 1 through 6 were repeated for the ending year being considered.
8. The total volume in storage estimated for the starting year was subtracted from the total volume estimated for the ending year to determine the total change in volume between the two years.

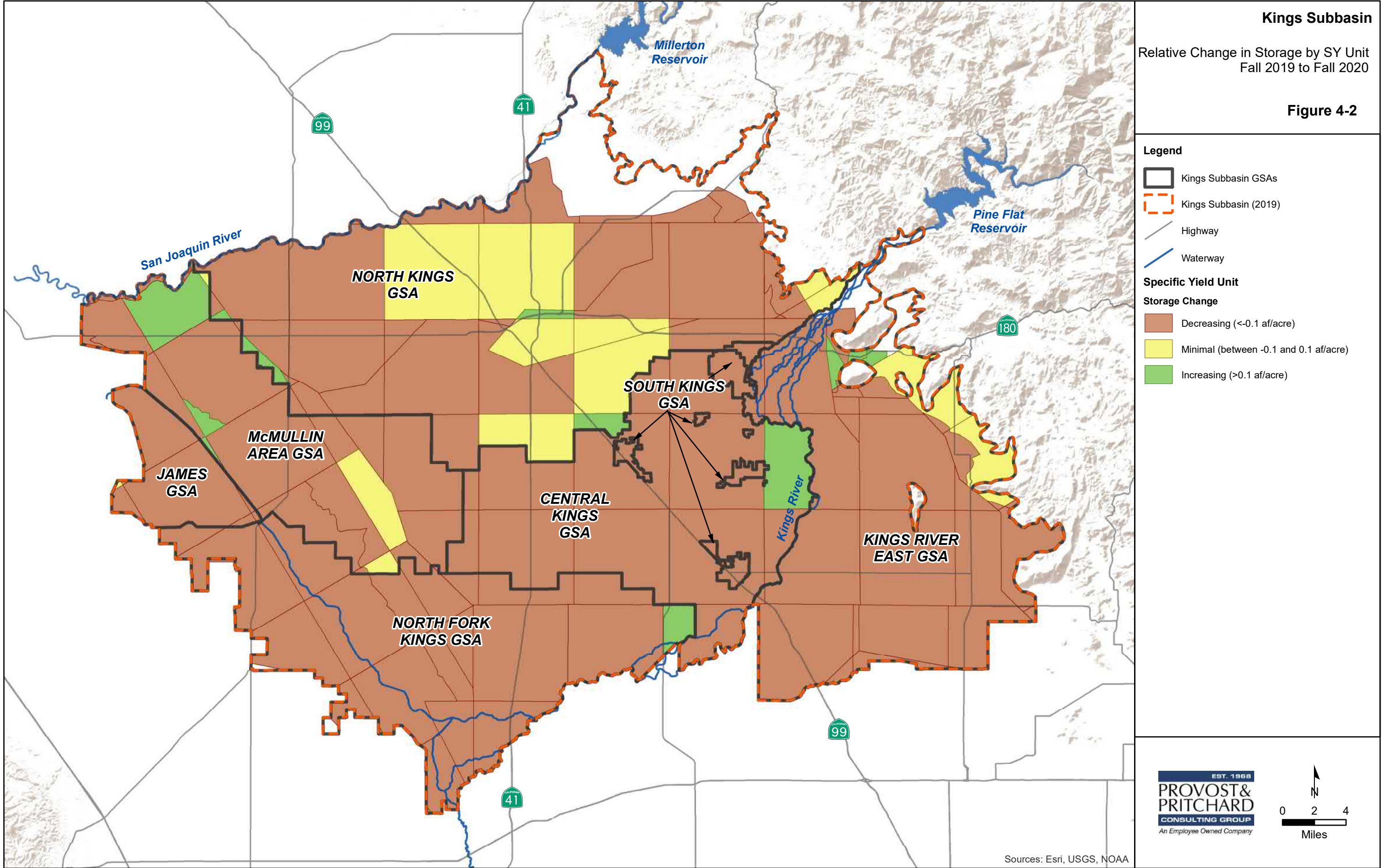
Figure 4-2 shows the Subbasin specific yield units and which specific yield units had minimal (-0.1 to +0.1 AF per acre), increasing (>+0.1 AF per acre) or decreasing (< -0.1 AF per acre) storage change from fall 2019 to fall 2020.

There is some inconsistent well data in certain areas that affects year to year estimations of storage change. The GSAs have and will continue to work to improve the reliability of data within the basin. For example, several composite wells were identified while preparing this annual report and these data were not considered on the unconfined groundwater maps shown in **Appendix D. Table 4-4** below shows the estimates of storage change year by year and the total estimated cumulative change in storage for the Kings Subbasin from fall 2015 to fall 2020. The fall 2019 to fall 2020 estimated storage change is negative 550,000 acre-feet across the entire Kings Subbasin. This report covers multiple years from 2015 to 2020. Over the fall 2015 to fall 2020 period the cumulative storage change was estimated

to be positive by about 230,000 acre-feet (**Figure 4-3**). The positive increase in storage from fall 2016 to fall 2017 and from fall 2018 to fall 2019 seem reasonable given the wet winters in 2016/2017 and 2018/2019, the normal 2017/2018 winter, and the ability of Pine Flat reservoir to maintain hold over storage for delivery in subsequent years. As well, the negative storage change from fall 2015 to fall 2016 is reasonable considering it was the last dry year of the drought with Kings River surface supplies at about 74.1% of normal.

Table 4-1 – Kings Subbasin - Estimated Annual Change in Storage, Fall 2015 to Fall 2020

| Kings Subbasin GSA | Est. Storage Change Fall 15 to Fall 16 | Est. Storage Change Fall 16 to Fall 17 | Est. Storage Change Fall 17 to Fall 18 | Est. Storage Change Fall 18 to Fall 19 | Est. Storage Change Fall 19 to Fall 20 |
|---------------------------------------|--|--|--|--|--|
| Total Est. Storage Change (AF) | -170,000 | 960,000 | -400,000 | 390,000 | -550,000 |



Kings Subbasin
Estimated Annual and Estimated Cumulative Groundwater Storage Change from Fall 2015 to Fall 2020



Notes:

- 1 - Annual storage change is from fall to fall. Estimated storage change is listed under the ending year evaluated. For example, estimated storage change from Fall 2015 to Fall 2016 is under the 2016 Water Year column.
- 2 - Water Year begins Oct. 1 of preceding year and runs through Sept. 30 of listed year. For example, the 2015 Water Year begins Oct. 1, 2014 and continues through Sept. 30, 2015.
- 3 - Values rounded to nearest 10,000 acre-feet.
- 4 - Water Year percent based on Kings River Water Year Types - less than 75% = Dry, from 75% to 125% = Normal, greater than 125% = Wet.
- 5 - Water Year Surface Water Deliveries = Kings Subbasin, Kings River Headgate Diversions + Central Valley Project + estimated San Joaquin and Kings River Riparian.

4.4 Seawater Intrusion

The Kings Subbasin is not hydrologically located near the ocean nor near saline sinks. Therefore, no criteria has been established for undesirable results.

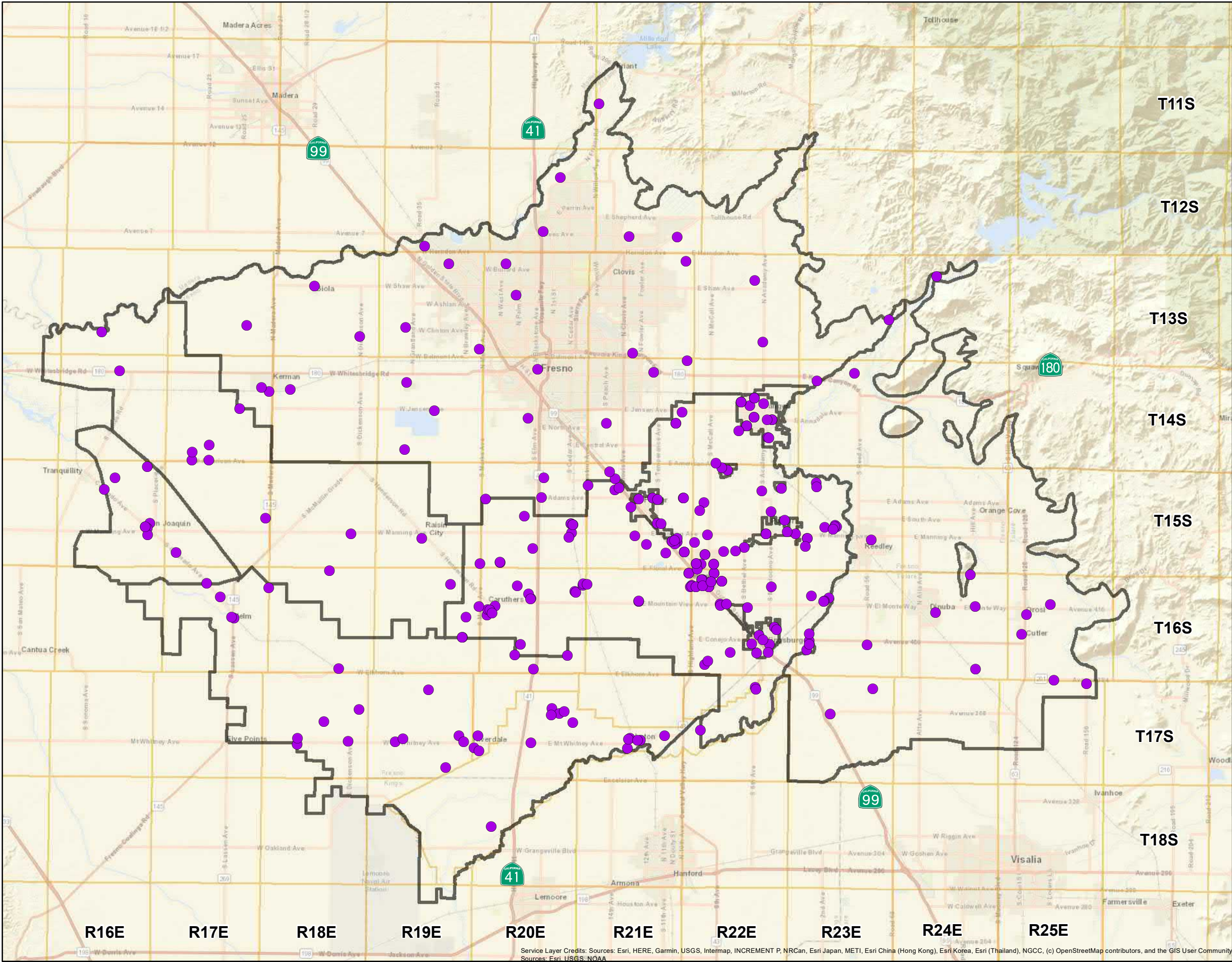
4.5 Groundwater Quality

The Kings Basin's Groundwater Quality Monitoring Network is comprised of the individual GSA groundwater quality monitoring networks described in each GSA's GSP. A map of the overall network is shown in **Figure 4-4**.

The groundwater quality monitoring networks for the GSAs are comprised primarily of community and non-community public supply wells. Groundwater quality data from these wells are publicly available from the water suppliers or through online databases such the State Safe Drinking Water Information System (<http://sdwis.waterboards.ca.gov/PDWW/>) or the California Water Boards' Electronic Data Transfer (EDT) database. McMullin also utilizes groundwater quality data from the American Avenue Landfill is publicly available on the California Water Board's online GeoTracker database as it becomes available. Some GSAs are also utilizing data from the Kings River Water Quality Coalition (KRWQC) under the Irrigated Lands Regulatory Program (ILRP).

4.6 Land Subsidence

As discussed in the GSP, the basin is primarily relying on land subsidence survey information from observation points surveyed by KRCD as part of their land subsidence network. Data was provided from KRCD for measurements taken in April of 2016 and October/December of 2020. The cumulative elevation change over that more than 4 year period was mapped and is shown in **Figure 4-5**. The observations generally indicate little to no change throughout the basin, with a greater amount of change in the western and southwestern portion of the basin.



Kings Subbasin Coordinated Effort

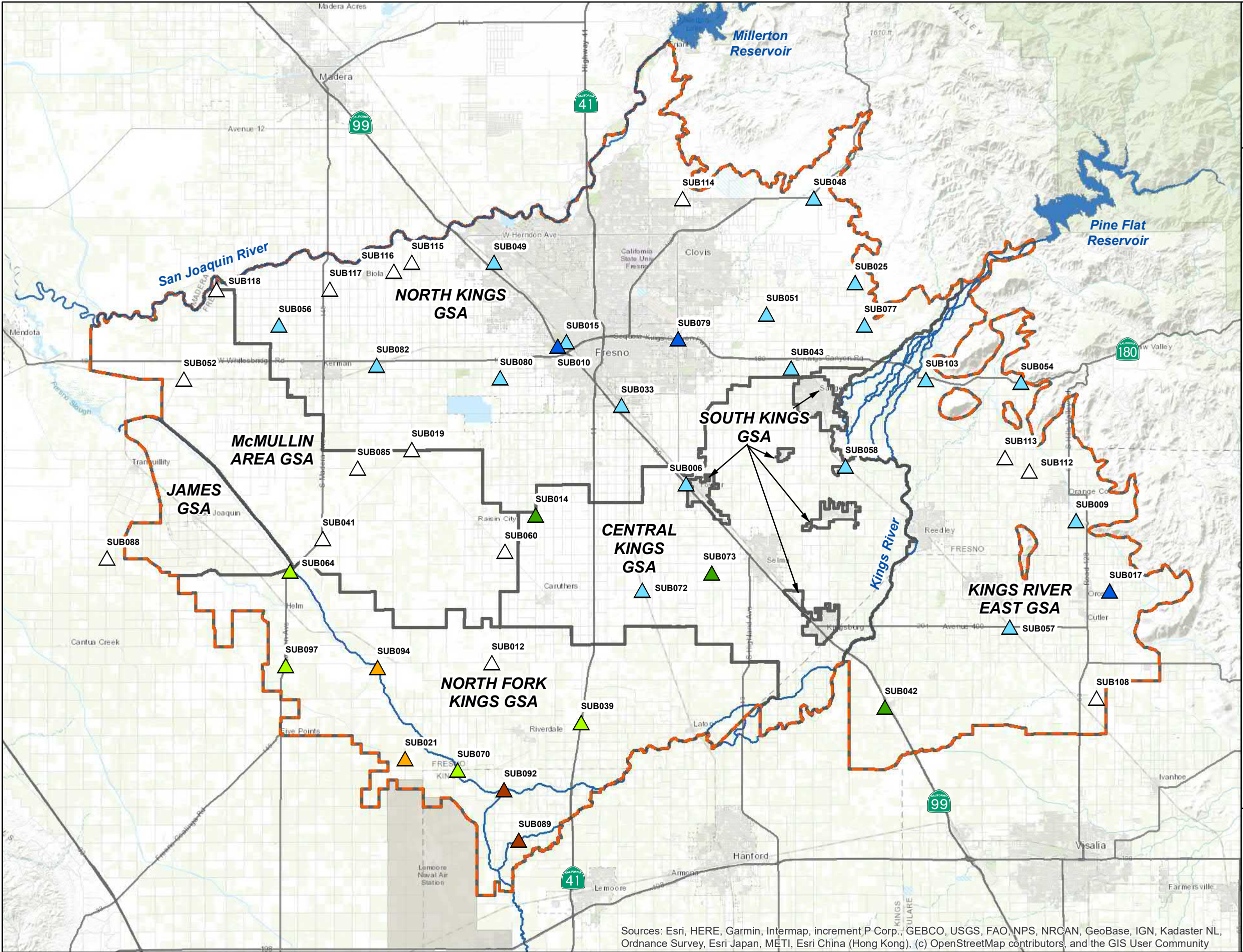
Water Quality Monitoring Network

Legend

- Selected Representative Groundwater Monitoring Wells
- Groundwater Sustainable Agency
- Township/Range



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Kings Subbasin

Land Subsidence Monitoring
Apr 2016- Oct/Dec 2020

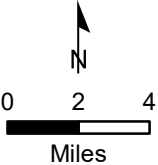
-  Kings Subbasin GSAs
-  Kings Subbasin

Subsidence Monitoring Location

Elevation Changes from Apr 2016 to Oct/Dec 2020 (ft)

-  0.01 to 0.33
-  -0.24 to 0.00
-  -0.49 to -0.25
-  -0.99 to -0.50
-  -1.24 to -1.00
-  -1.39 to -1.25
-  No Comparison Data*

*Data exists only for one time period, so no comparison of elevations is available



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

4.7 Surface to Groundwater Interconnection

The Kings Subbasin GSAs have established a groundwater level monitoring network with an adequate density and which includes wells near the rivers that will be monitored to better understand potential surface to groundwater interconnections issues.

The Kings Subbasin Hydrographs presented in **Appendix C** indicate that groundwater in wells near Kings River had declining groundwater levels during the drought period until approximately spring of 2016 when groundwater levels rose until 2018, corresponding with the wet time period at the end of the drought.

5 Monitoring Network

GSAs have identified different data gaps within their GSPs that they intend to fill, and are still reviewing their monitoring networks. During this water year, the GSAs have spent significant effort to gather construction information via well video equipment for Representative Monitor Wells that were included in the network because of a good history of data collection but lacked construction information. As definitive construction information is gathered, updates will be made through the SGMA monitoring network portal. Work will continue into the 2021 water year to gather the remaining construction information for wells in the water level monitoring network. No changes have been made to the monitoring network during the period of this report (WY2020) but successive annual reports will discuss any changes for wells needing replacement or additional wells added in data gap areas of the basin.

6 Groundwater Projects and Management Actions Status

356.2(b) (5) (C) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

Since completion and submittal of the GSPs in January of 2020, each of the GSAs in the Kings Basin has been actively working on implementing their GSPs including project development and design, gathering of information to fill data gaps including well construction information, continued stakeholder outreach and engagement, development of initial policies, and other items. Some of the activities and actions implemented by the GSAs as a group and individually since January 2020 include:

- Continued monthly coordination meetings with a representative from each of the GSAs.
- Completed Data Management System (DMS)
- Kings Subbasin (five of the seven GSAs) coordinated on targeted outreach to domestic well owners and schools. This effort included the development of a domestic well owner brochure complete with a checklist domestic well owners can use to ensure they have adequate information about their domestic well. A similar checklist was included in the school brochure which was supplemented by a webinar for school officials to educate on the schools role in groundwater management and water-saving information for their consideration.

Central Kings GSA

- CID acquired 20 acres on Bethel near Central, within ¼ mile of SDAC of Tombstone
- CID acquired 40 acres on Huntsman about ¼ east of Bethel for a new recharge basin
- CID started expansion of recharge basins at Adams and Academy
- CID started construction of 60-acre recharge basin at Mountain View and Temperance

- Initiated work to construct new monitor wells through SGMA Planning Grant

James GSA

- Initiated work for water budget analysis under SGMA Planning Grant
- Initiated work to construct new monitor well through SGMA Planning Grant
- Prepared projects for consideration under SGMA Implementation Grant

Kings River East GSA

- Collecting construction information about wells within the monitoring network
- Worked with Fresno/Tulare Counties on revising well permit applications
- Continued coordination meetings with Fresno/Tulare Counties on the well permitting process
- Participated in a meeting with Fresno County and local drillers to discuss SGMA's impacts on the well permit process.

McMullin GSA

- Policies
 - MAGSA has adopted a method by which the stakeholders and interested parties may have direct involvement in the decision making relative to critical Agency policy direction. Staff develops a proposed policy for review by the Board of Directors. Once the proposed policy is deemed releasable for public review by the Board, the proposed policy is immediately thereafter posted on the Agency website and noticed for review and comment by ALL. During the review period (which is for a minimum of twenty (20) days and longer, as necessary), the proposed policy is also scheduled for a dedicated review by the Technical Advisory and Stakeholder Committees.
 - Once the review is complete, and no material modifications are deemed necessary (at which point the process is repeated, as necessary), the policy is presented to the Board for its final review and or adoption/approval. To date, MAGSA has completed the review process and adopted policies relating to the following during the reporting period:
 - Agency Procurement Policy
 - Agency Investment Policy
 - Agency Accountability and Transparency Policy
 - Agency Website Privacy Policy
 - Agency Records Retention Policy
 - Agency California Public Records Act Policy
 - Agency Groundwater Data Policy
 - Agency Groundwater Export Policy
 - Agency Groundwater Banking Policy
 - Agency Groundwater Well Metering, Measurement, Monitoring and Construction Policy
- Grant Funded Projects
 - MAGSA has submitted for grant funding on a variety of proposed projects (as an individual agency as opposed to as a member of the Kings Subbasin grant efforts). Efforts are continuing under the following awards:
 - Bureau of Reclamation WaterSMART Groundwater Credit and Surface Water Marketing Strategy Grant (\$198,000). Under this grant, MAGSA has contracted with a team of professionals, led by GeoSyntec Engineers, to study and analyze conditions present within

- the GSA which might lead to the implementation of a water market in the near future. In addition to the local conditions assessment, the GeoSyntec team will recommend at least two (2) different varieties of markets that it determines have the highest likelihood of success in MAGSA. The GeoSyntec team has conducted three (3) separate outreach workshops and expects to conduct two (2) more prior to submittal of the final white paper on their findings. Expected completion date: May, 2021.
- Bureau of Reclamation WaterSMART Small Scale Grant for the MAGSA Groundwater Monitoring Project (\$75,000). Under this grant, MAGSA has teamed with the McCrometer Company to install totalizing flowmeters, pressure transducers and remote telemetry units on each of the twenty three (23) representative indicator monitoring wells located within the MAGSA boundary which are part of the basin-wide indicator monitoring network. The data will be remotely communicated to the data receiver and downloaded into the data management system, allowing for accurate and efficient logging of required SGMA reporting information, thereby providing for a smooth and seamless communication to the basin aggregating entity for ultimate reporting to the DWR as part of the annual report. Expected completion date: April, 2021.
 - Non Grant Funded Projects (Yet)
 - Terranova Project. MAGSA continues to partner with the Terranova Ranch on the implementation of the Terranova Flood Control and Recharge project commenced in 2012. Phase Two of the project anticipates the installation of canals and other ancillary lifts and equipment to facilitate the conveyance of flood water, when available, off of the watercourse and further into the GSA for subsequent dispersal and recharge. The Raisin City Water District, a MAGSA member, has received a RCCP grant award and supported EQIP funding in the amount of approximately Seven Million Dollars (\$7,000,000) from the USDA Natural Resources Conservation Service to assist in financing the project. MAGSA has submitted an application to the State Water Resources Control Board under its Storm Water Grant program seeking Ten Million Dollars (\$10,000,000) which will allow MAGSA and Raisin City Water District to leverage the grant funding into an approximately Twenty Two Million Dollar (\$22,000,000) expansion of the existing capability to convey flood water from the watercourse and further into the MAGSA area for flood secure handling and On-Farm recharge.
 - Water Banking Project. MAGSA has conducted a fatal flaws analysis, a feasibility study, and initial field level analytics (through Provost and Pritchard Engineers, our GSP authors and support team) and potential partner outreach on a proposed water bank within the MAGSA boundary. Environmental review is expected in early 2021, with a projected construction date for the internal conveyance and pumping/extraction facilities to commence in 2022, with the first bankable water importing into the GSA in 2023. Operations and appropriate rules and regulations relative to “puts” and “takes” have yet to be developed. Banking partner interest is high and the initial phase of banking planning is approaching a fully subscribed status. Total bankable volume (storage) is estimated to be between 1.5 and 2.0 Million Acre Feet.
 - Metering Incentive Program. MAGSA is developing a metering incentive program to incentivize early placement of flow meters and appropriately spaced pressure transducers and active remote telemetry on ALL of its estimated 900+ extraction facilities in order to comply with the metering policy and accomplish reliable extraction data at the earliest possible time (target is 4 years or less).
 - Outreach

- MAGSA has participated in a Central Valley virtual tour with Water Education Foundation and has completed a 6 minute outreach video educating the viewer about its GSP and SGMA objectives. We also prepared a mailer which updated our Stakeholders/Interested parties about the 2019 Annual Report and sent fifteen “e-updates” throughout the period to keep our Stakeholders and Interested parties engaged.

North Fork Kings GSA

- Policy committee formed to develop policies for implementation.
- Rules and Regulations adopted by the GSA.
- Groundwater Banking Policy adopted by the GSA.
- Technical Advisory Group continues to meet monthly to discuss methods for implementation of the GSP.
- Discussions with neighboring Westside Subbasin continuing to understand information used to develop each GSP and coordination of common data.
- Progress being made on installing a multi-completion monitor well through the DWR TSS program (anticipated installation Spring 2021).
- Contracted with Land IQ to provide crop acreage and field level crop water use data beginning in 2021.
- Drafted landowner survey to assess well information (will be mailed Spring 2021).
- Basin 11 Improvement Project (NFK1 on project list, approx. 45 acres of recharge) completed for improved groundwater recharge.
- Basin 11 Expansion Project (NFK2 on project list, approx. 35 acres of recharge) completed for groundwater recharge.
- Progress being made on the Laton North Recharge Project (NFK3 on project list, approx. 110 acres of recharge), environmental compliance complete.
- Discussion occurring regarding acquisition of land at Elkhorn site of the North Fork Regional Recharge Project (NFK4 on project list).
- Terra Linda Recharge Project (NFK9 on project list, approx. 70 acres of recharge) completed.
- Terra Linda Recharge Project #2 (approx. 20 acres) completed.
- Two additional Recharge Projects in process - Fremont Avenue Project (approx. 30 acres) and Zonneveld Project #2 (approx. 18 acres).
- Casa Loma Improvement Project (proceeding to improve recharge).

North Kings GSA

- FID acquired and initiated construction on 150 acres of new groundwater recharge basins.
- FMFCD secured funding for a basin intertie that will recharge water in a flood control basin during summer months to help the DAC of Malaga CWD reach sustainability
- Continued discussions with stakeholders (ABIRC and Self-Help Enterprises) to coordinate on future outreach efforts for domestic well owners and small farmers (Southeast Asian farmers). Development of one-page documents translated into HMONG and Spanish for distribution at their
- Website development – the addition of resources to the website to provide a robust one-stop shop for stakeholders to obtain information on the NKGSA.
- External Affairs – presence on social media, routine meetings.
- Development of necessary policies – workgroup policy and the new well review policy to allow for continued implementation of the GSP and to provide an opportunity for the GSA to gather information on new wells being proposed within the GSA boundary. Implemented county-

wide (multiple GSAs). Increased review period for new well permit applications from 24-hours to up to five days.

- Driller meetings – two meetings with well drillers in coordination with Fresno County to provide an opportunity for drillers to ask questions of the GSA managers as well as share new policies and procedures with the well drillers.
- Monthly (reduced to quarterly second-half of the year) coordination meetings with Fresno County on Fresno County policies and potential modifications due to SGMA-related issues and considerations.
- Coordination with Fresno County to ensure all planning documents and well permit applications are routed to the GSA managers to allow for review and comment during the comment period allowing for water supply and demand information to be provided to the GSA managers prior to the approval of the development.
- Prepared projects for consideration with SGMA Implementation Grant

South Kings GSA

- Initiated work to construct new monitor well under SGMA Planning Grant
- Started work to evaluate a development impact fee structure
- Prepared recharge project for consideration with SGMA Implementation Grant

7 References

California Department of Water Resources, *California Water Plan Update – 2018*, Bulletin 160-18, 2019.

California Department of Water Resources, *Effective Precipitation - A Field Study to Assess Consumptive Use of Winter Rains by Spring and Summer Crops*, February 1989.

Cal Poly Irrigation Training and Research Center, *"Irrigation Water Balance Fundamentals"*, USCID Conference on Benchmarking Irrigation System Performance Using Water Measurement and Water Balances, San Luis Obispo, March 10, 1999.

Appendix A – Water Supply Data

Kings Groundwater Basin
Groundwater Extractions

| Basin Number | Water Year | Total Groundwater Extractions (AF) | Water Use Sector Urban (AF) | Water Use Sector Industrial (AF) | Water Use Sector Agricultural (AF) | Water Use Sector Managed Wetlands (AF) | Water Use Sector Managed Recharge (AF) ¹ | Water Use Sector Native Vegetation (AF) | Water Use Sector Other (AF) | Water Use Sector Other Description |
|--------------|-------------------------------|------------------------------------|-----------------------------|----------------------------------|------------------------------------|--|---|---|-----------------------------|------------------------------------|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | 1,353,418 | 155,029 | 0 | 1,161,511 | 0 | 95,515 | 0 | 36,878 | - |

Kings Groundwater Basin
Groundwater Extraction Methods

| Basin Number | Water Year | Meters Volume (AF) | Meters Description | Meters Type | Meters Accuracy (%) | Meters Accuracy Description | Electrical Records Volume (AF) | Electrical Records Description | Electrical Records Type | Electrical Records Accuracy (%) | Electrical Records Accuracy Description |
|--------------|-------------------------------|--------------------|--------------------|-------------|---------------------|--|--------------------------------|--------------------------------|-------------------------|---------------------------------|---|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | 156,715 | Flow meters | Direct | 0-5% | Typical accuracy for propeller and magnetic meters | 0 | - | - | - | - |

| Basin Number | Water Year | Land Use Volume (AF) | Land Use Description | Land Use Type | Land Use Accuracy (%) | Land Use Accuracy Description | Groundwater Model Volume (AF) | Groundwater Model Description | Groundwater Model Type | Groundwater Model Accuracy (%) | Groundwater Model Accuracy Description |
|--------------|-------------------------------|----------------------|---|---------------|-----------------------|--|-------------------------------|-------------------------------|------------------------|--------------------------------|--|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | 1,151,403 | Calculated pumping from crop water demands minus surface water deliveries | Estimate | 10-20% | Based on accuracy of Crop evapotranspiration estimates | 0 | - | - | - | - |

| Basin Number | Water Year | Other Method(s) Volume (AF) | Other Method(s) Description | Other Method(s) Type | Other Method(s) Accuracy (%) | Other Method(s) Accuracy Description |
|--------------|-------------------------------|-----------------------------|--|----------------------|------------------------------|--|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | 45,300 | Rural domestic pumping estimated based on vegetated area and standard indoor use | Estimate | 10-20% | Accuracy based on professional judgement |

Kings Groundwater Basin
Surface Water

| Basin Number | Water Year | Methods Used To Determine | Water Source Type Central Valley Project (AF) | Water Source Type State Water Project (AF) | Water Source Type Colorado River Project (AF) | Water Source Type Local Supplies - Kings River (AF) | Water Source Type Local Imported Supplies (AF) | Water Source Type Recycled Water (AF) | Water Source Type Desalination (AF) | Water Source Type Other (AF) | Water Source Type Other Description |
|--------------|-------------------------------|---------------------------|---|--|---|---|--|---|---|------------------------------------|---|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | Flumes and water meters | 107,068 | 0 | 0 | 810,295 | 0 | 12,497 | 0 | 28,320 | |

Kings Groundwater Basin
Total Water Use

| Basin Number | Water Year | Total Water Use (AF) | Methods Used To Determine | Water Source Type Groundwater (AF) | Water Source Type Surface Water (AF) | Water Source Type Recycled Water (AF) | Water Source Type Reused Water (AF) | Water Source Type Other (AF) | Water Source Type Other Description |
|--------------|-------------------------------|----------------------|---------------------------|------------------------------------|--------------------------------------|---------------------------------------|-------------------------------------|------------------------------|-------------------------------------|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | 2,311,598 | Sum of all water supplies | 1,353,418 | 917,363 | 12,497 | 0 | 28,320 | Riparian water diversions |

| Basin Number | Water Year | Water Use Sector Urban (AF) | Water Use Sector Industrial (AF) | Water Use Sector Agricultural (AF) | Water Use Sector Managed Wetlands (AF) | Water Use Sector Managed Recharge (AF) ¹ | Water Use Sector Native Vegetation (AF) | Water Use Sector Other (AF) | Water Use Sector Other Description |
|--------------|-------------------------------|-----------------------------|----------------------------------|------------------------------------|--|---|---|-----------------------------|------------------------------------|
| 5-022.08 | 2020 (Oct. 2019 - Sept. 2020) | 242,171 | 0 | 1,936,569 | 0 | 95,980 | 0 | 36,878 | - |

Appendix B – Groundwater Level Data

| Unique Well ID | Local Well ID | GSA | DTW Sp. '15 | WSE Sp. '15 | DTW Fall '15 | WSE Fall '15 | DTW Sp. '16 | WSE Sp. '16 | DTW Fall '16 | WSE Fall '16 | DTW Sp. '17 | WSE Sp. '17 | DTW Fall '17 | WSE Fall '17 | DTW Sp. '18 | WSE Sp. '18 | DTW Fall '18 | WSE Fall '18 | DTW Sp. '19 | WSE Sp. '19 | DTW Fall '19 | WSE Fall '19 | DTW Sp. '20 | WSE Sp. '20 | DTW Fall '20 | WSE Fall '20 |
|--------------------|---------------|----------------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|
| CID06 | 6 | Central Kings GSA | 58.2 | 284.2 | 68.3 | 274.1 | 65.5 | 276.9 | 63.6 | 278.8 | 60.1 | 282.3 | 54.3 | 288.1 | 48.4 | 294.0 | 57.4 | 285.0 | 59.0 | 283.4 | 53.6 | 288.3 | 54.5 | 287.4 | 58.1 | 284.3 |
| CID28 | 28 | Central Kings GSA | | | | | | | | | | | | | | | | | | | | | | | | |
| CID31 | 31 | Central Kings GSA | 56.6 | 270.0 | 62.7 | 263.9 | 57.5 | 269.1 | 56.3 | 270.3 | 51.8 | 274.8 | 45.9 | 280.7 | 50.8 | 275.8 | 52.2 | 274.4 | 49.9 | 276.6 | 47.5 | 279.0 | 49.0 | 277.5 | 53.1 | 273.5 |
| CID32 | 32 | Central Kings GSA | 57.7 | 259.9 | 68.8 | 248.8 | 64.1 | 253.5 | 66.3 | 251.3 | 59.9 | 257.7 | 56.1 | 261.5 | 57.9 | 259.7 | 58.4 | 259.2 | 56.2 | 261.4 | 53.4 | 264.2 | 54.0 | 263.6 | 57.6 | 260.0 |
| CID41 | 41 | Central Kings GSA | 39.3 | 250.7 | 36.4 | 253.6 | 43.5 | 246.5 | 31.5 | 258.5 | 25.5 | 264.5 | 22.9 | 267.1 | 27.1 | 262.9 | 25.0 | 265.0 | 26.4 | 263.6 | 22.1 | 278.6 | 25.4 | 275.3 | 25.2 | 264.8 |
| CID48 | 48 | Central Kings GSA | 132.4 | 105.1 | 138.7 | 98.8 | 136.6 | 100.9 | 144.0 | 93.5 | 141.5 | 96.0 | 146.7 | 90.8 | 141.6 | 95.9 | 143.3 | 94.2 | 139.9 | 97.6 | 142.8 | 111.9 | 141.1 | 113.7 | 145.2 | 92.3 |
| CID56 | 56 | Central Kings GSA | 156.4 | 92.0 | 161.4 | 87.0 | 160.2 | 88.2 | 165.5 | 82.9 | 164.6 | 83.8 | 167.8 | 80.6 | 166.7 | 81.7 | 170.6 | 77.8 | 166.5 | 81.9 | 171.1 | 74.8 | 167.2 | 78.8 | 174.4 | 74.0 |
| CID62 | 62 | Central Kings GSA | 77.6 | 201.6 | | | | | | | | | | | | | | | | | | | | | | |
| CID65 | 65 | Central Kings GSA | 66.5 | 228.6 | 70.5 | 224.6 | 74.9 | 220.3 | 78.2 | 216.9 | 81.5 | 213.7 | 67.5 | 227.7 | 64.2 | 230.9 | 65.1 | 230.1 | 67.1 | 228.1 | 64.6 | 230.7 | 64.3 | 231.0 | 66.1 | 229.1 |
| CID67 | 67 | Central Kings GSA | | | 106.9 | 159.5 | 107.7 | 158.7 | 113.0 | 153.4 | 112.6 | 153.8 | 113.9 | 152.5 | 109.6 | 156.8 | 111.4 | 155.0 | 108.9 | 157.5 | 110.8 | 155.9 | 108.1 | 158.6 | 111.6 | 154.8 |
| CID74 | 74 | Central Kings GSA | 122.4 | 131.4 | 126.6 | 127.2 | 127.1 | 126.7 | 132.2 | 121.6 | 131.5 | 122.3 | 134.9 | 118.9 | 132.5 | 121.3 | 136.0 | 117.8 | 131.3 | 122.4 | 137.3 | 118.0 | 132.3 | 123.0 | 139.5 | 114.3 |
| 1010034-002 | 1010034-002 | James ID | | | | | | | | | | | | | | | | | 109.5 | 63.1 | 109.5 | 63.1 | 108.1 | 64.5 | 128.0 | 44.6 |
| 15516E28A003M | | James ID | 96.0 | 72.5 | 100.5 | 68.0 | | | 101.8 | 66.7 | 92.7 | 75.8 | 94.2 | 74.3 | 92.8 | 75.7 | 95.0 | 76.1 | 92.5 | 78.6 | 89.2 | 81.9 | 91.8 | 79.3 | 98.0 | 74.1 |
| 15516E29N001M | Horn | James ID | 116.0 | 57.5 | | | 115.3 | 58.2 | | | 108.6 | 64.9 | | | 101.7 | 71.8 | | | | | | | | | 116.3 | 57.2 |
| 16S17E04P001M | D12 | James ID | 169.6 | 5.4 | 171.6 | 3.4 | | | 176.0 | -1.0 | 165.2 | 9.8 | 167.5 | 7.5 | 168.0 | 7.0 | 171.2 | 3.8 | 162.4 | 12.6 | 165.0 | 10.0 | 170.7 | 4.3 | 172.9 | 2.1 |
| 366502N1201782W001 | C65 | James ID | 127.1 | 40.7 | 150.5 | 17.3 | 119.1 | 48.7 | 141.9 | 25.9 | 117.5 | 50.3 | 117.7 | 50.1 | 114.5 | 53.3 | 118.8 | 49.0 | 107.8 | 60.0 | 123.1 | 44.7 | 118.6 | 49.2 | 127.7 | 40.1 |
| 14S24E17C001MX | 17C1 | Kings River East GSA | 21.3 | 441.5 | 21.3 | 441.6 | 21.6 | 441.2 | 21.3 | 441.6 | 13.9 | 449.0 | 13.6 | 449.2 | 16.1 | 448.7 | 15.0 | 447.9 | 14.3 | 448.6 | 14.1 | 448.7 | 17.2 | 445.6 | 15.2 | 447.7 |
| 15S24E11A001MX | 11A1 | Kings River East GSA | 31.0 | 398.9 | 49.4 | 380.6 | 32.0 | 397.9 | 35.6 | 394.4 | 23.0 | 406.9 | 17.7 | 412.2 | 17.7 | 412.8 | 19.6 | 410.4 | 9.3 | 420.7 | 7.3 | 422.7 | 9.2 | 420.7 | 11.3 | 418.7 |
| 15S25E19A001MX | 19A1 | Kings River East GSA | | | 75.1 | 383.5 | 64.3 | 394.4 | 75.1 | 383.5 | 64.0 | 394.7 | 32.8 | 425.9 | 51.5 | 407.8 | 49.3 | 409.3 | 45.2 | 413.4 | 39.0 | 419.6 | 38.5 | 420.2 | 44.2 | 414.4 |
| 16S25E10J001MX | 10J1 | Kings River East GSA | 63.5 | 359.1 | 75.4 | 347.2 | 68.2 | 354.4 | 78.9 | 343.7 | 57.2 | 365.4 | 63.2 | 359.4 | 57.7 | 365.0 | 65.4 | 357.2 | 57.1 | 365.5 | 52.2 | 370.4 | 51.2 | 371.4 | 54.1 | 368.5 |
| 364425N1193860W001 | 143 | Kings River East GSA | | | 82.9 | 209.8 | | | | | | | | | 62.1 | 230.6 | 62.2 | 230.5 | | | 59.9 | 232.7 | 64.9 | 229.1 | 68.8 | 223.9 |
| 365283N1194482W001 | 80 | Kings River East GSA | | | 90.7 | 225.9 | | | 86.2 | 230.4 | | | | | 70.7 | 246.0 | 73.8 | 242.8 | | | 72.3 | 244.4 | | | 79.1 | 237.5 |
| 366767N1194568W001 | 4A | Kings River East GSA | | | 55.8 | 305.8 | | | 54.8 | 306.8 | | | | | 50.2 | 311.3 | 51.7 | 310.8 | | | | | | | 55.7 | 305.8 |
| B013B | B013B | Kings River East GSA | 20.0 | 376.6 | 18.9 | 371.9 | 20.5 | 370.2 | 16.6 | 374.2 | 12.9 | 377.9 | 11.8 | 378.9 | 14.9 | 375.9 | | | 15.1 | 375.6 | 17.5 | 373.2 | 14.3 | 370.6 | 16.8 | 374.0 |
| I045A | I045A | Kings River East GSA | 74.6 | 325.2 | | | 84.6 | 318.3 | 93.3 | 309.6 | | | 70.8 | 332.1 | 65.8 | 337.1 | 70.4 | 332.5 | 60.6 | 342.3 | 44.6 | 358.3 | 72.6 | 331.1 | 83.1 | 319.8 |
| I055A | I055A | Kings River East GSA | | | 92.7 | 273.0 | | | | | 85.3 | 280.3 | 85.8 | 279.8 | 81.1 | 284.5 | 93.9 | 271.7 | 81.1 | 284.5 | 77.8 | 287.9 | 74.3 | 293.5 | 86.5 | 279.2 |
| I073A | I073A | Kings River East GSA | 66.6 | 271.4 | 71.8 | 264.9 | 68.7 | 267.9 | 71.7 | 265.0 | 65.7 | 270.9 | 62.0 | 274.6 | 62.6 | 274.0 | 65.1 | 271.5 | | | 66.0 | 269.3 | 69.0 | 267.6 | | |
| KRWD04 | KRWD04 | Kings River East GSA | 17.5 | 319.8 | 18.6 | 318.7 | 19.6 | 317.7 | 19.0 | 318.3 | 17.0 | 320.3 | 18.0 | 319.3 | 19.0 | 318.3 | 19.0 | 318.3 | 17.0 | 320.3 | | | 14.8 | 322.4 | 16.8 | 321.4 |
| M065A | M065A | Kings River East GSA | 90.4 | 273.2 | 98.0 | 263.2 | 92.2 | 269.0 | | | 92.3 | 268.9 | 86.8 | 274.4 | 86.5 | 274.7 | | | 89.8 | 271.4 | 81.7 | 279.5 | | | 92.7 | 268.5 |
| M105A | M105A | Kings River East GSA | | | | | | | | | | | | | | | | | | | | | | | | |
| M130B | M130B | Kings River East GSA | | | 99.8 | 218.8 | 92.4 | 226.2 | | | 87.3 | 231.3 | 83.9 | 234.7 | 82.8 | 235.8 | 85.5 | 233.1 | 82.3 | 236.2 | 86.1 | 232.5 | | | 94.3 | 224.2 |
| O123A | O123A | Kings River East GSA | | | 81.2 | 271.5 | 73.5 | 279.2 | | | 70.1 | 282.6 | 45.5 | 307.2 | 54.2 | 298.5 | 55.5 | 297.2 | 59.7 | 293.0 | 53.3 | 299.4 | 58.6 | 304.3 | 62.7 | 290.0 |
| T136A | T136A | Kings River East GSA | | | | | | | | | | | | | | | | | | | | | | | | |
| T139A | T139A | Kings River East GSA | 69.2 | 316.9 | 87.8 | 297.6 | 79.9 | 305.4 | 89.3 | 296.0 | 79.2 | 306.1 | | | 69.3 | 316.1 | 79.2 | 306.1 | 70.0 | 315.4 | 67.3 | 318.1 | 76.0 | 306.9 | 74.9 | 310.5 |
| W172A | W172A | Kings River East GSA | | | | | | | | | | | 61.8 | 230.9 | 70.3 | 222.4 | 68.2 | 224.4 | | | 52.4 | 240.2 | 70.4 | 222.9 | 71.9 | 220.7 |
| X156A | X156A | Kings River East GSA | 54.6 | 294.0 | 62.2 | 284.6 | 61.8 | 285.0 | 68.8 | 278.0 | 58.6 | 288.1 | 61.8 | 285.0 | 60.2 | 286.6 | 59.9 | 286.9 | 62.1 | 284.7 | 59.4 | 287.4 | 60.0 | 284.9 | 66.3 | 280.5 |
| X176A | X176A | Kings River East GSA | 103.3 | 187.0 | 115.6 | 175.1 | 108.7 | 181.9 | | | | | 110.7 | 179.9 | 105.3 | 185.4 | | | 107.0 | 183.4 | 103.6 | 187.1 | 111.6 | 179.4 | 116.5 | 174.2 |
| X213A | X213A | Kings River East GSA | | | | | | | | | | | | | | | | | | | | | | | | |
| X234B | X234B | Kings River East GSA | | | 94.1 | 233.7 | 95.4 | 232.4 | 103.2 | 224.6 | | | 89.5 | 238.3 | 93.6 | 234.2 | 99.1 | 228.6 | | | 94.6 | 233.1 | 97.0 | 230.1 | 100.2 | 227.6 |
| 15518E02A001MX | FD02A1 | McMullin Area GSA | | | 125.0 | 77.8 | | | | | | | | | | | | | | | | | | | | |
| 365463N1199268W001 | 16S19E17C001M | McMullin Area GSA | | | | | | | | | | | | | | | | | | | 223.7 | -29.2 | 208.8 | -14.3 | 217.3 | -22.8 |
| 365963N1200529W001 | 15S18E30L001M | McMullin Area GSA | | | | | | | | | | | | | | | | | 228.7 | -33.3 | | | | | | |
| 366082N1201199W001 | 15S17E21J001M | McMullin Area GSA | | | | | | | | | | | | | | | 216.2 | -21.7 | 205.4 | -10.9 | | | | | | |
| 366188N1199104W001 | 15S19E21C003M | McMullin Area GSA | | | 225.4 | -7.4 | | | | | | | | | | | | | | | | | | | | |
| 366196N1200632W001 | 15S17E13R002M | McMullin Area GSA | | | | | | | | | | | | | | | 198.8 | -16.2 | 179.4 | 3.2 | 192.9 | -10.3 | 178.2 | 4.4 | 198.4 | -15.8 |
| 367477N1201460W001 | FD5D1 | McMullin Area GSA | | | | | | | | | | | | | | | | | | | | | | | | |
| 367705N1202691W001 | 13S16E30L003M | McMullin Area GSA | | | 103.5 | 73.9 | 109.7 | 67.7 | 125.8 | 51.6 | 72.8 | 104.6 | 117.5 | 59.9 | 117.0 | 60.4 | | | | | | | | | 126.5 | 50.9 |
| 367757N1201874W001 | 13S16E26A001M | McMullin Area GSA | 104.0 | 89.4 | 100.8 | 92.6 | 100.3 | 93.1 | | | 73.7 | 119.7 | 78.0 | 115.4 | 71.0 | 122.4 | | | 67.5 | 125.9 | 92.0 | 101.4 | | | | |
| 367782N1202141W001 | 13S16E27C001M | McMullin Area GSA | 73.5 | 114.9 | 63.9 | 124.5 | 72.3 | 116.1 | 72.2 | 116.2 | 52.8 | 135.6 | 73.0 | 115.4 | 57.0 | 131.4 | 79.0 | 109.4 | 53.0 | 135.4 | 99.0 | 89.4 | | | 127.0 | 61.4 |
| A01 | A01 | McMullin Area GSA | 143.0 | 19.6 | 152.0 | 10.6 | 127.0 | 35.6 | 150.0 | 12.6 | 114.0 | 48.6 | 119.0 | 43.6 | 109.0 | 53.6 | 132.0 | 30.6 | 113.5 | 48.3 | 118.2 | 43.6 | 109.7 | 52.1 | 149.4 | 12.4 |
| A07 | A07 | McMullin Area GSA | 76.0 | 94.8 | 81.0 | 89.8 | 75.0 | 95.8 | 82.0 | 88.8 | 78.0 | 92.8 | 82.0 | 88.8 | 87.0 | 83.8 | 86.0 | 84.8 | 75.0 | 94.4 | 85.1 | 84.3 | 84.5 | 85.9 | 86.3 | 83.1 |
| A17 | A17 | McMullin Area GSA | | | 156.0 | 54.8 | 140.0 | 70.8 | 147.0 | 63.8 | 144.0 | 66.8 | 147.0 | 63.8 | 140.0 | 70.8 | 146.0 | 64.8 | 138.0 | 72.1 | 146.7 | 63.4 | 140.0 | 71.1 | 146.4 | 63.7 |
| A20 | A20 | McMullin Area GSA | 82.0 | 105.7 | 164.0 | 23.7 | 134.0 | 53.7 | 164.0 | 23.7 | | | | | | | | | | | | | | | | |
| A23 | A23 | McMullin Area GSA | | | 196.0 | -4.9 | 174.0 | 17.1 | 191.0 | 0.1 | | | 200.0 | -8.9 | 176.0 | 15.1 | | | 176.5 | 12.5 | 193.2 | -4.2 | 187.1 | 2.9 | 194.8 | -5.8 |
| A24 | A24 | McMullin Area GSA | | | 193.0 | -17.7 | 151.0 | 24.3 | 153.0 | 22.3 | 146.0 | 29.3 | 1 | | | | | | | | | | | | | |

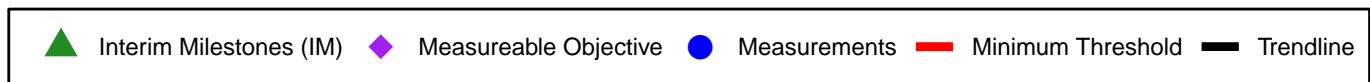
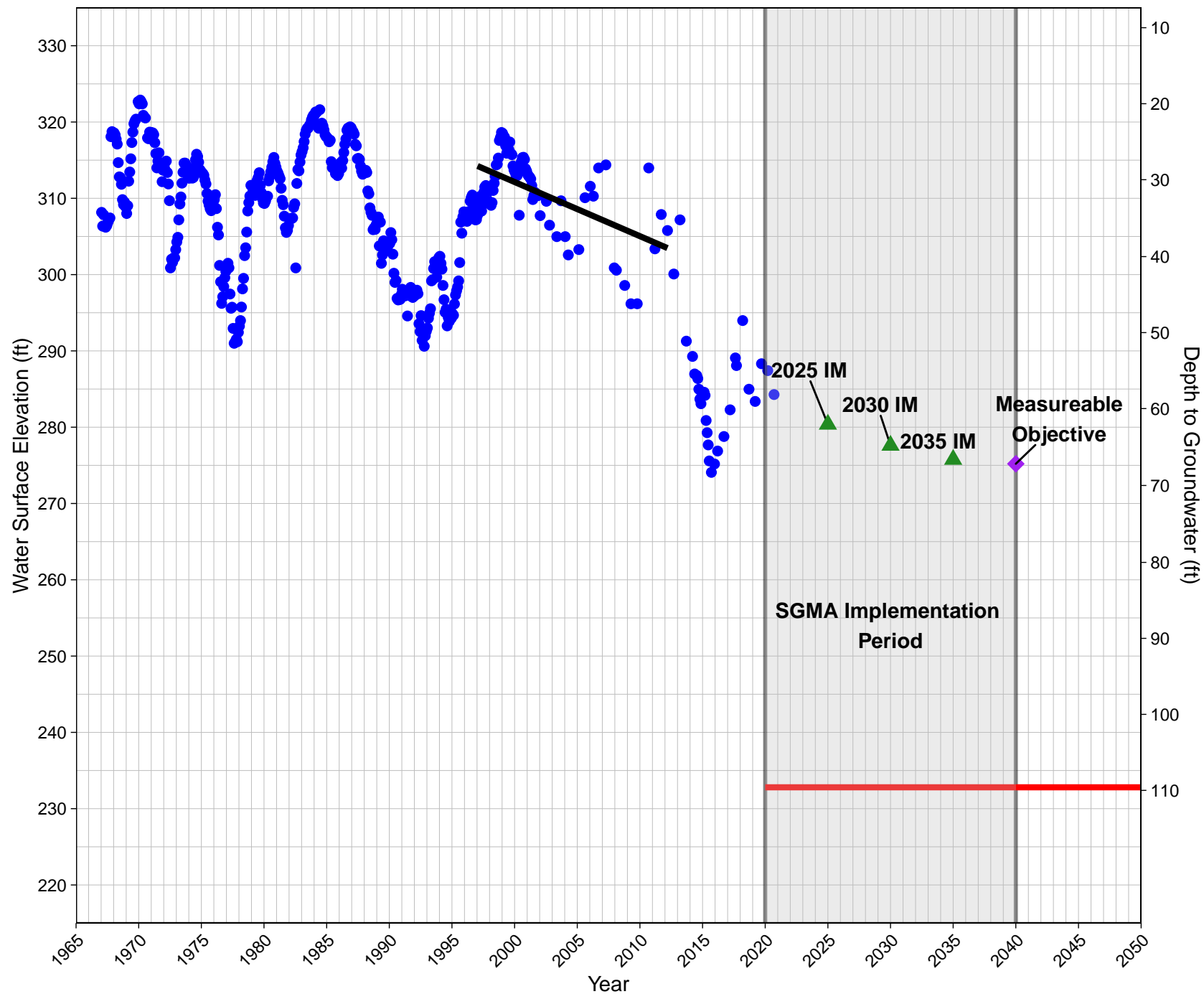
| Unique Well ID | Local Well ID | GSA | DTW Sp. '15 | WSE Sp. '15 | DTW Fall '15 | WSE Fall '15 | DTW Sp. '16 | WSE Sp. '16 | DTW Fall '16 | WSE Fall '16 | DTW Sp. '17 | WSE Sp. '17 | DTW Fall '17 | WSE Fall '17 | DTW Sp. '18 | WSE Sp. '18 | DTW Fall '18 | WSE Fall '18 | DTW Sp. '19 | WSE Sp. '19 | DTW Fall '19 | WSE Fall '19 | DTW Sp. '20 | WSE Sp. '20 | DTW Fall '20 | WSE Fall '20 |
|--------------------|---------------|----------------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|-------------|-------------|--------------|--------------|
| 365143N1198529W001 | 16S19E25B001M | North Fork Kings GSA | 178.0 | 53.7 | 188.1 | 48.6 | 182.1 | 54.6 | | | 190.0 | 46.7 | | | 216.9 | 19.8 | | | 184.9 | 51.8 | | | | | | |
| 365150N1197327W001 | 16S21E30C001M | North Fork Kings GSA | 115.4 | 142.3 | 127.6 | 130.1 | 123.5 | 134.2 | | | 128.8 | 128.9 | 134.3 | 123.4 | 130.6 | 127.1 | 133.4 | 124.3 | 130.3 | 127.4 | 134.1 | 123.6 | 130.4 | 127.0 | 134.5 | 123.2 |
| B06 | B06 | North Fork Kings GSA | 187.0 | -4.3 | 185.0 | -2.3 | 182.0 | 0.7 | 186.0 | -3.3 | | | | | 182.0 | 0.7 | 183.0 | -0.3 | | | 181.6 | -1.2 | 179.7 | 2.3 | 184.8 | -4.7 |
| B22 | B22 | North Fork Kings GSA | 211.0 | -11.8 | 210.0 | -10.8 | 203.0 | -3.8 | 209.0 | -9.8 | 199.0 | 0.2 | 199.0 | 0.2 | 202.5 | -3.3 | 208.0 | -8.8 | | | 200.7 | -4.6 | 200.9 | -5.9 | 214.8 | -18.9 |
| B31 | B31 | North Fork Kings GSA | 202.0 | 6.0 | 199.0 | 9.0 | 198.0 | 10.0 | 202.0 | 6.0 | 181.0 | 27.0 | 187.0 | 21.0 | 189.5 | 18.5 | | | | | 184.2 | 20.9 | 183.6 | 21.9 | 193.5 | 11.2 |
| LID14 | LID14 | North Fork Kings GSA | 174.0 | 61.9 | 183.0 | 52.9 | 164.0 | 71.9 | 188.0 | 47.9 | 157.0 | 78.9 | 157.0 | 78.9 | 151.0 | 84.9 | 181.0 | 54.9 | 155.0 | 80.9 | 169.0 | 55.5 | 167.0 | 57.5 | 171.6 | 52.8 |
| LID21 | LID21 | North Fork Kings GSA | 170.0 | 57.7 | 187.0 | 40.7 | 167.0 | 60.7 | 181.0 | 46.7 | 150.0 | 77.7 | 153.0 | 74.7 | 147.0 | 80.7 | 164.0 | 63.7 | 155.0 | 72.7 | 156.0 | 58.6 | 165.0 | 49.6 | 165.3 | 49.4 |
| LID25 | LID25 | North Fork Kings GSA | 254.5 | -41.6 | 260.0 | -47.1 | 223.0 | -10.1 | 237.0 | -24.1 | 187.0 | 25.9 | 179.0 | 33.9 | 171.0 | 41.9 | 174.0 | 38.9 | 174.0 | 38.9 | 168.0 | 35.2 | 158.3 | 43.2 | 165.3 | 37.9 |
| LID26 | LID26 | North Fork Kings GSA | 254.5 | -40.6 | 239.0 | -25.1 | 210.0 | 3.9 | 231.0 | -17.1 | 182.0 | 31.9 | 173.0 | 40.9 | 172.0 | 41.9 | 200.0 | 13.9 | 172.0 | 41.9 | 184.0 | 16.1 | 178.9 | 19.1 | 183.9 | 16.2 |
| 12S19E33P001MX | FC160 | North Kings GSA | 86.9 | 214.0 | 102.0 | 198.9 | 93.6 | 207.3 | | | 104.8 | 196.1 | 101.1 | 199.8 | 99.8 | 201.1 | 103.6 | 197.3 | 100.7 | 200.2 | 104.1 | 196.8 | 102.0 | 198.9 | 103.7 | 197.2 |
| 12S19E36J001MX | FC091 | North Kings GSA | 146.8 | 185.0 | | | 145.8 | 186.0 | | | 149.0 | 182.8 | | | 153.4 | 178.4 | 152.3 | 179.5 | 152.0 | 179.8 | 156.2 | 175.6 | 147.0 | 184.8 | | |
| 12S20E23D001MX | FC295 | North Kings GSA | 151.9 | 212.5 | 155.8 | 208.6 | 155.0 | 209.4 | 159.0 | 205.4 | 155.4 | 209.0 | | | | | | | | | 157.0 | 207.4 | 155.8 | 208.6 | | |
| 12S20E34K001MX | FC092 | North Kings GSA | 160.8 | 199.3 | 162.9 | 197.2 | 165.1 | 195.0 | 178.5 | 181.6 | 162.8 | 197.3 | 169.5 | 190.6 | 161.9 | 198.2 | 170.5 | 189.6 | 165.3 | 194.8 | 169.0 | 191.1 | 161.0 | 199.1 | 174.9 | 185.2 |
| 12S21E29K001M | FC29K1 | North Kings GSA | 90.0 | 291.5 | 102.2 | 279.3 | | | 94.9 | 286.6 | 90.5 | 291.0 | 76.0 | 305.5 | 77.6 | 303.9 | 77.0 | 304.5 | 80.2 | 301.3 | 75.5 | 306.0 | 71.2 | 310.3 | 75.0 | 306.5 |
| 12S21E34H001M | FC34H1 | North Kings GSA | 63.1 | 329.4 | 66.1 | 326.4 | | | 66.1 | 326.4 | 61.3 | 331.2 | 117.9 | 274.6 | 61.8 | 330.7 | 61.5 | 331.0 | 61.0 | 331.5 | | | | | 58.5 | 334.0 |
| 12S22E19N001M | FC19N1 | North Kings GSA | 44.5 | 396.1 | 89.4 | 351.2 | | | 48.2 | 392.4 | 26.2 | 414.4 | 24.5 | 416.1 | 31.1 | 409.5 | 35.5 | 405.1 | 55.3 | 385.3 | 35.2 | 405.4 | 33.9 | 406.7 | 73.0 | 367.6 |
| 12S22E26L001M | FC26L1 | North Kings GSA | 29.9 | 457.7 | | | | | | | | | 68.5 | 419.1 | 22.7 | 464.9 | | | | | 47.2 | 440.4 | 24.3 | 463.3 | 26.0 | 461.6 |
| 13S17E25C001MX | FD25C1 | North Kings GSA | 86.1 | 145.8 | 93.6 | 138.3 | 94.1 | 137.8 | 94.1 | 137.8 | | | 83.1 | 148.8 | 84.1 | 147.8 | 85.1 | 146.8 | 84.1 | 147.8 | 81.1 | 150.8 | 79.1 | 152.8 | | |
| 13S17E33M001MX | FD32H1 | North Kings GSA | 117.4 | 92.7 | | | 116.9 | 93.2 | 119.9 | 90.2 | 112.4 | 97.7 | 113.4 | 96.7 | 111.4 | 98.7 | 112.9 | 97.2 | 107.4 | 102.7 | 111.4 | 98.7 | 107.4 | 102.7 | 119.9 | 90.2 |
| 13S18E17A001MX | FD17A1 | North Kings GSA | 70.0 | 183.2 | 72.0 | 181.2 | 72.0 | 181.2 | 69.0 | 184.2 | 65.0 | 182.2 | | | | | | | 65.0 | 188.2 | 63.0 | 190.2 | 65.0 | 188.2 | 70.0 | 183.2 |
| 13S18E33M001MX | FD32J1 | North Kings GSA | 91.5 | 145.8 | 94.5 | 142.8 | 93.5 | 143.8 | 91.5 | 145.8 | 85.5 | 151.8 | 82.0 | 155.3 | 84.5 | 152.8 | 79.5 | 158.8 | 81.5 | 155.8 | 79.5 | 157.8 | | | 87.5 | 149.8 |
| 13S19E11L001MX | FC035 | North Kings GSA | 120.3 | 184.4 | 120.4 | 184.3 | 120.8 | 183.9 | 123.1 | 181.6 | 119.0 | 185.7 | 121.5 | 183.2 | 119.8 | 184.9 | 121.8 | 182.9 | 120.9 | 183.8 | 122.4 | 182.3 | 119.3 | 185.4 | 122.2 | 182.5 |
| 13S19E29A001MX | FD29A1 | North Kings GSA | 81.7 | 185.2 | 87.7 | 179.2 | 88.7 | 178.2 | 90.7 | 176.2 | | | 91.7 | 175.2 | 89.7 | 177.2 | 90.7 | 176.2 | 86.7 | 180.2 | 90.7 | 176.2 | 88.7 | 178.2 | 91.2 | 175.7 |
| 13S20E27C001MX | FC069 | North Kings GSA | 131.0 | 179.1 | 133.7 | 176.4 | 130.1 | 180.0 | 132.0 | 178.1 | 130.0 | 180.1 | 133.6 | 176.5 | 133.6 | 176.5 | 132.7 | 177.4 | 128.6 | 181.5 | 125.0 | 185.1 | 121.0 | 189.1 | 140.1 | 170.0 |
| 13S20E30B001MX | FC074 | North Kings GSA | 125.0 | 179.0 | 126.0 | 178.0 | 124.2 | 179.8 | 126.0 | 178.0 | 123.2 | 180.8 | 127.5 | 176.5 | 121.0 | 183.0 | 122.0 | 182.0 | 120.9 | 183.1 | 120.7 | 183.3 | 117.9 | 186.1 | 119.0 | 185.0 |
| 13S21E19E001MX | FC080 | North Kings GSA | 133.9 | 200.9 | 139.2 | 195.6 | 114.6 | 220.2 | 114.1 | 220.7 | 128.5 | 206.3 | 115.5 | 219.3 | 142.9 | 191.9 | 139.2 | 195.6 | 130.0 | 204.8 | 113.1 | 221.7 | 122.0 | 212.8 | 111.2 | 223.6 |
| 13S22E07R001MX | FD07R1 | North Kings GSA | 56.5 | 335.1 | 61.5 | 330.1 | 58.5 | 333.1 | 62.5 | 329.1 | 51.5 | 340.1 | 61.0 | 330.6 | 59.0 | 332.6 | 59.5 | 332.1 | 58.5 | 333.1 | 62.5 | 329.1 | 61.5 | 330.1 | 65.0 | 326.6 |
| 13S22E32A001MX | FD32A1 | North Kings GSA | 52.2 | 318.6 | 58.7 | 312.1 | 54.7 | 316.1 | 56.2 | 314.6 | 51.7 | 319.1 | 53.7 | 317.1 | 50.2 | 320.6 | 55.7 | 315.1 | 49.7 | 321.1 | 53.2 | 317.6 | 49.7 | 321.1 | 56.7 | 314.1 |
| 13S23E30B001MX | FD30B1 | North Kings GSA | 19.2 | 391.6 | 35.2 | 375.6 | 19.7 | 391.1 | 18.7 | 392.1 | 6.7 | 404.1 | 10.2 | 400.6 | 13.2 | 397.6 | 8.2 | 402.6 | 6.7 | 404.1 | 9.7 | 401.1 | 8.2 | 402.6 | 24.2 | 386.6 |
| 13S23E33B001MX | FD33B1 | North Kings GSA | 17.9 | 413.9 | 21.4 | 410.4 | 13.9 | 417.9 | 15.4 | 416.4 | 7.9 | 423.9 | 13.9 | 417.9 | 14.4 | 417.4 | 12.9 | 418.9 | 10.9 | 420.9 | 12.9 | 418.9 | 13.9 | 417.9 | 18.9 | 412.9 |
| 14S18E09H001MX | FD09H1 | North Kings GSA | 104.2 | 132.1 | 108.2 | 128.1 | 108.2 | 128.1 | 106.7 | 129.6 | 101.2 | 135.1 | 92.2 | 144.1 | 93.2 | 143.1 | 91.2 | 145.1 | 92.2 | 144.1 | 91.7 | 144.6 | 94.2 | 142.1 | 101.2 | 135.1 |
| 14S18E32D001MX | FD32D1 | North Kings GSA | 143.7 | 68.6 | 158.7 | 53.6 | 152.2 | 60.1 | 158.7 | 53.6 | 147.7 | 64.6 | | | | | | | | | | | 149.7 | 62.6 | 161.7 | 50.6 |
| 14S19E17C001MX | FD17C1 | North Kings GSA | 90.9 | 158.9 | | | 98.9 | 151.0 | 98.9 | 150.9 | 94.9 | 155.0 | 93.9 | 156.0 | 90.9 | 158.9 | 92.9 | 156.9 | 92.4 | 157.4 | | | 89.9 | 160.0 | 94.4 | 155.5 |
| 14S19E33D001MX | FD33D1 | North Kings GSA | 78.0 | 161.5 | 93.5 | 146.0 | 81.0 | 158.5 | 90.0 | 149.5 | 81.0 | 158.5 | 80.5 | 159.0 | 74.5 | 165.0 | 87.5 | 152.0 | 80.0 | 159.5 | 83.5 | 156.0 | 78.0 | 161.5 | 81.0 | 158.5 |
| 14S20E10M001MX | FC003 | North Kings GSA | 109.7 | 181.7 | 109.9 | 181.5 | 111.6 | 179.8 | 110.0 | 181.4 | 107.5 | 183.9 | 107.1 | 184.3 | 106.1 | 185.3 | 104.1 | 187.3 | 101.0 | 190.4 | 101.6 | 189.8 | 99.0 | 192.4 | 100.0 | 191.4 |
| 14S20E22J001MX | FC040 | North Kings GSA | | | 89.5 | 193.0 | | | | | 84.7 | 197.8 | | | | | | | | | | | | | | |
| 14S21E06Q001MX | FC077 | North Kings GSA | 113.8 | 195.8 | 116.5 | 193.1 | 113.3 | 196.3 | 115.2 | 194.4 | 112.9 | 196.7 | 113.6 | 196.0 | 112.9 | 196.6 | 110.3 | 199.3 | 113.7 | 195.9 | 107.1 | 202.5 | 104.7 | 204.9 | 104.8 | 204.8 |
| 14S21E22D001MX | FD22D1 | North Kings GSA | 75.2 | 242.6 | 80.2 | 237.6 | | | 83.2 | 234.6 | 80.2 | 237.6 | 82.2 | 235.6 | 79.2 | 238.6 | | | 79.7 | 238.1 | 83.2 | 234.6 | 80.7 | 237.1 | 84.2 | 233.6 |
| 15S19E02M001MX | FD03J1 | North Kings GSA | 107.8 | 135.1 | | | | | 115.3 | 127.6 | 111.3 | 131.6 | 113.3 | 129.6 | 111.3 | 131.6 | 110.3 | 132.6 | | | 109.8 | 133.1 | 108.8 | 134.1 | 112.8 | 130.1 |
| 15S19E14M001MX | FD14M1 | North Kings GSA | | | 145.4 | 95.8 | 142.5 | 98.8 | 145.4 | 95.8 | 140.5 | 100.8 | 140.5 | 100.8 | 139.4 | 101.8 | 138.4 | 102.8 | 137.4 | 103.8 | 140.5 | 100.8 | 139.5 | 101.8 | | |
| 15S20E07Q001MX | FD07P1 | North Kings GSA | 108.8 | 143.4 | 114.3 | 137.9 | 112.3 | 139.9 | | | | | | | | | | | | | 108.3 | 143.9 | 112.3 | 139.9 | 116.3 | 135.9 |
| 15S20E13E001MX | FD13E2 | North Kings GSA | 82.9 | 199.1 | 88.9 | 193.1 | 91.0 | 191.1 | 92.9 | 189.1 | 92.5 | 189.6 | 92.5 | 189.6 | 91.4 | 190.6 | 91.9 | 190.1 | 89.4 | 192.6 | 92.0 | 190.1 | 90.5 | 191.6 | 93.5 | 188.6 |
| 367113N1200785W001 | 14S17E14J001M | North Kings GSA | 171.0 | 39.5 | 144.8 | 65.7 | 158.5 | 52.0 | 156.3 | 54.2 | 144.3 | 66.2 | | | 149.0 | 61.5 | 153.0 | 57.5 | 130.0 | 80.5 | 147.0 | 63.5 | | | | |
| 367556N1196666W001 | 13S21E34J002M | North Kings GSA | 72.9 | 267.6 | 75.3 | 265.2 | 74.8 | 265.7 | 73.4 | 267.1 | 78.2 | 262.3 | 71.9 | 268.6 | | | 79.5 | 261.0 | 72.1 | 268.4 | 71.7 | 268.8 | 70.5 | 270.0 | 71.0 | 269.5 |
| CID10 | 10 | South Kings GSA | 48.5 | 317.7 | 51.6 | 314.6 | 52.0 | 314.2 | 48.6 | 317.6 | 47.8 | 318.4 | 45.6 | 320.6 | 47.7 | 318.5 | 47.4 | 318.8 | 48.9 | 317.3 | 46.1 | 320.1 | 47.9 | 318.3 | 47.6 | 318.6 |
| CID12 | 12 | South Kings GSA | 52.7 | 288.3 | 63.6 | 277.4 | 60.3 | 280.7 | 62.6 | 278.4 | 57.4 | 283.6 | 59.5 | 281.5 | 54.7 | 286.3 | 58.3 | 282.7 | 54.7 | 286.3 | 56.5 | 285.1 | 54.2 | 287.4 | 56.8 | 284.2 |
| CID16 | 16 | South Kings GSA | | | 76.4 | 242.4 | 75.7 | 243.1 | 79.8 | 239.0 | 78.9 | 239.9 | 76.1 | 242.7 | 73.2 | 245.6 | 73.6 | 245.2 | 72.0 | 246.8 | 72.0 | 248.7 | 69.8 | 250.9 | 73.6 | 245.2 |
| CID25 | 25 | South Kings GSA | 65.7 | 261.6 | 72.1 | 255.2 | 72.6 | 254.7 | 73.2 | 254.1 | 74.0 | 253.3 | 66.2 | 261.1 | 64.3 | 263.0 | 65.5 | 261.8 | 65.7 | 261.6 | 61.4 | 268.9 | | | | |

Appendix C – Groundwater Monitor Well Hydrographs

CID06

Ground Surface Elevation: 342 ft

Central Kings Groundwater Sustainability Agency

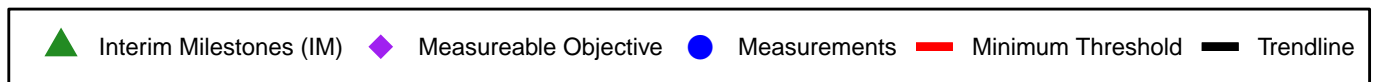
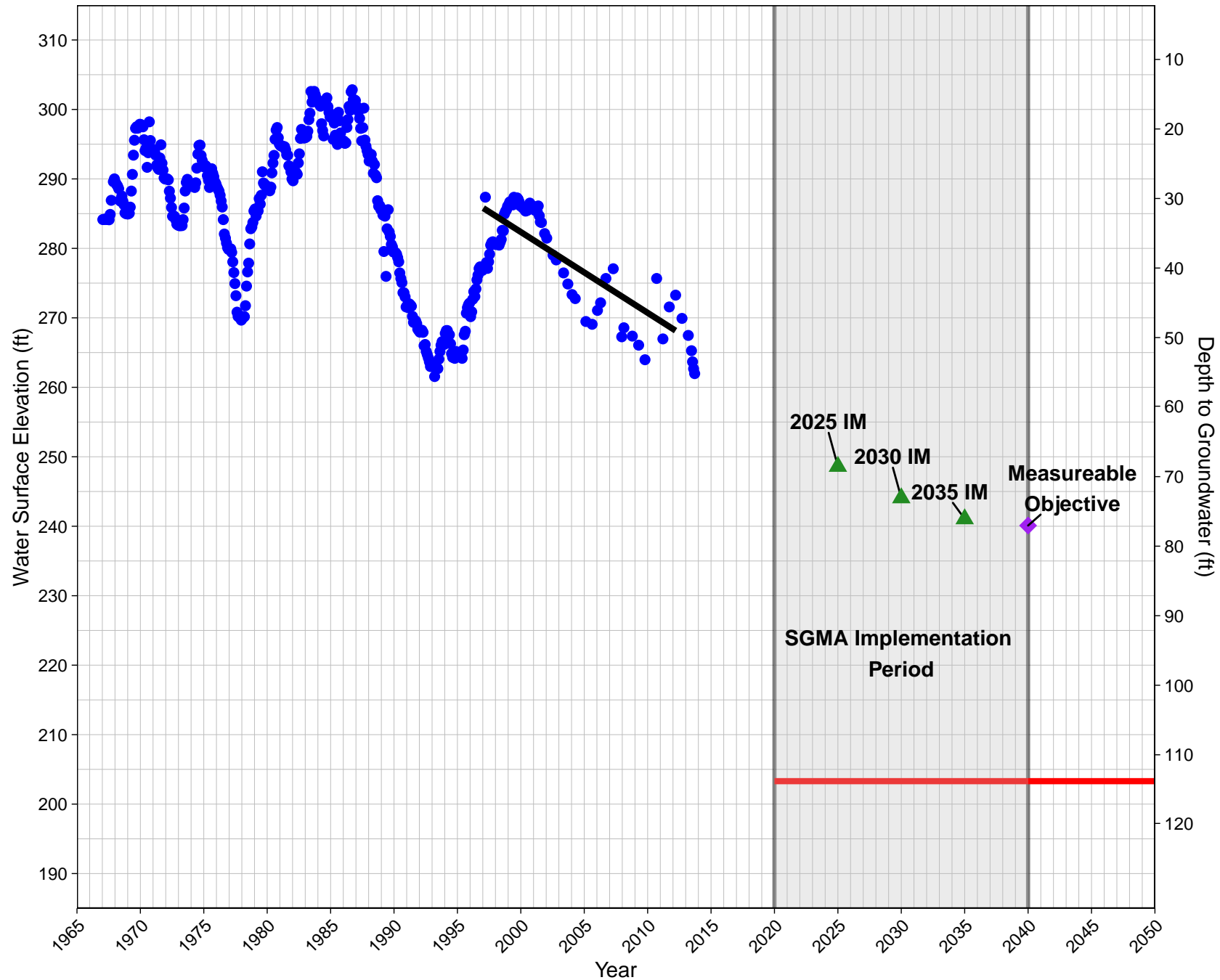
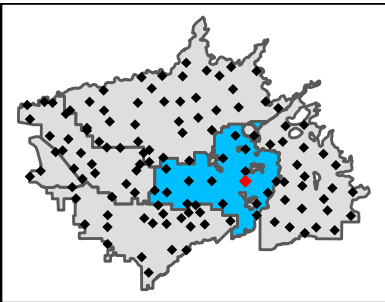


CID28

State Well ID: 15S22E33R001M

Ground Surface Elevation: 317 ft

Central Kings Groundwater Sustainability Agency

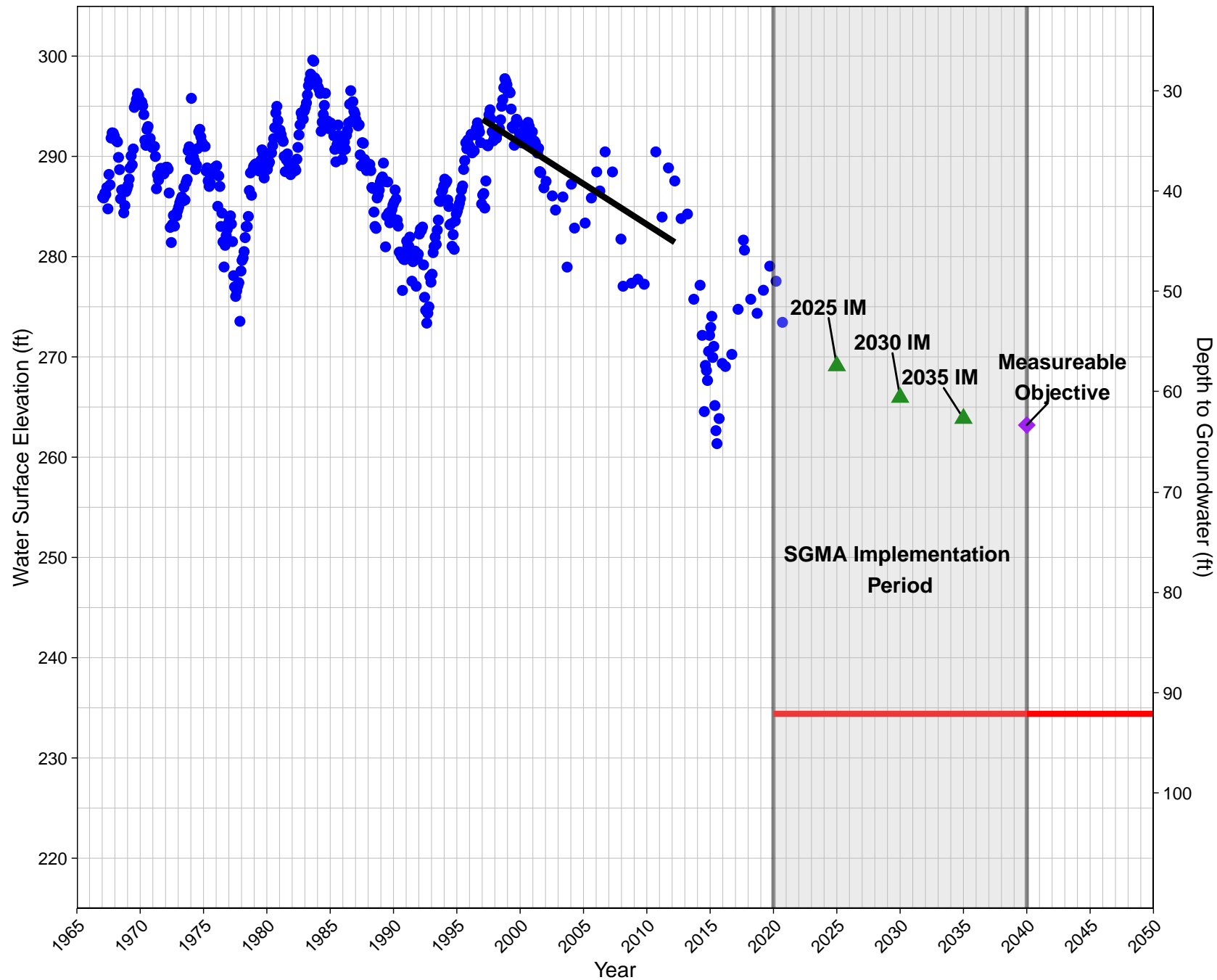


CID31

State Well ID: 15S23E33P001M

Ground Surface Elevation: 327 ft

Central Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



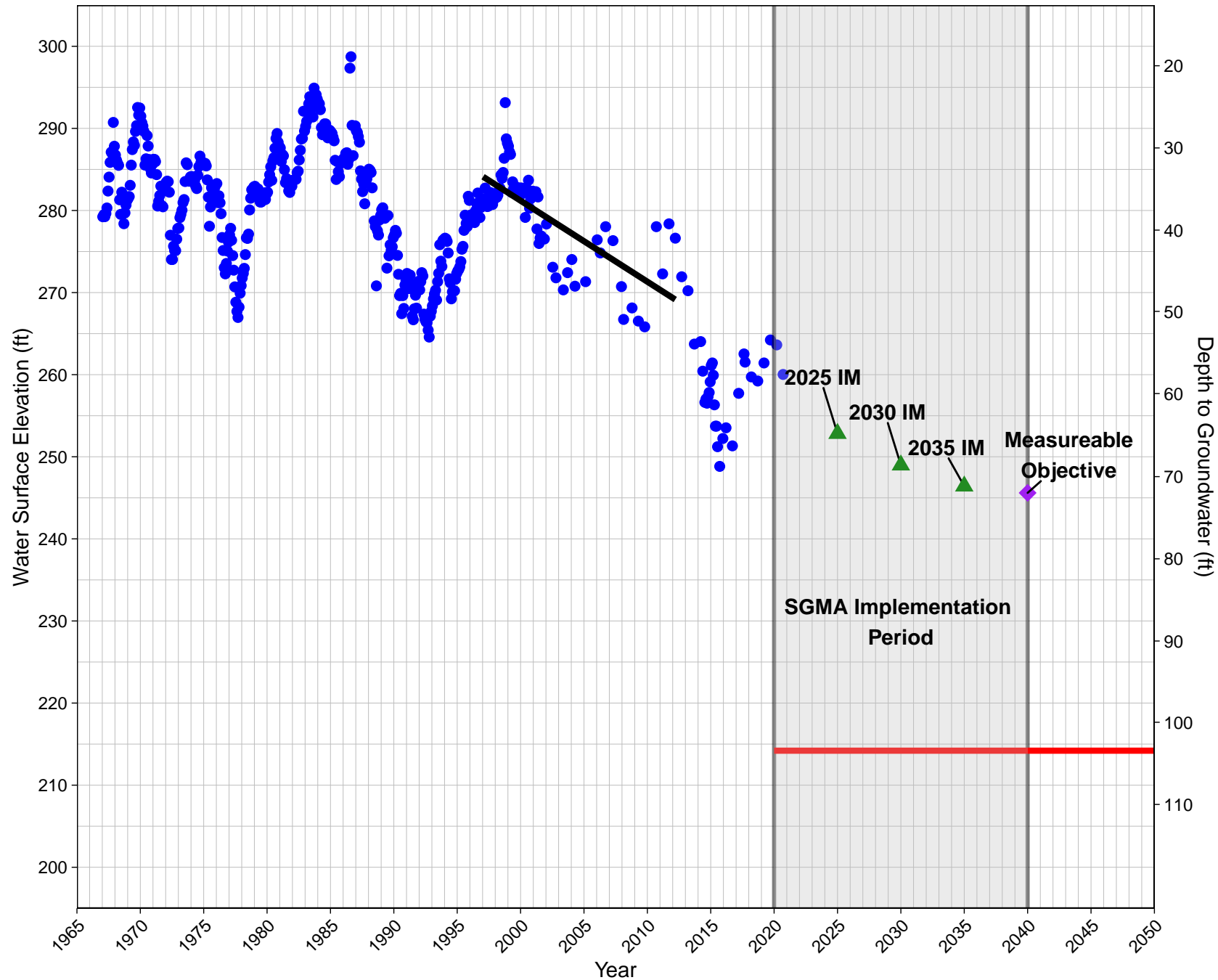
Trendline

CID32

State Well ID: 16S23E18A001M

Ground Surface Elevation: 318 ft

Central Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



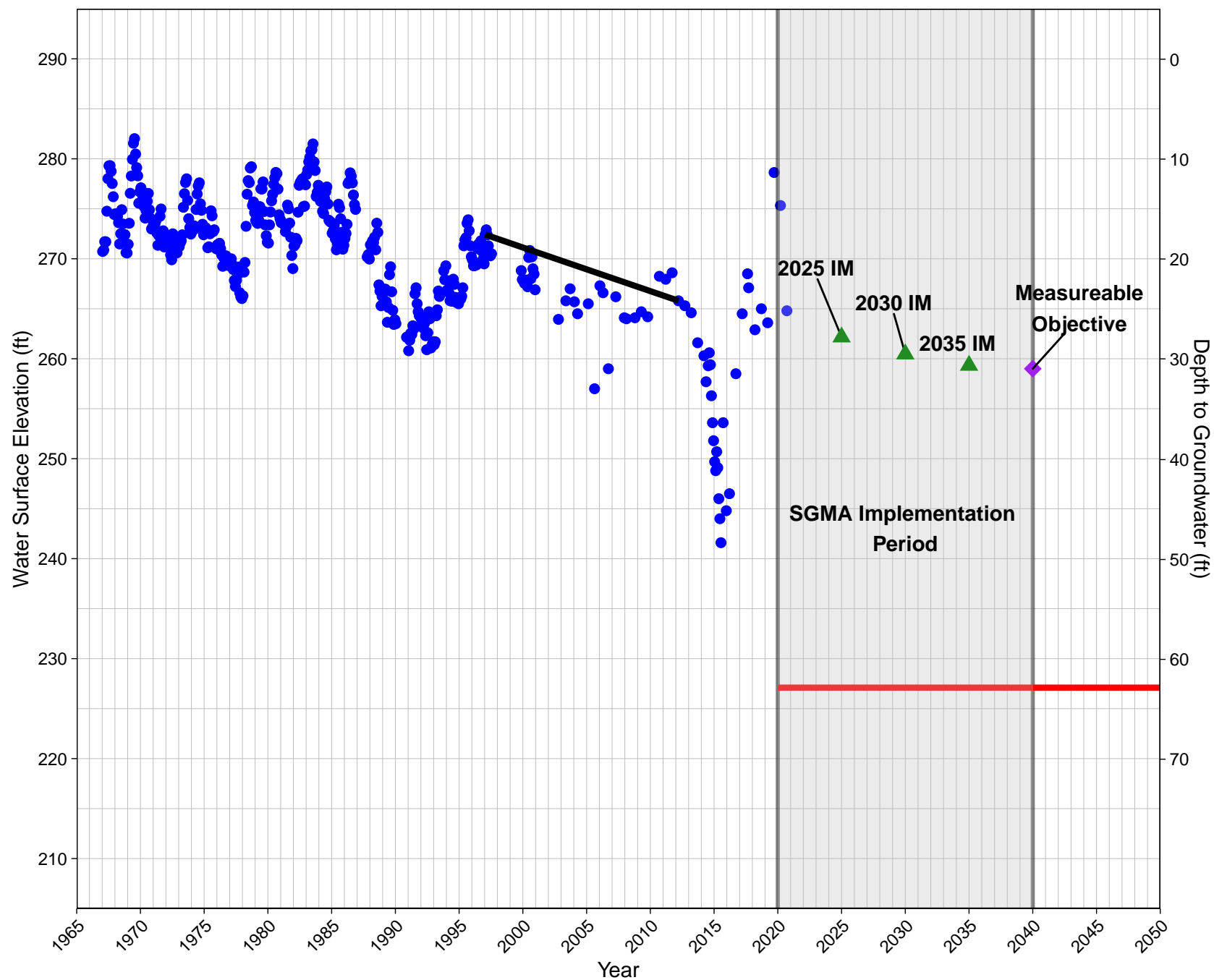
Trendline

CID41

State Well ID: 17S22E01C001M

Ground Surface Elevation: 290 ft

Central Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

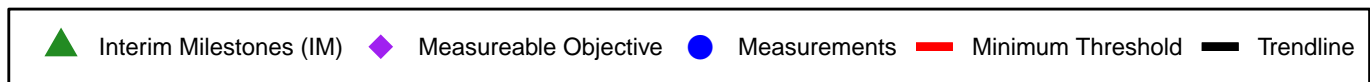
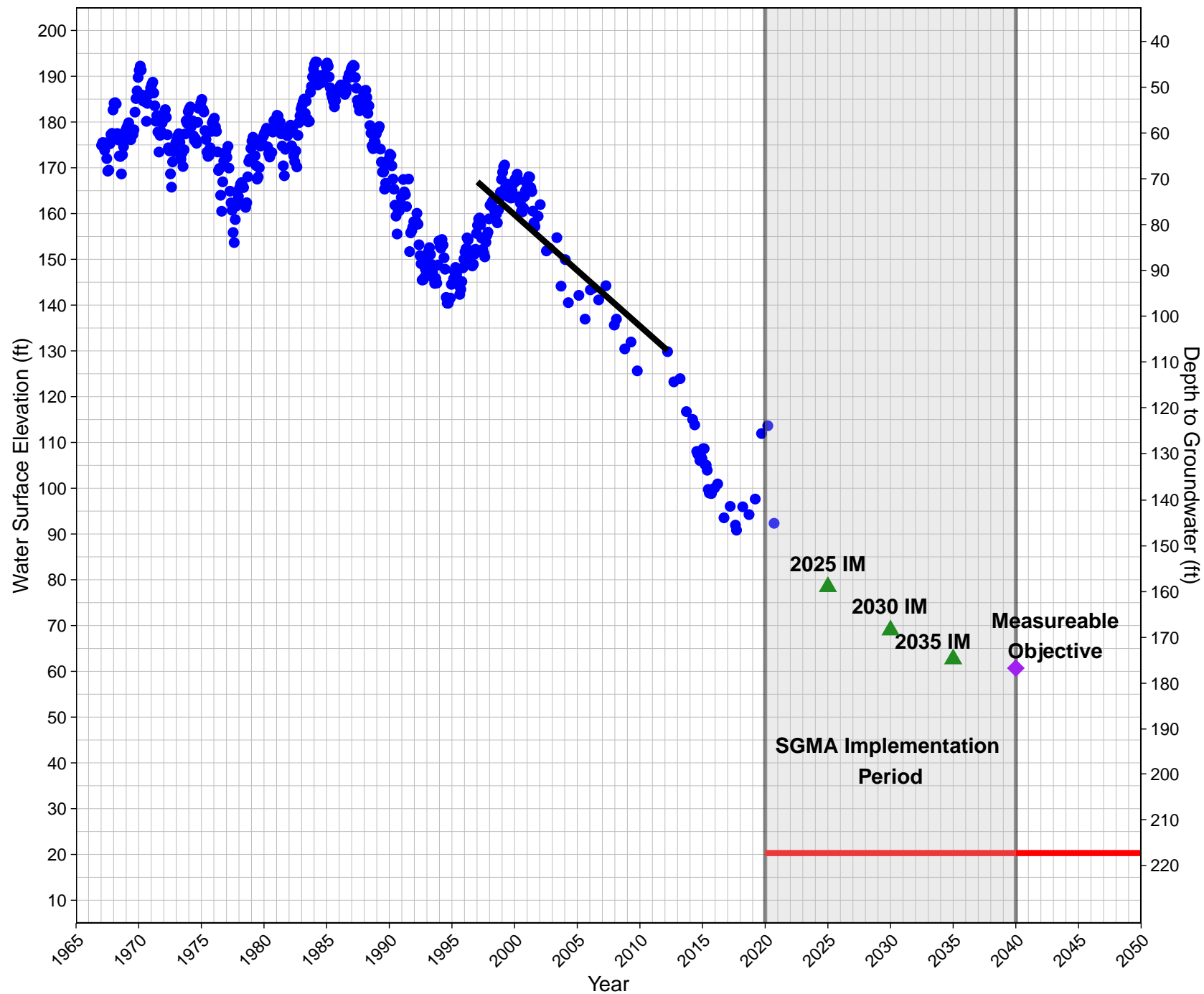


Trendline

CID48

Ground Surface Elevation: 238 ft

Central Kings Groundwater Sustainability Agency

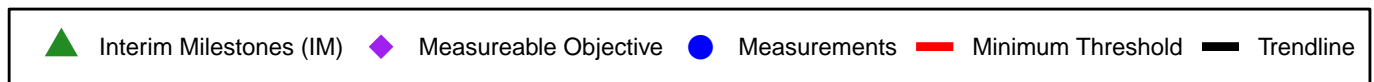
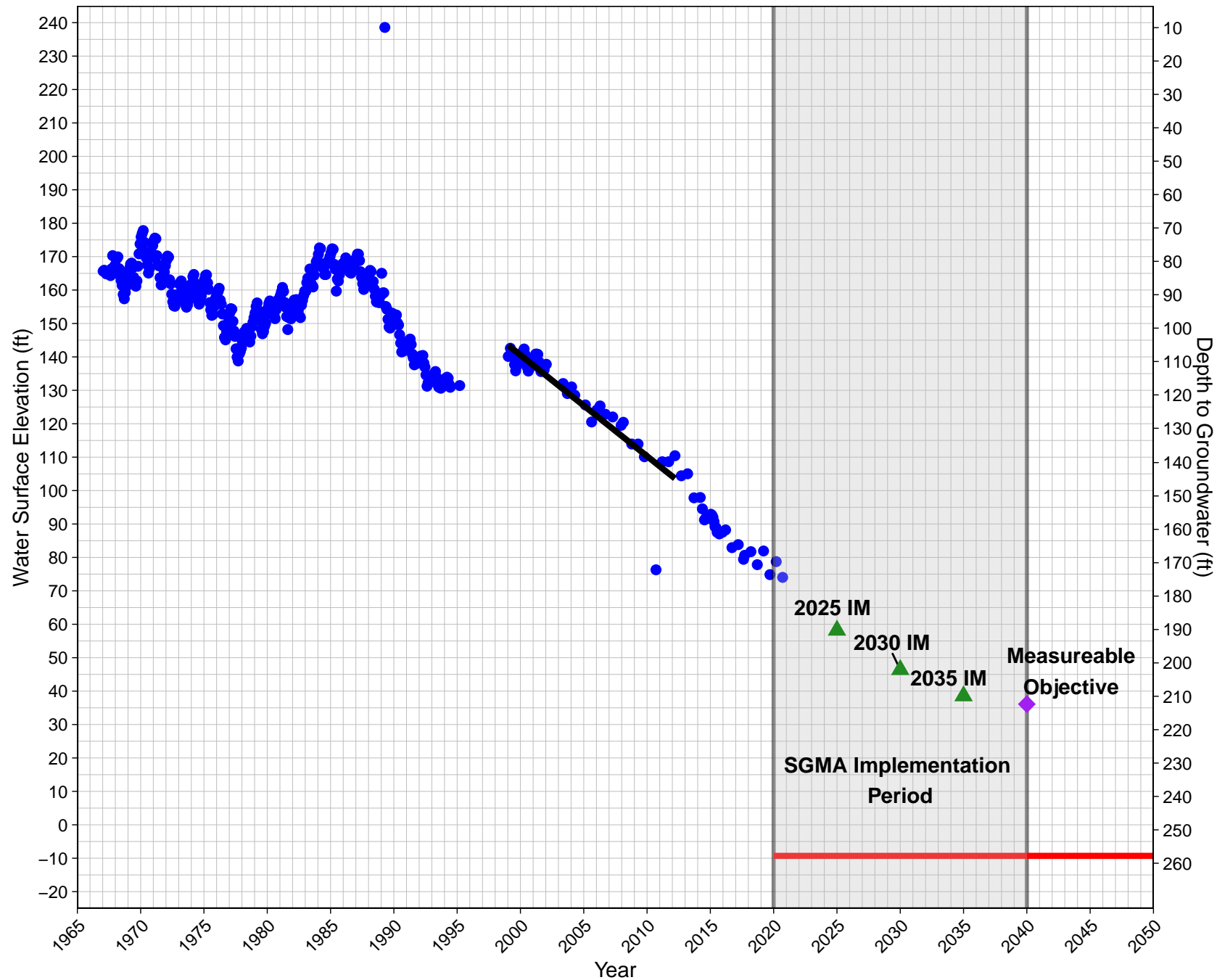


CID56

State Well ID: 16S20E18A001M

Ground Surface Elevation: 248 ft

Central Kings Groundwater Sustainability Agency

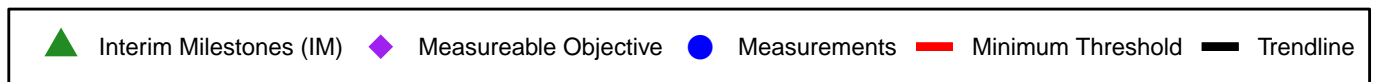
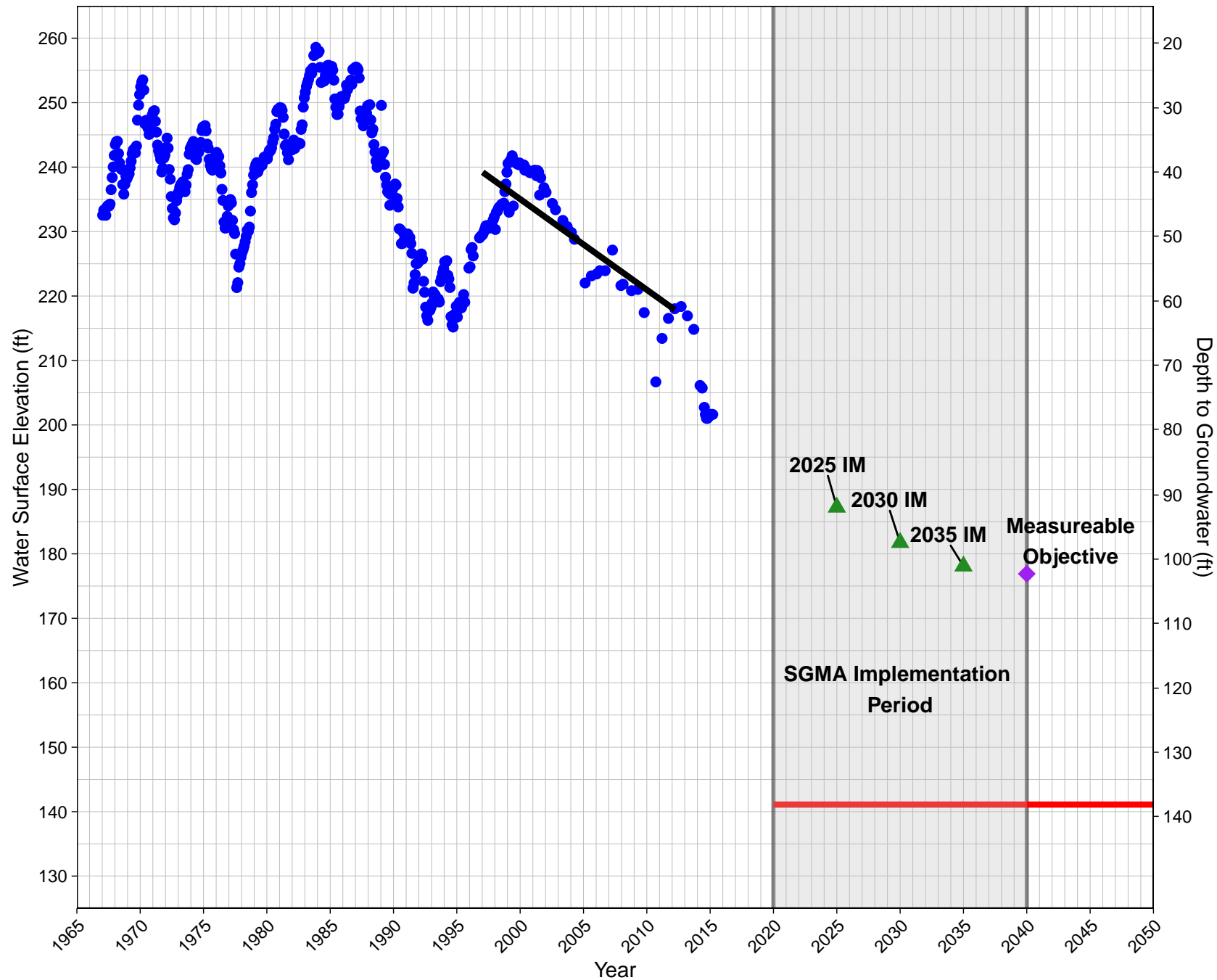
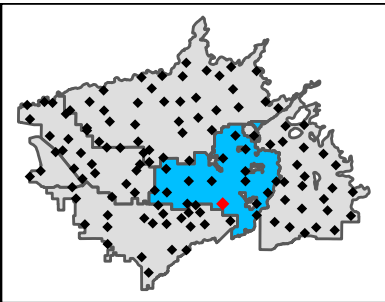


CID62

State Well ID: 16S21E23R001M

Ground Surface Elevation: 279 ft

Central Kings Groundwater Sustainability Agency

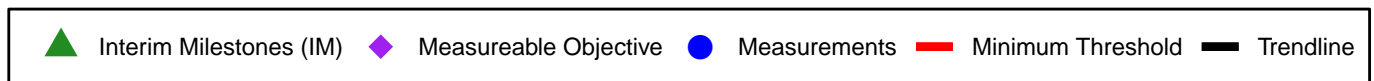
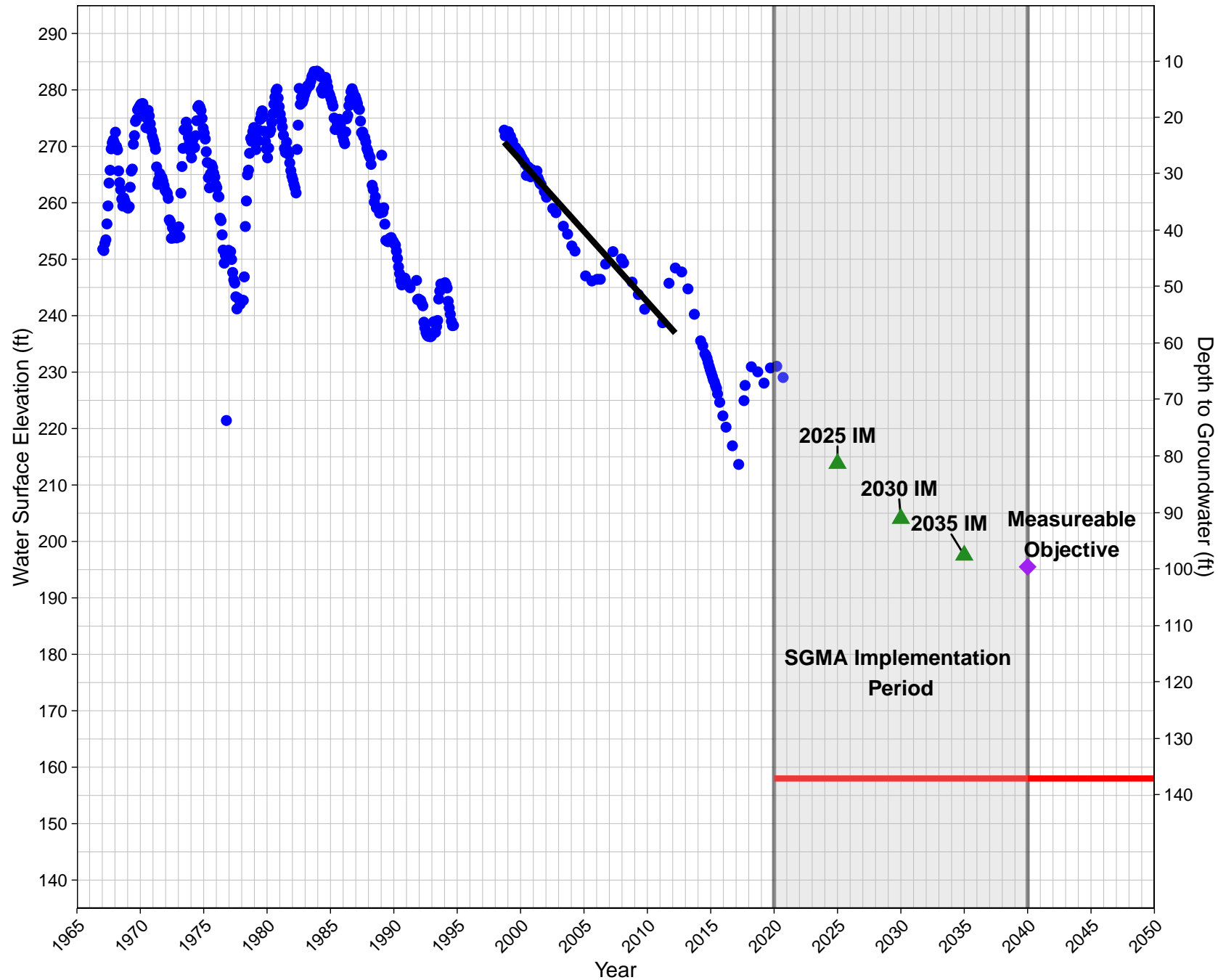
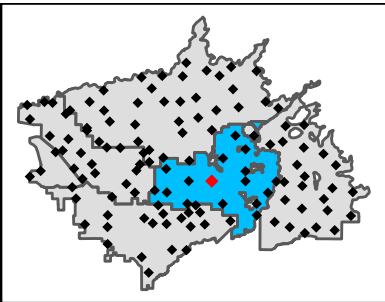


CID65

State Well ID: 15S21E34N001M

Ground Surface Elevation: 295 ft

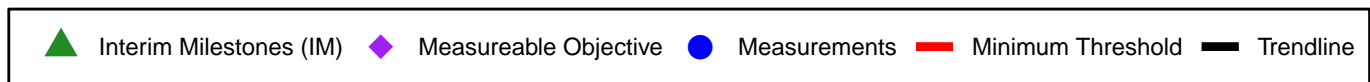
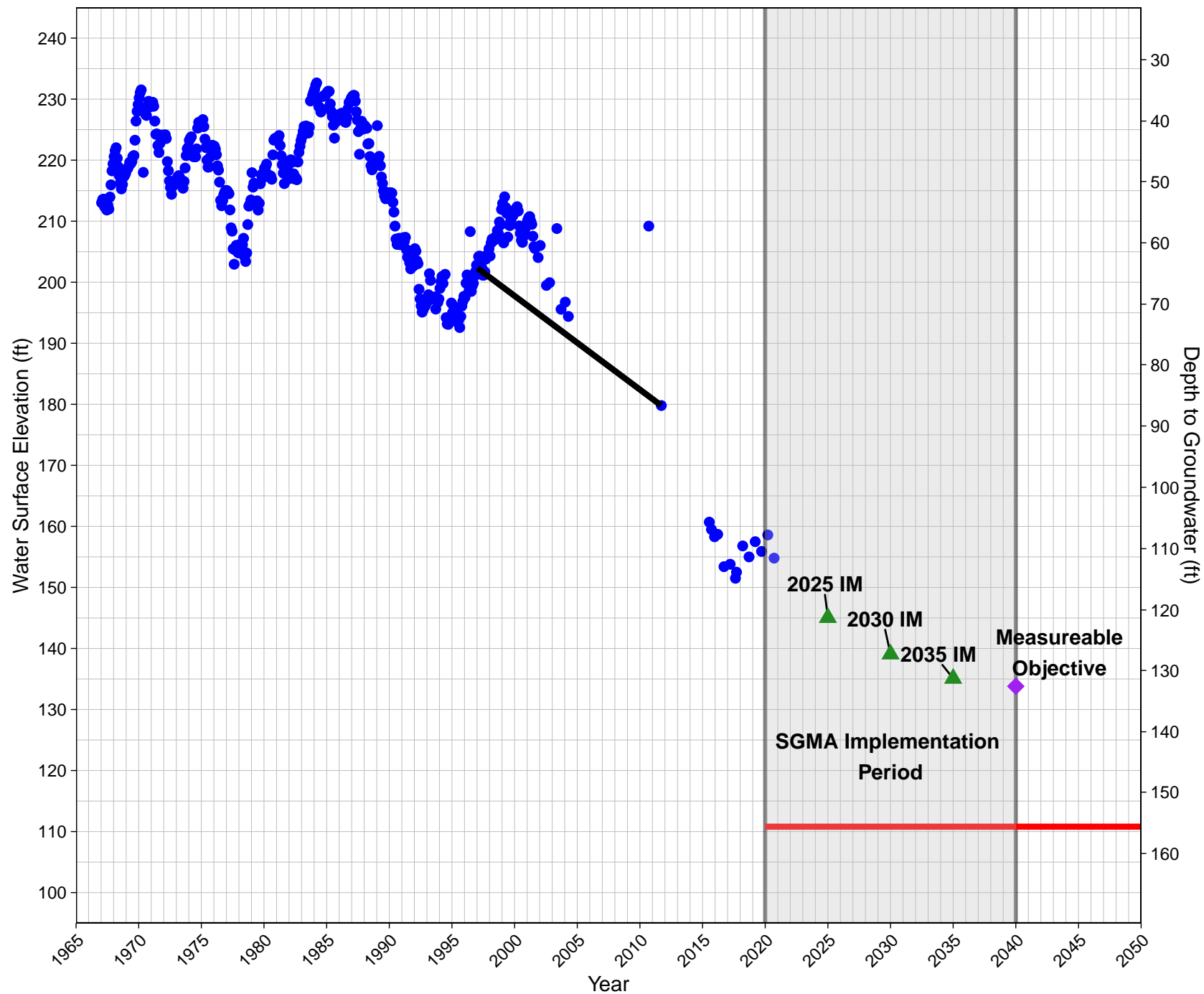
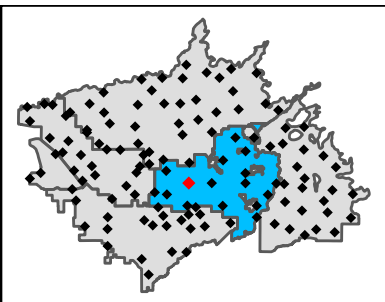
Central Kings Groundwater Sustainability Agency



CID67

Ground Surface Elevation: 266 ft

Central Kings Groundwater Sustainability Agency

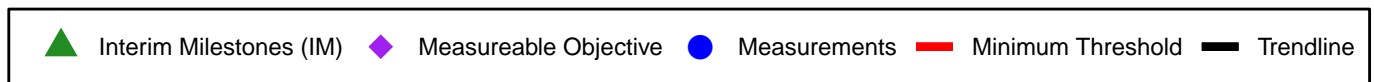
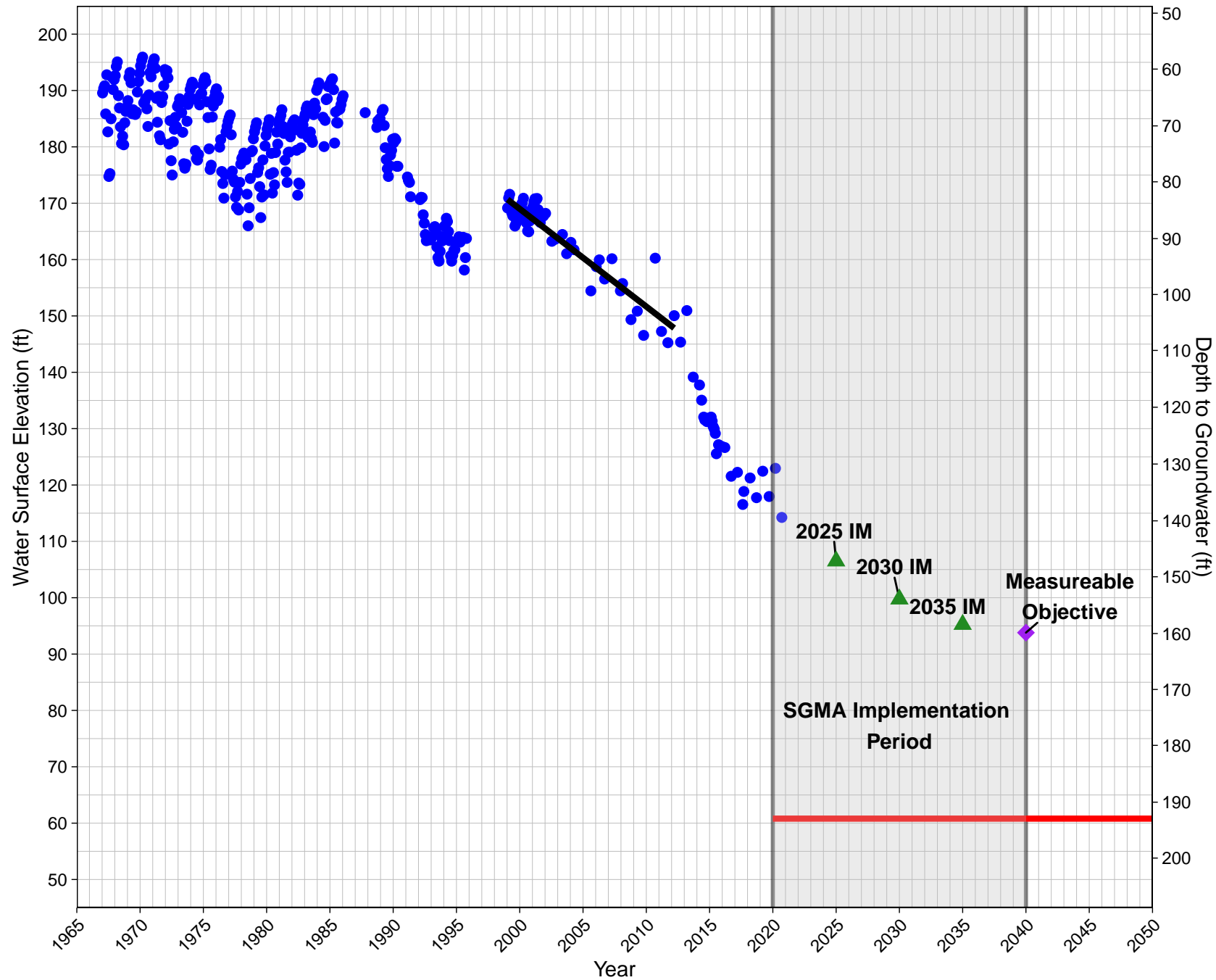
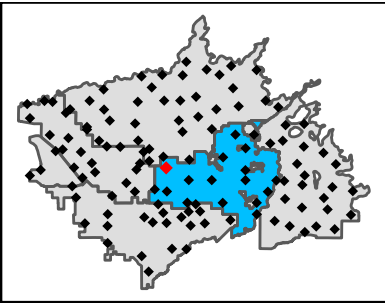


CID74

State Well ID: 15S20E19R001M

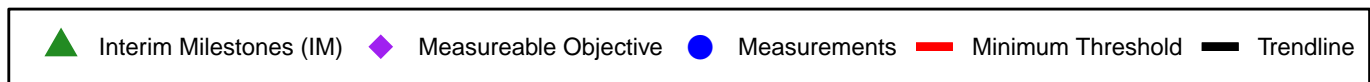
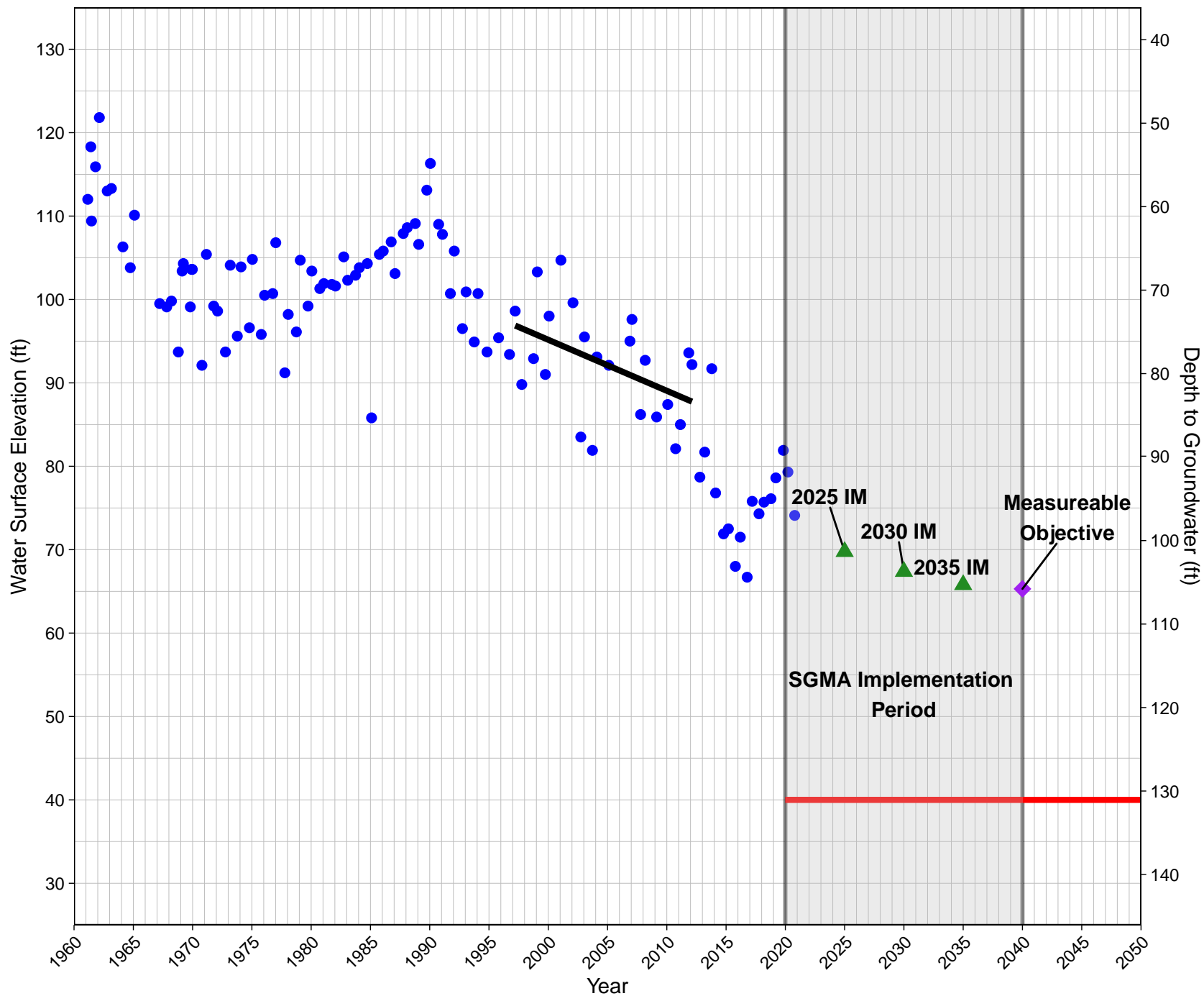
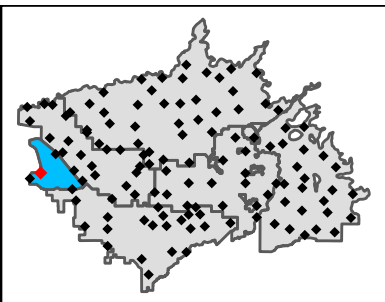
Ground Surface Elevation: 254 ft

Central Kings Groundwater Sustainability Agency



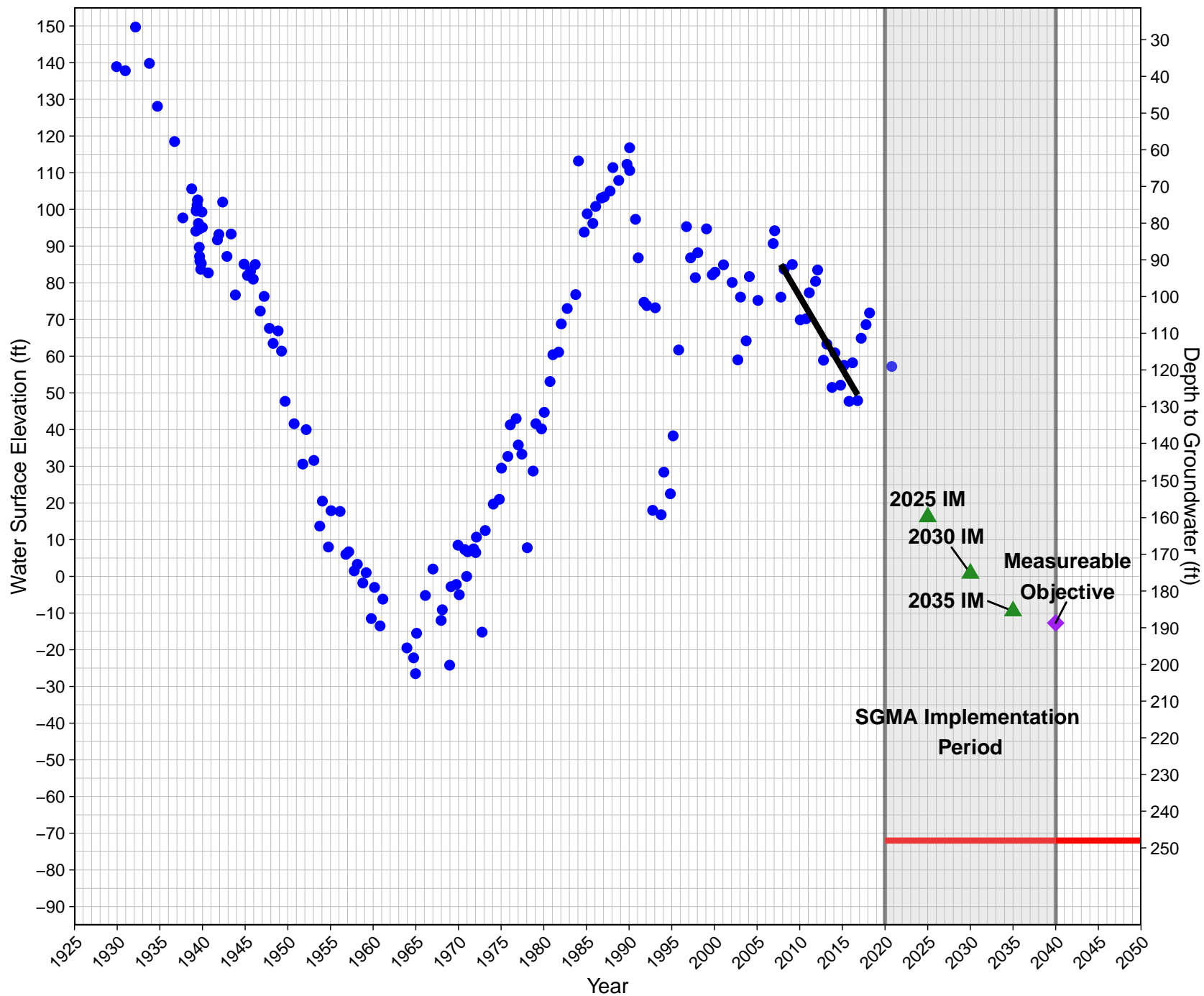
15S16E28A003M

Ground Surface Elevation: 171 ft
James Irrigation District



15S16E29N001M

Ground Surface Elevation: 176 ft
James Irrigation District



Interim Milestones (IM)



Measureable Objective



Measurements



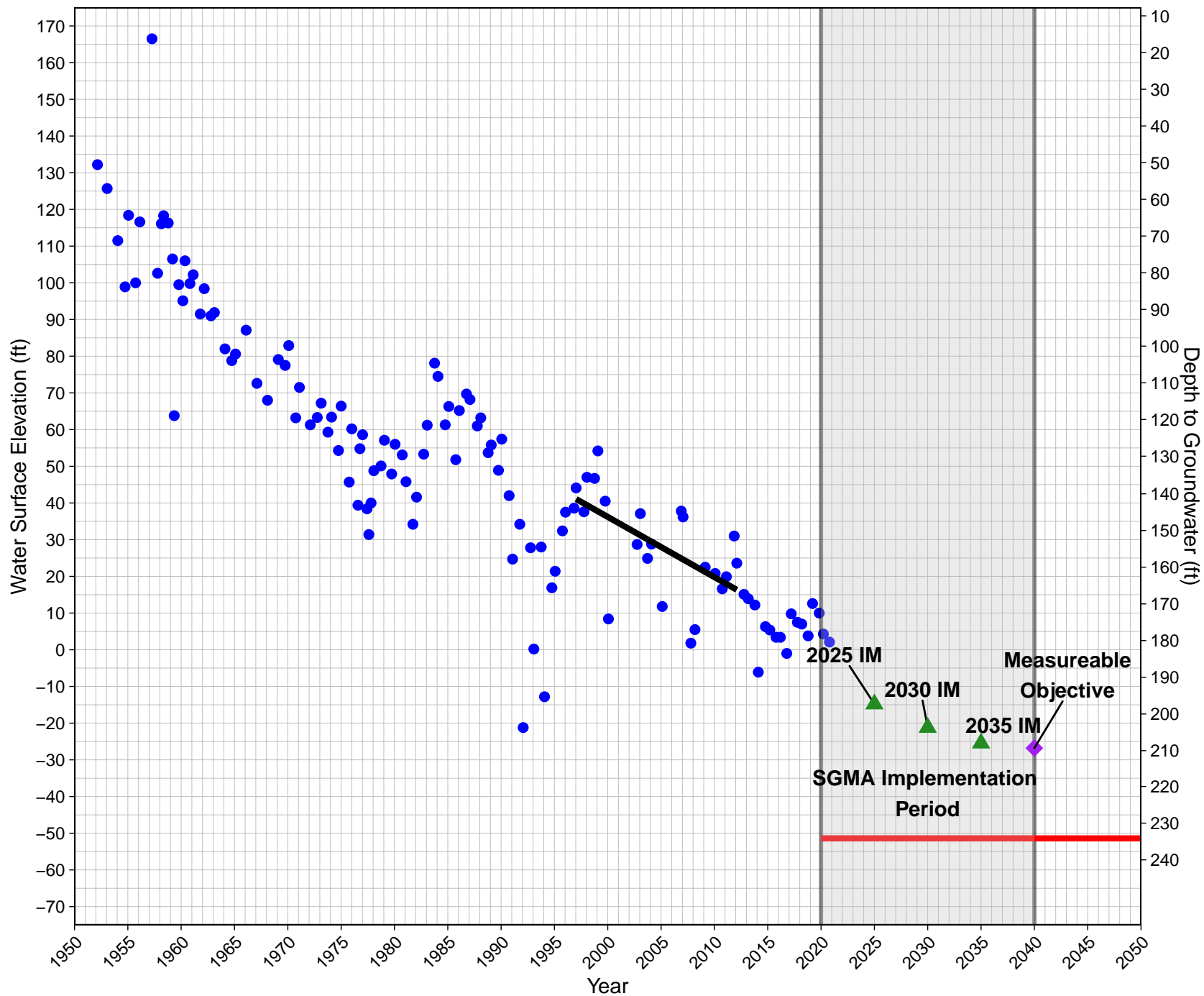
Minimum Threshold



Trendline

16S17E04P001M

Ground Surface Elevation: 183 ft
James Irrigation District



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



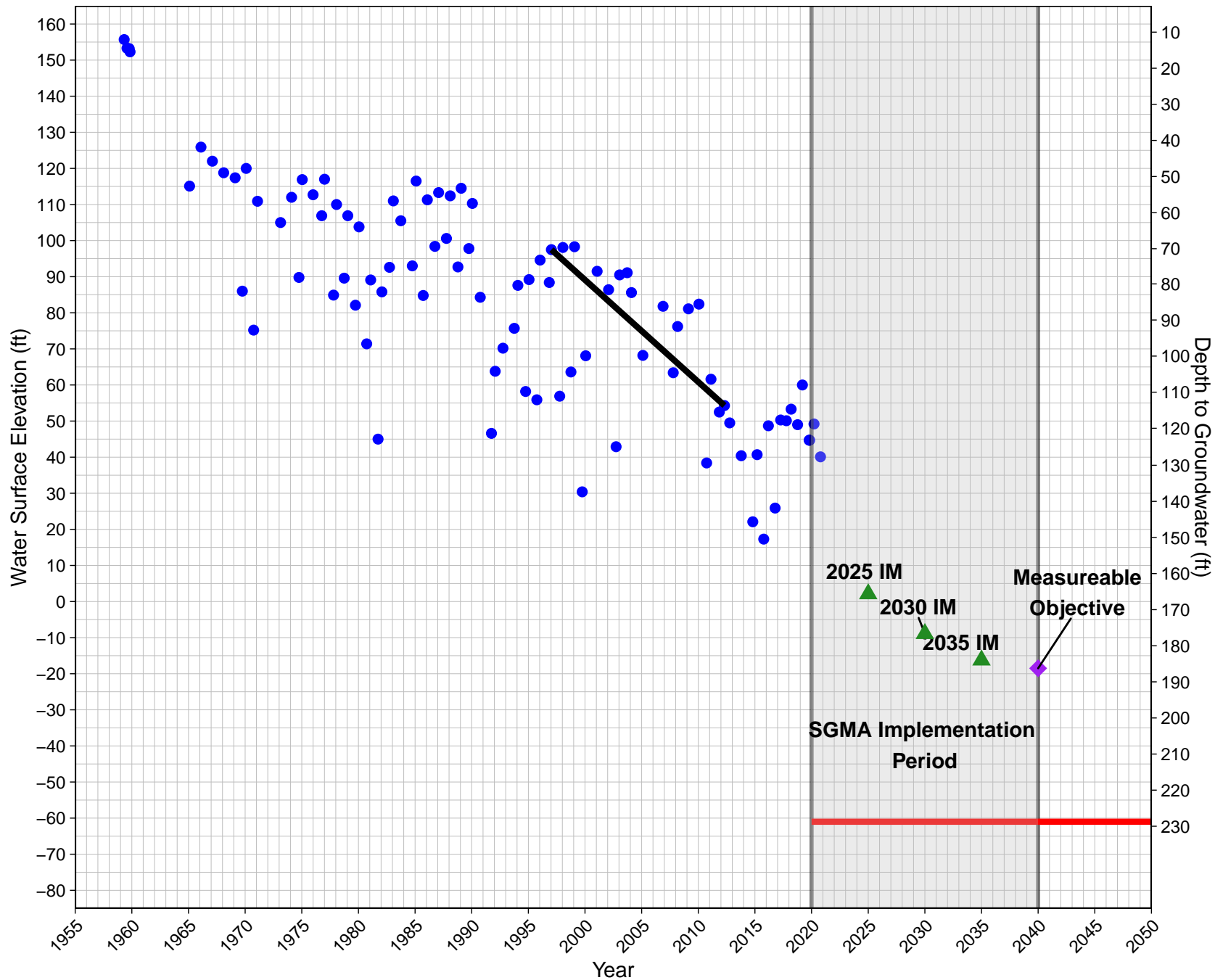
Trendline

366502N1201782W001

State Well ID: 15S16E01Q002M

Ground Surface Elevation: 168 ft

James Irrigation District



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

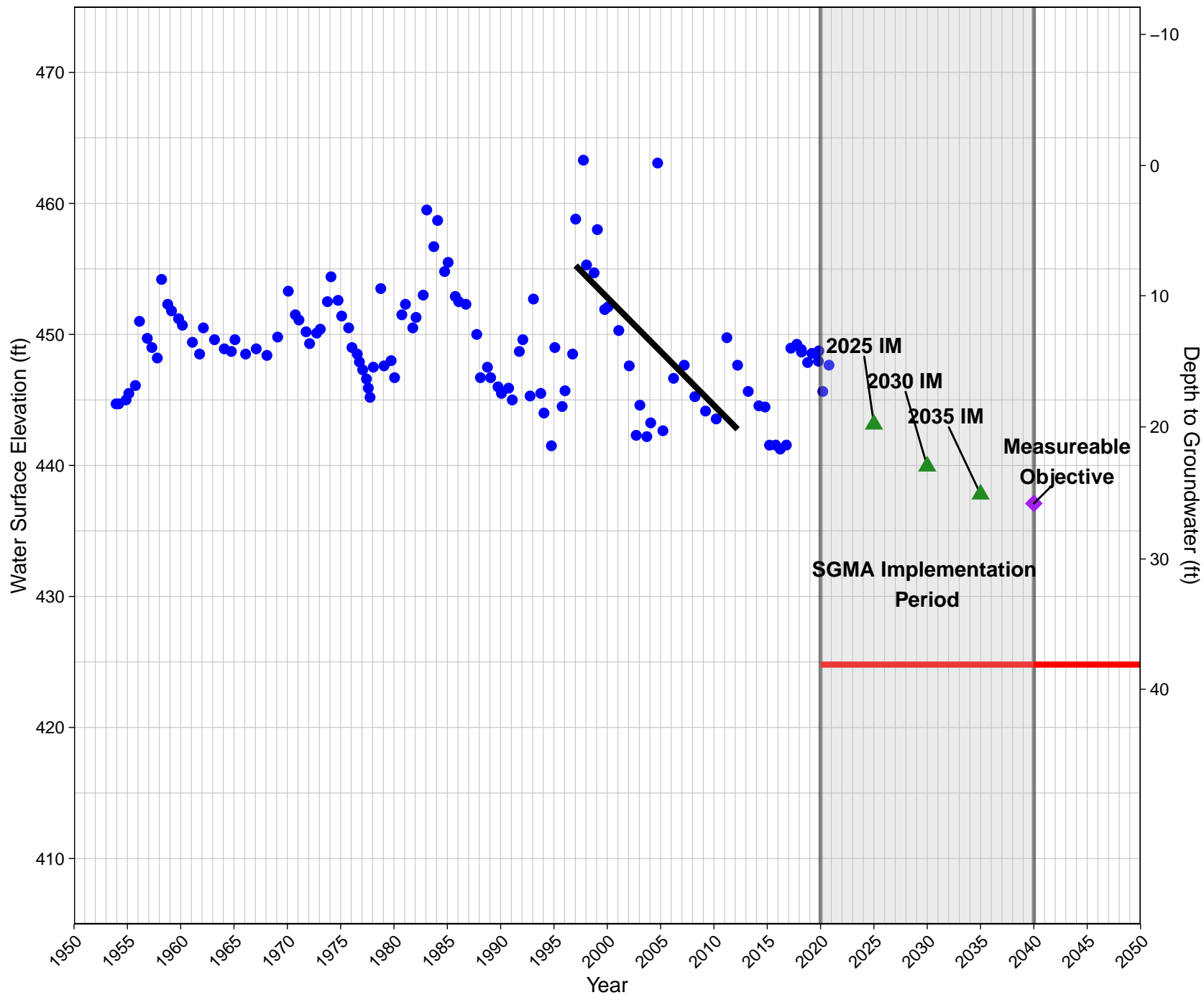


Trendline

14S24E17C001MX

Ground Surface Elevation: 463 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

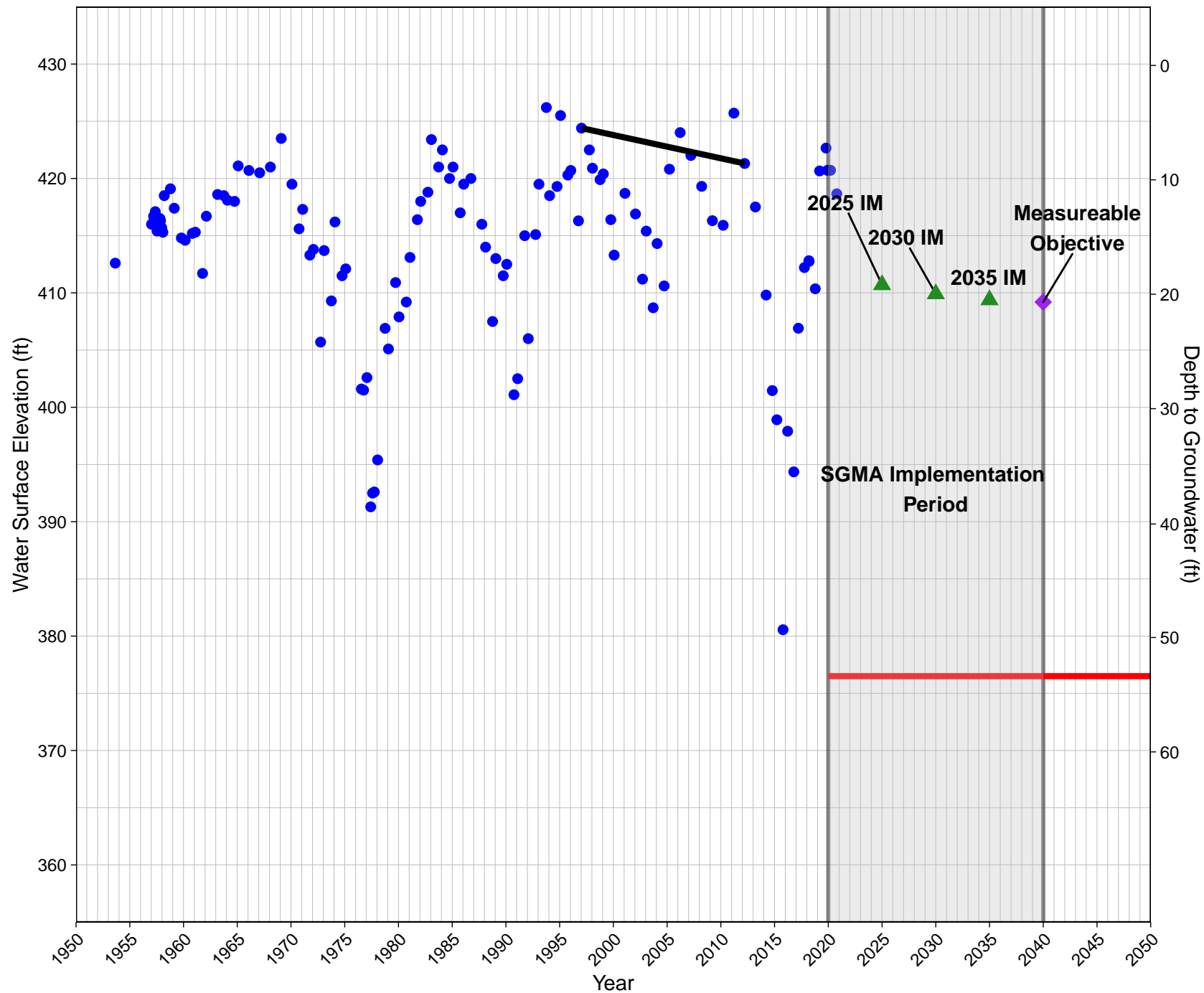


Trendline

15S24E11A001MX

Ground Surface Elevation: 430 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

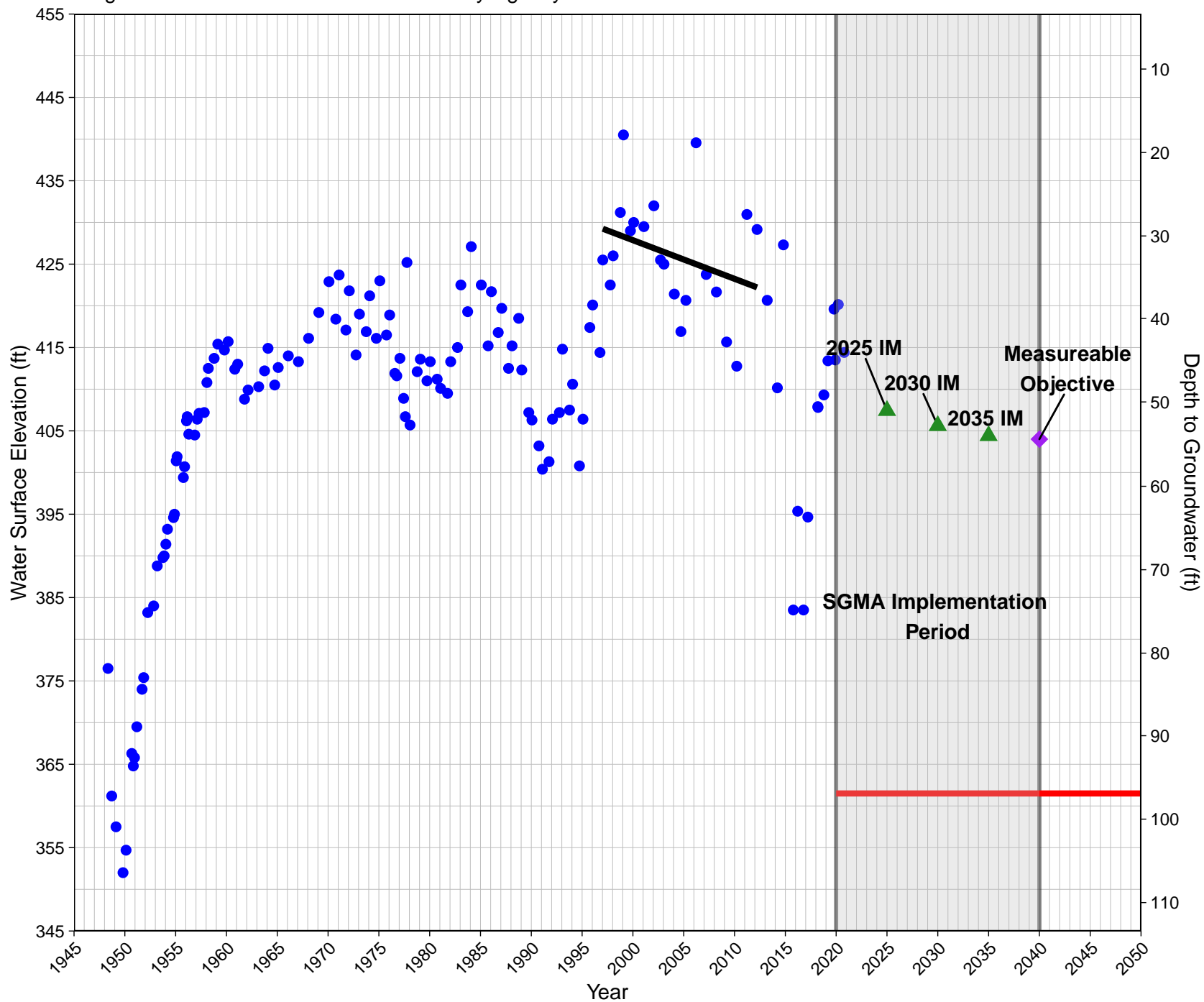


Trendline

15S25E19A001MX

Ground Surface Elevation: 458 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

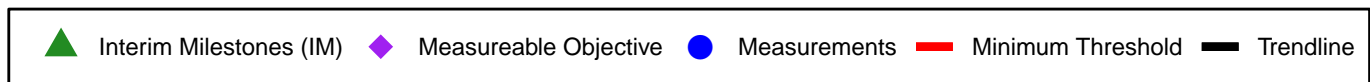
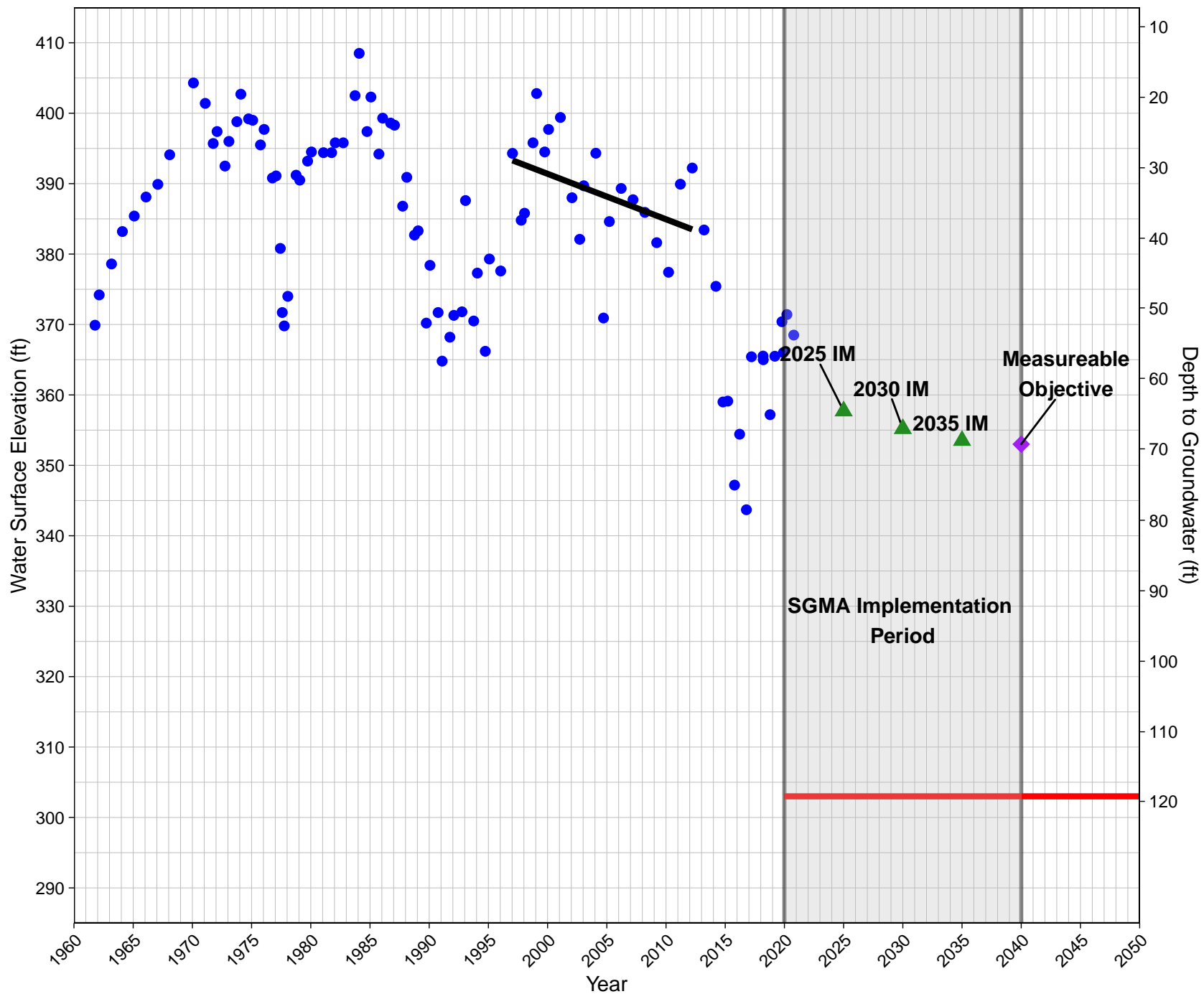


Trendline

16S25E10J001MX

Ground Surface Elevation: 422 ft

Kings River East Groundwater Sustainability Agency

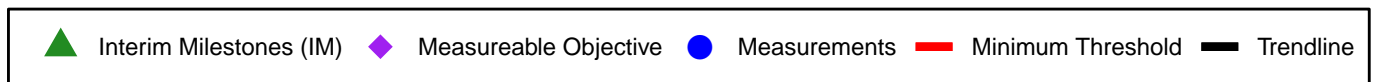
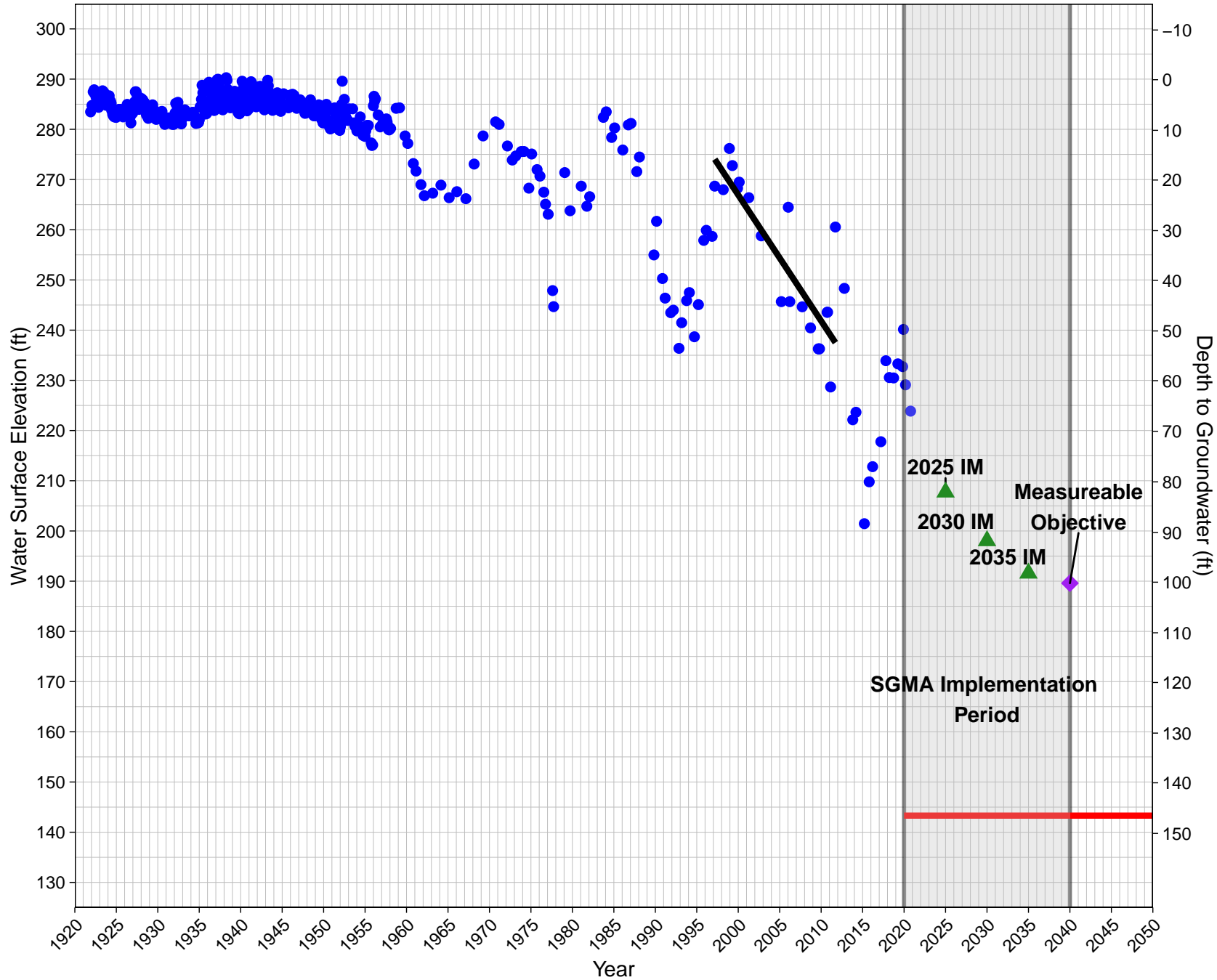


364425N1193860W001

State Well ID: 17S24E20A001M

Ground Surface Elevation: 290 ft

Kings River East Groundwater Sustainability Agency

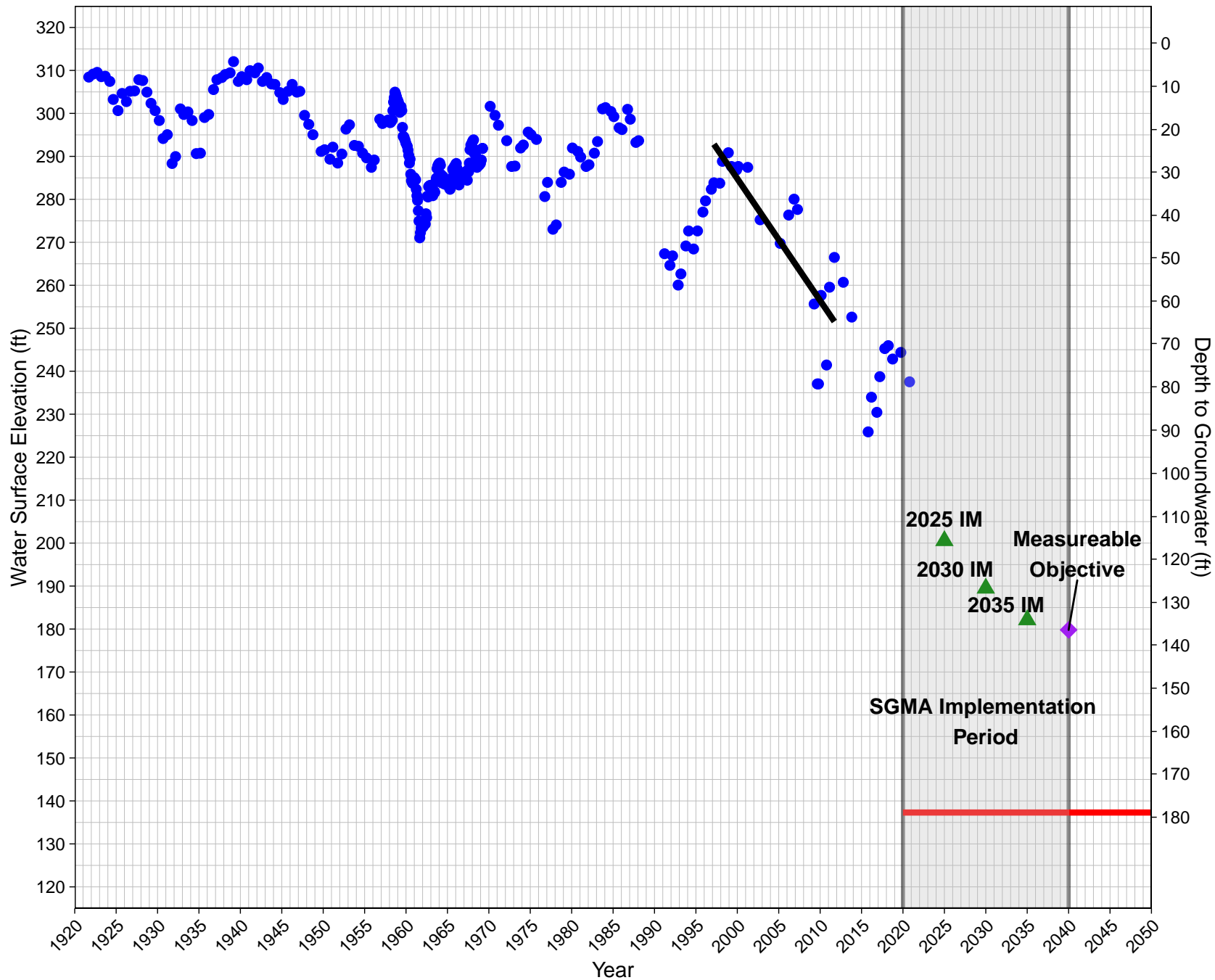


365283N1194482W001

State Well ID: 16S23E23E001M

Ground Surface Elevation: 316 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



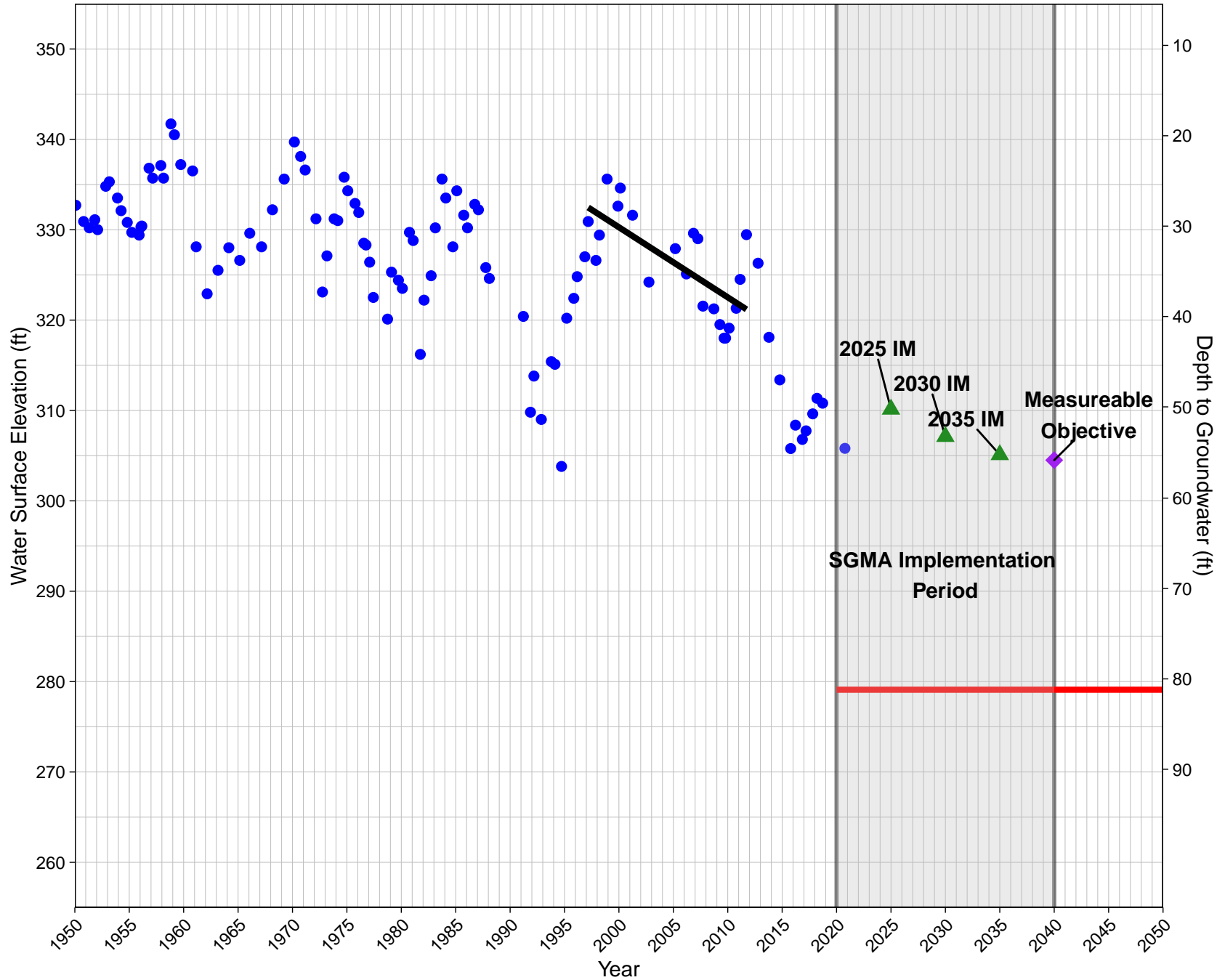
Trendline

366767N1194568W001

State Well ID: 14S23E34B001M

Ground Surface Elevation: 360 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

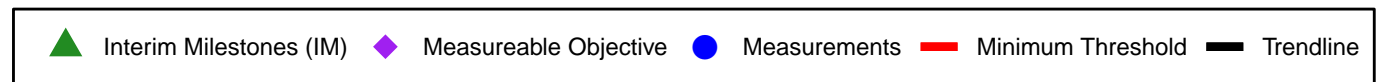
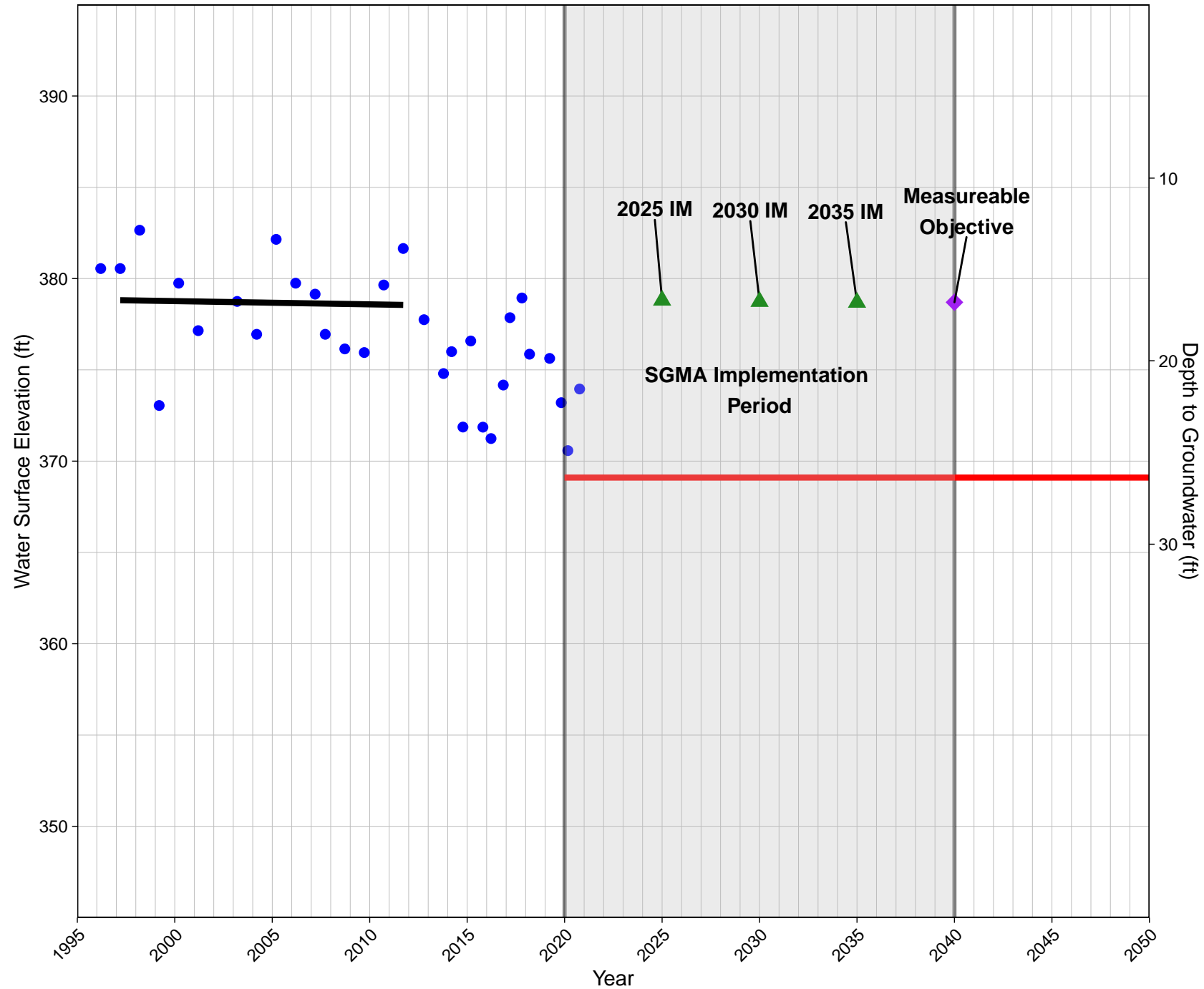
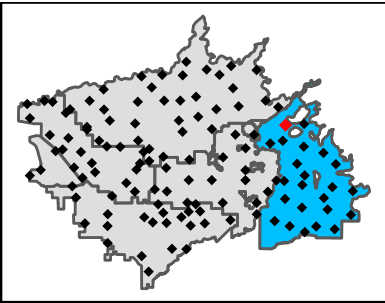


Trendline

B013B

Ground Surface Elevation: 395 ft

Kings River East Groundwater Sustainability Agency

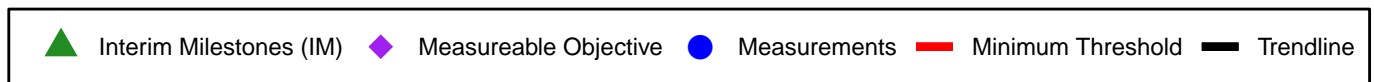
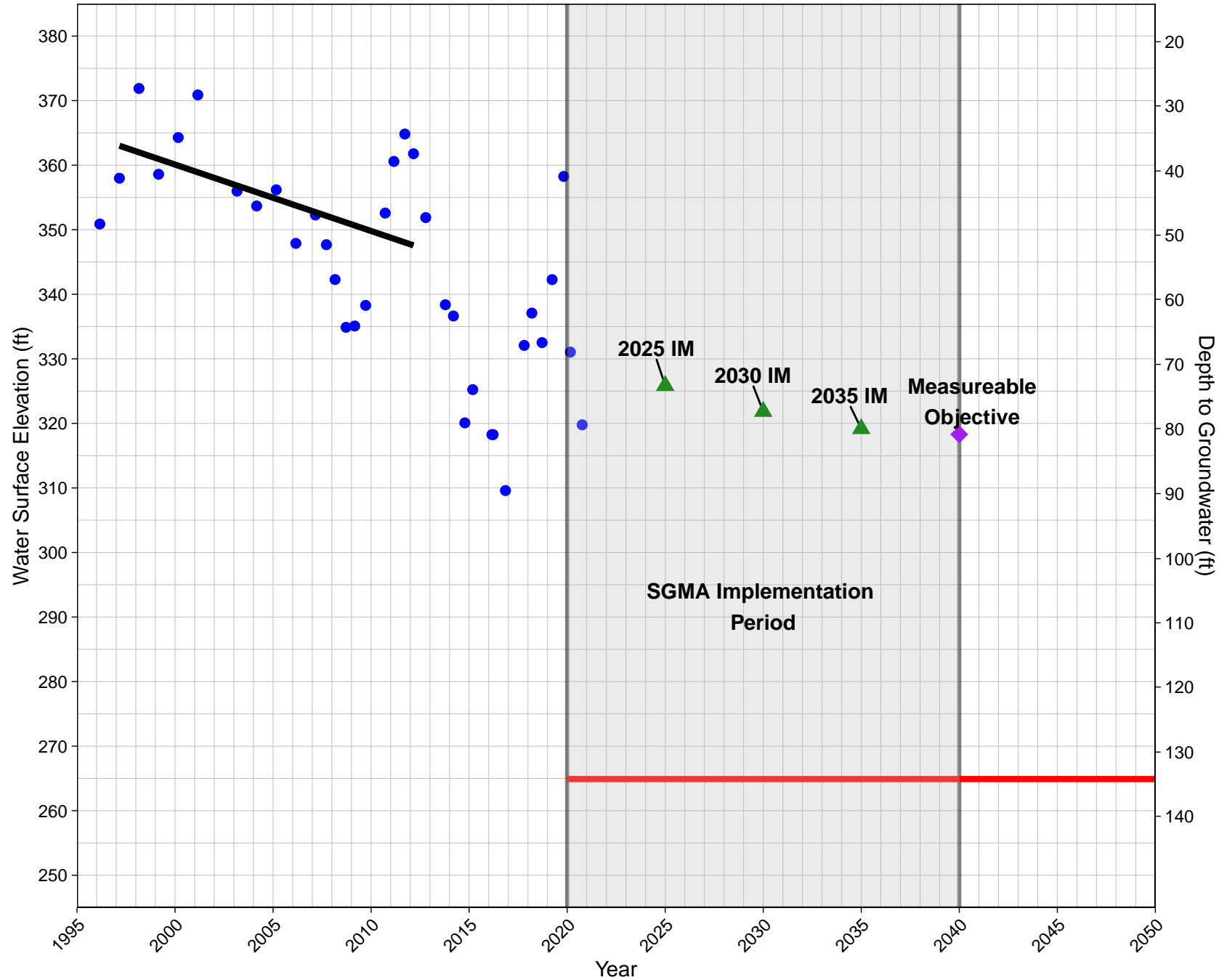
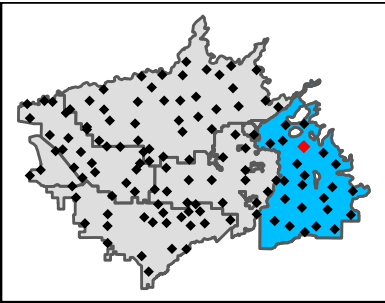


I045A

State Well ID: 15S24E05C001M

Ground Surface Elevation: 399 ft

Kings River East Groundwater Sustainability Agency

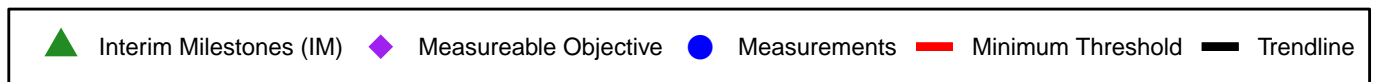
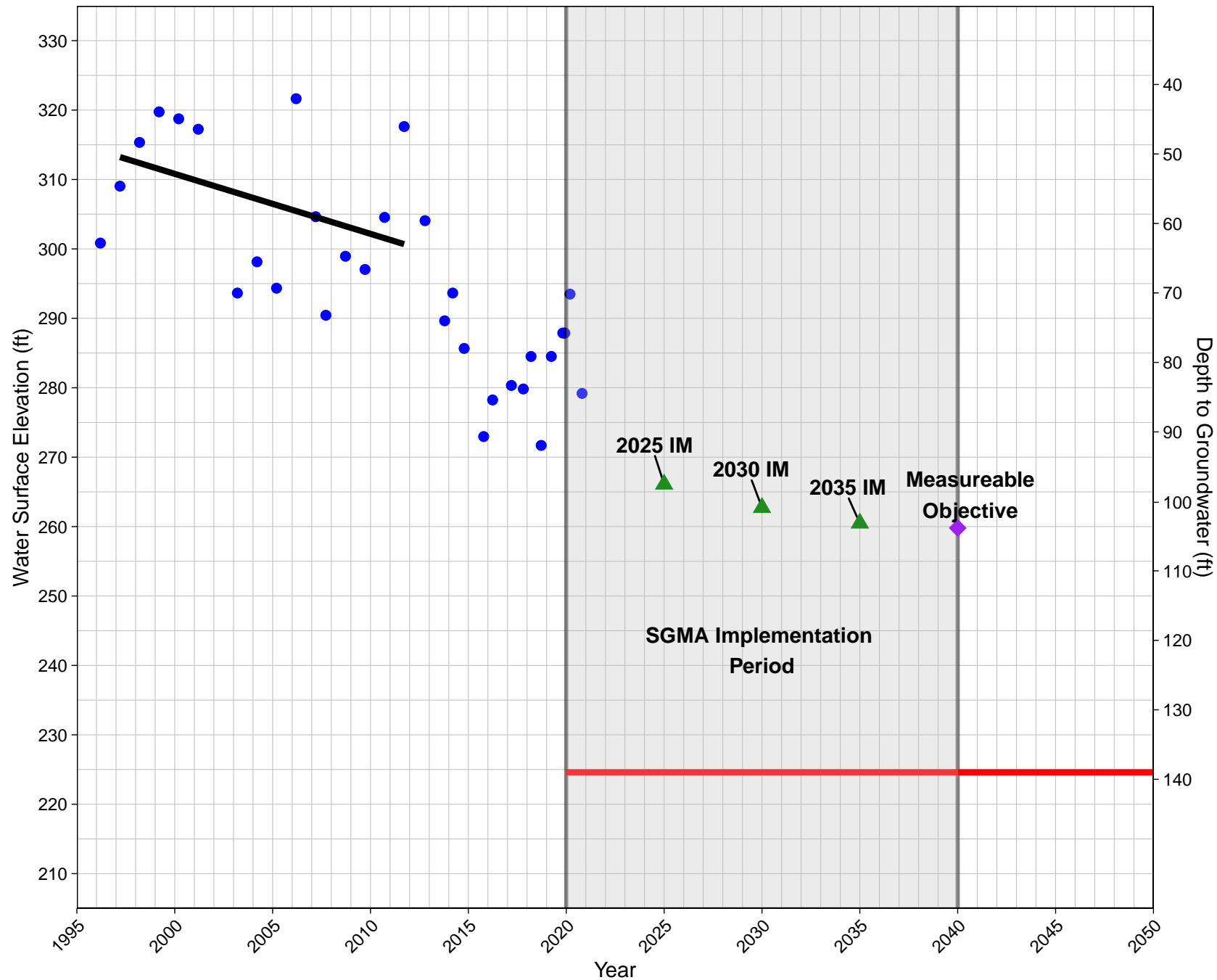
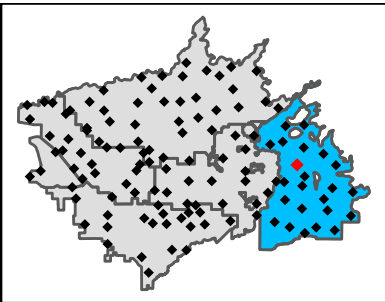


I055A

State Well ID: 15S24E19D002M

Ground Surface Elevation: 364 ft

Kings River East Groundwater Sustainability Agency

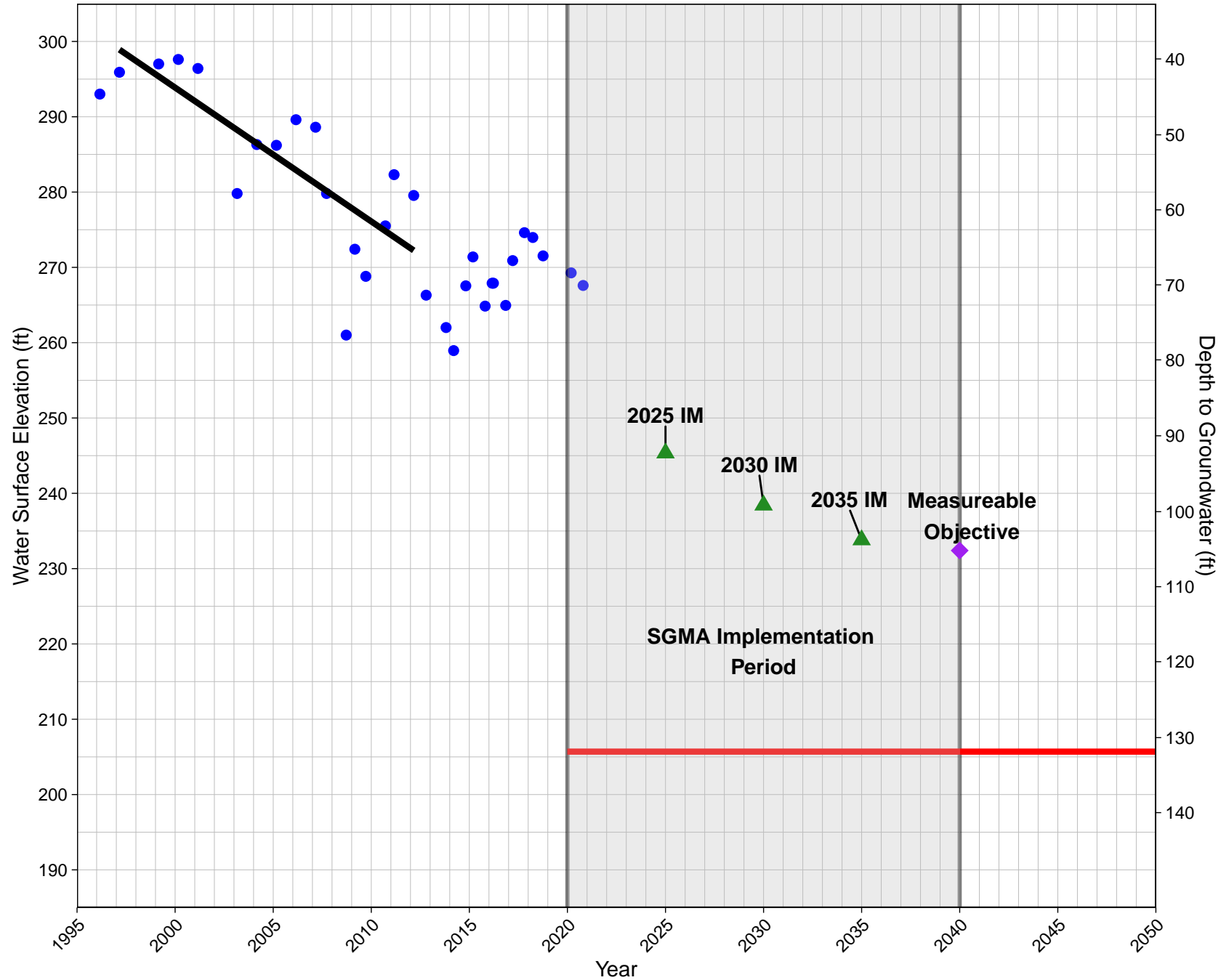


I073A

State Well ID: 16S23E03A001M

Ground Surface Elevation: 338 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

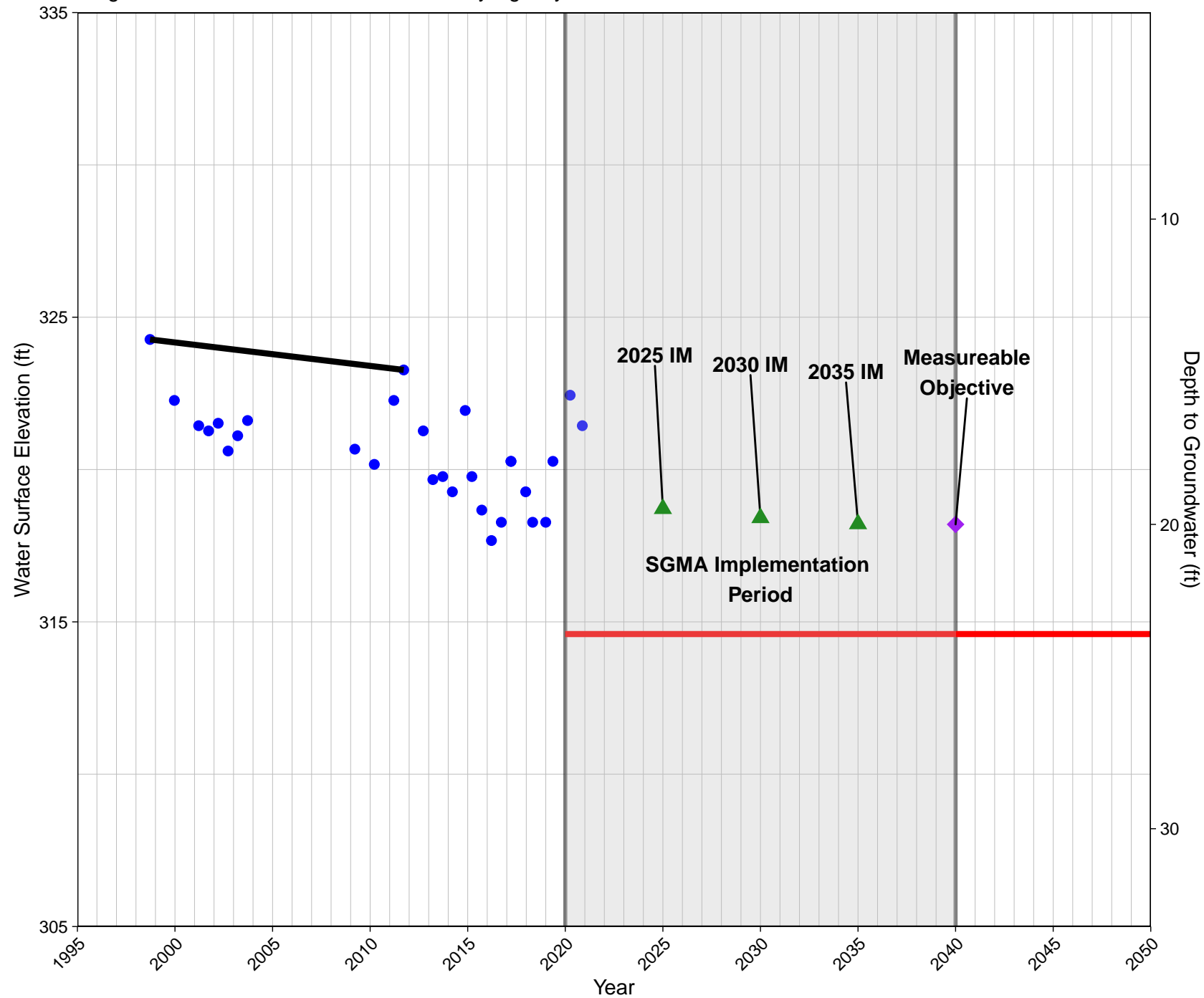
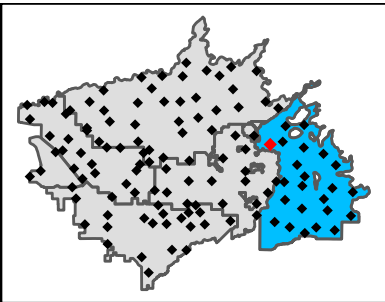


Trendline

KRWD04

Ground Surface Elevation: 338 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



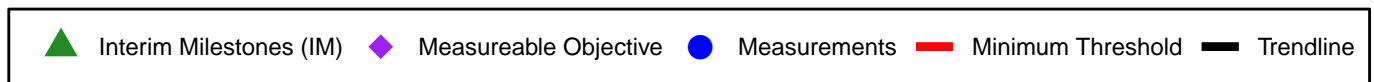
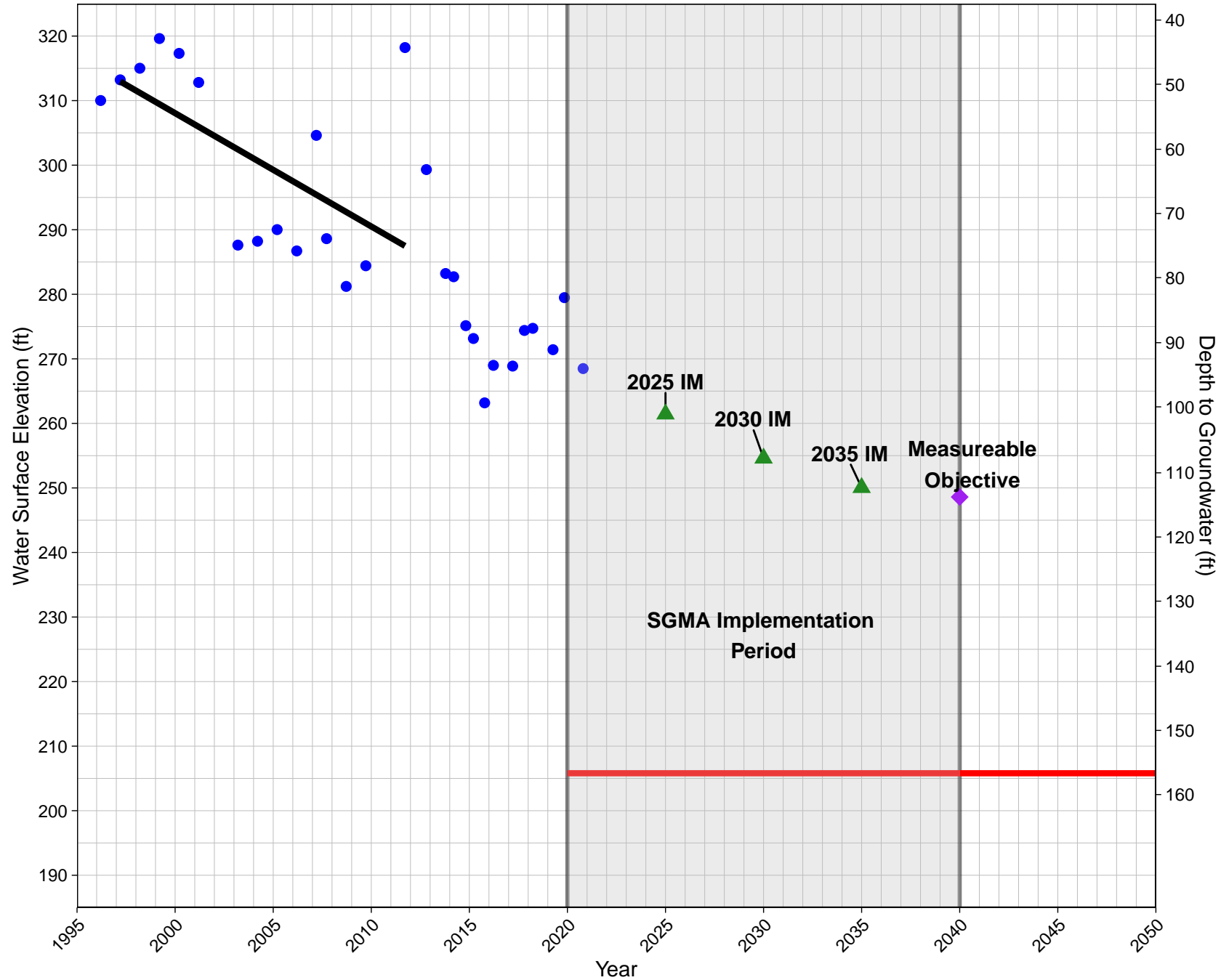
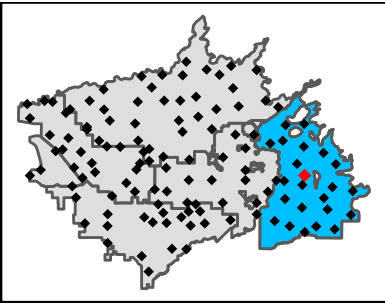
Trendline

M065A

State Well ID: 15S24E32C001M

Ground Surface Elevation: 362 ft

Kings River East Groundwater Sustainability Agency

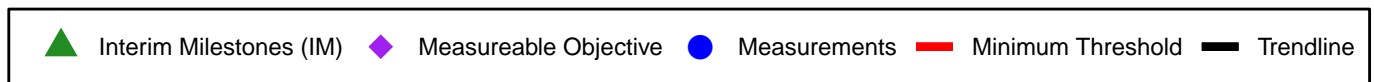
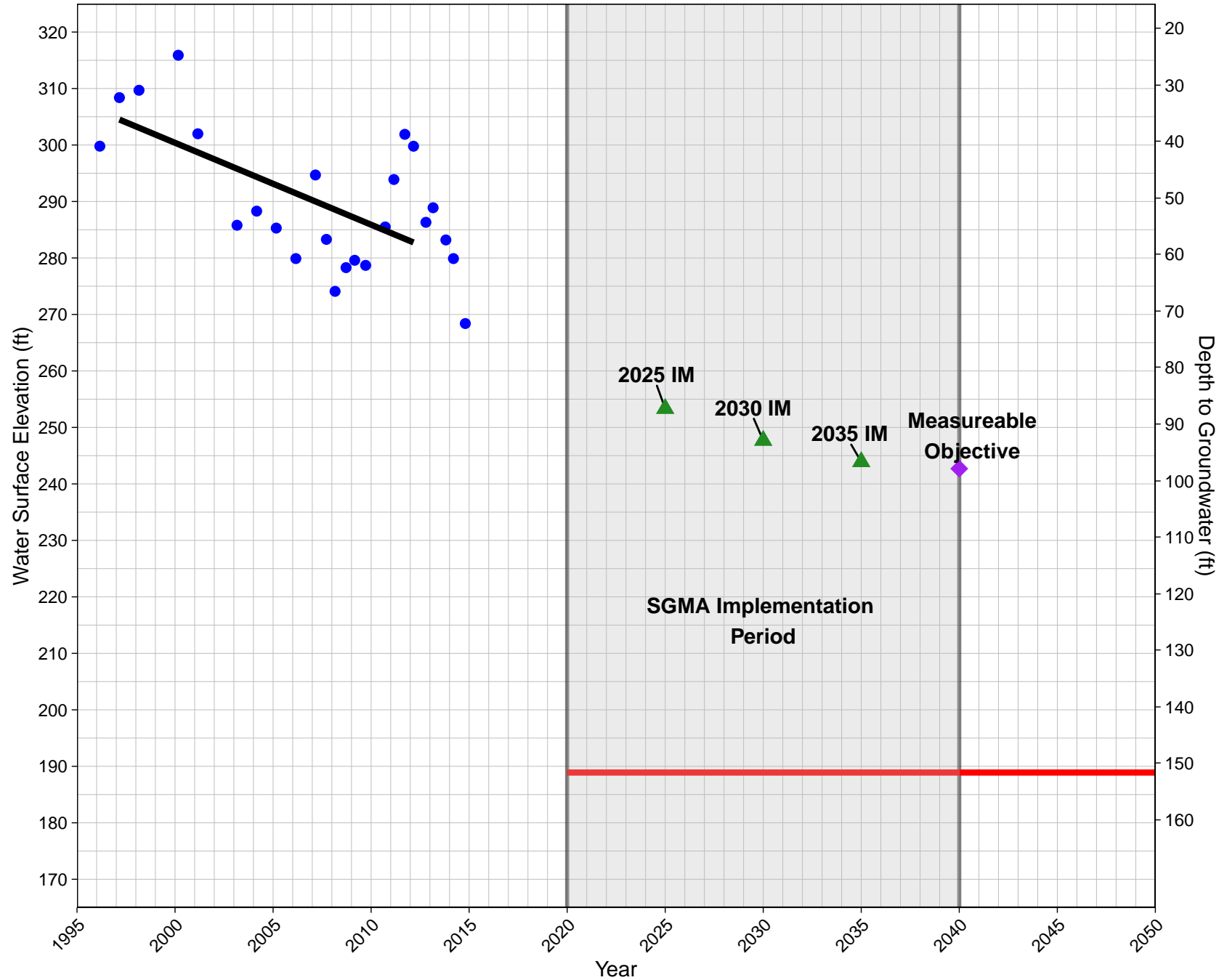
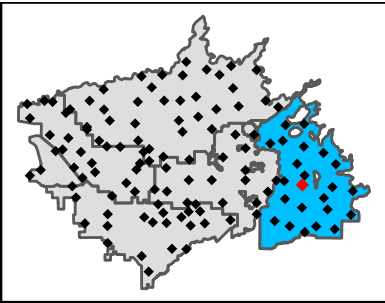


M105A

State Well ID: 16S24E05M001M

Ground Surface Elevation: 341 ft

Kings River East Groundwater Sustainability Agency

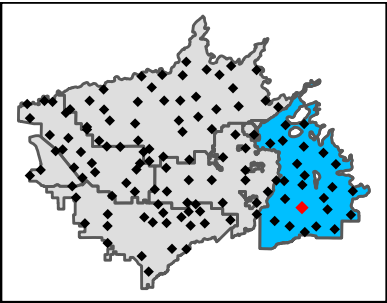
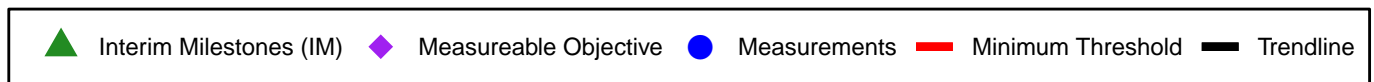
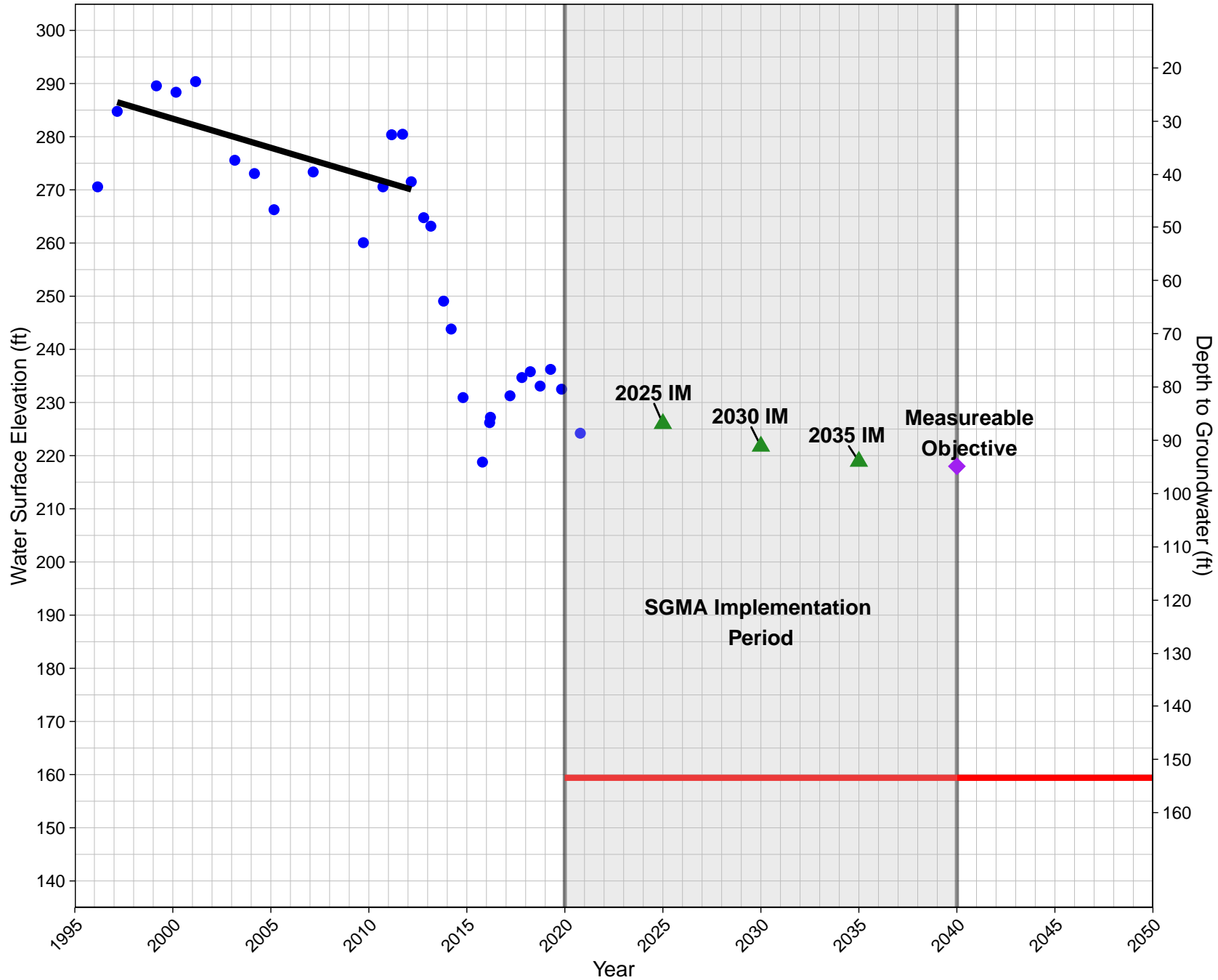


M130B

State Well ID: 16S24E30R001M

Ground Surface Elevation: 313 ft

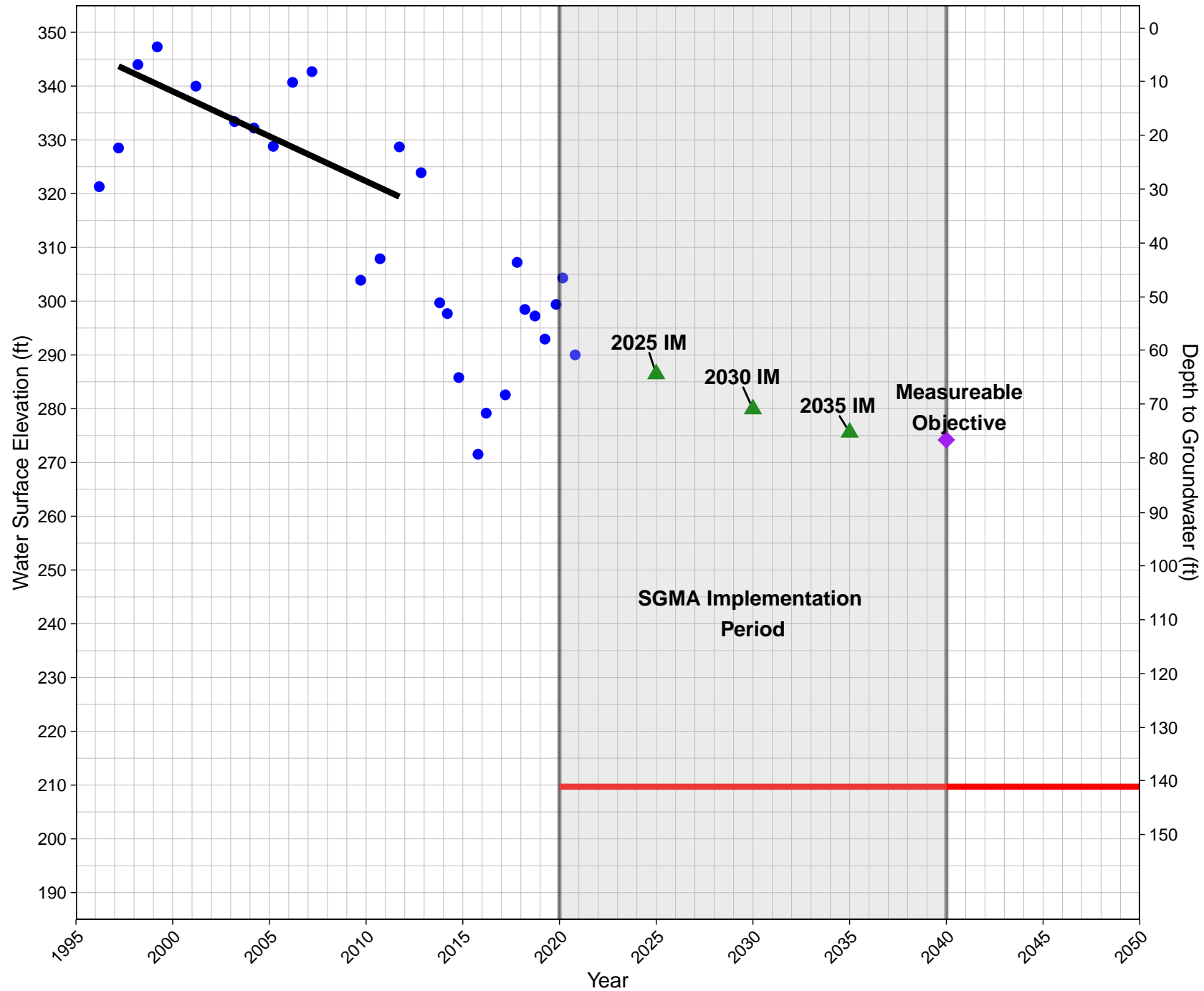
Kings River East Groundwater Sustainability Agency



O123A

Ground Surface Elevation: 351 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

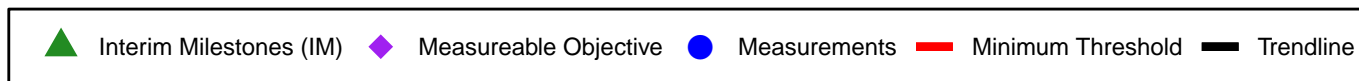
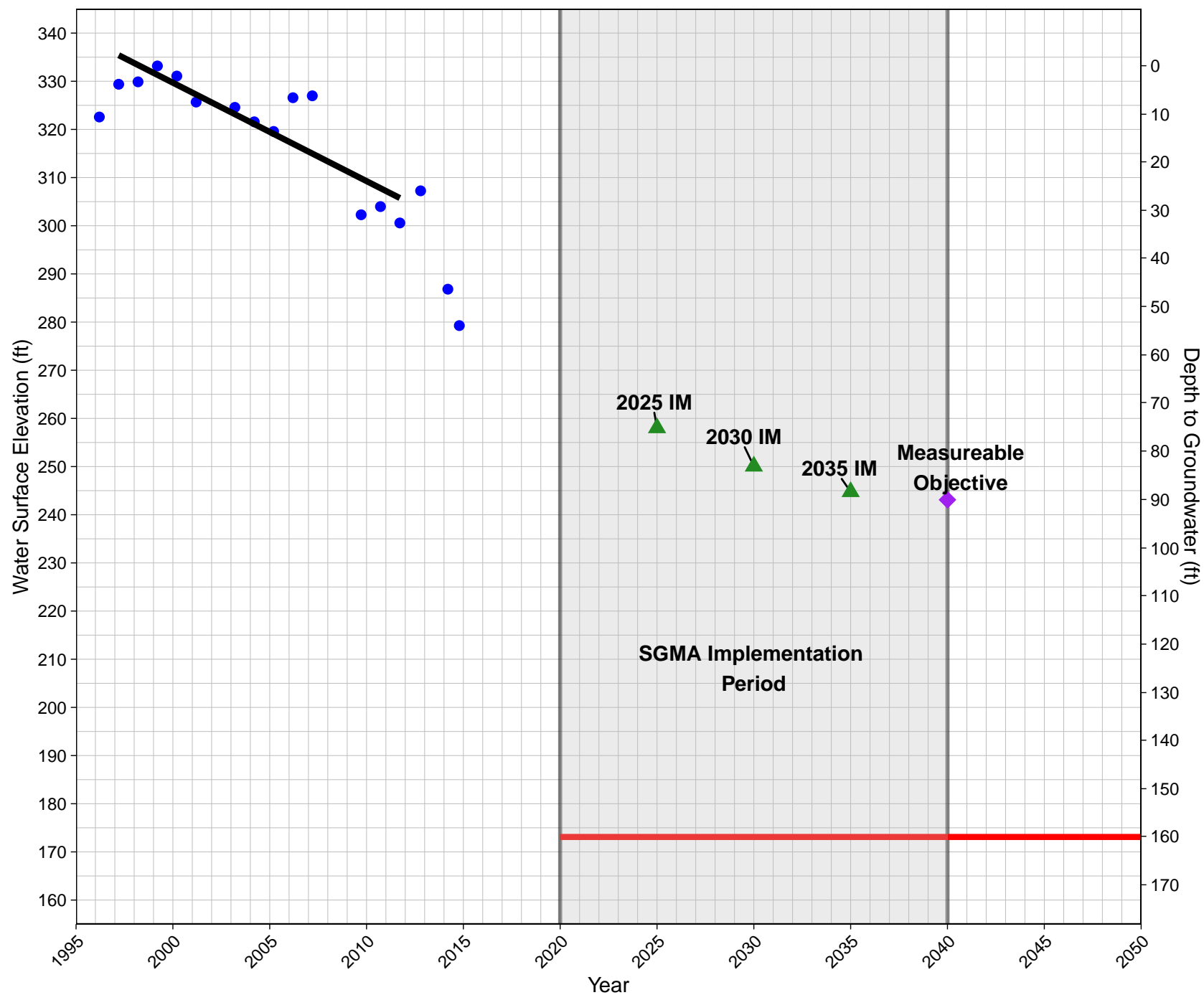
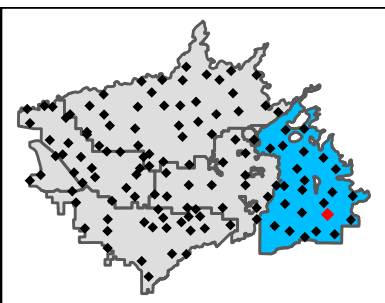


Trendline

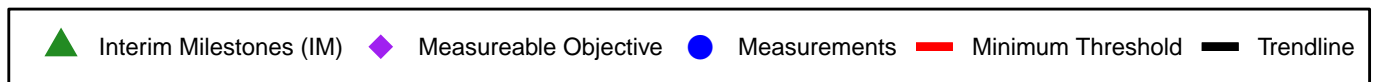
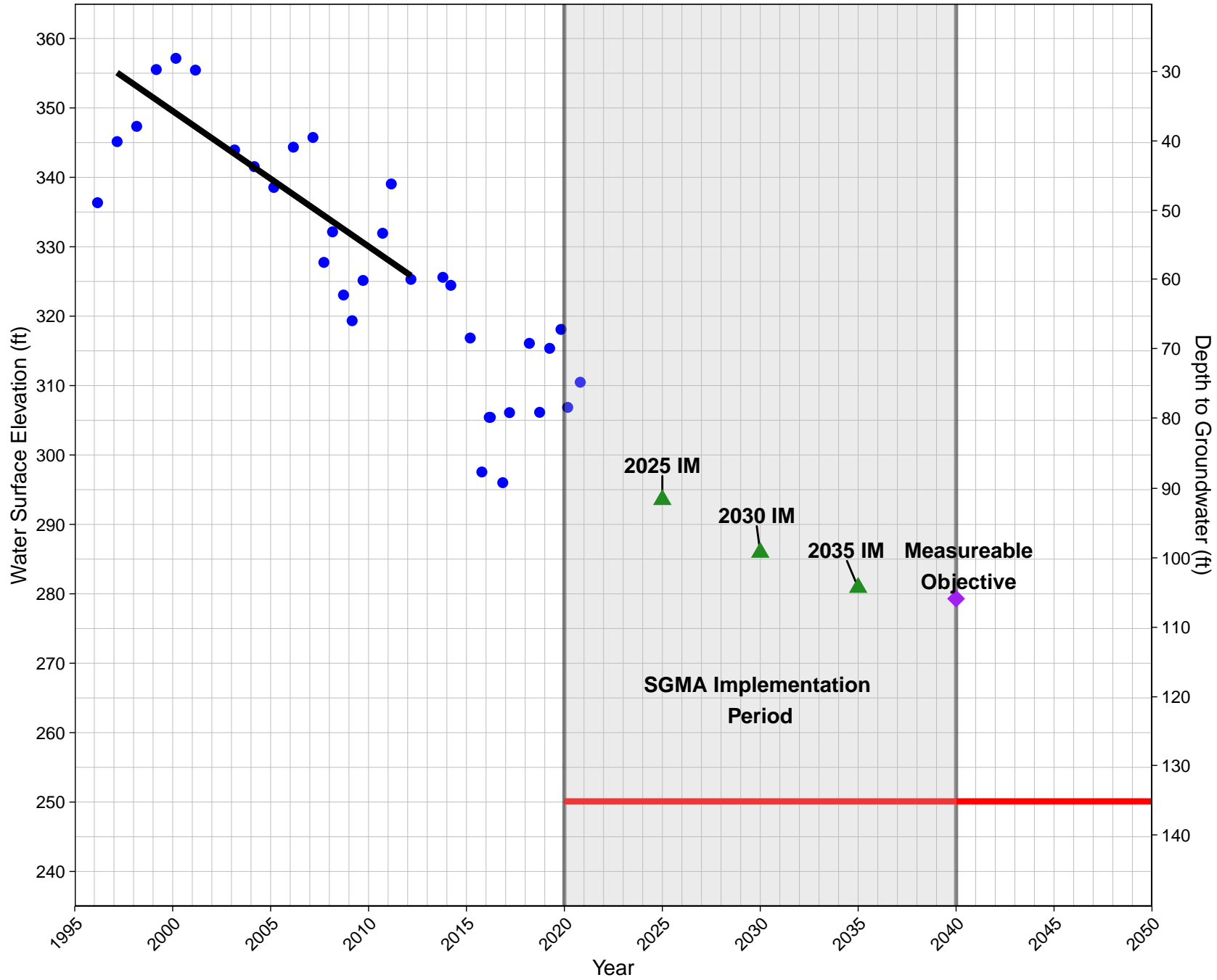
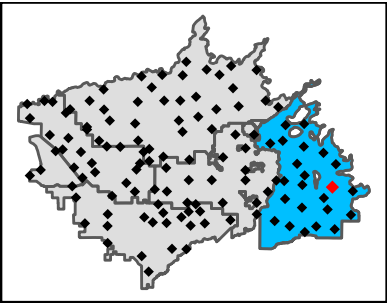
T136A

Ground Surface Elevation: 333 ft

Kings River East Groundwater Sustainability Agency



T139A
State Well ID: 16S25E07D001M
Ground Surface Elevation: 385 ft
Kings River East Groundwater Sustainability Agency

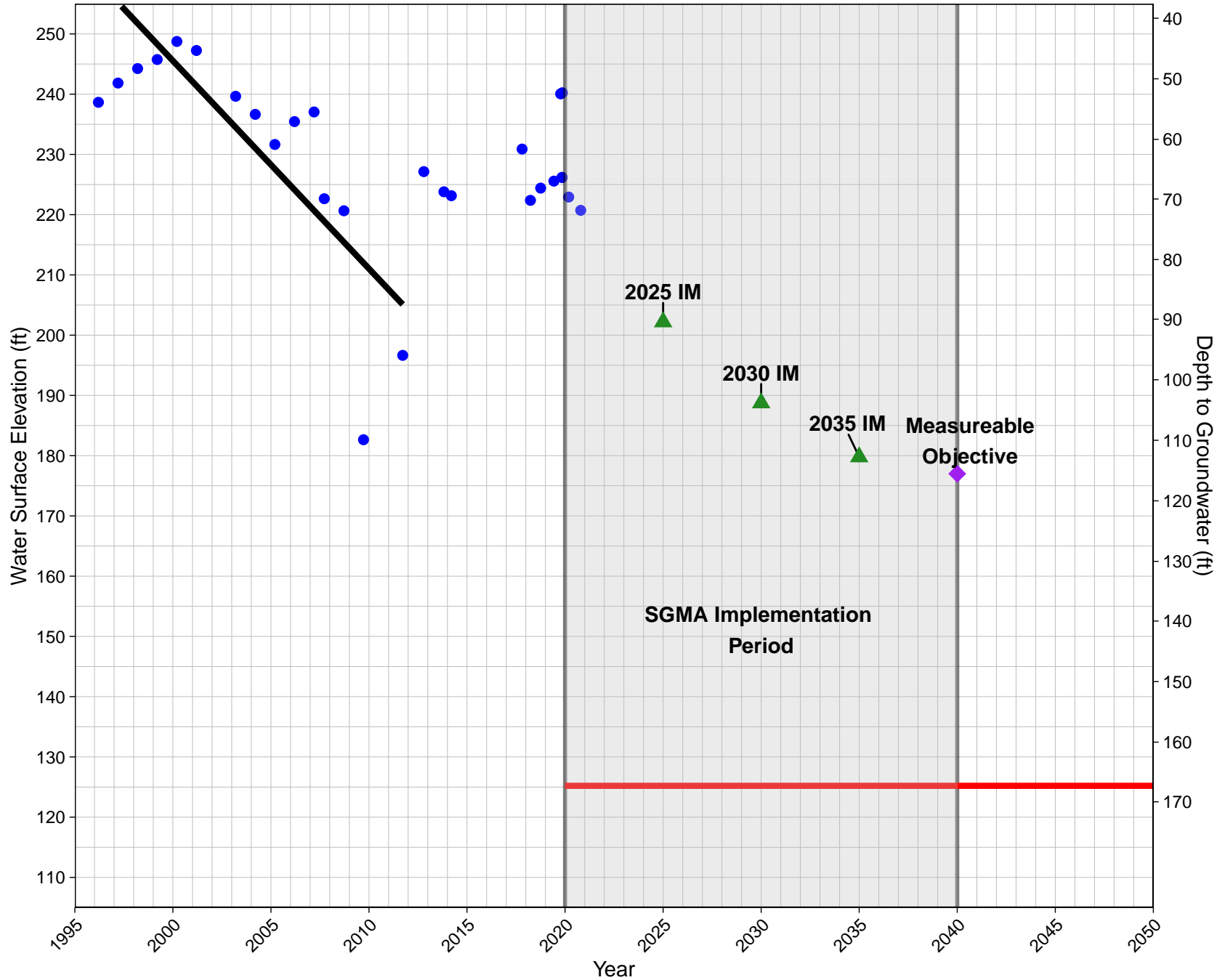


W172A

State Well ID: 17S23E09B001M

Ground Surface Elevation: 293 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

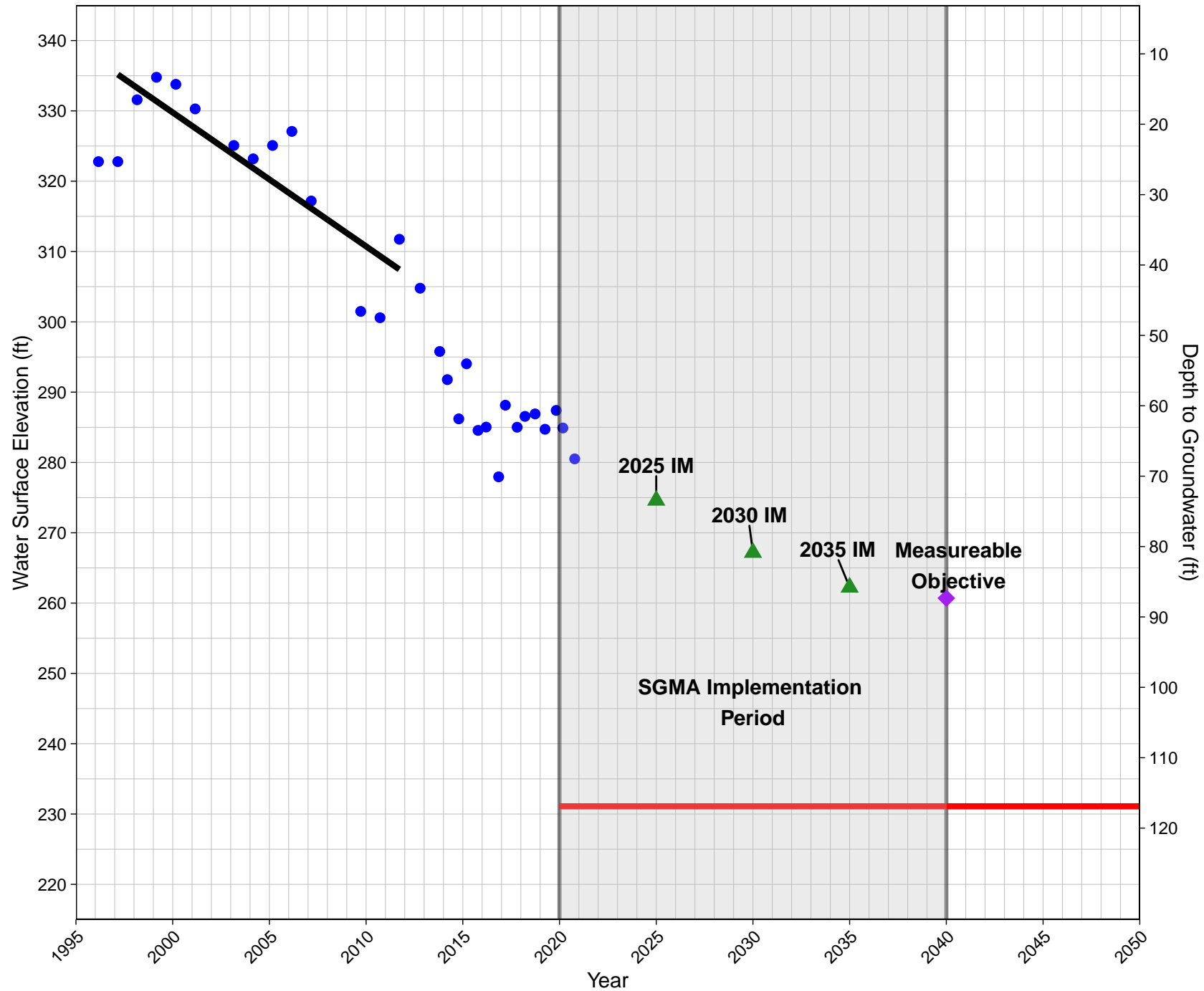


Trendline

X156A

Ground Surface Elevation: 348 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

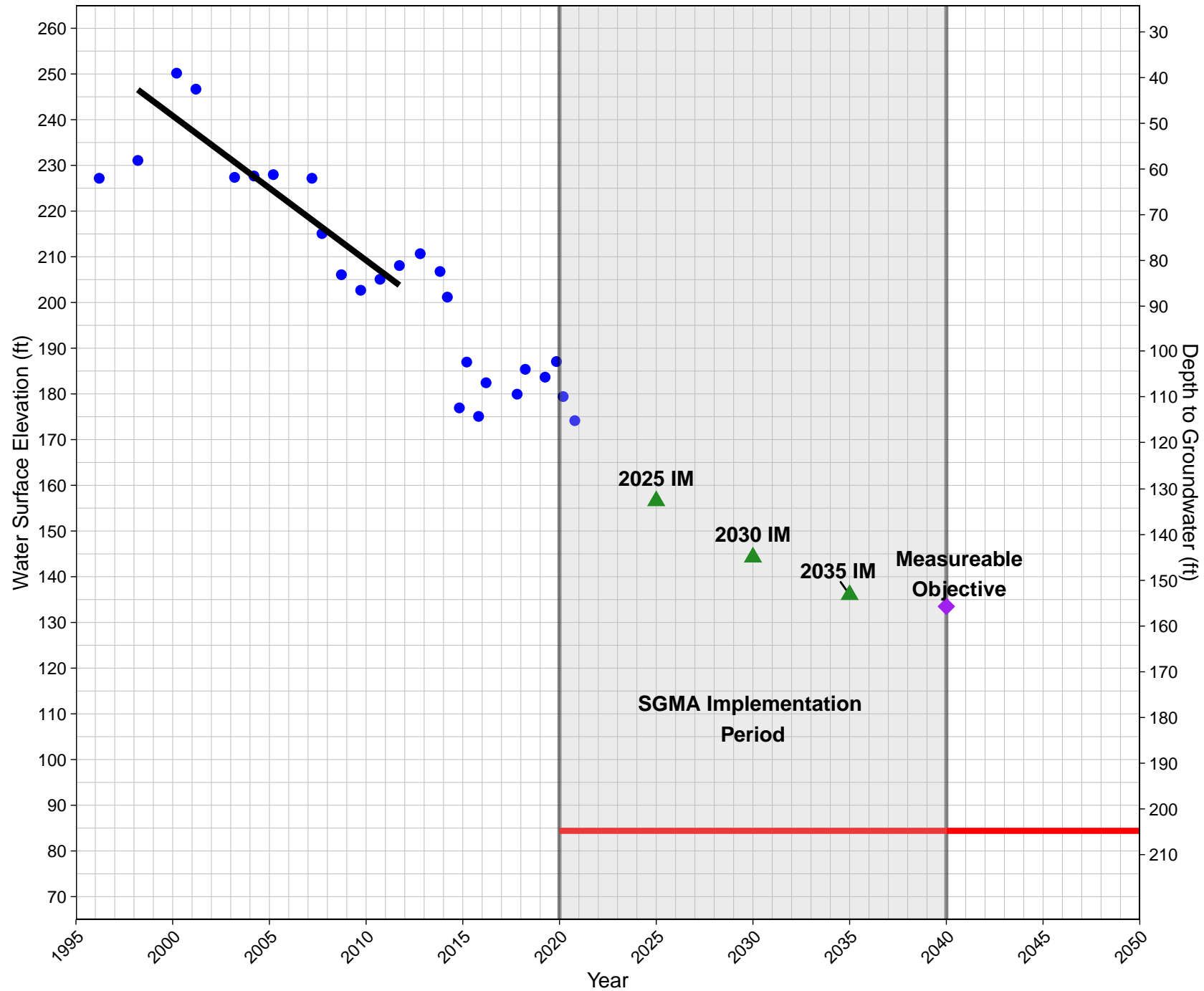


Trendline

X176A

Ground Surface Elevation: 289 ft

Kings River East Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements

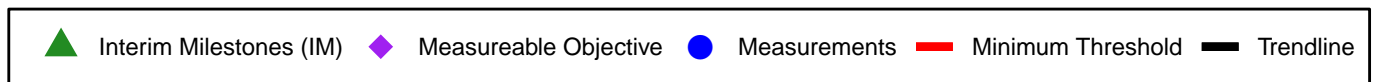
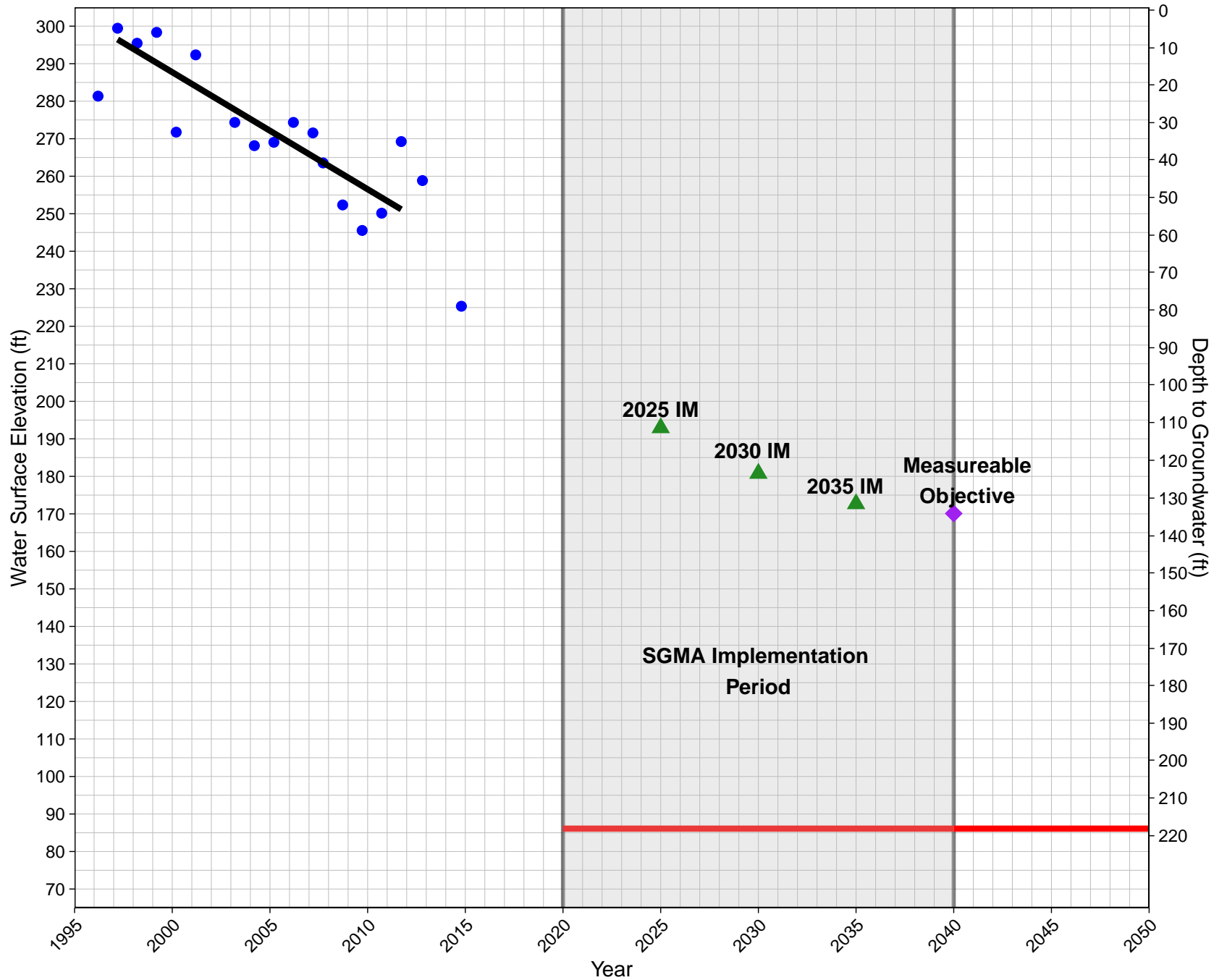
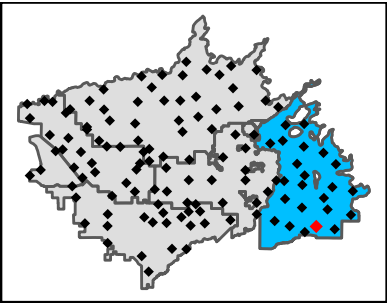


Minimum Threshold



Trendline

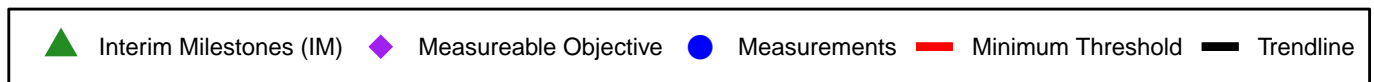
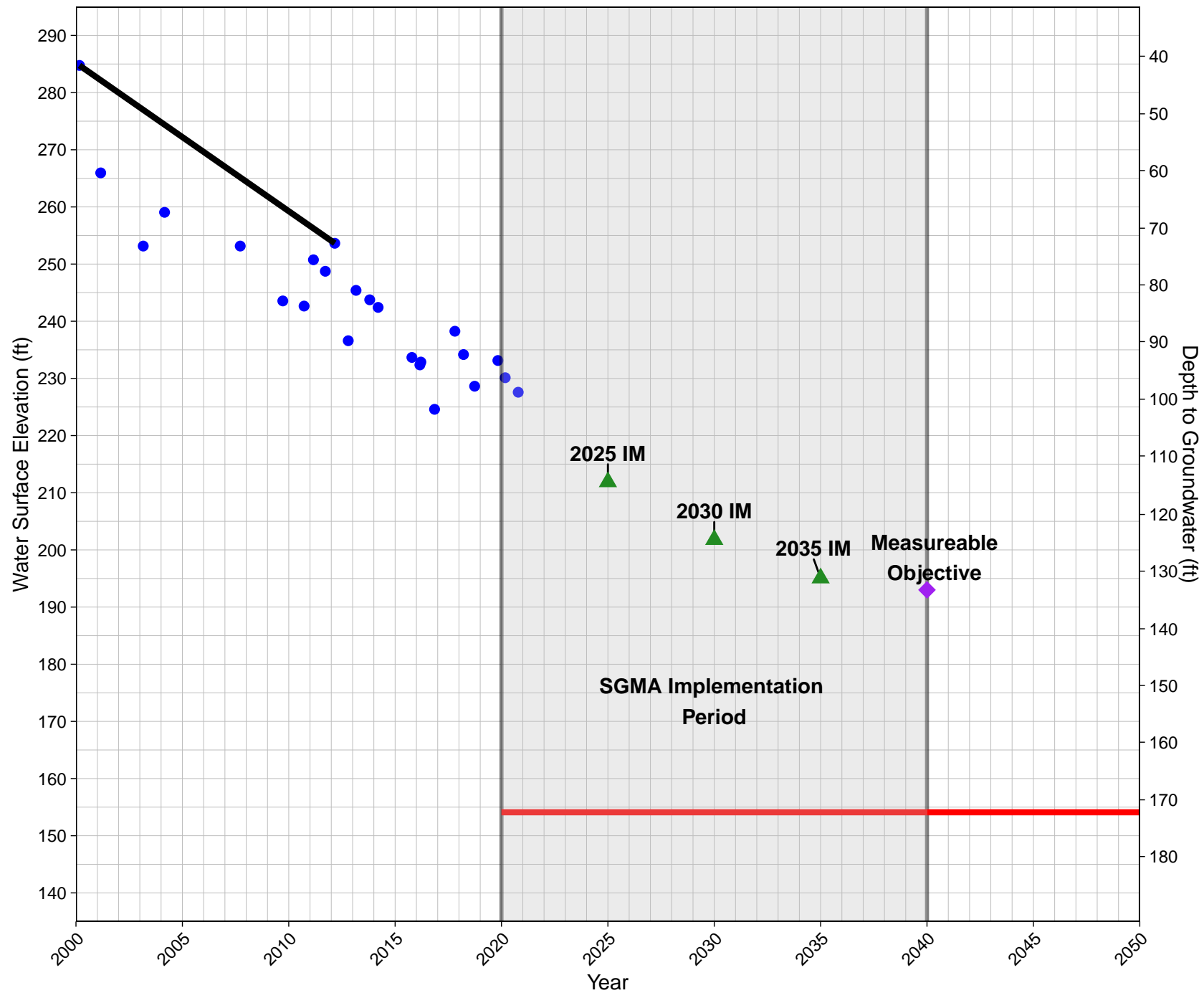
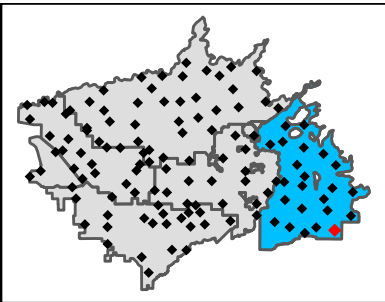
X213A
State Well ID: 17S24E15A002M
Ground Surface Elevation: 304 ft
Kings River East Groundwater Sustainability Agency



X234B

Ground Surface Elevation: 326 ft

Kings River East Groundwater Sustainability Agency

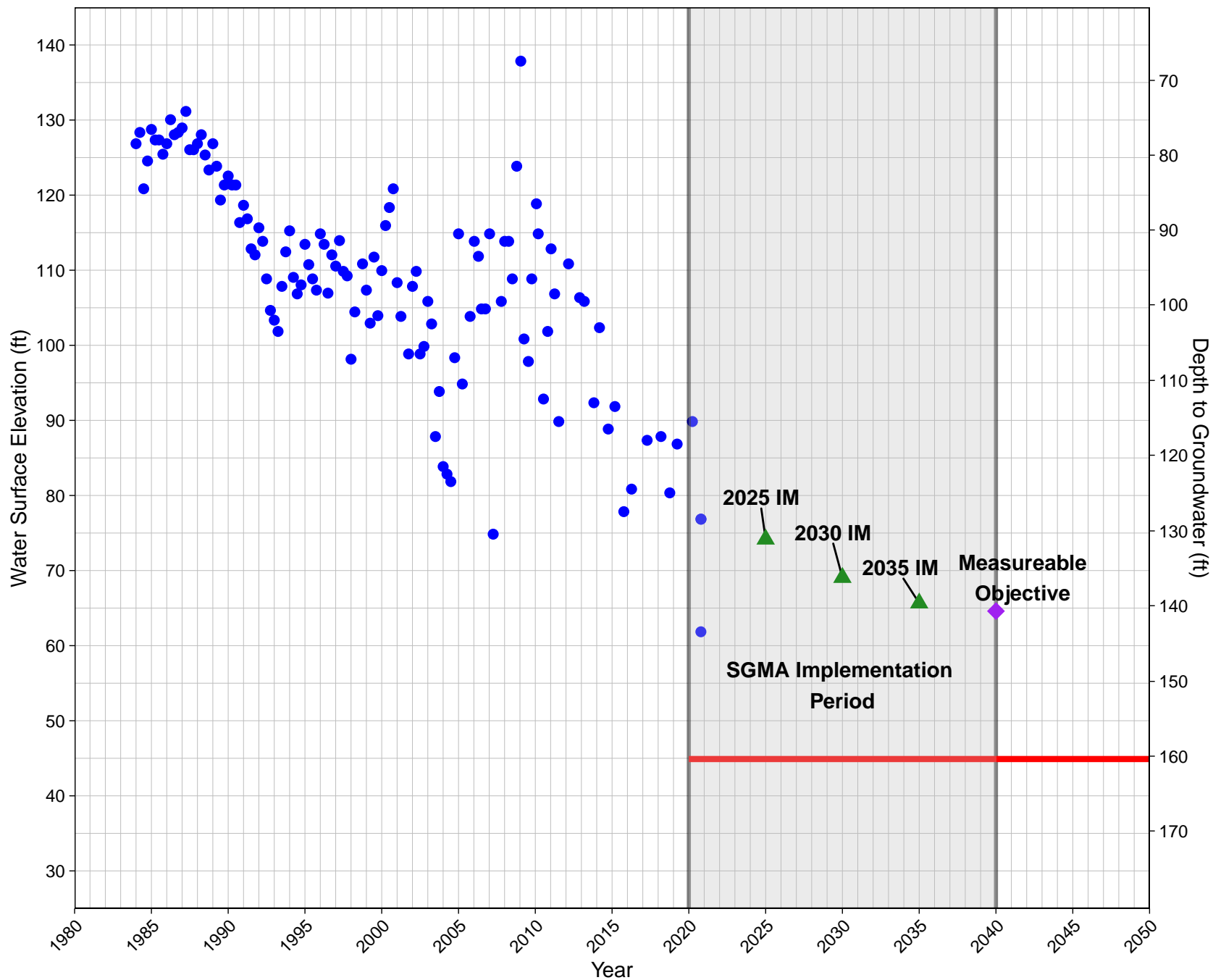


14S17E05C001MX

State Well ID: 14S17E05D001M

Ground Surface Elevation: 205 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements

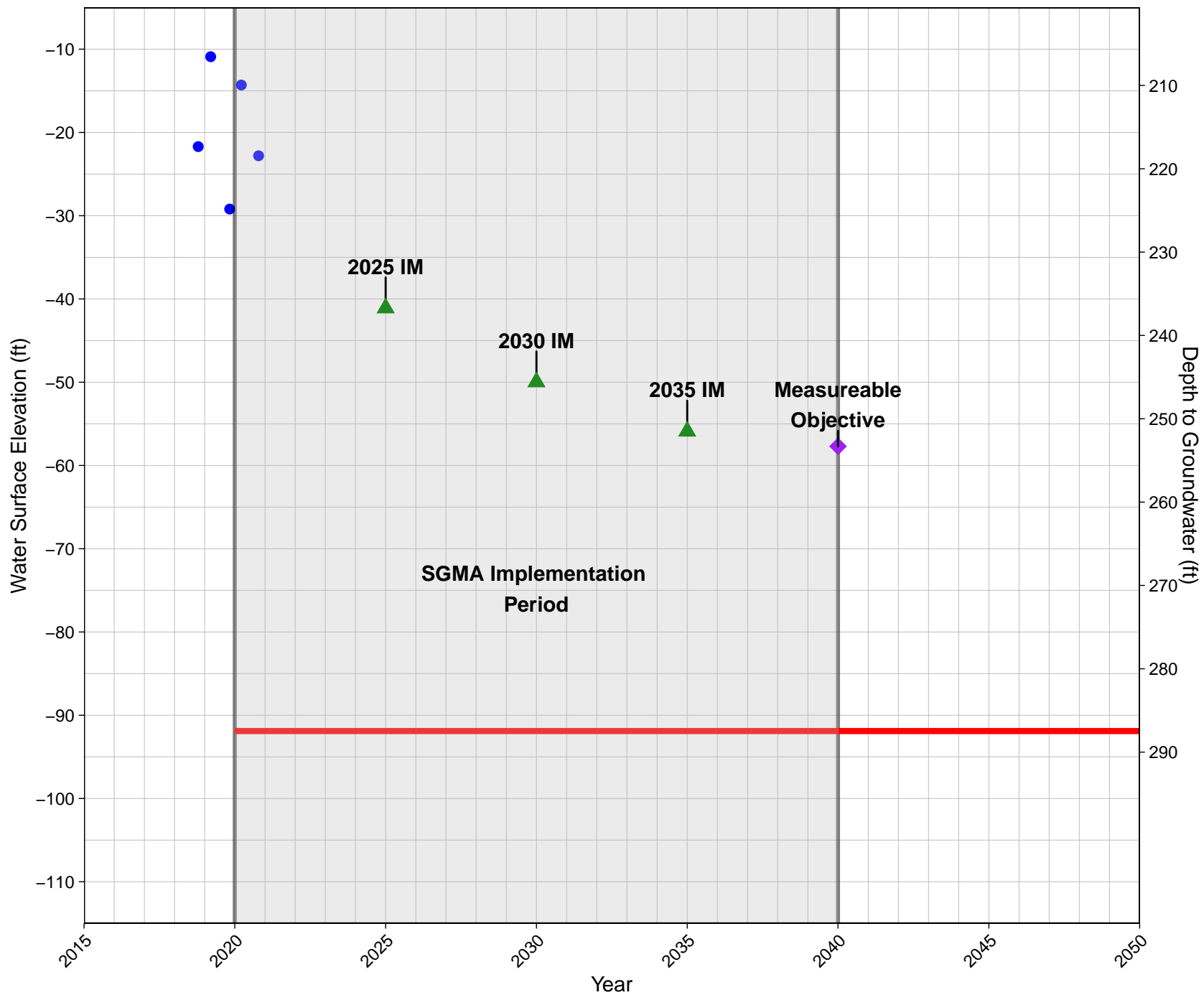


Minimum Threshold

15S17E13R002M

Ground Surface Elevation: 196 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements

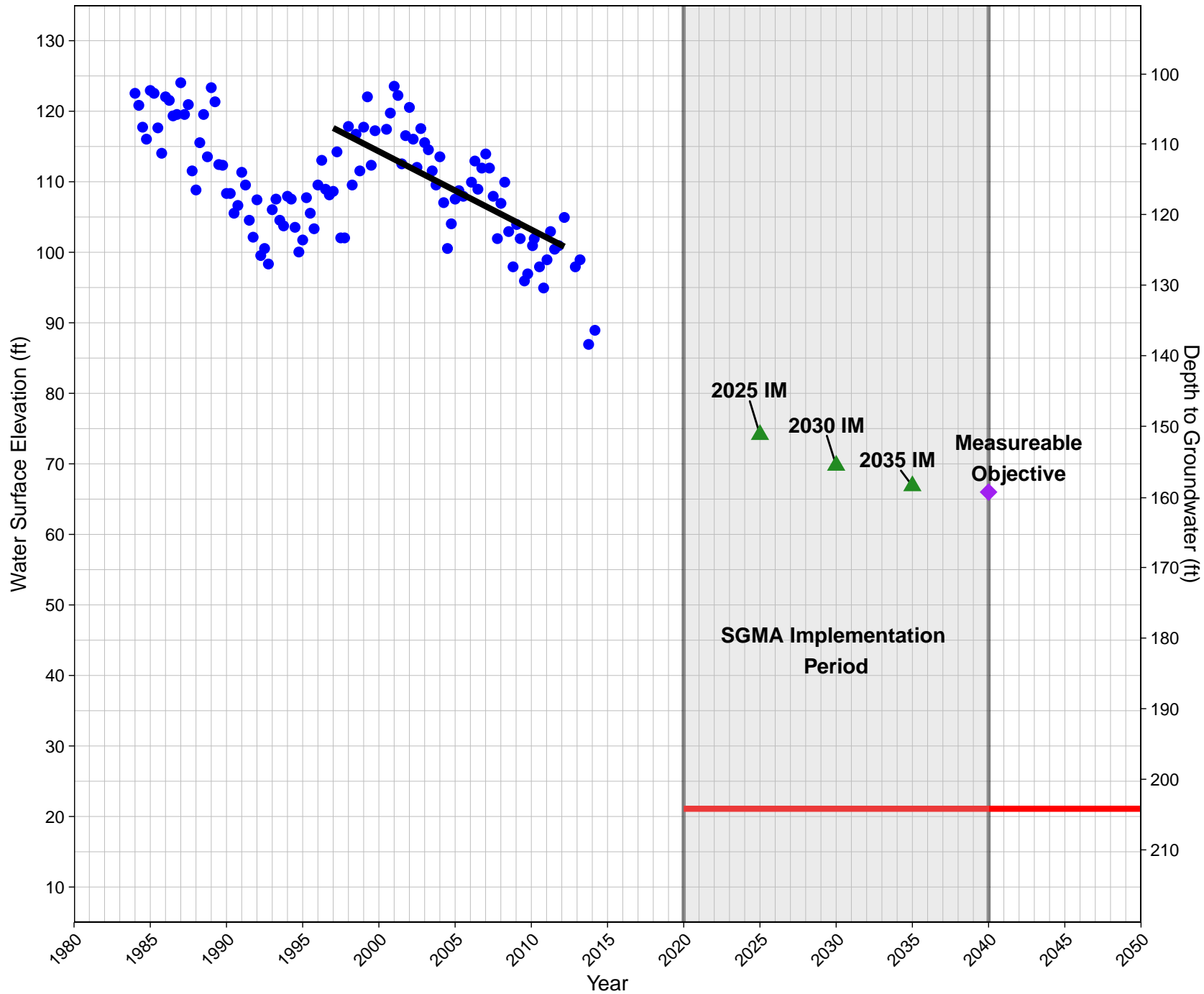


Minimum Threshold

15S18E02A001MX

Ground Surface Elevation: 225 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

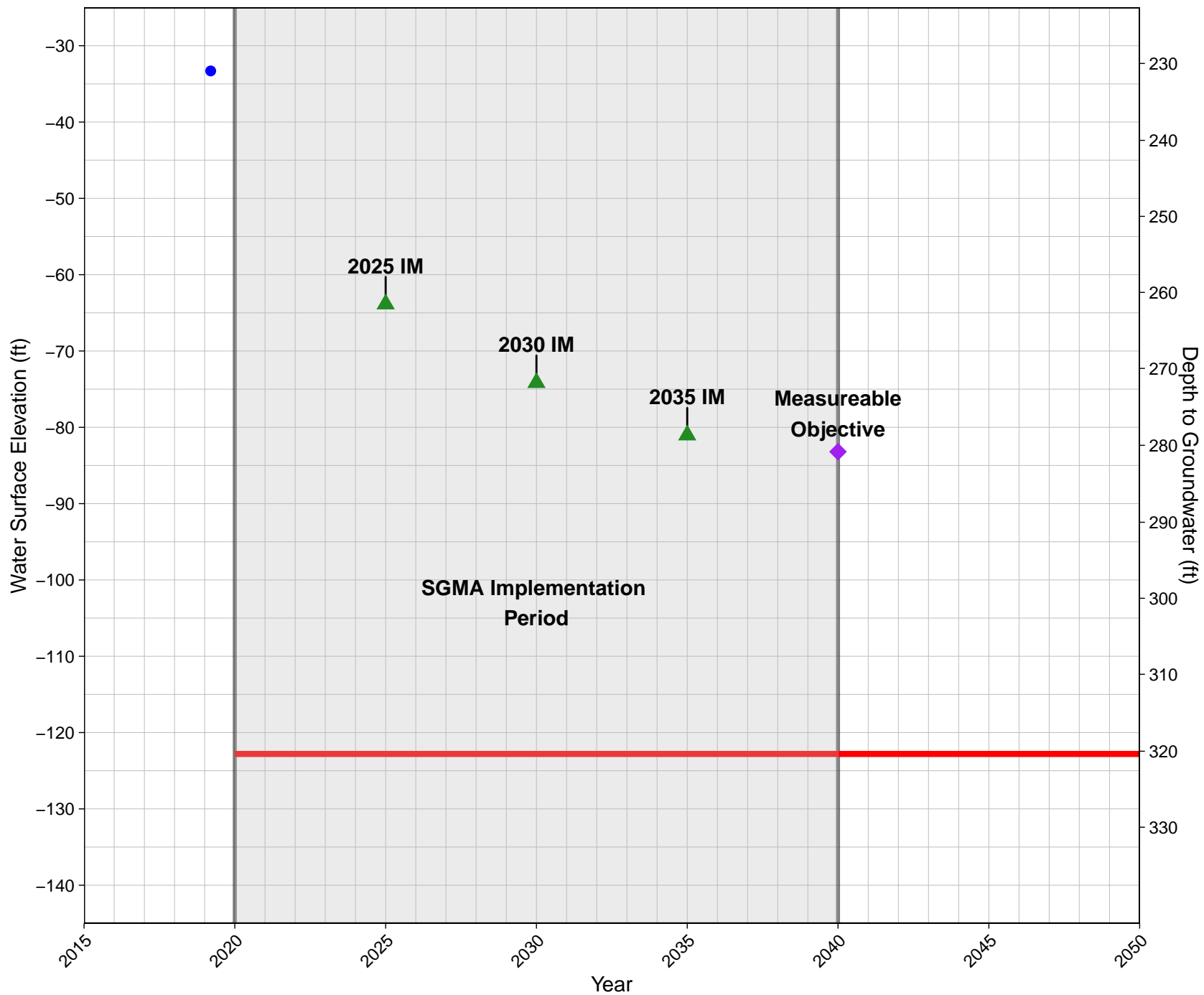


Trendline

15S18E30L001M

Ground Surface Elevation: 198 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



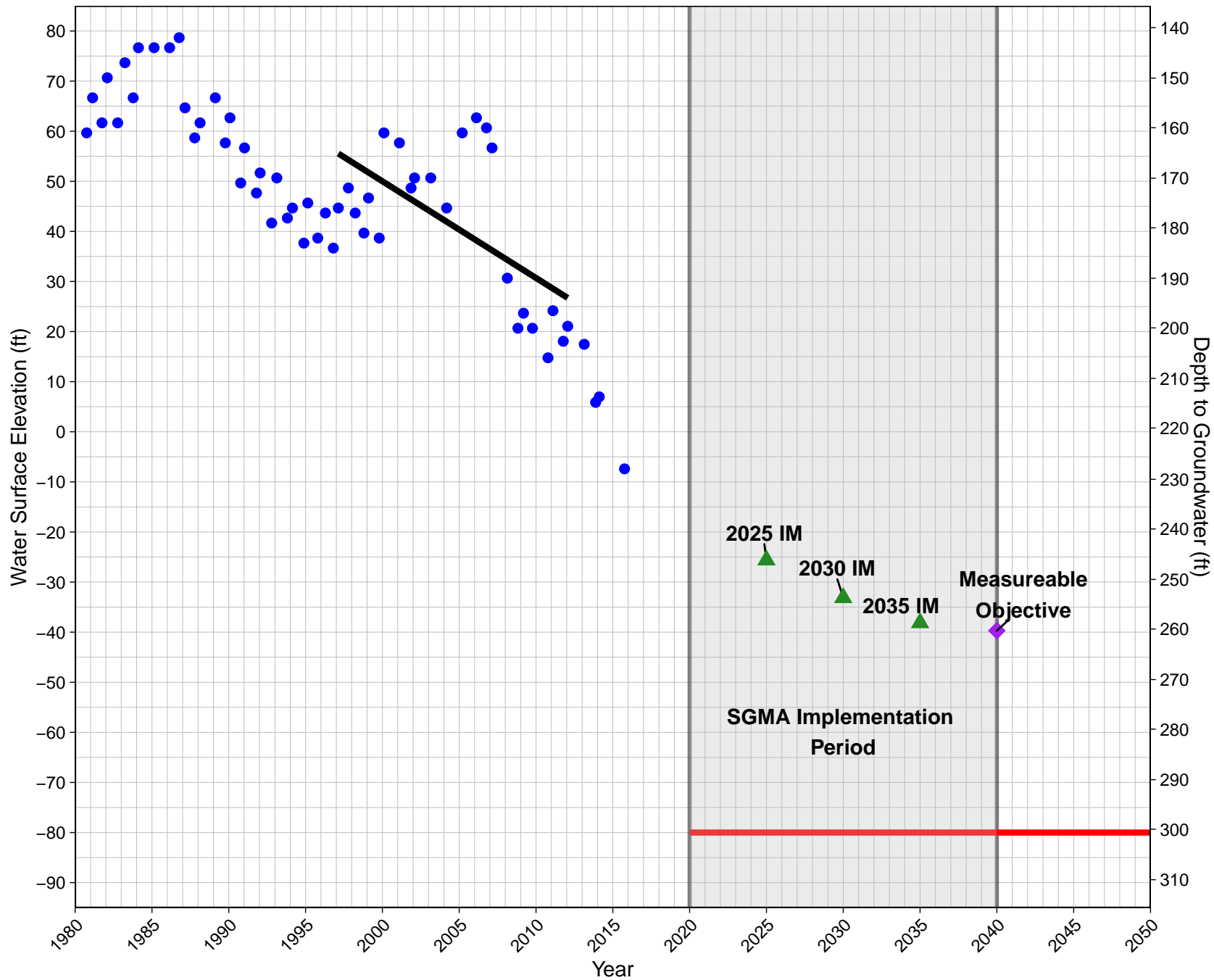
Minimum Threshold

365463N1199268W001

State Well ID: 16S19E17C001M

Ground Surface Elevation: 221 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



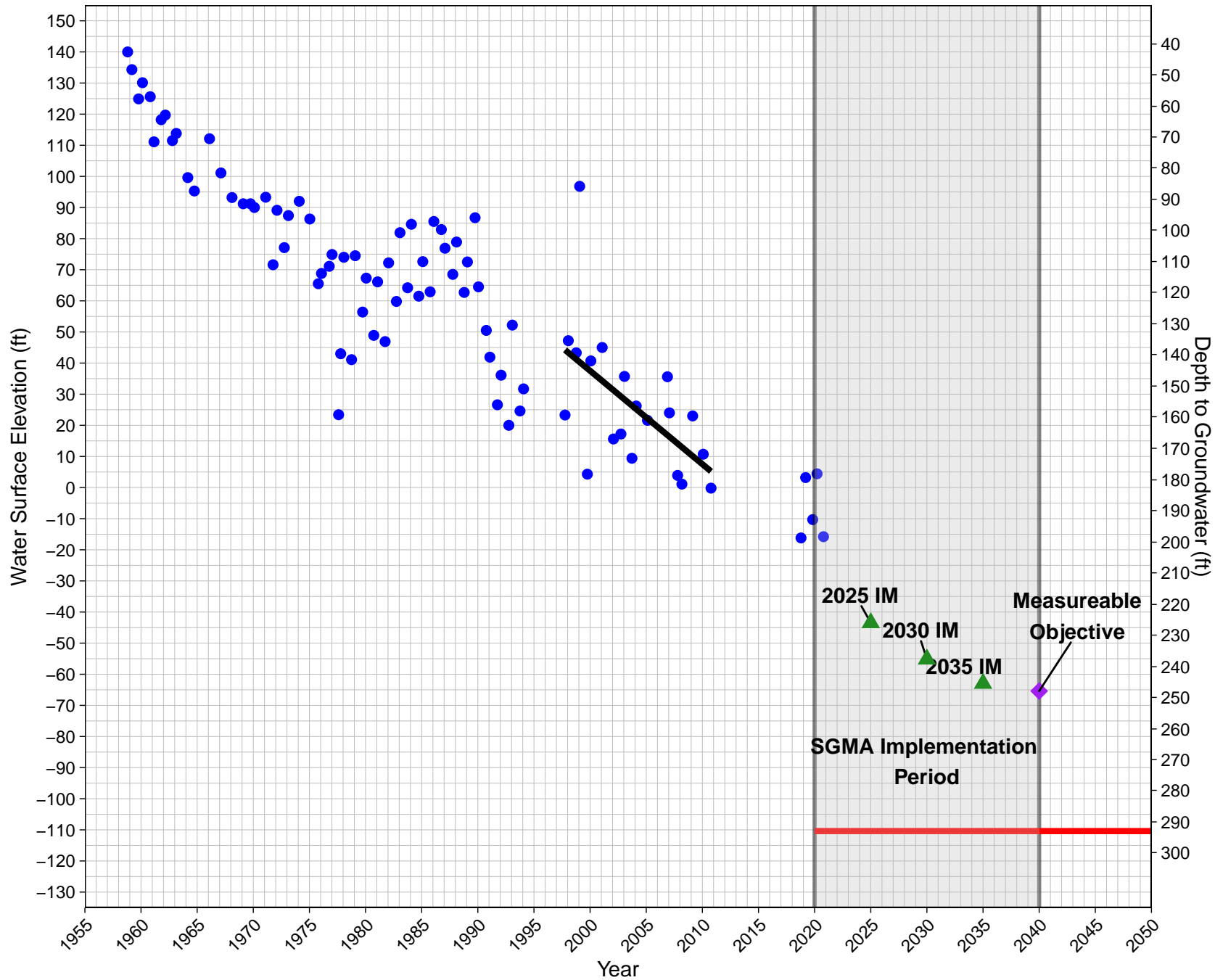
Trendline

366082N1201199W001

State Well ID: 15S17E21J001M

Ground Surface Elevation: 183 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



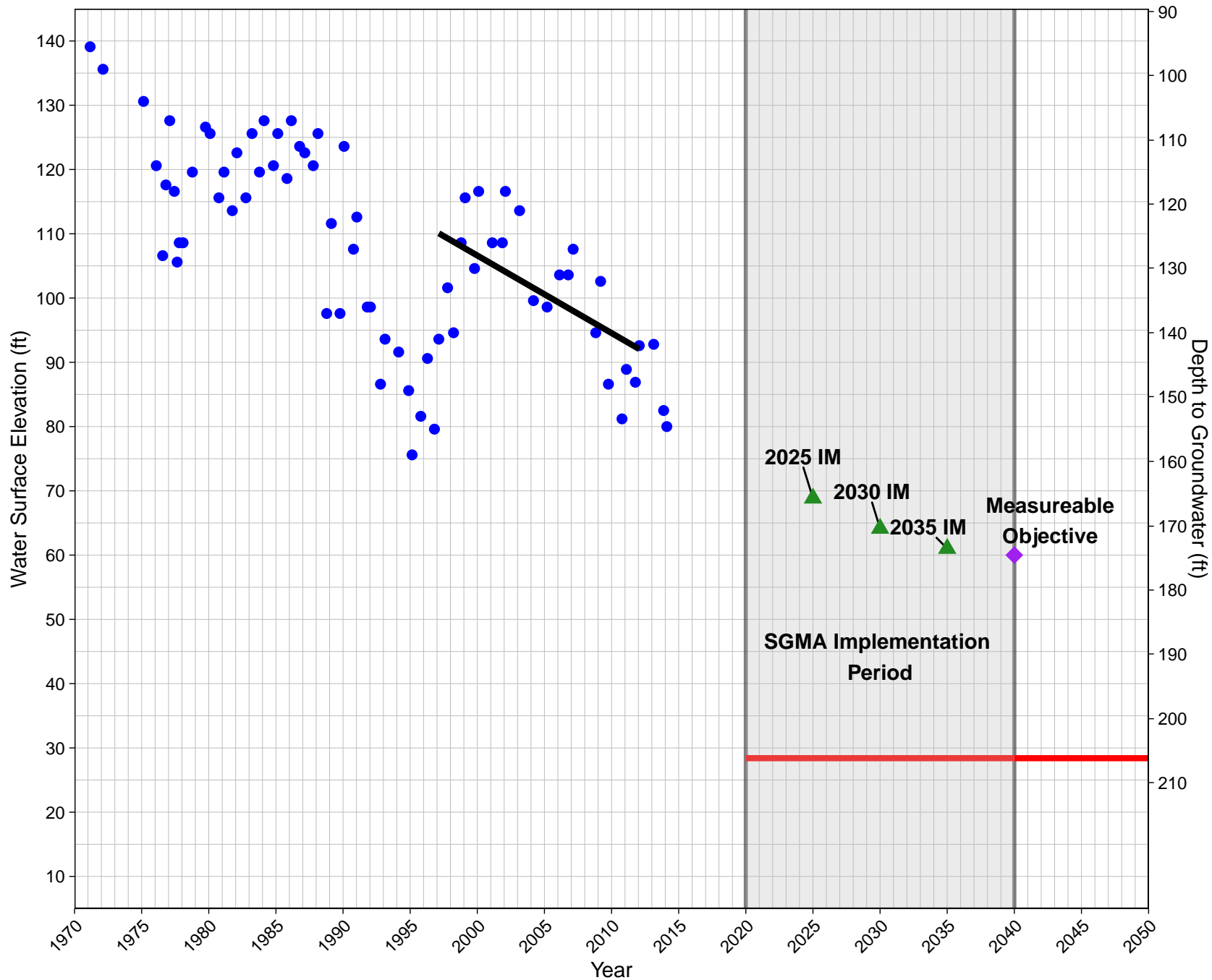
Trendline

366188N1199104W001

State Well ID: 15S19E21C003M

Ground Surface Elevation: 235 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



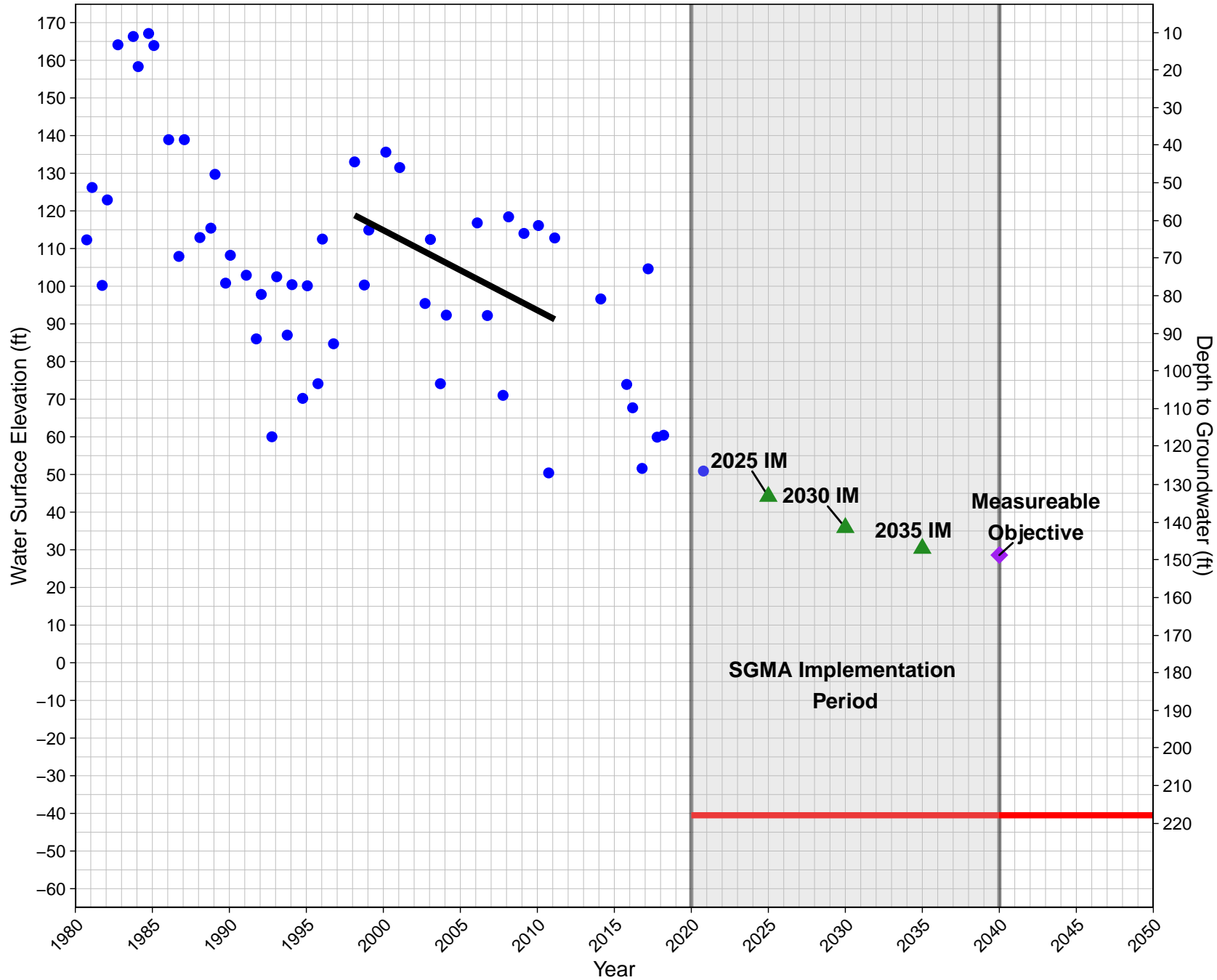
Trendline

367705N1202691W001

State Well ID: 13S16E30L003M

Ground Surface Elevation: 177 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



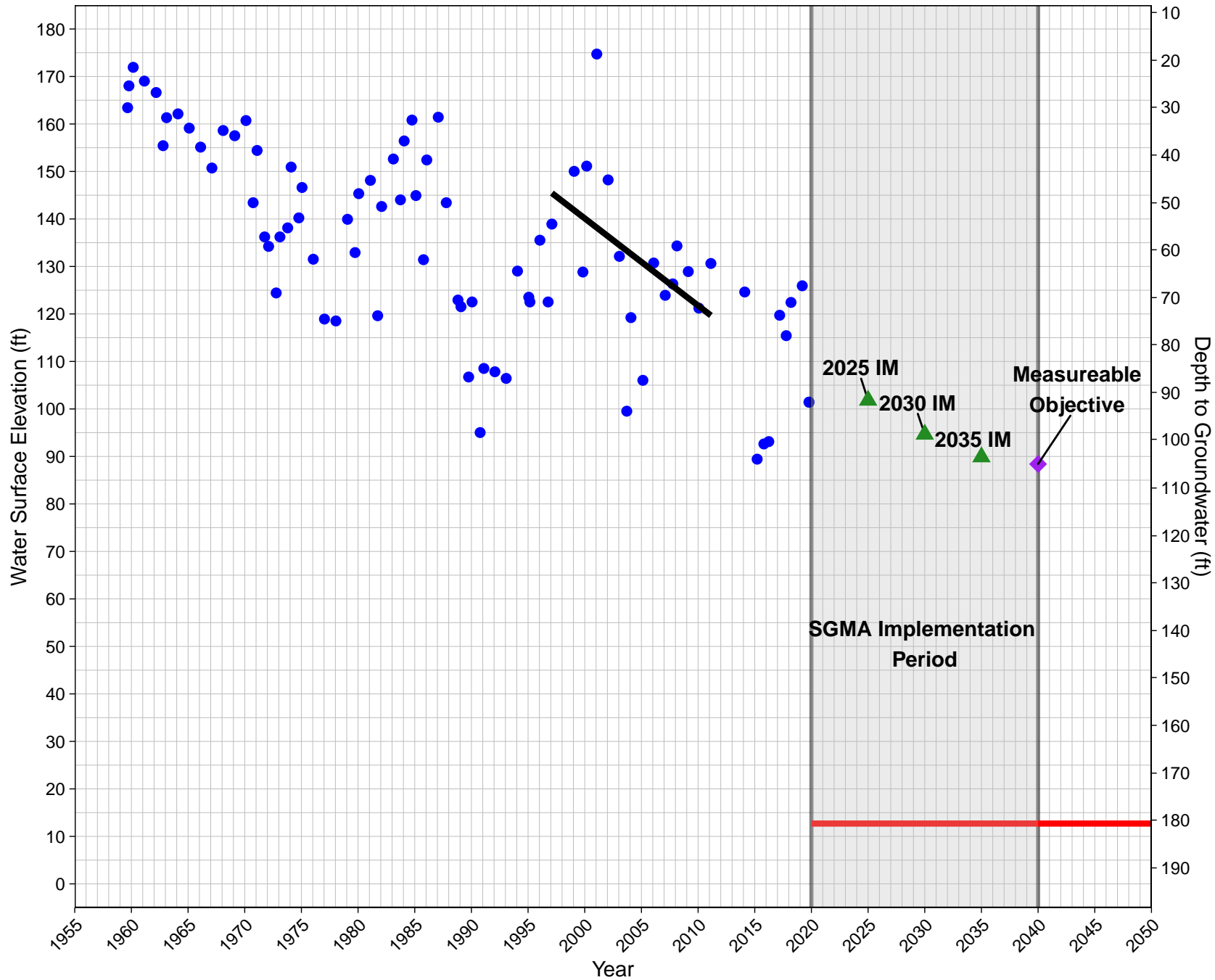
Trendline

367757N1201874W001

State Well ID: 13S16E26A001M

Ground Surface Elevation: 193 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



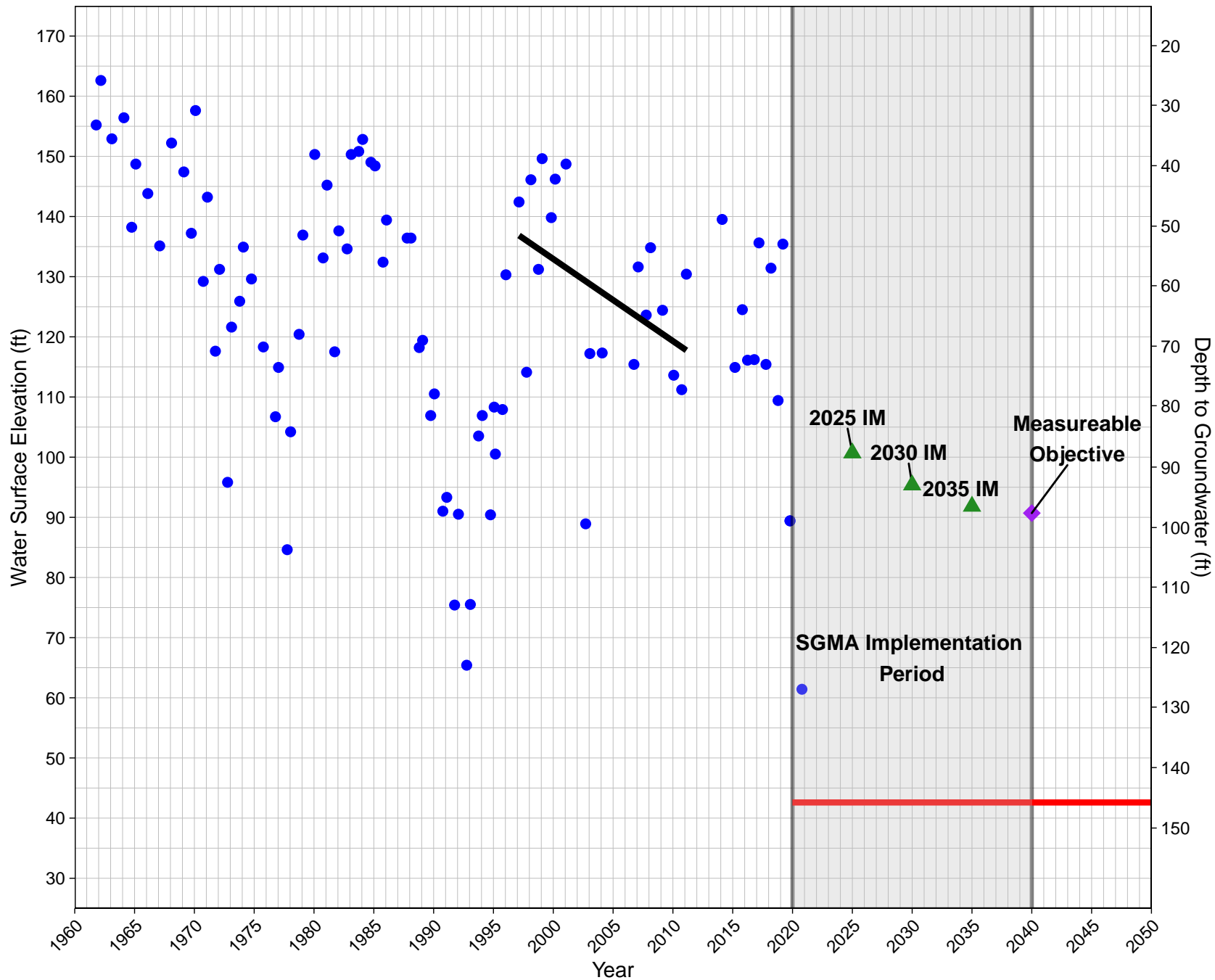
Trendline

367782N1202141W001

State Well ID: 13S16E27C001M

Ground Surface Elevation: 188 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



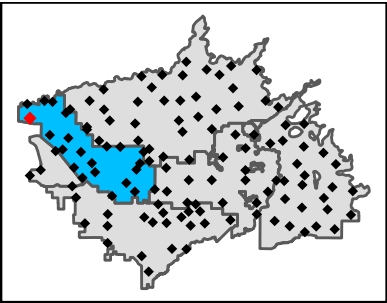
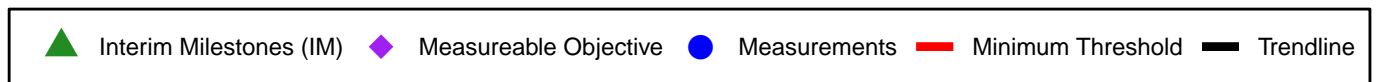
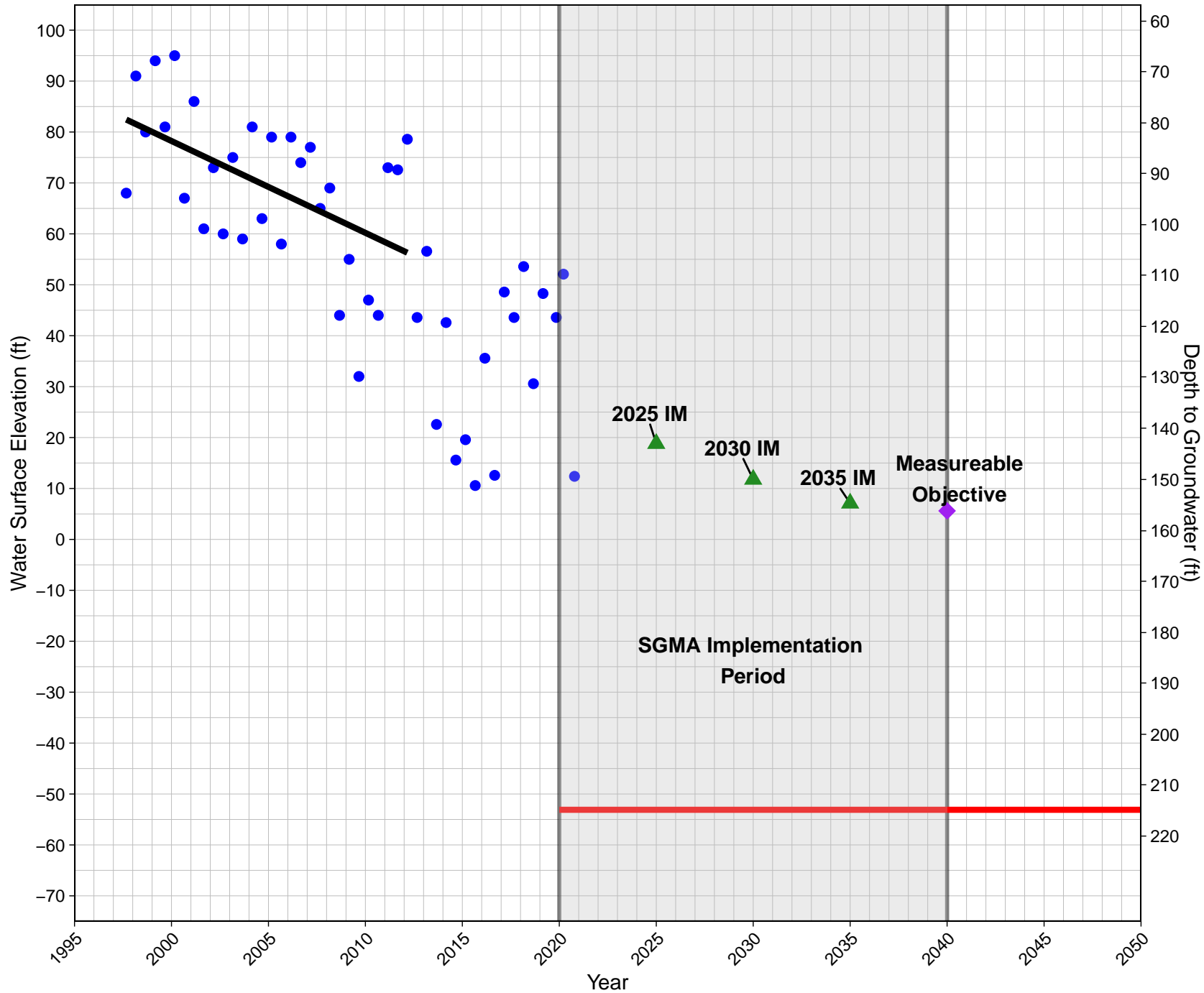
Minimum Threshold



Trendline

A01

Ground Surface Elevation: 162 ft
McMullin Area GSA

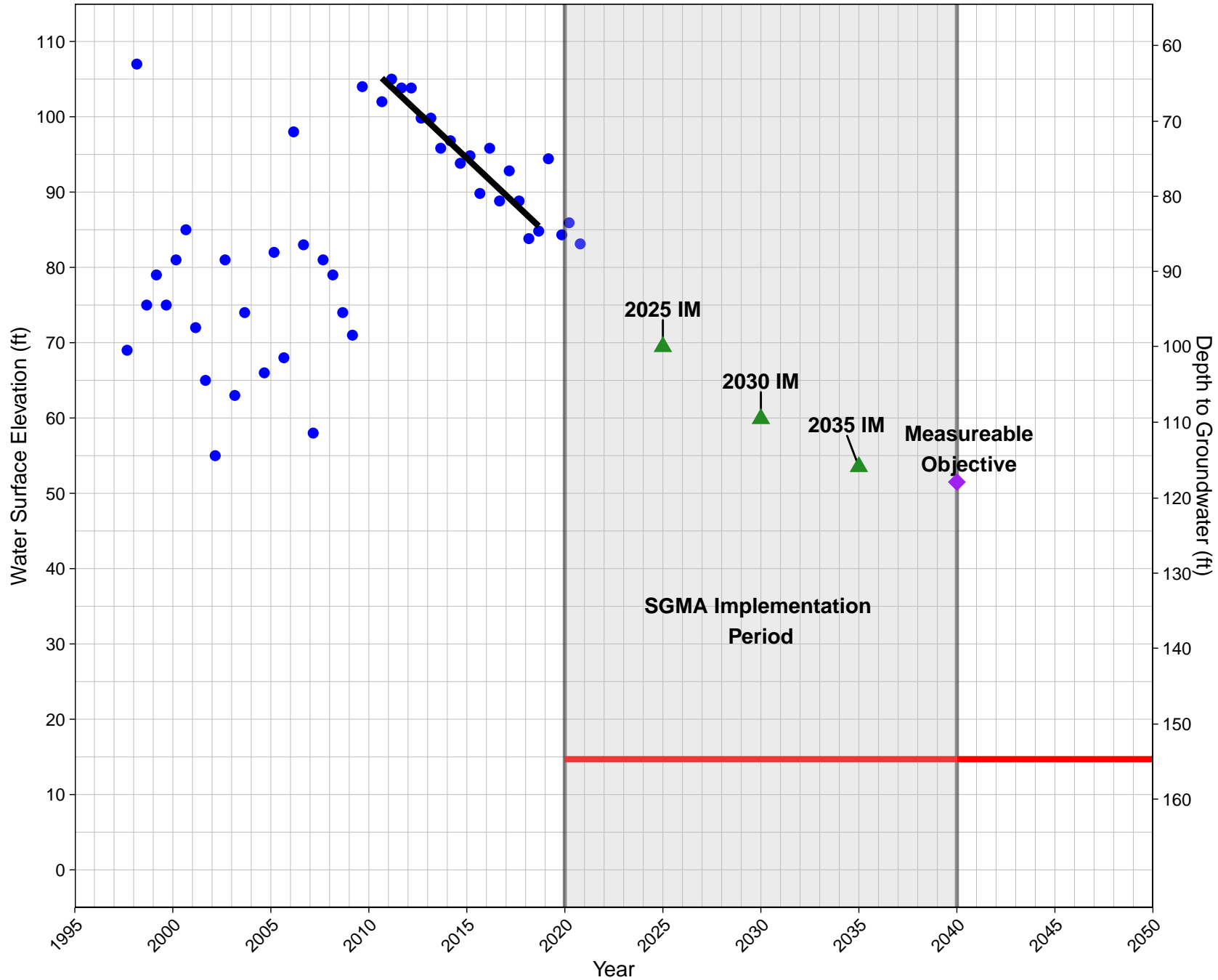


A07

State Well ID:

Ground Surface Elevation: 169 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



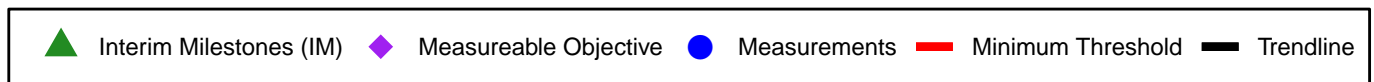
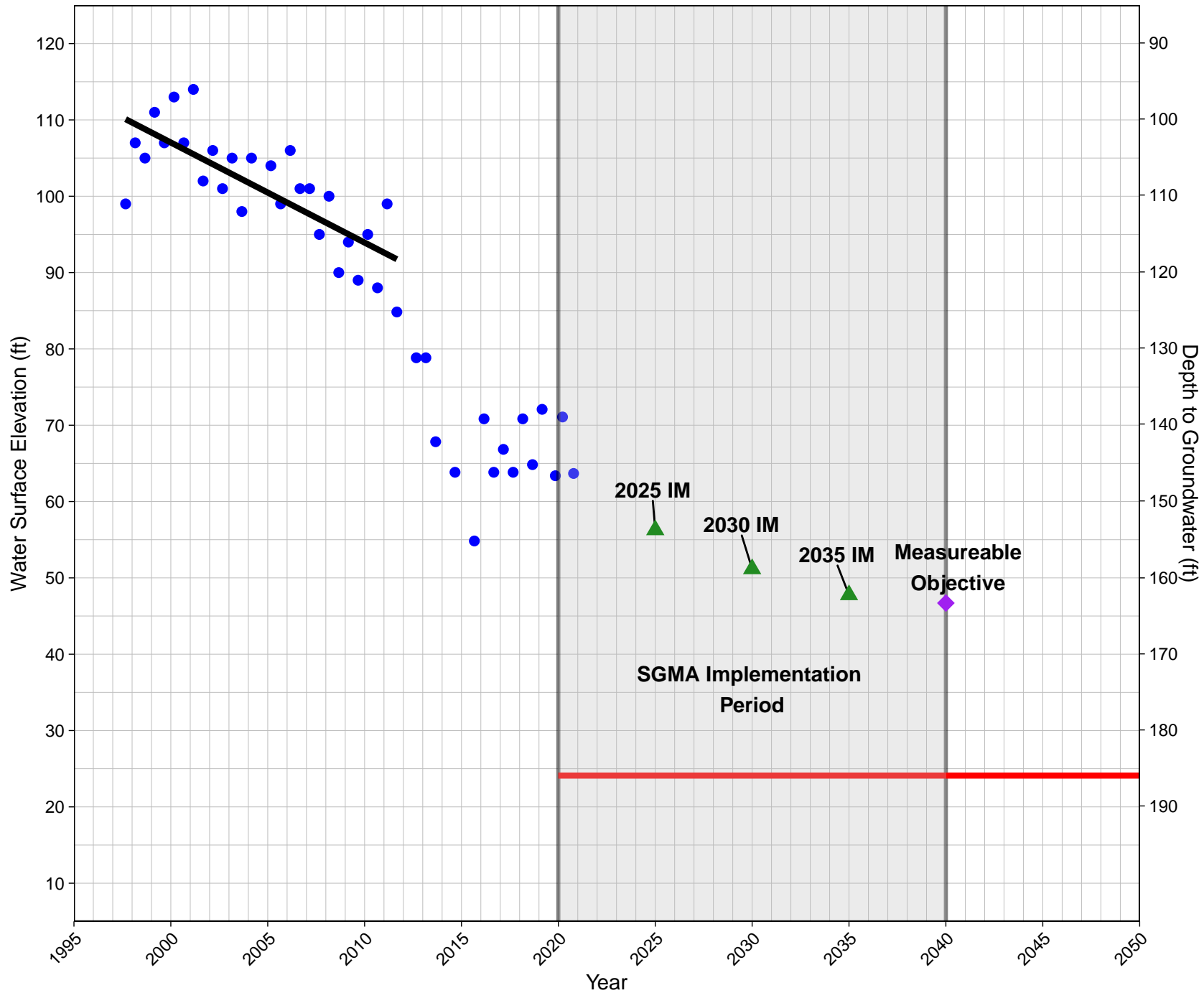
Minimum Threshold



Trendline

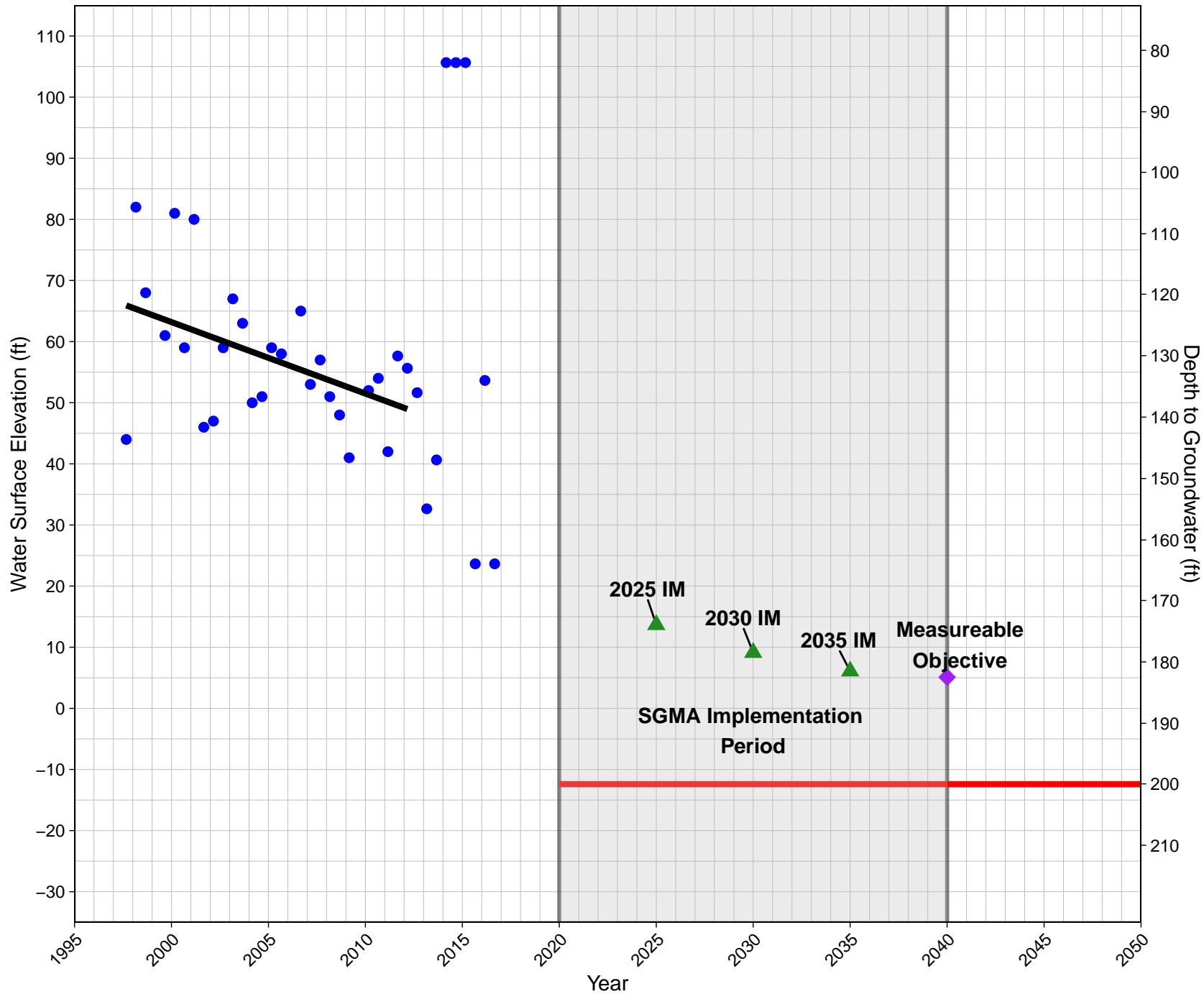
A17

Ground Surface Elevation: 210 ft
McMullin Area GSA

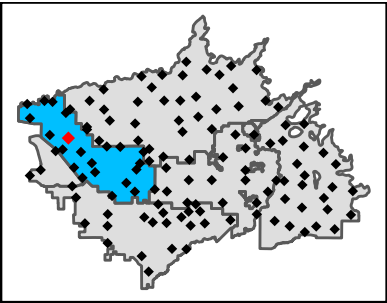


A20

Ground Surface Elevation: 188 ft
McMullin Area GSA



▲ Interim Milestones (IM) ◆ Measureable Objective ● Measurements — Minimum Threshold — Trendline

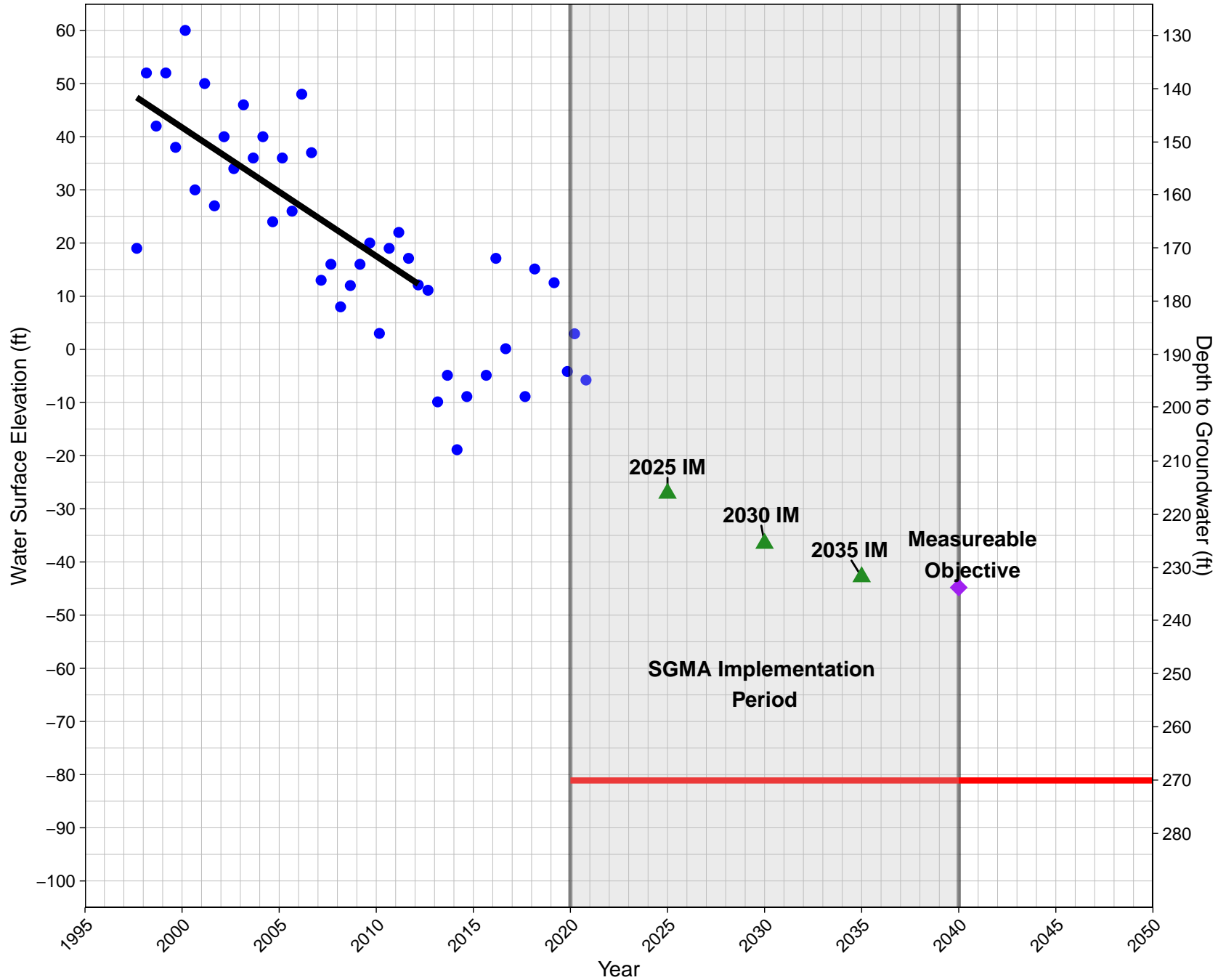


A23

State Well ID:

Ground Surface Elevation: 189 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



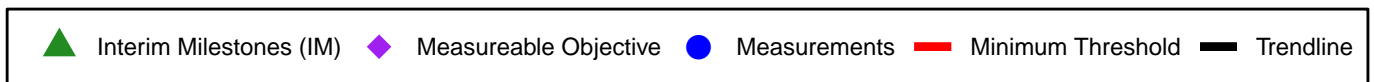
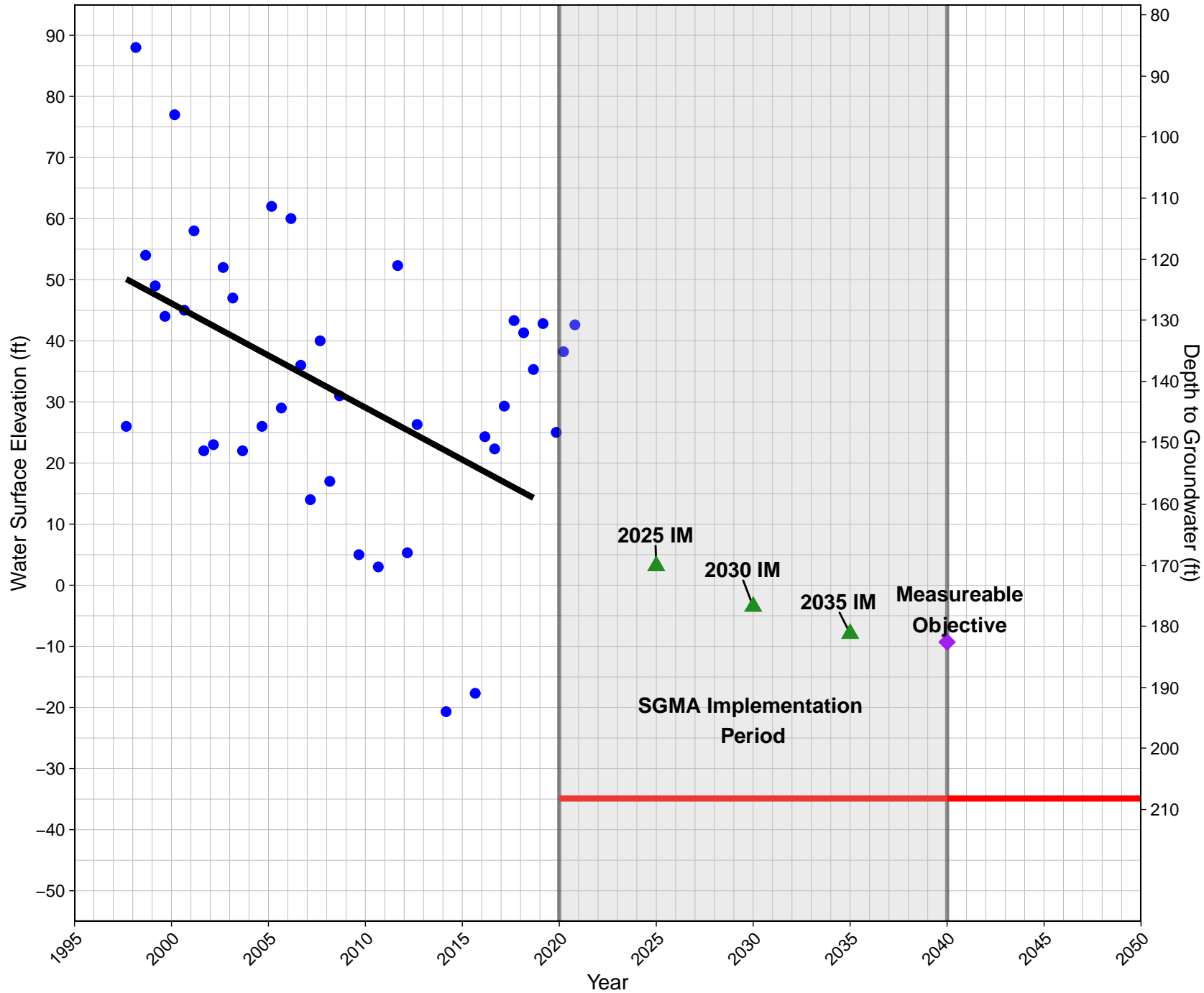
Minimum Threshold



Trendline

A24

Ground Surface Elevation: 173 ft
McMullin Area GSA

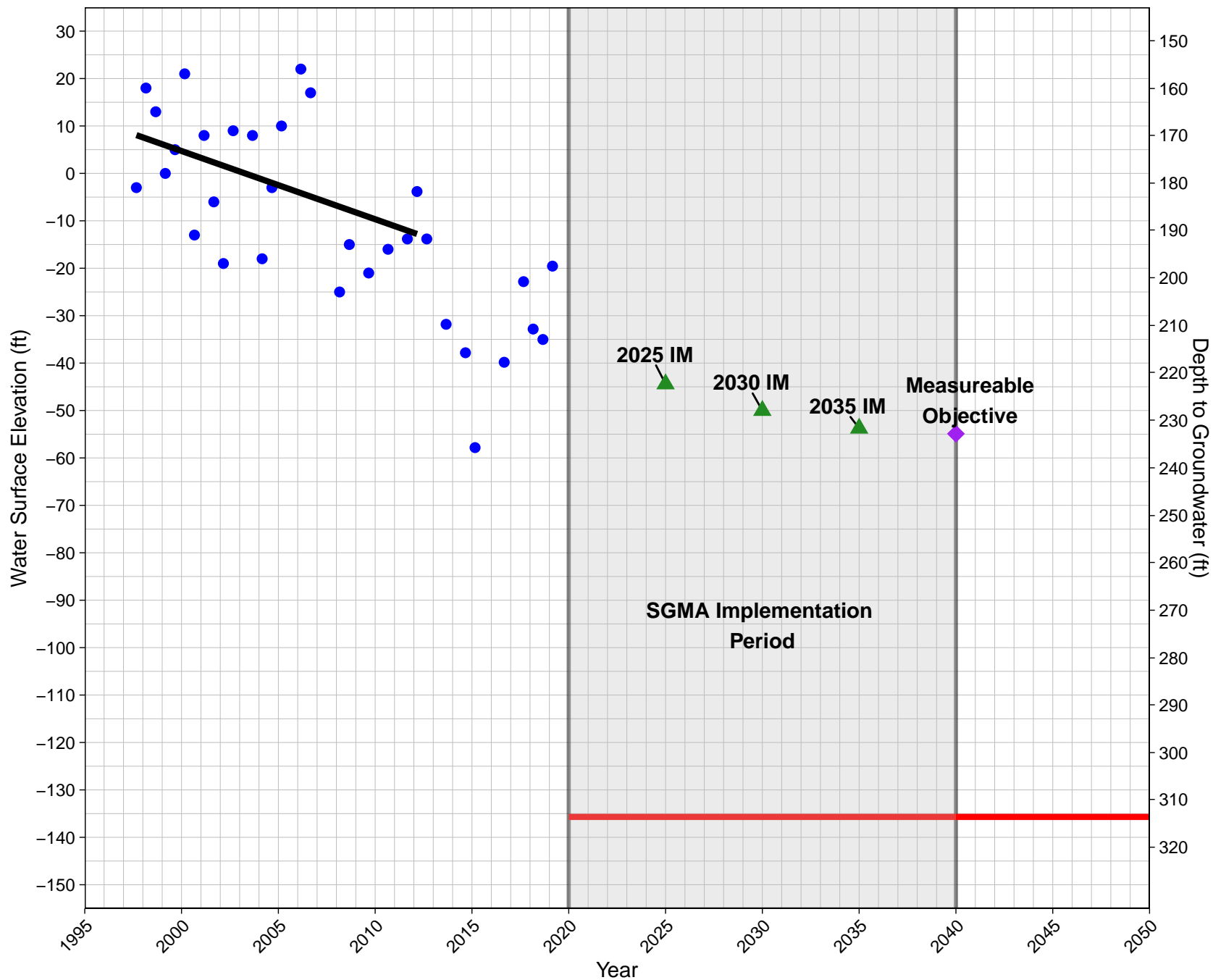


A30

State Well ID:

Ground Surface Elevation: 178 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



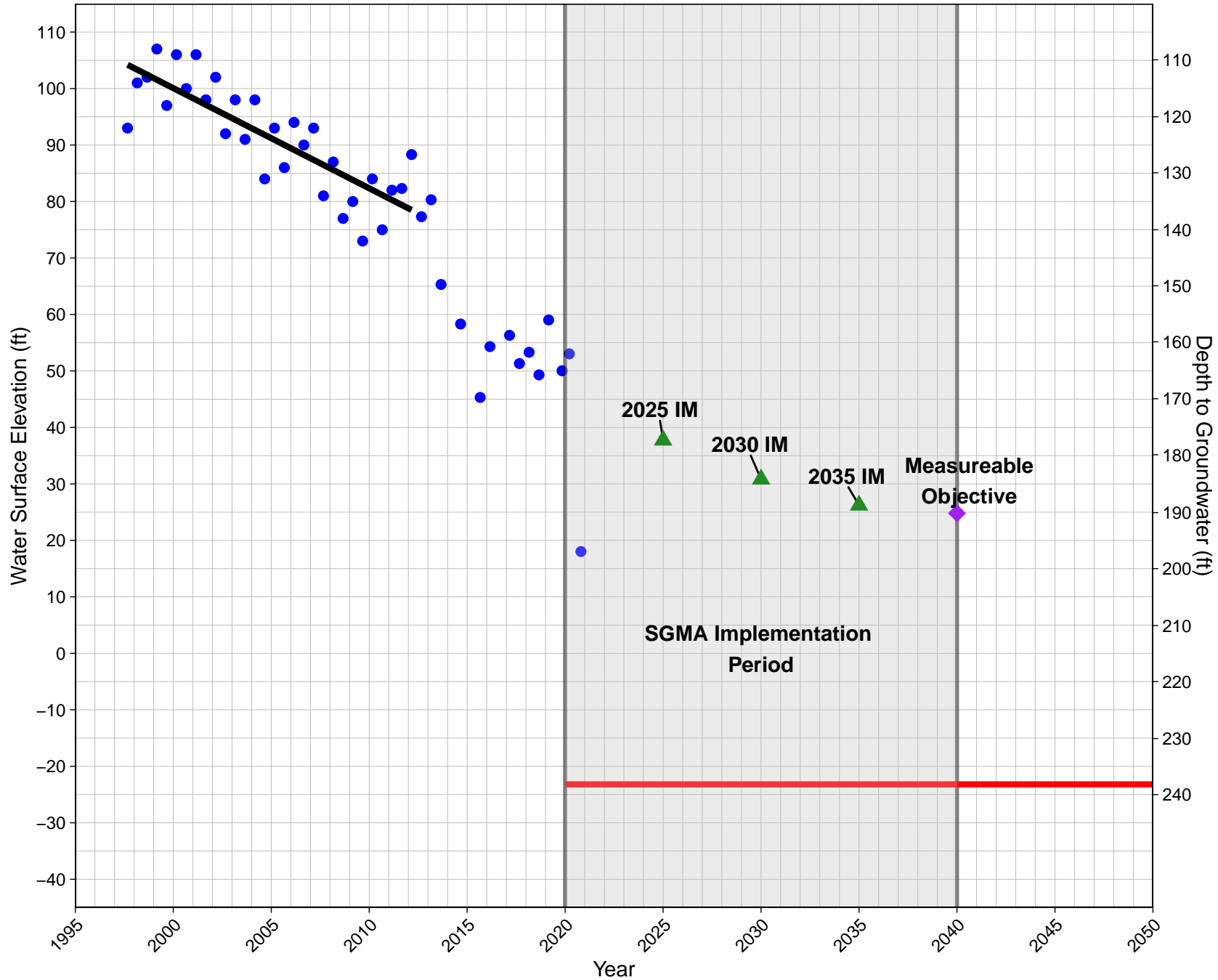
Trendline

A34

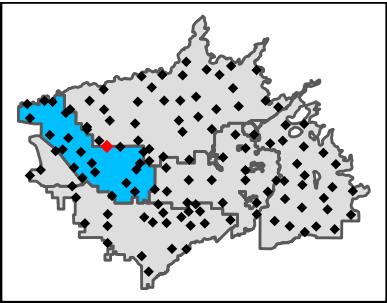
State Well ID:

Ground Surface Elevation: 215 ft

McMullin Area GSA

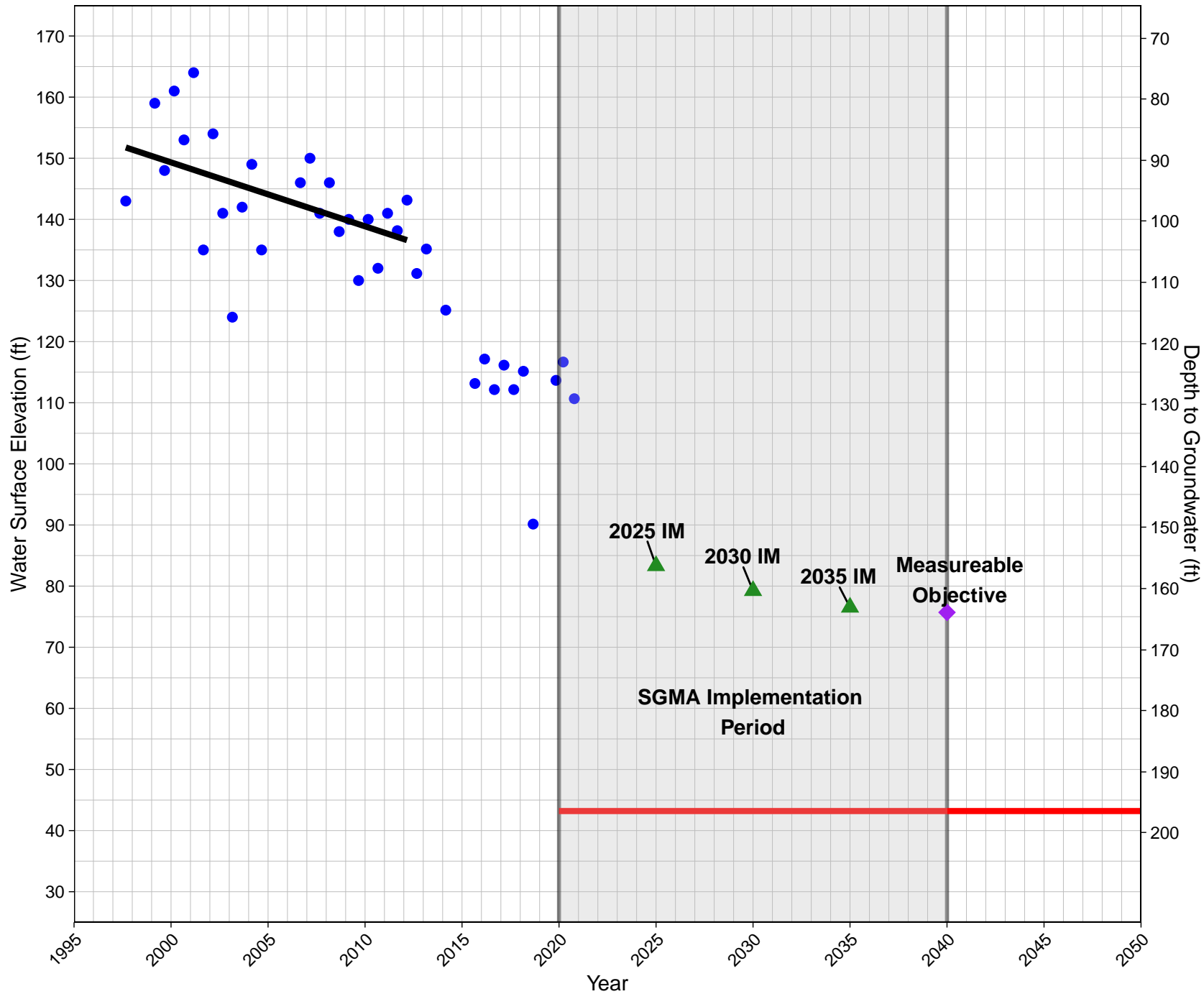


▲ Interim Milestones (IM) ◆ Measureable Objective ● Measurements — Minimum Threshold — Trendline



A46

Ground Surface Elevation: 240 ft
McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



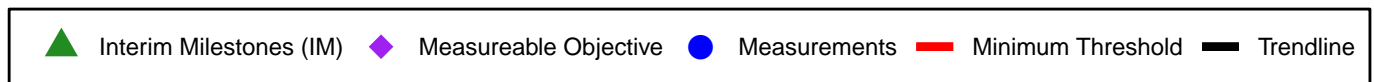
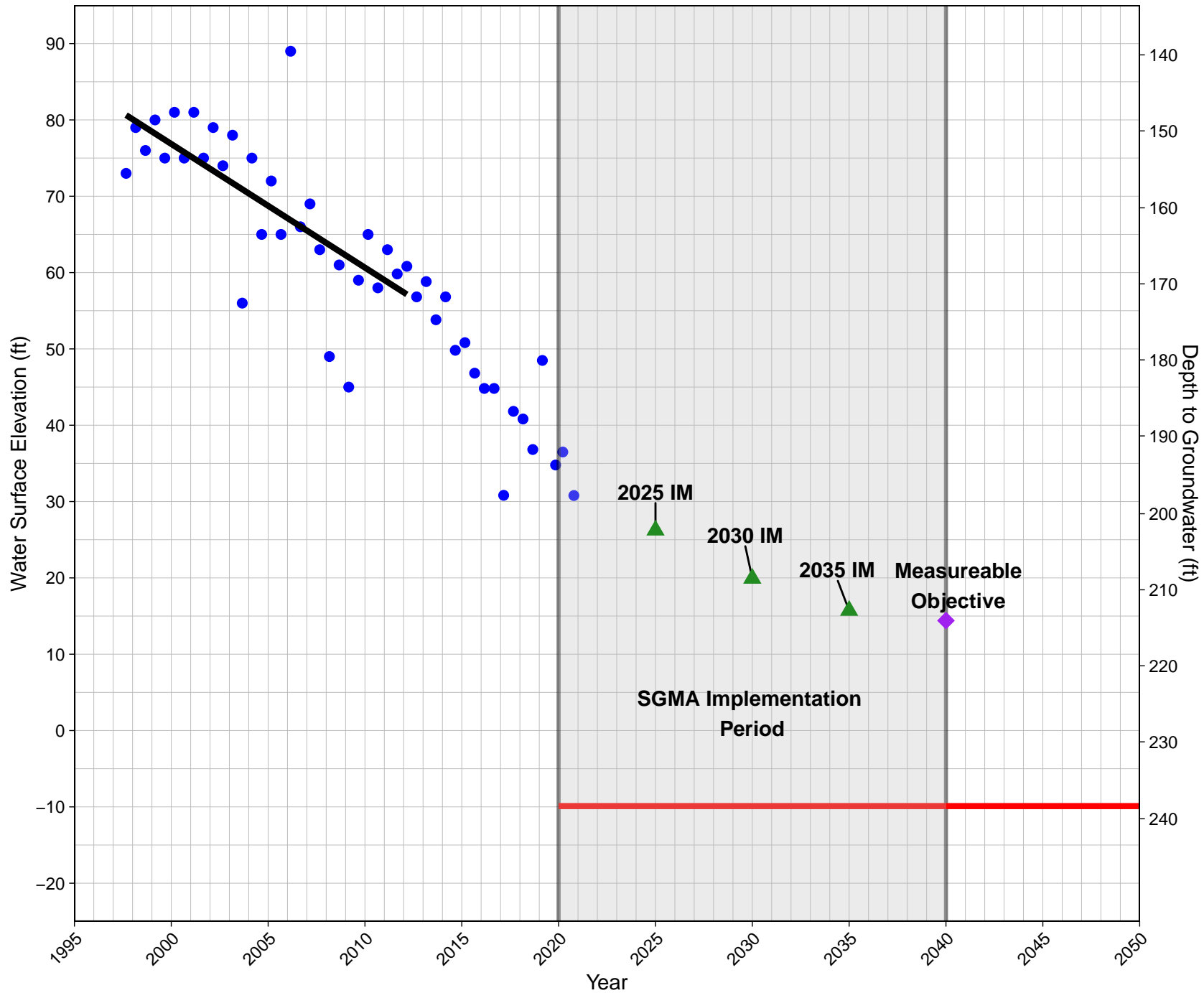
Minimum Threshold



Trendline

A51

Ground Surface Elevation: 228 ft
McMullin Area GSA

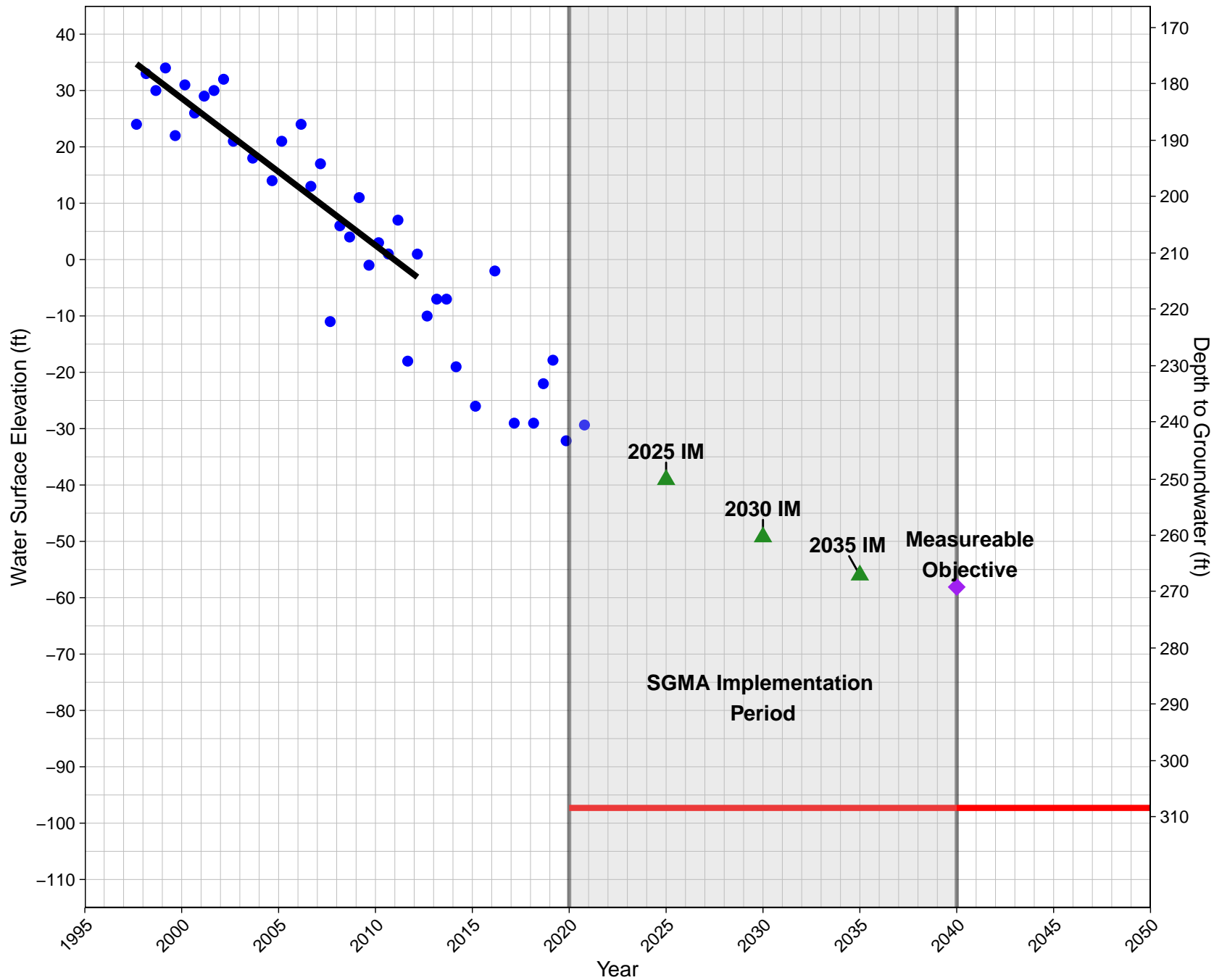


A53

State Well ID:

Ground Surface Elevation: 211 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



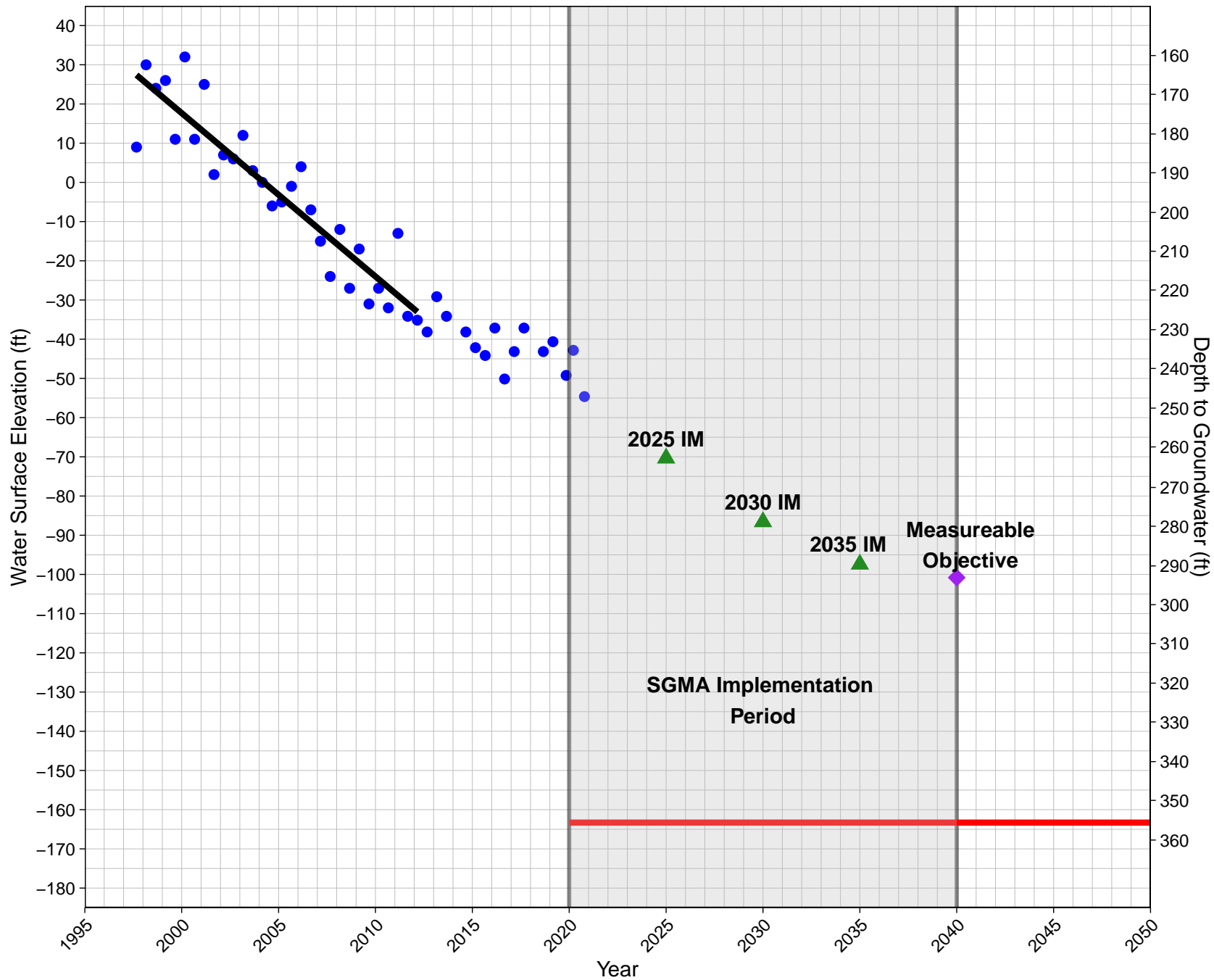
Trendline

A58

State Well ID:

Ground Surface Elevation: 192 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



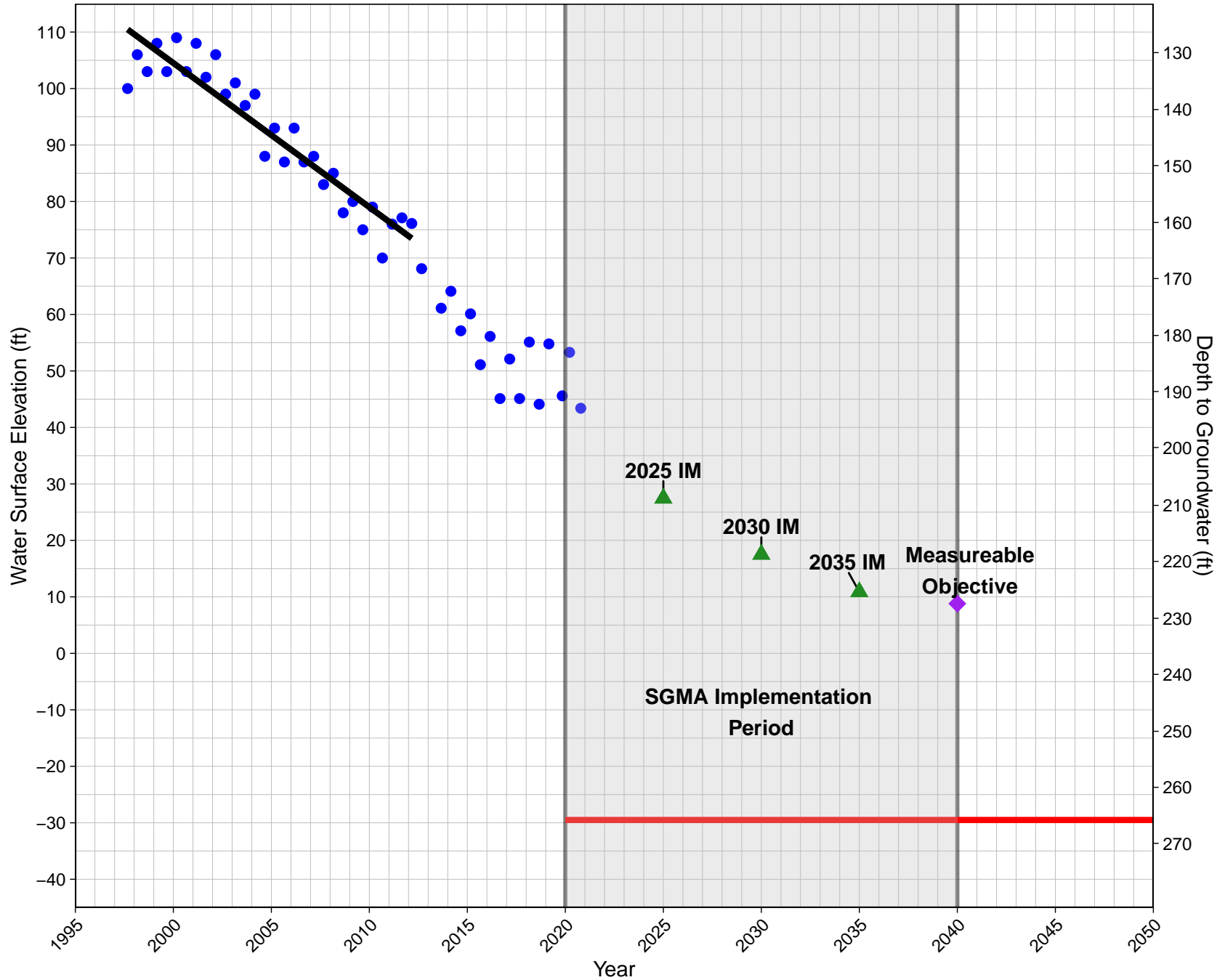
Trendline

A62

State Well ID: 16S19E14A001M

Ground Surface Elevation: 236 ft

McMullin Area GSA



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



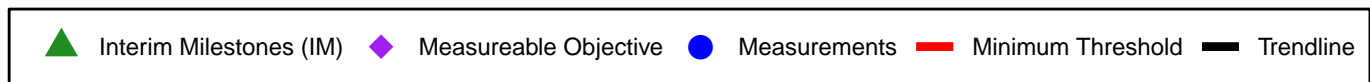
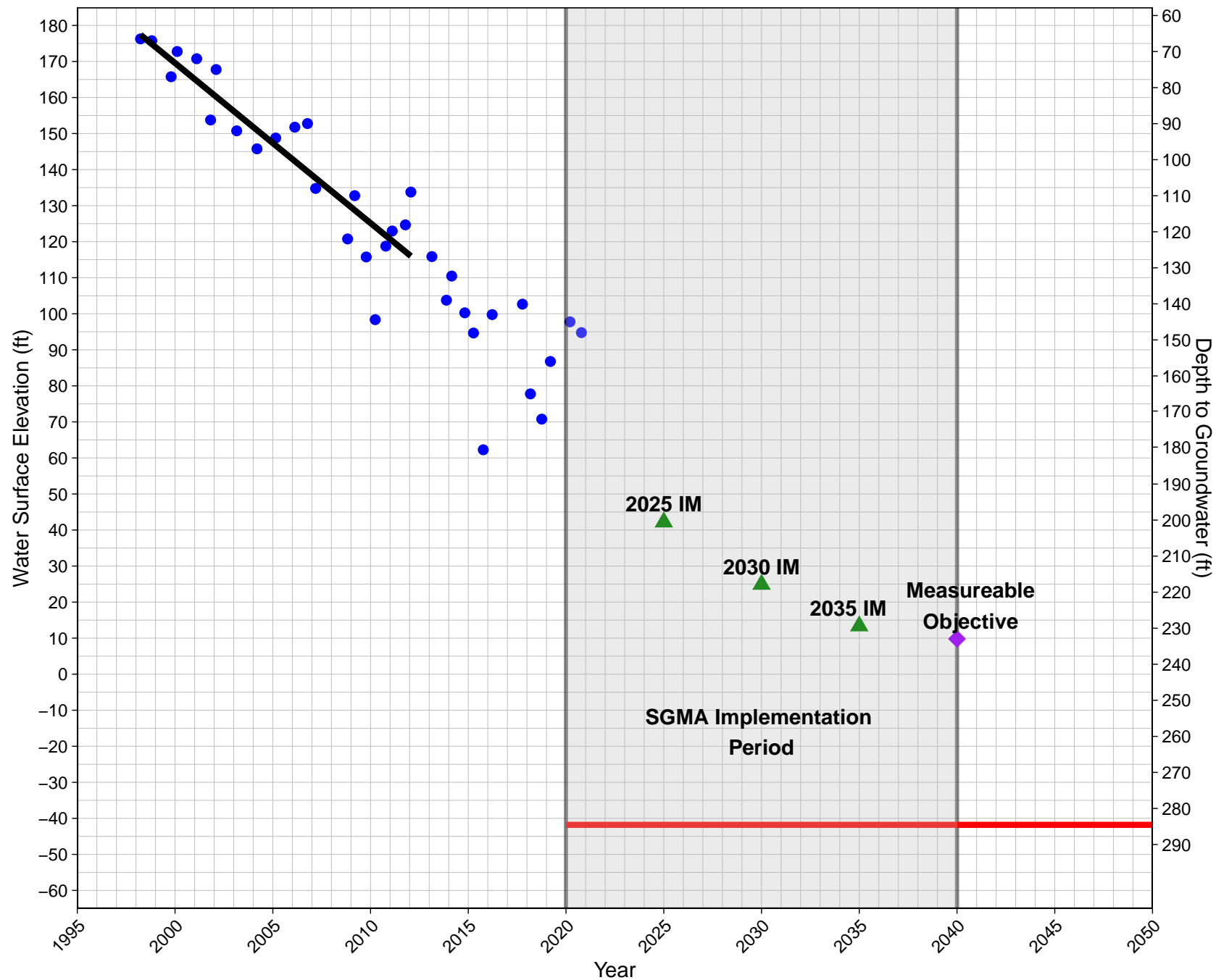
Trendline

364002N1197624W001

State Well ID: 18S20E02A001M

Ground Surface Elevation: 243 ft

North Fork Kings Groundwater Sustainability Agency

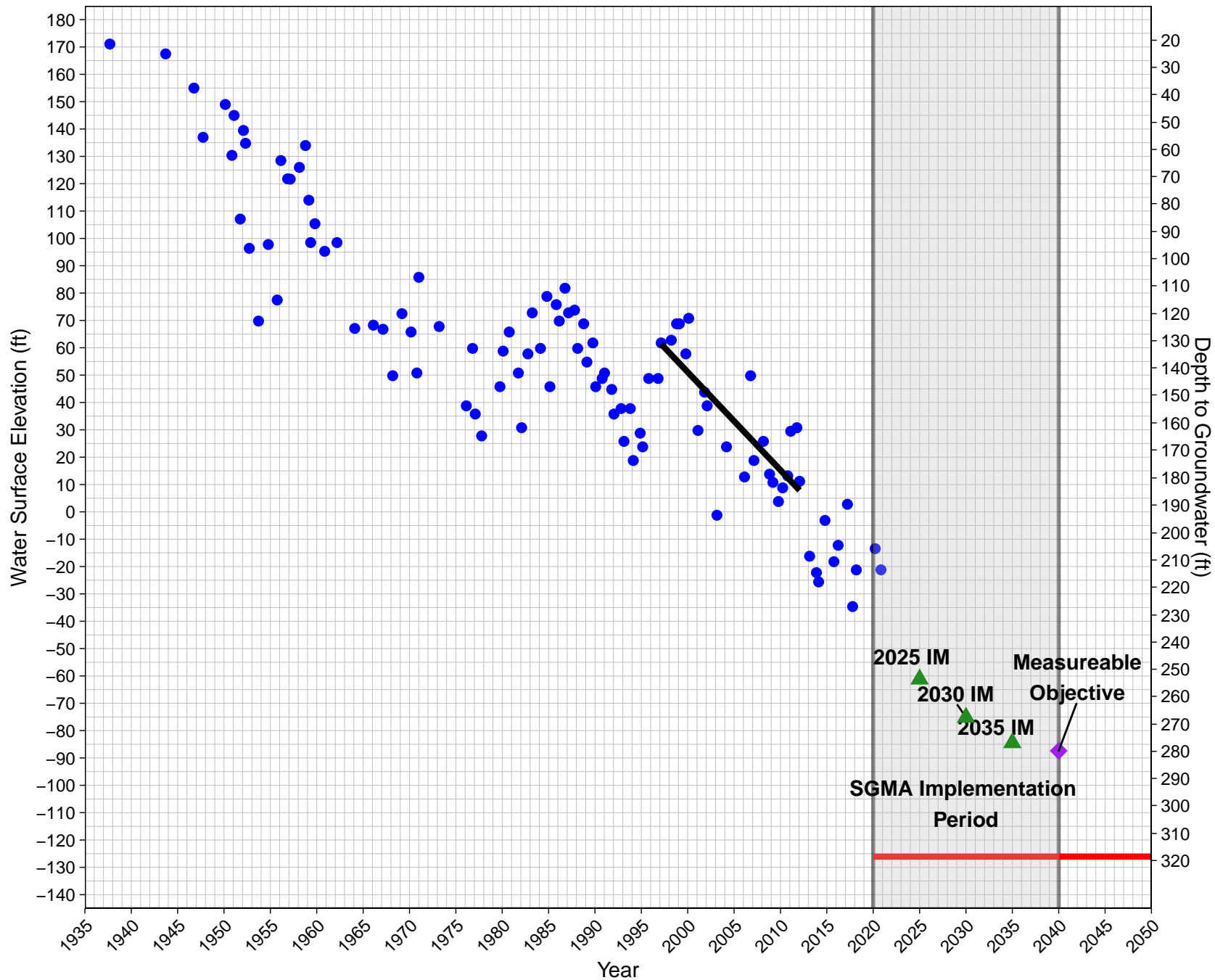


364591N1200135W001

State Well ID: 17S18E09R001M

Ground Surface Elevation: 192 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



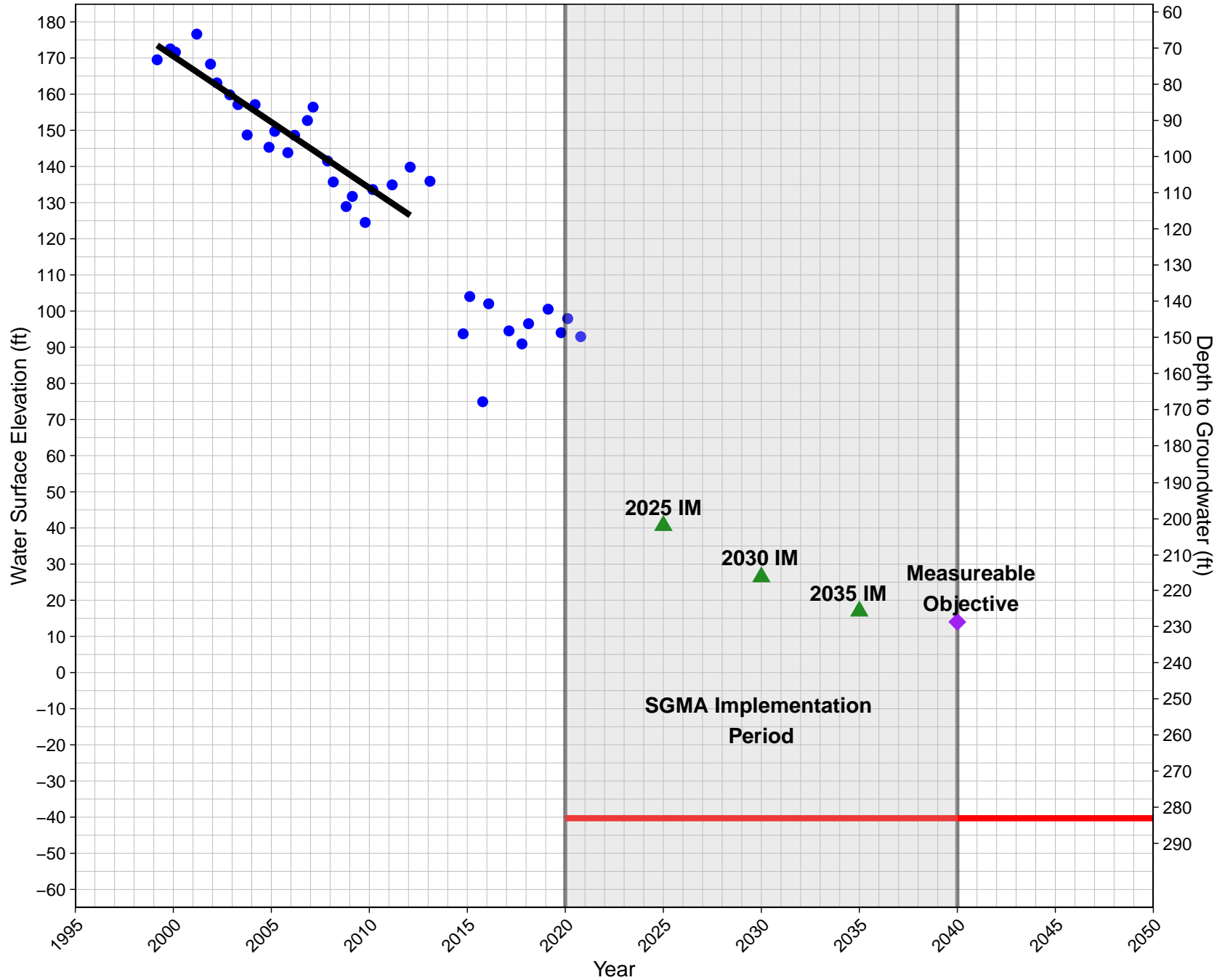
Trendline

364603N1197510W001

State Well ID: 17S20E12Q001M

Ground Surface Elevation: 243 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



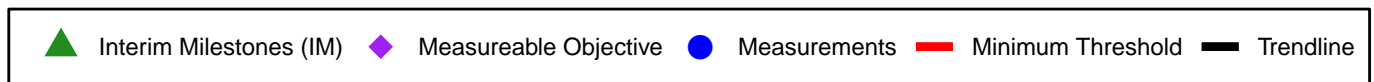
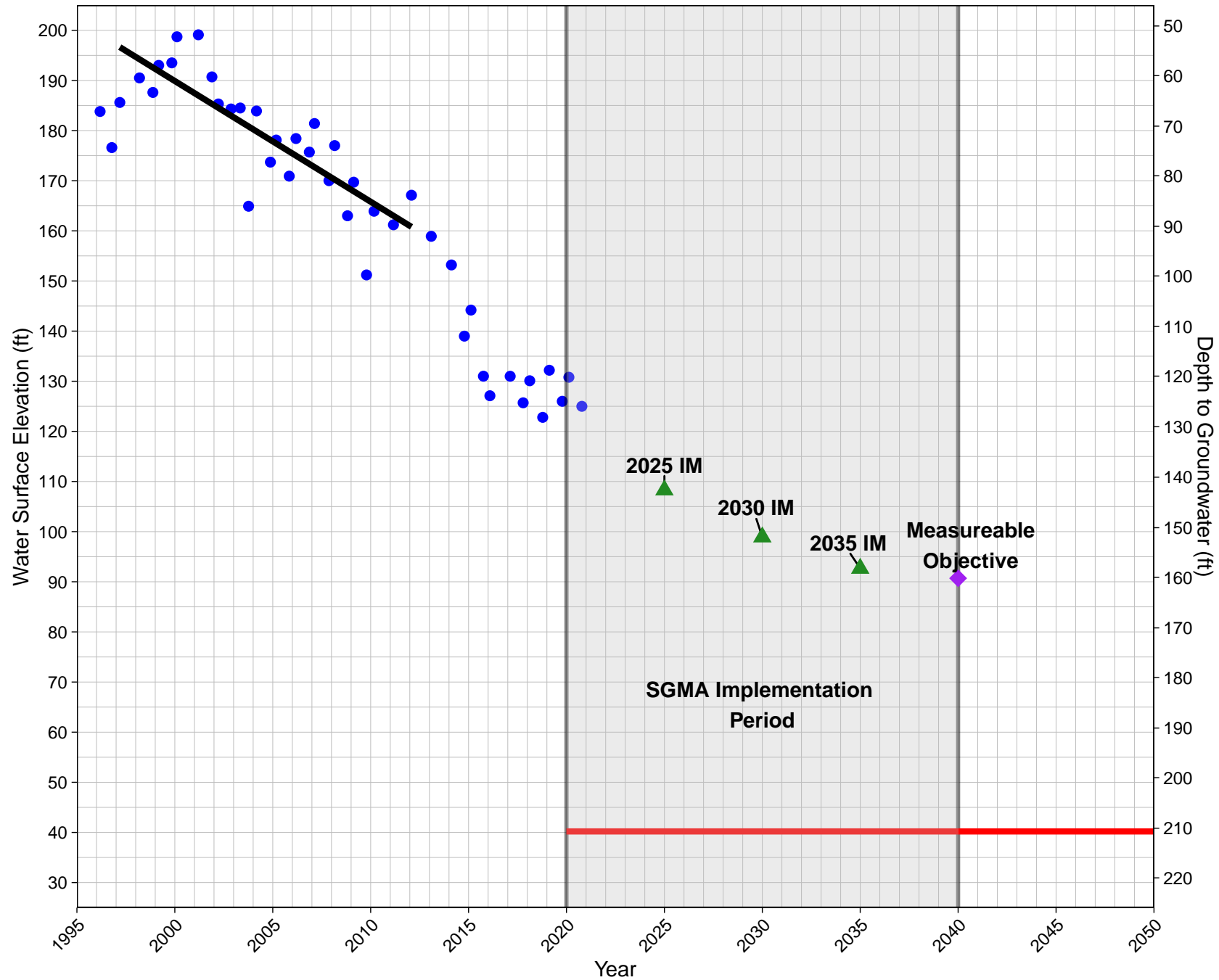
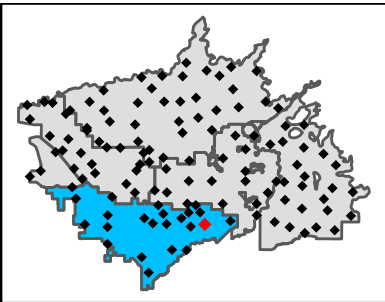
Trendline

364667N1197041W001

State Well ID: 17S21E09M001M

Ground Surface Elevation: 251 ft

North Fork Kings Groundwater Sustainability Agency

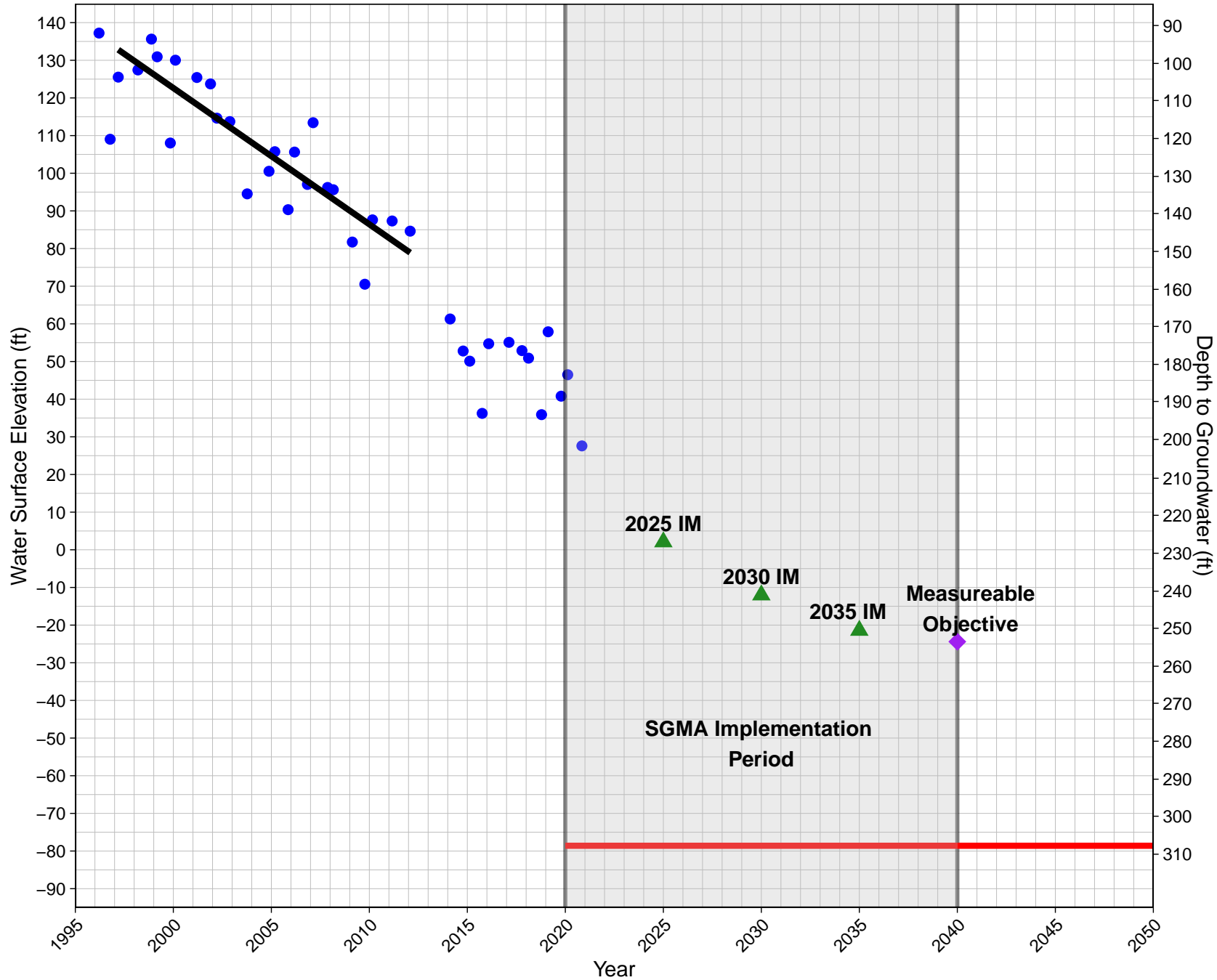


364668N1198257W001

State Well ID: 17S20E08L001M

Ground Surface Elevation: 229 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



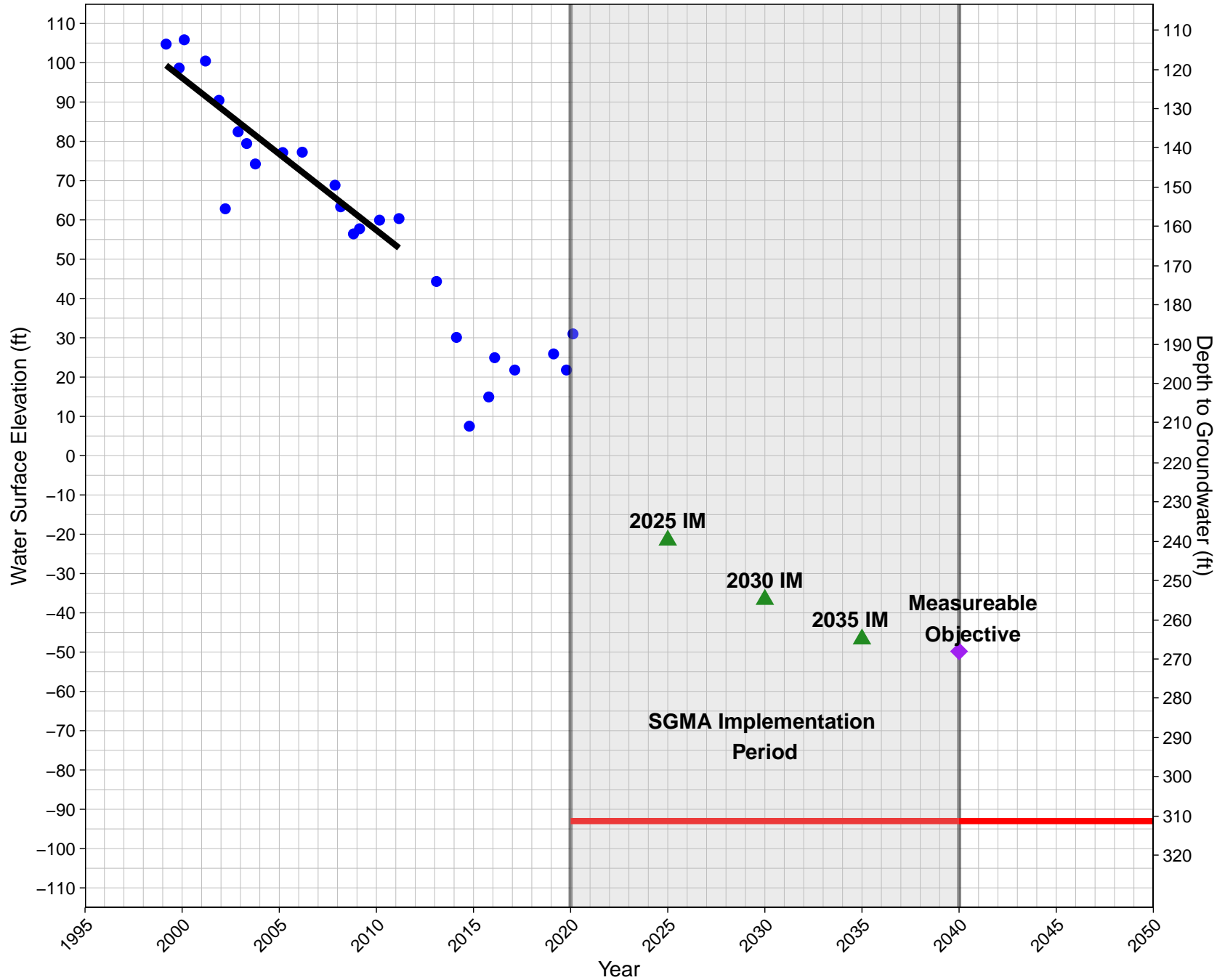
Trendline

364682N1198732W001

State Well ID: 17S19E11H001M

Ground Surface Elevation: 218 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



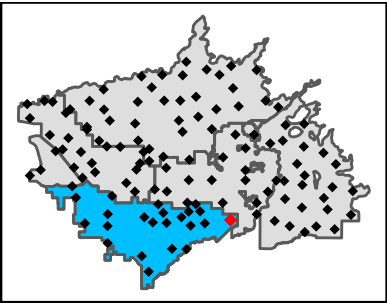
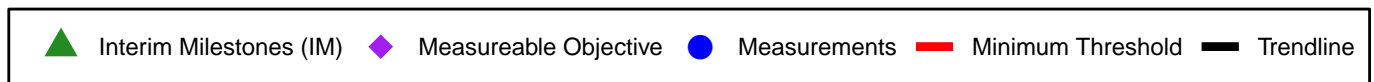
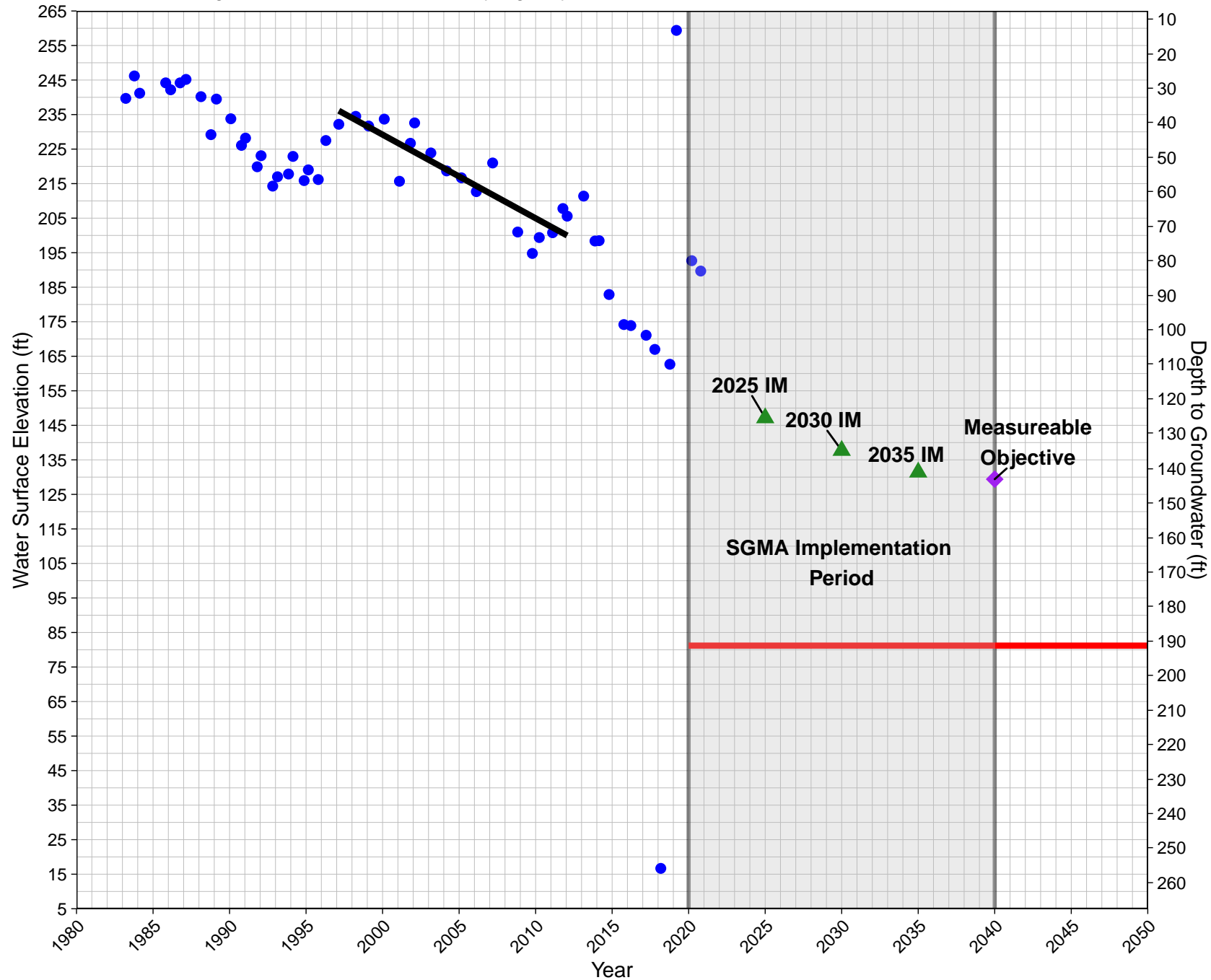
Trendline

364739N1196227W001

State Well ID: 17S22E07A001M

Ground Surface Elevation: 273 ft

North Fork Kings Groundwater Sustainability Agency

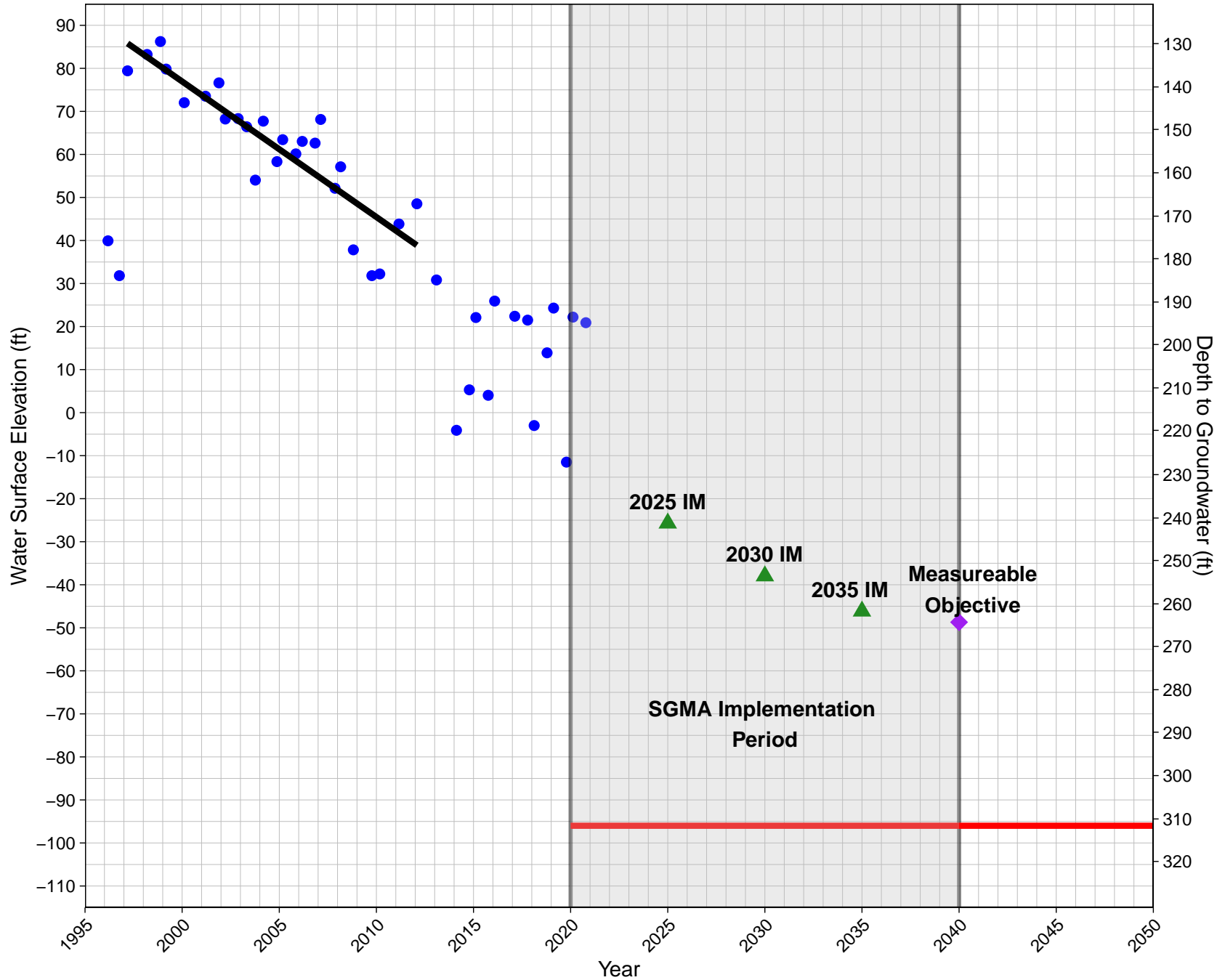


364813N1198968W001

State Well ID: 17S19E03L001M

Ground Surface Elevation: 216 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



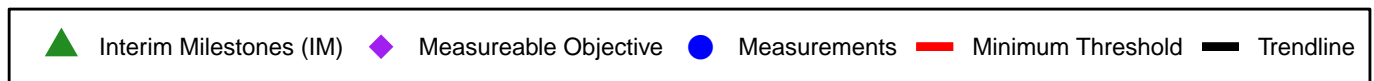
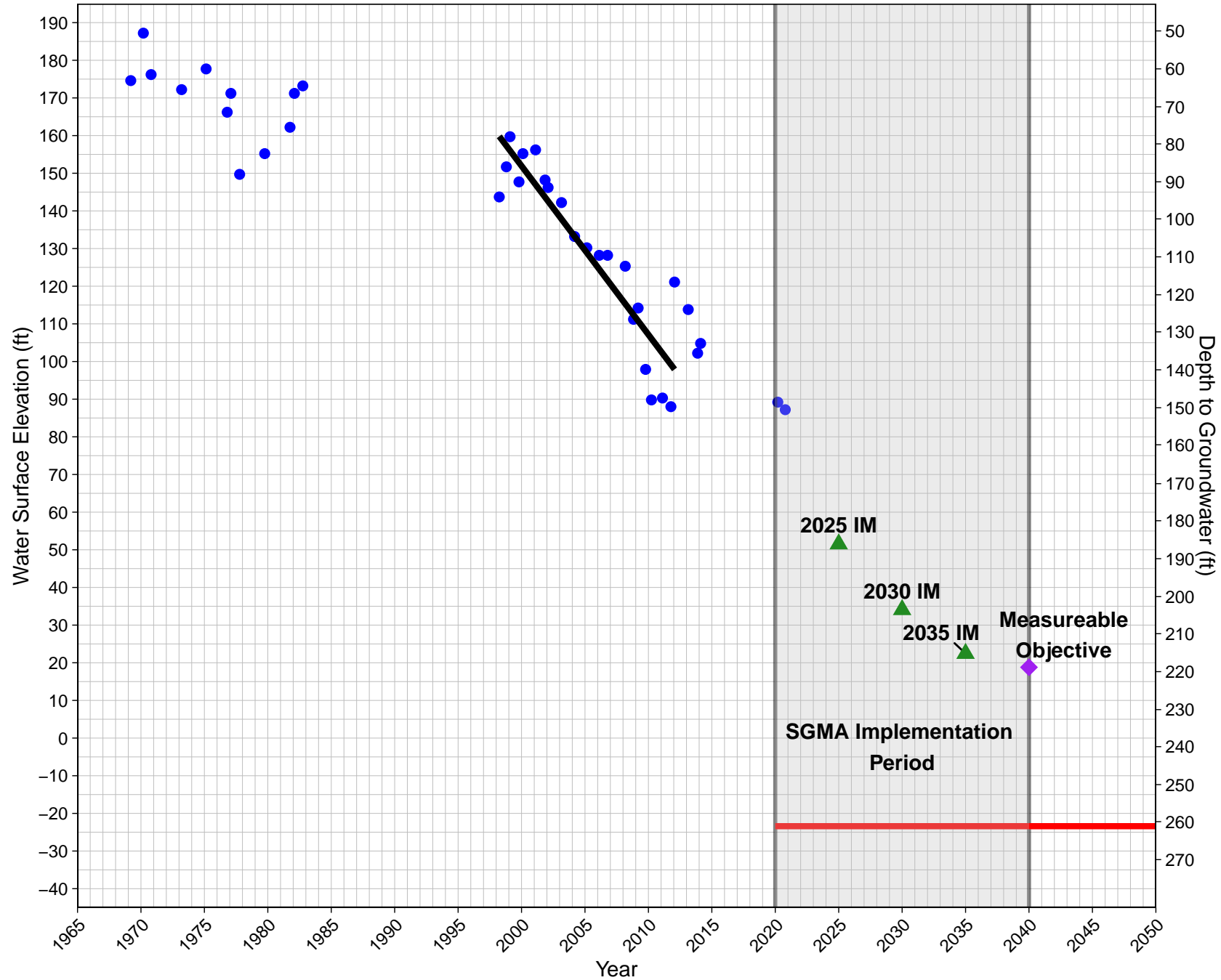
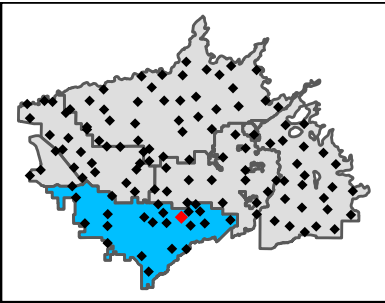
Trendline

364816N1197785W001

State Well ID: 17S20E02M001M

Ground Surface Elevation: 238 ft

North Fork Kings Groundwater Sustainability Agency

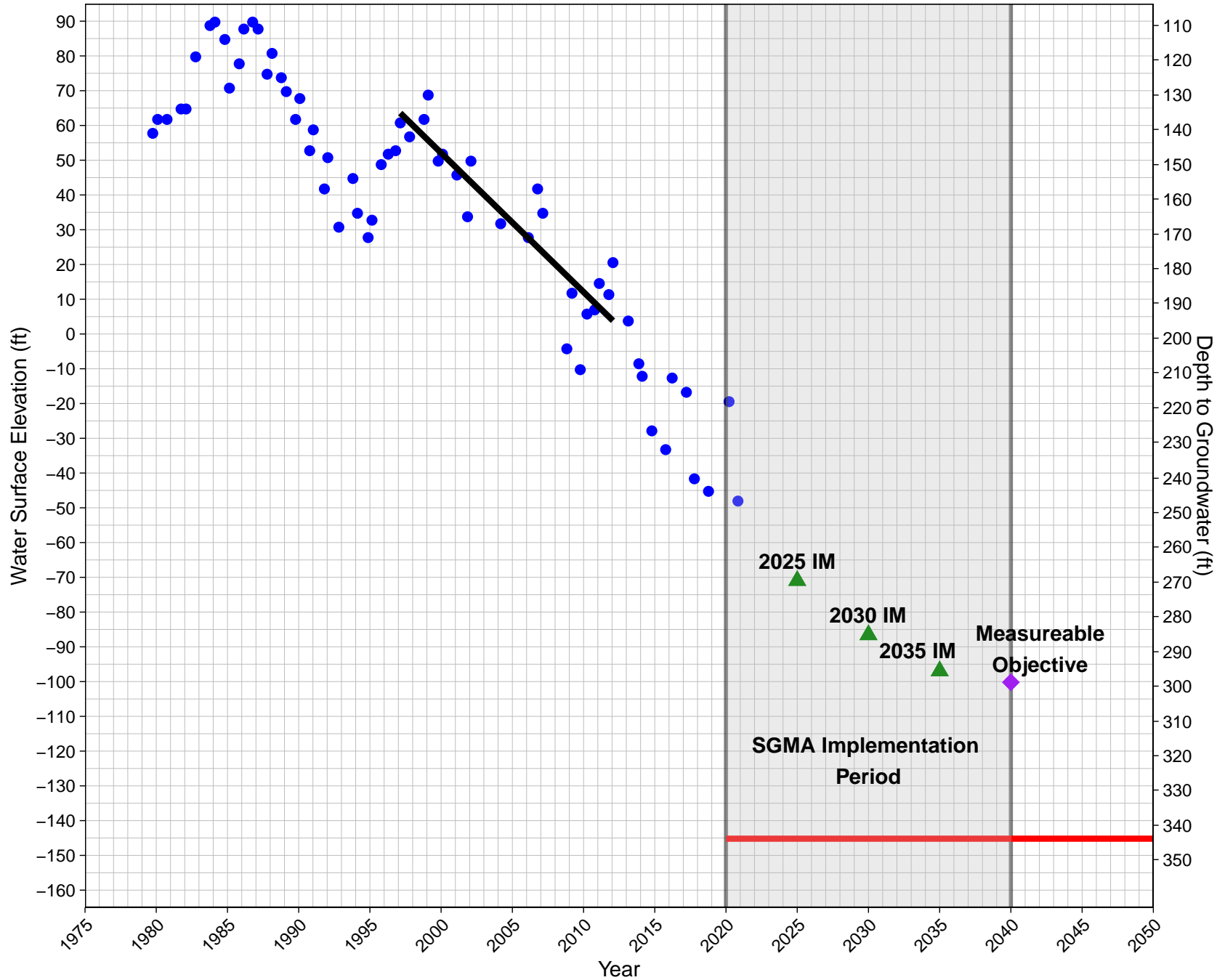


364893N1200127W001

State Well ID: 16S18E33Q001M

Ground Surface Elevation: 199 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



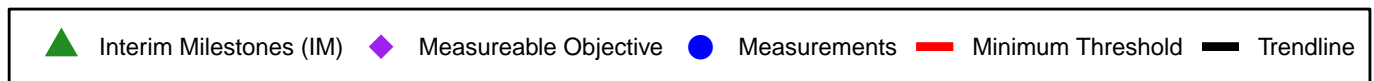
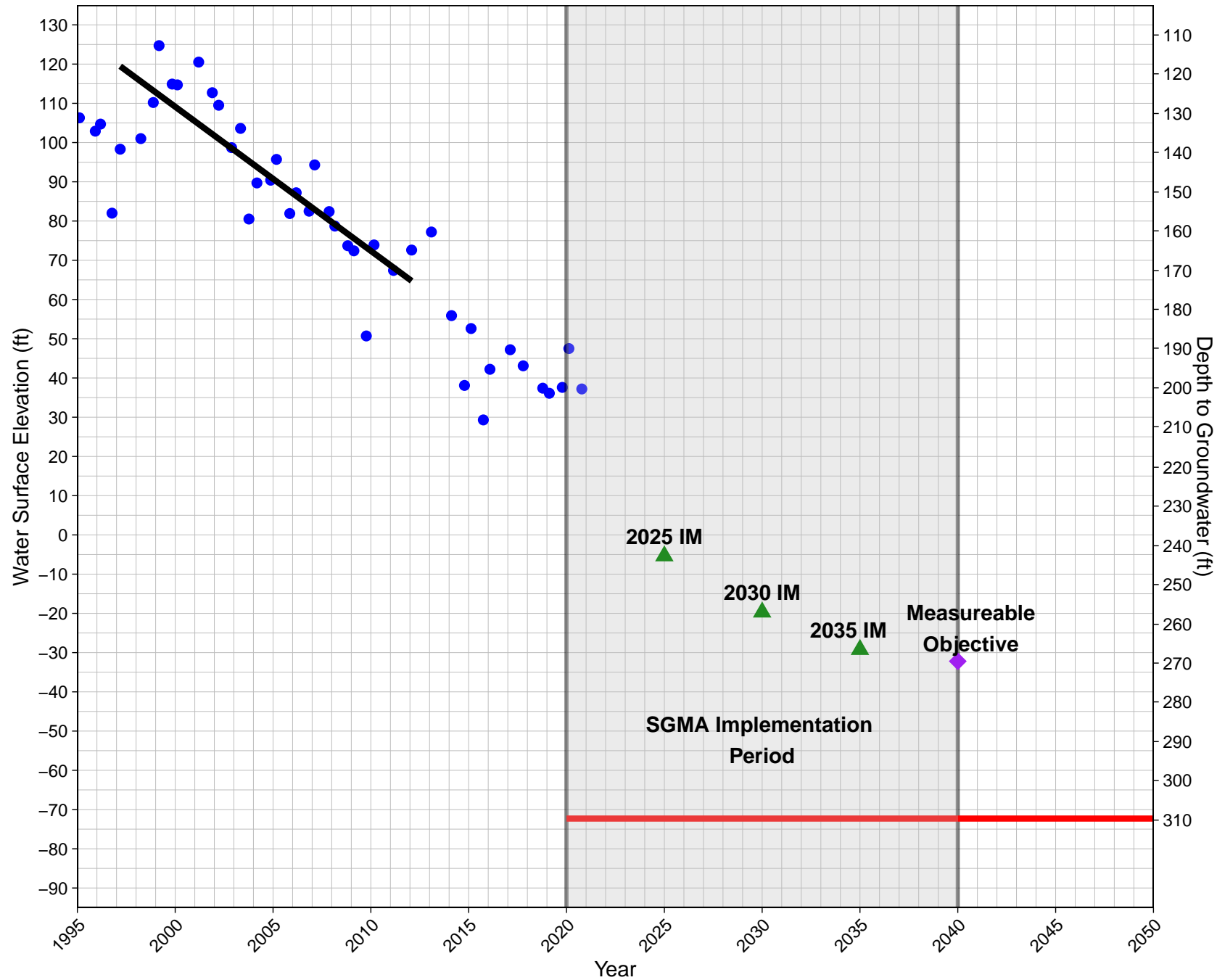
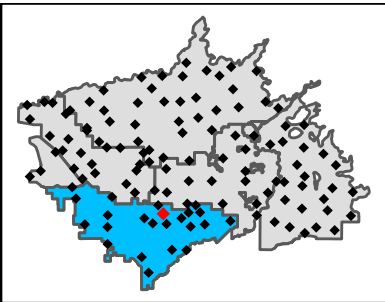
Trendline

364916N1198366W001

State Well ID: 16S20E31P001M

Ground Surface Elevation: 237 ft

North Fork Kings Groundwater Sustainability Agency

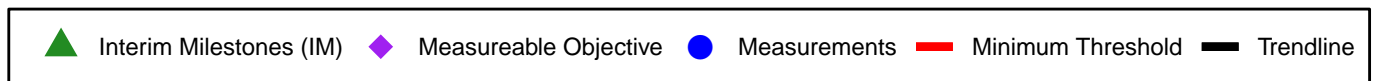
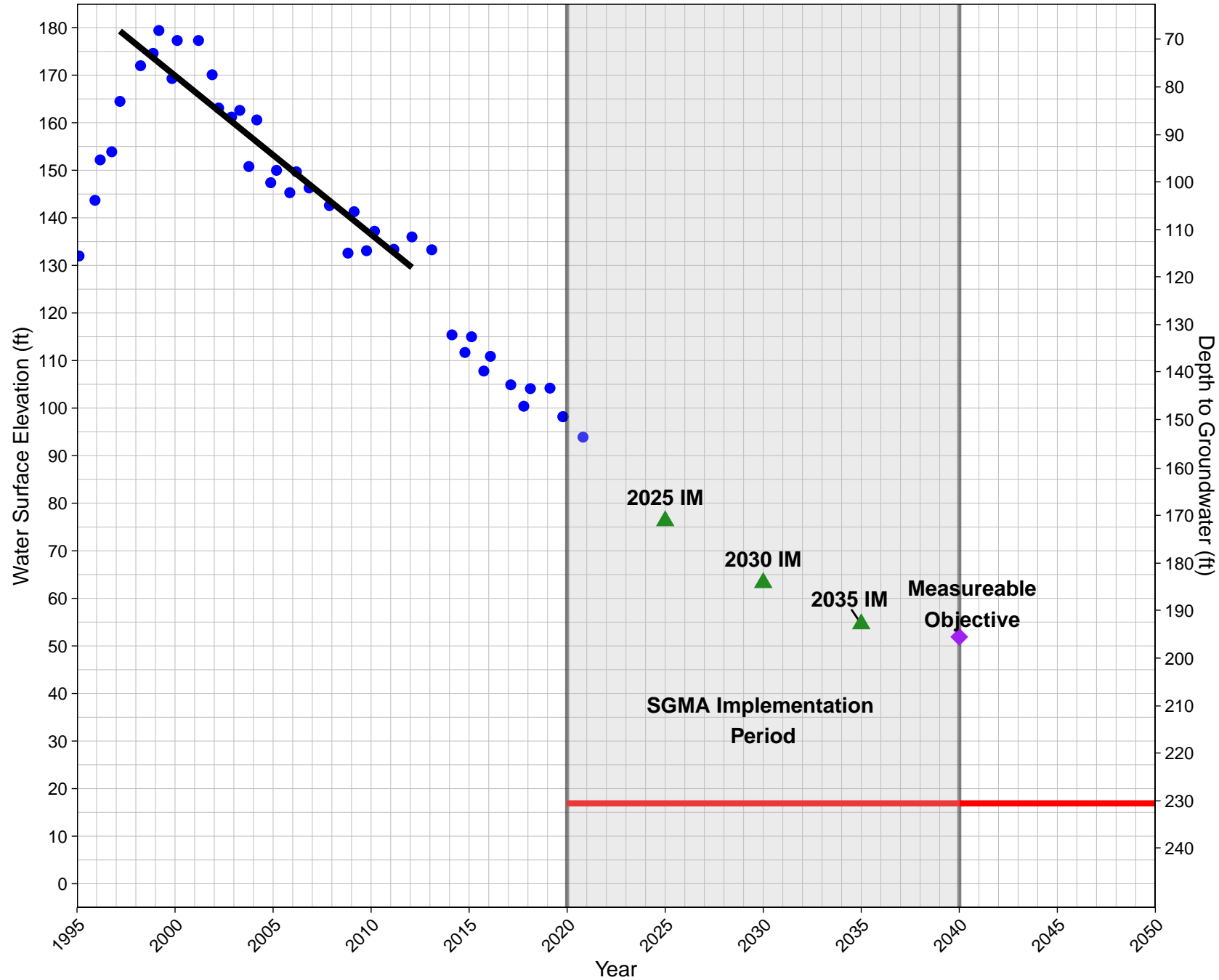
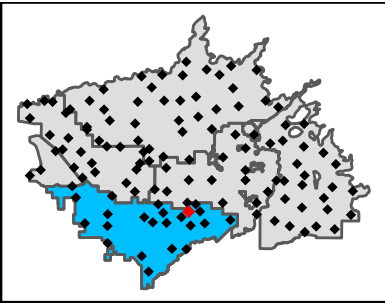


364960N1197554W001

State Well ID: 16S20E35J001M

Ground Surface Elevation: 248 ft

North Fork Kings Groundwater Sustainability Agency

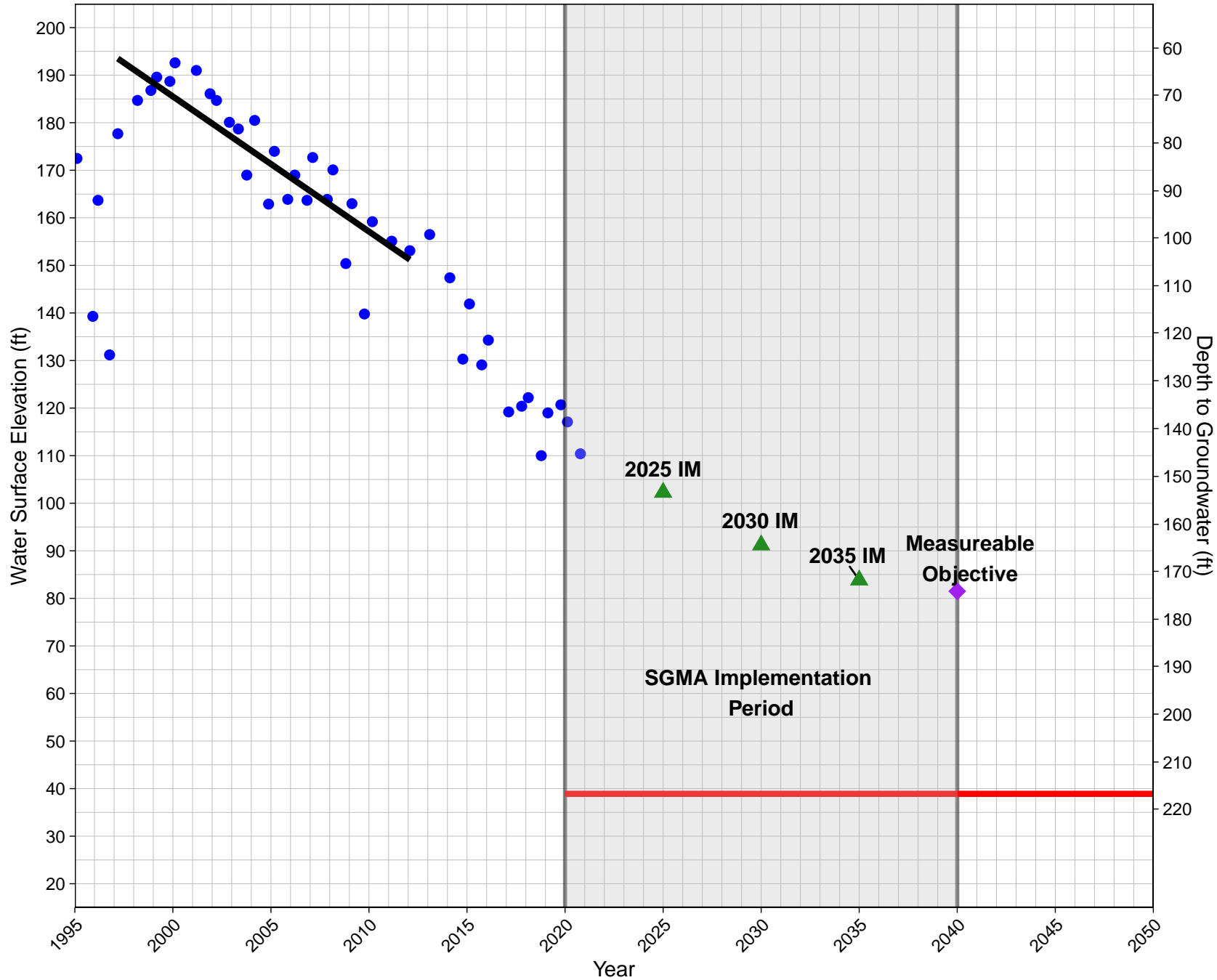


364967N1197193W001

State Well ID: 16S21E31J001M

Ground Surface Elevation: 256 ft

North Fork Kings Groundwater Sustainability Agency

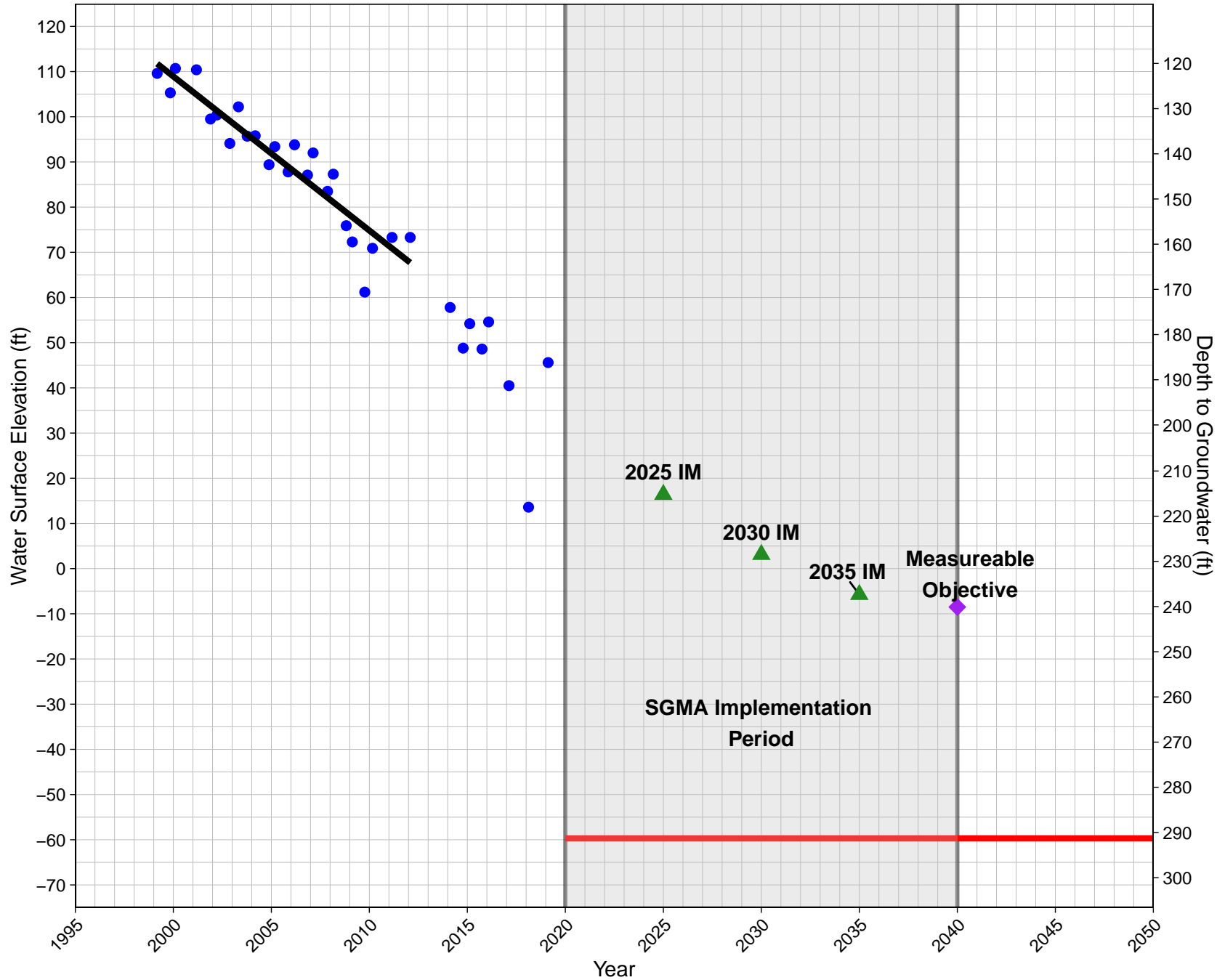


365143N1198529W001

State Well ID: 16S19E25B001M

Ground Surface Elevation: 232 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



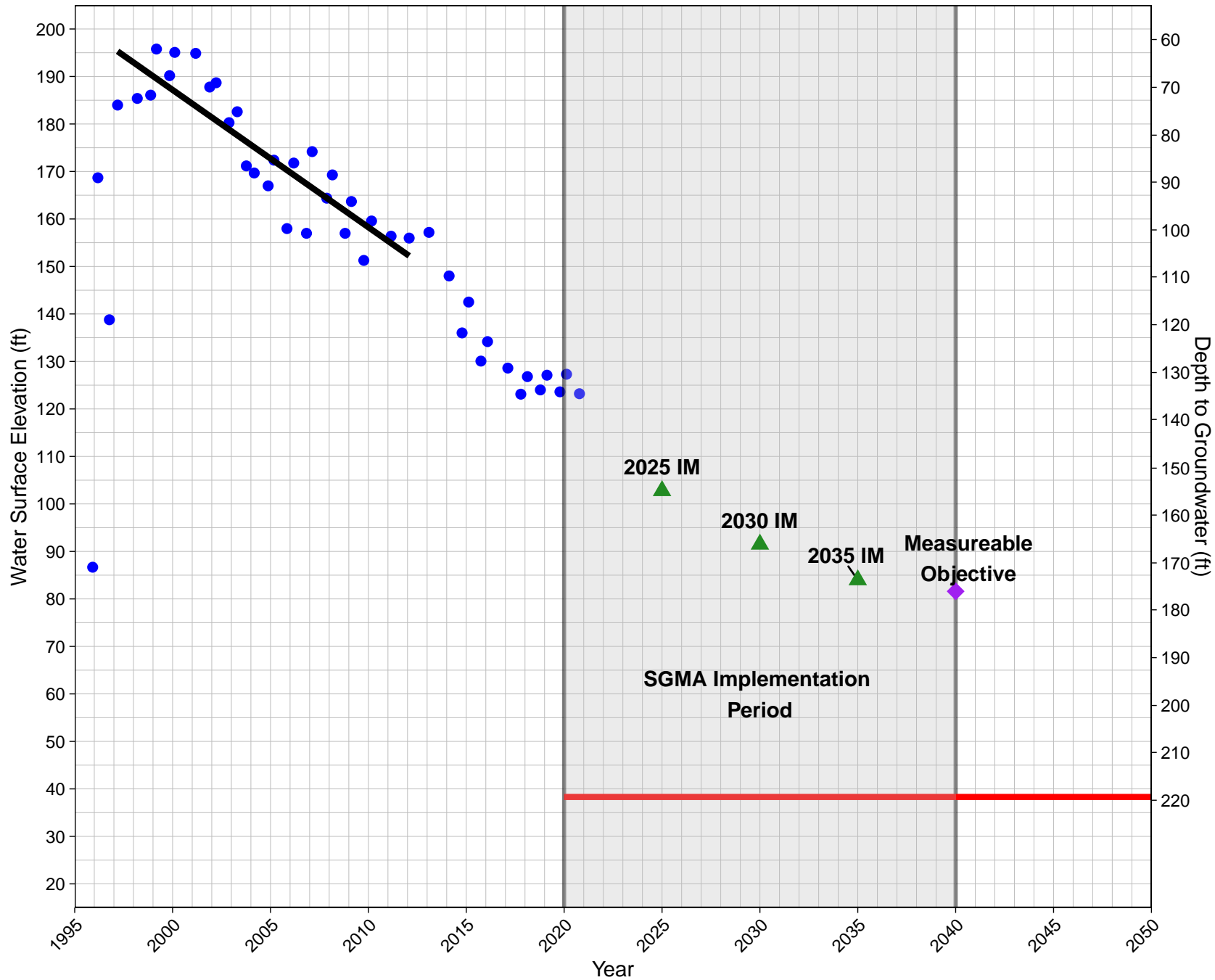
Trendline

365150N1197327W001

State Well ID: 16S21E30C001M

Ground Surface Elevation: 258 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



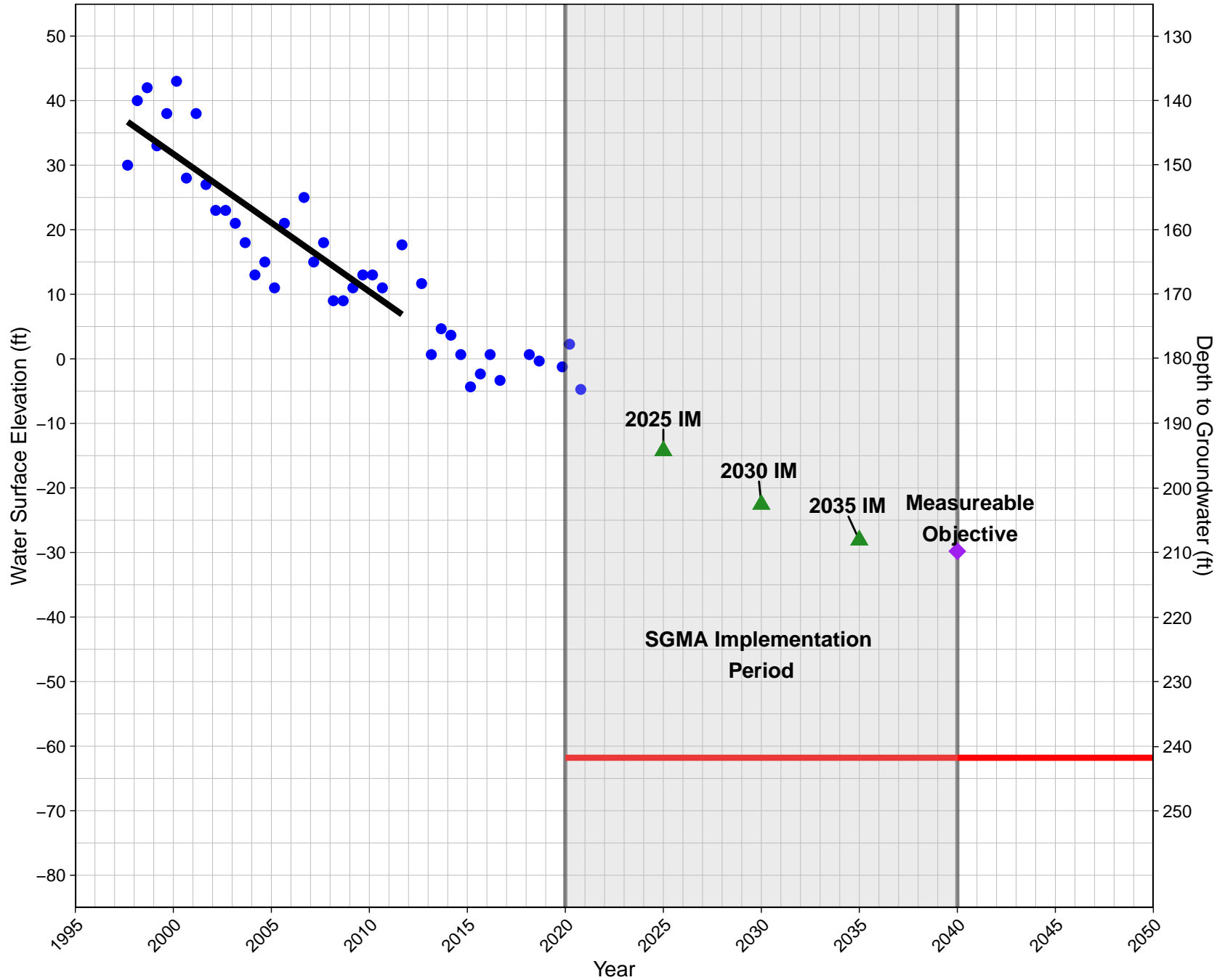
Trendline

B06

State Well ID: 16S17E15N001M

Ground Surface Elevation: 180 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



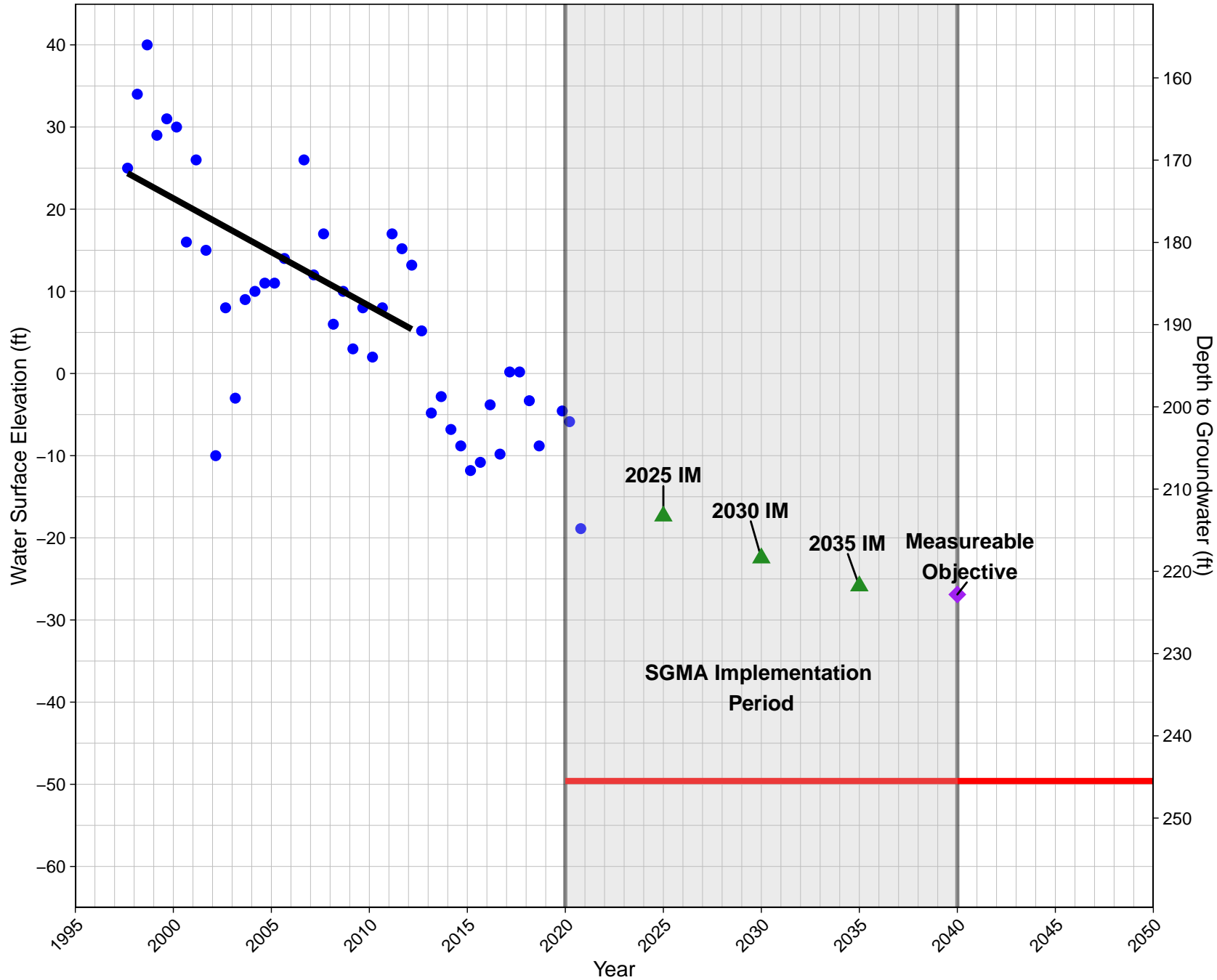
Trendline

B22

State Well ID: 17S17E11J001M

Ground Surface Elevation: 196 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



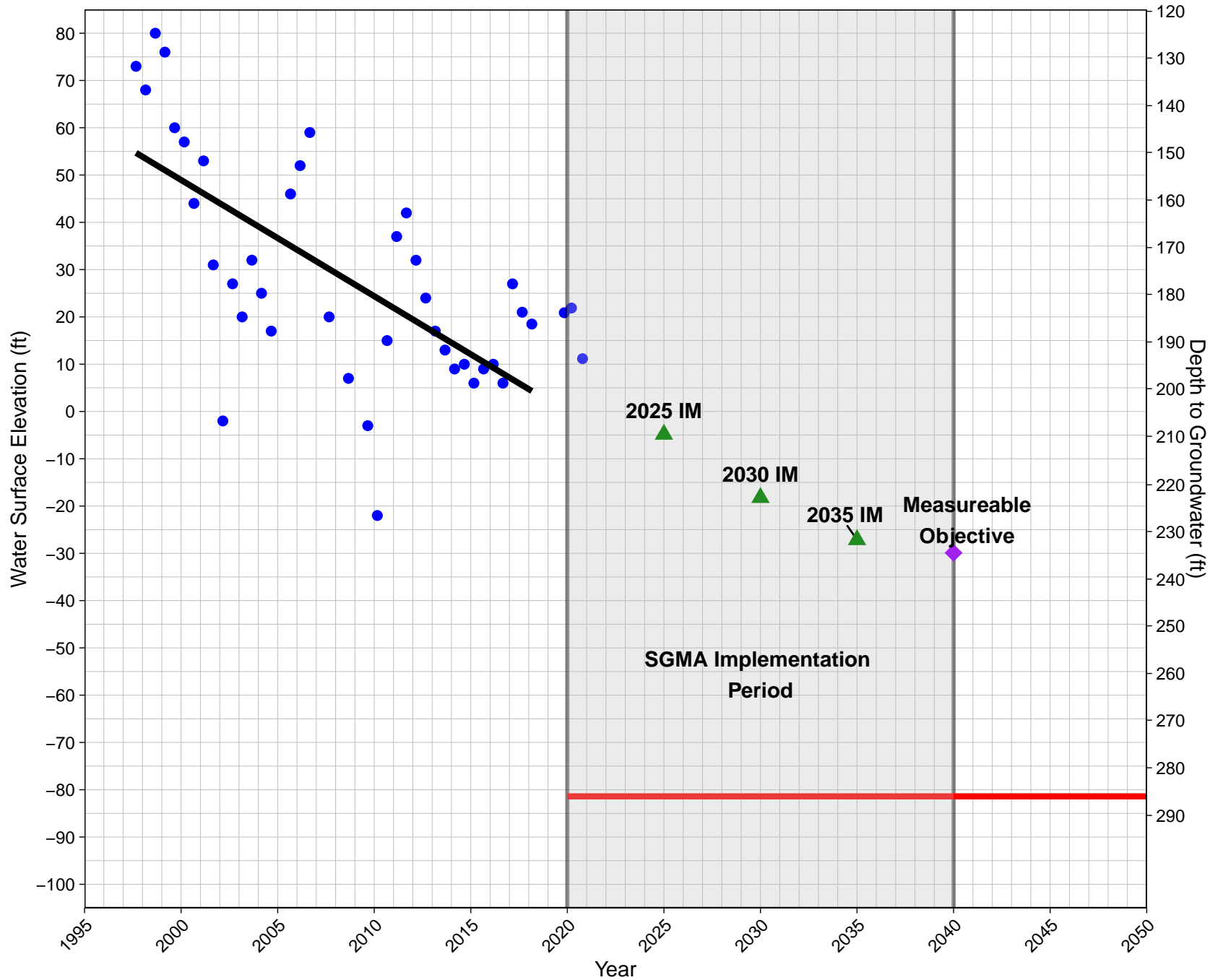
Trendline

B31

State Well ID: 17S18E27N001M

Ground Surface Elevation: 205 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

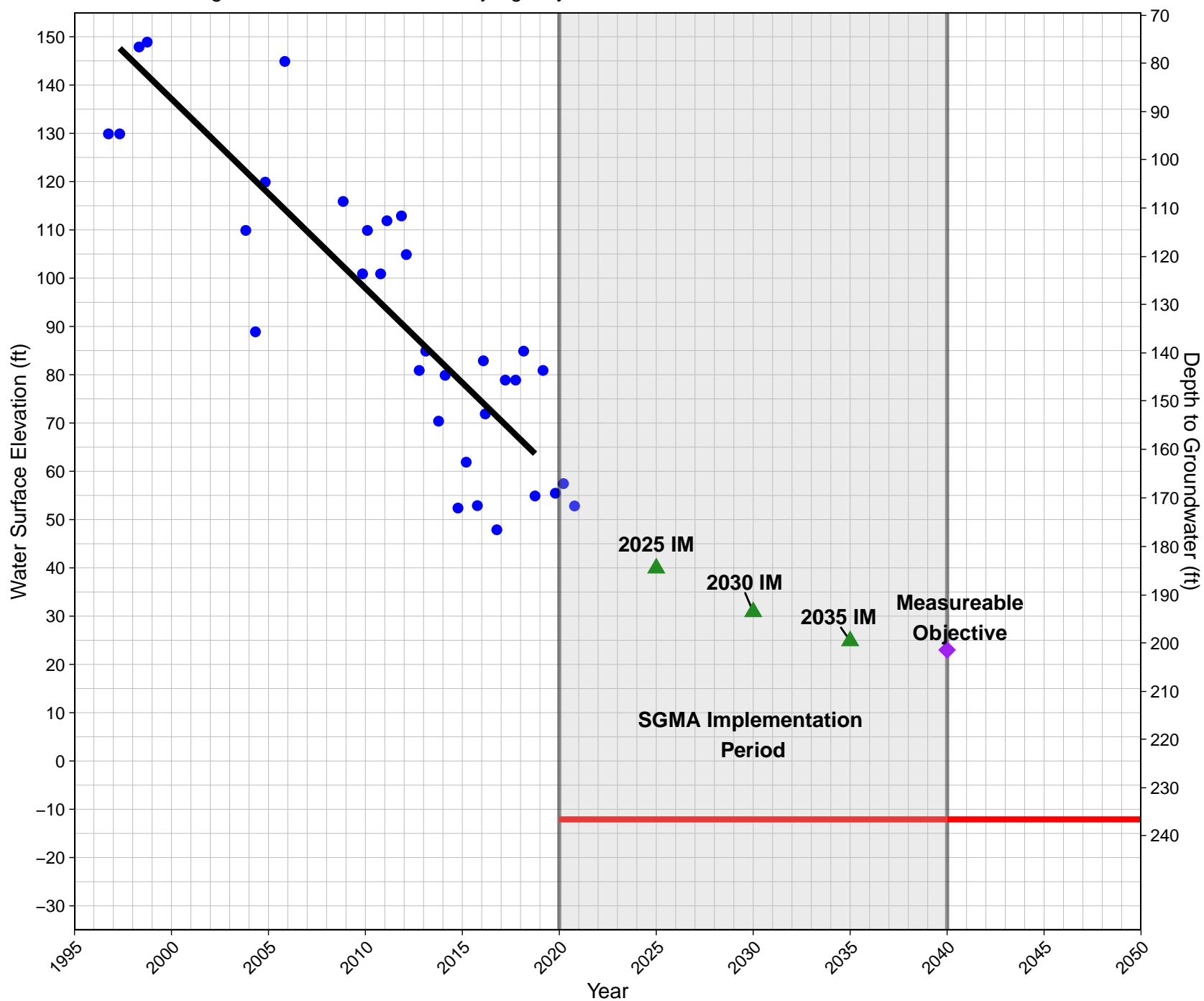


Trendline

LID14

Ground Surface Elevation: 224 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

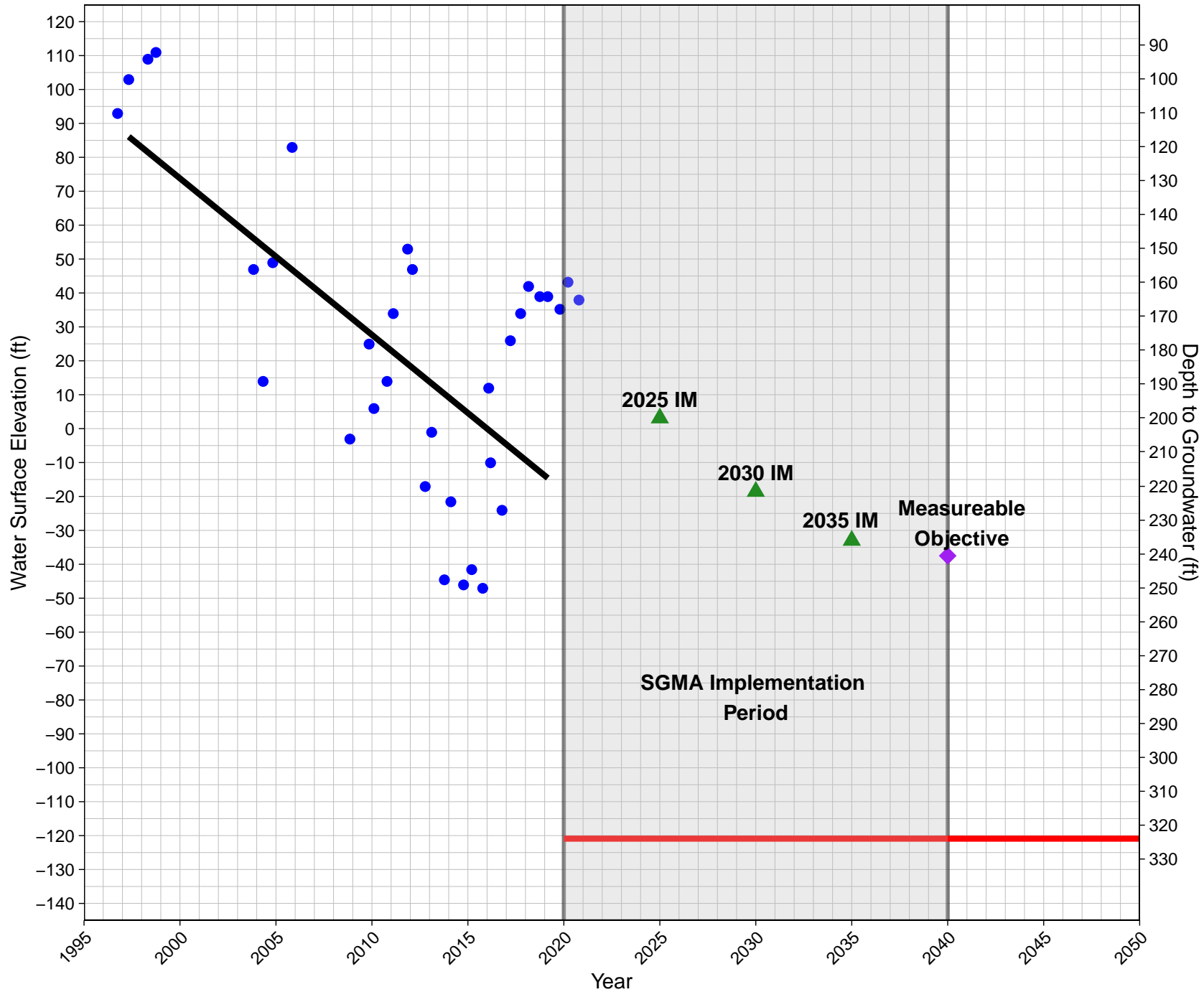


Trendline

LID25

Ground Surface Elevation: 203 ft

North Fork Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

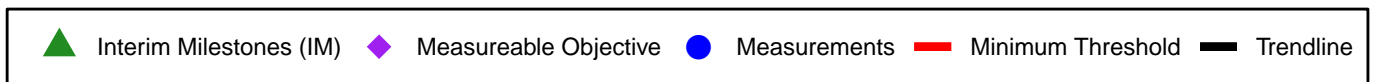
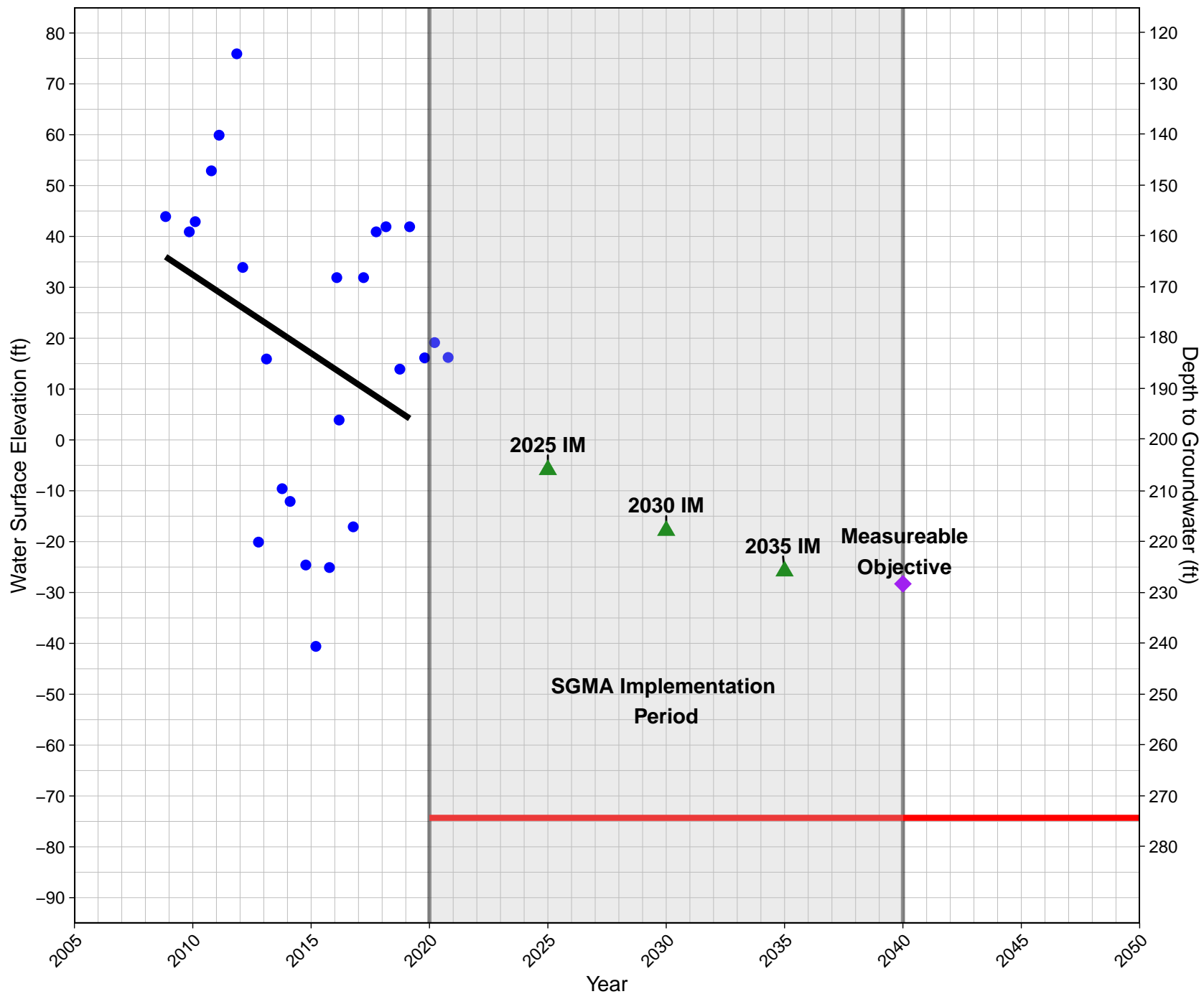
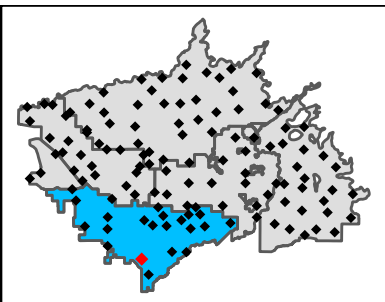


Trendline

LID26

Ground Surface Elevation: 200 ft

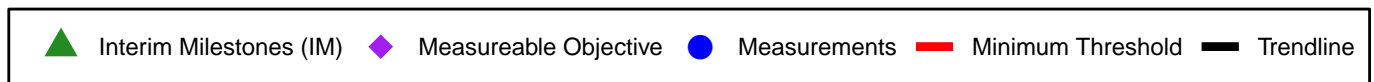
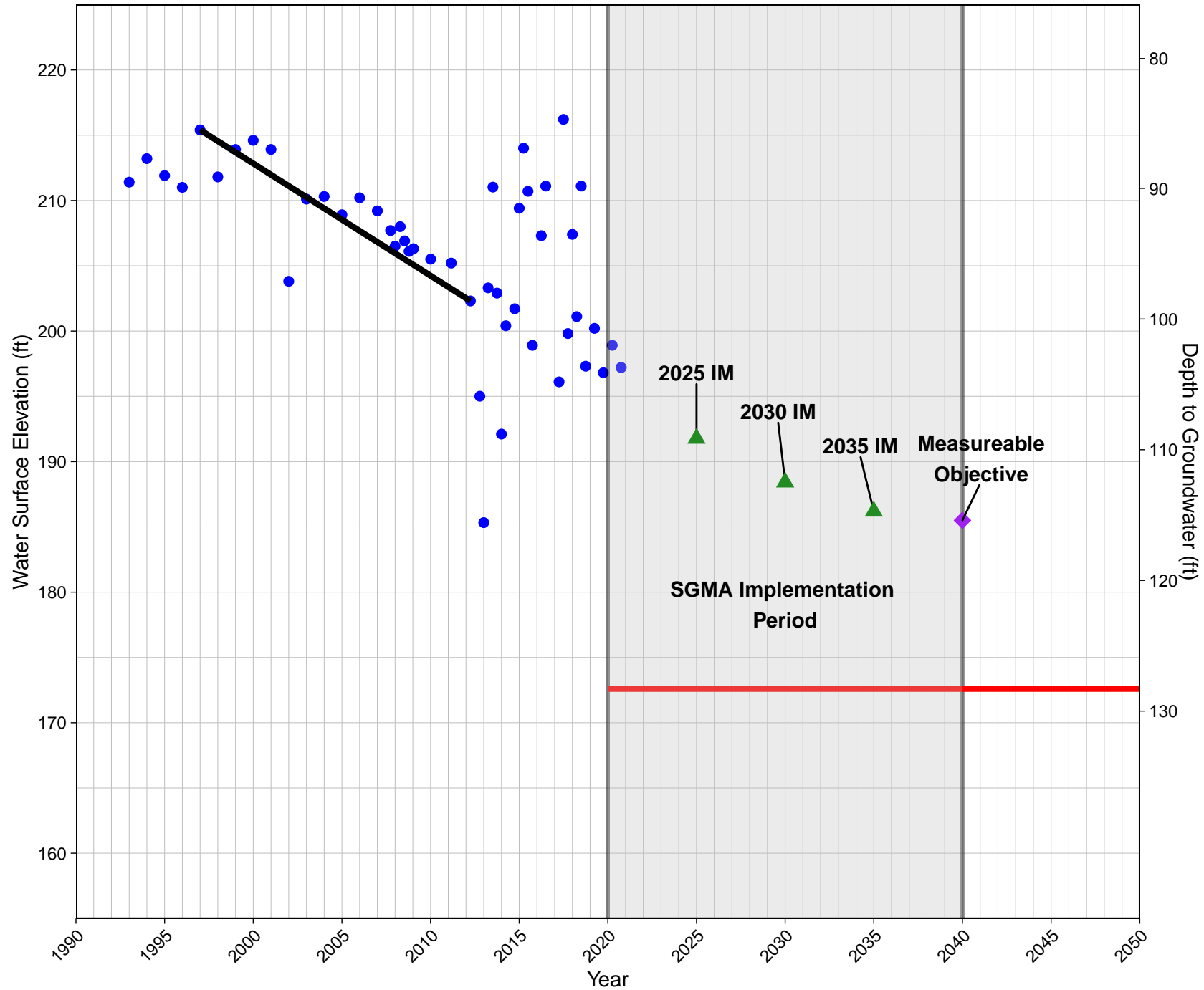
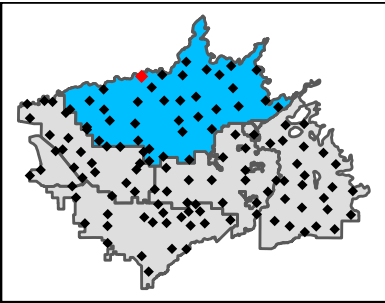
North Fork Kings Groundwater Sustainability Agency



12S19E33P001MX

Ground Surface Elevation: 301 ft

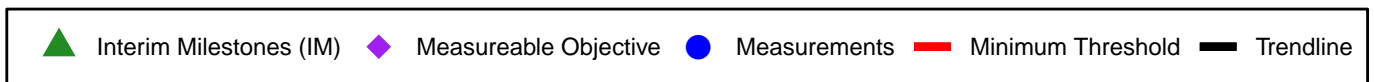
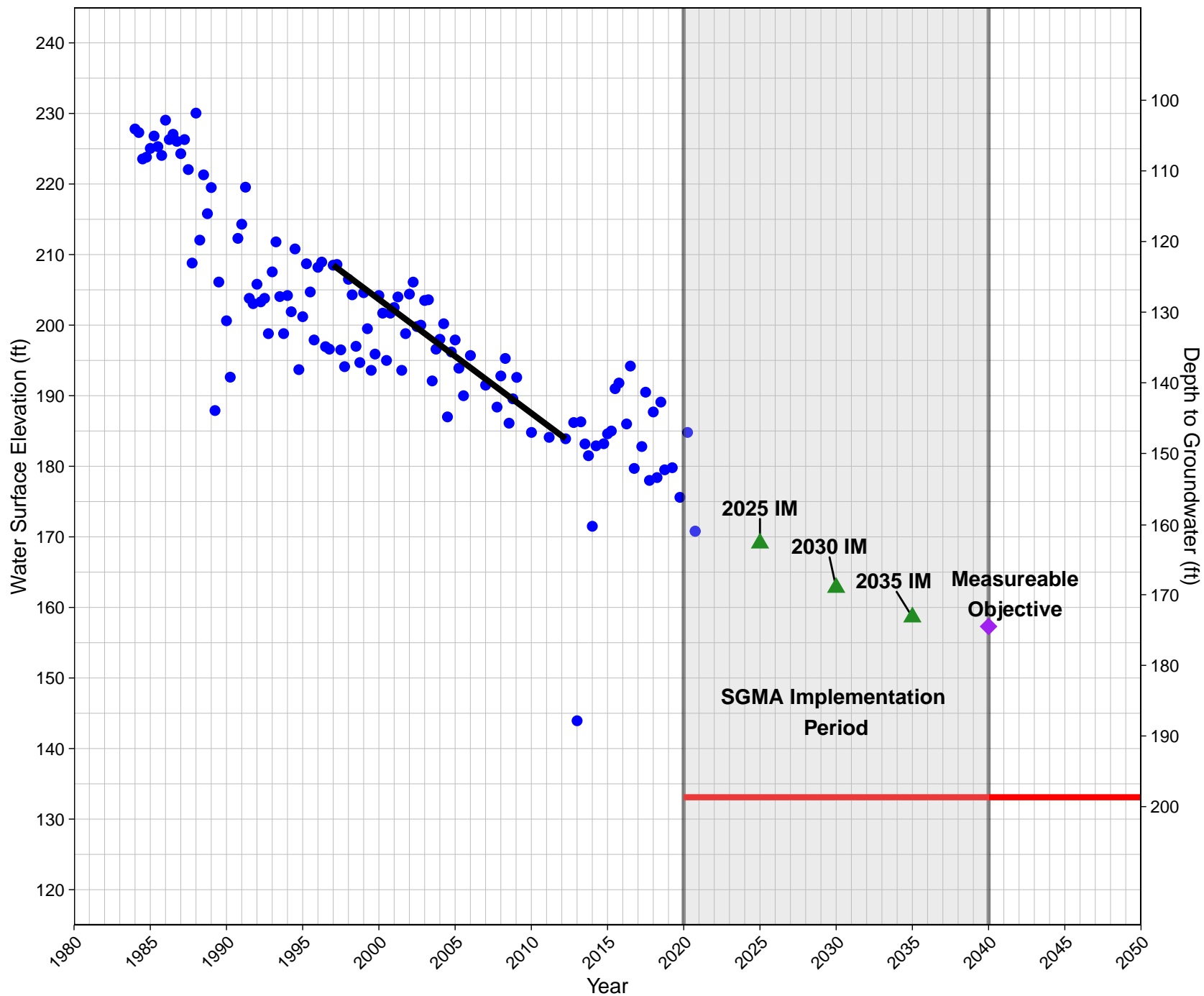
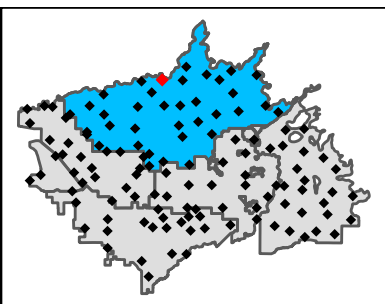
North Kings Groundwater Sustainability Agency



12S19E36J001MX

Ground Surface Elevation: 332 ft

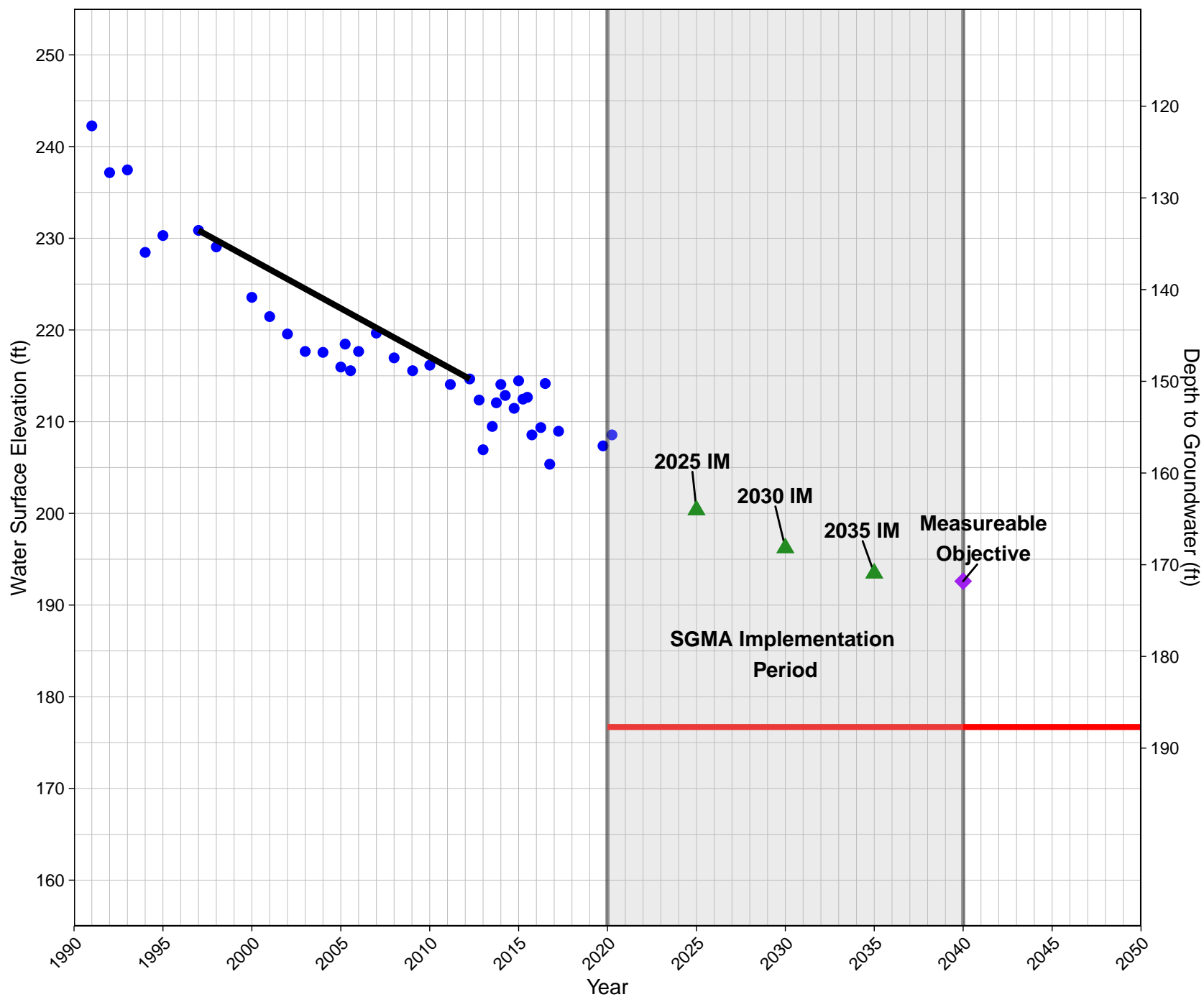
North Kings Groundwater Sustainability Agency



12S20E23D001MX

Ground Surface Elevation: 364 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

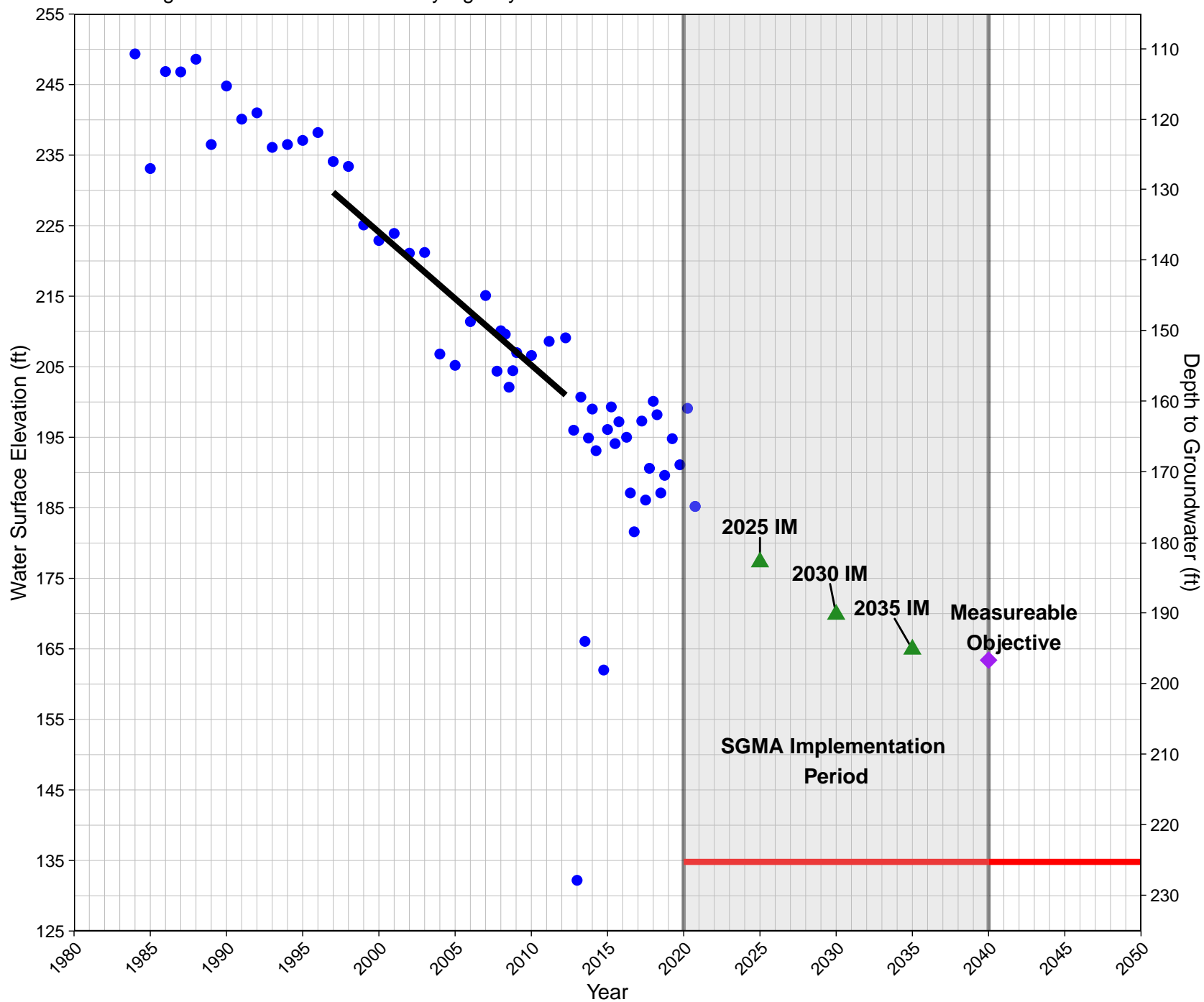


Trendline

12S20E34K001MX

Ground Surface Elevation: 360 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

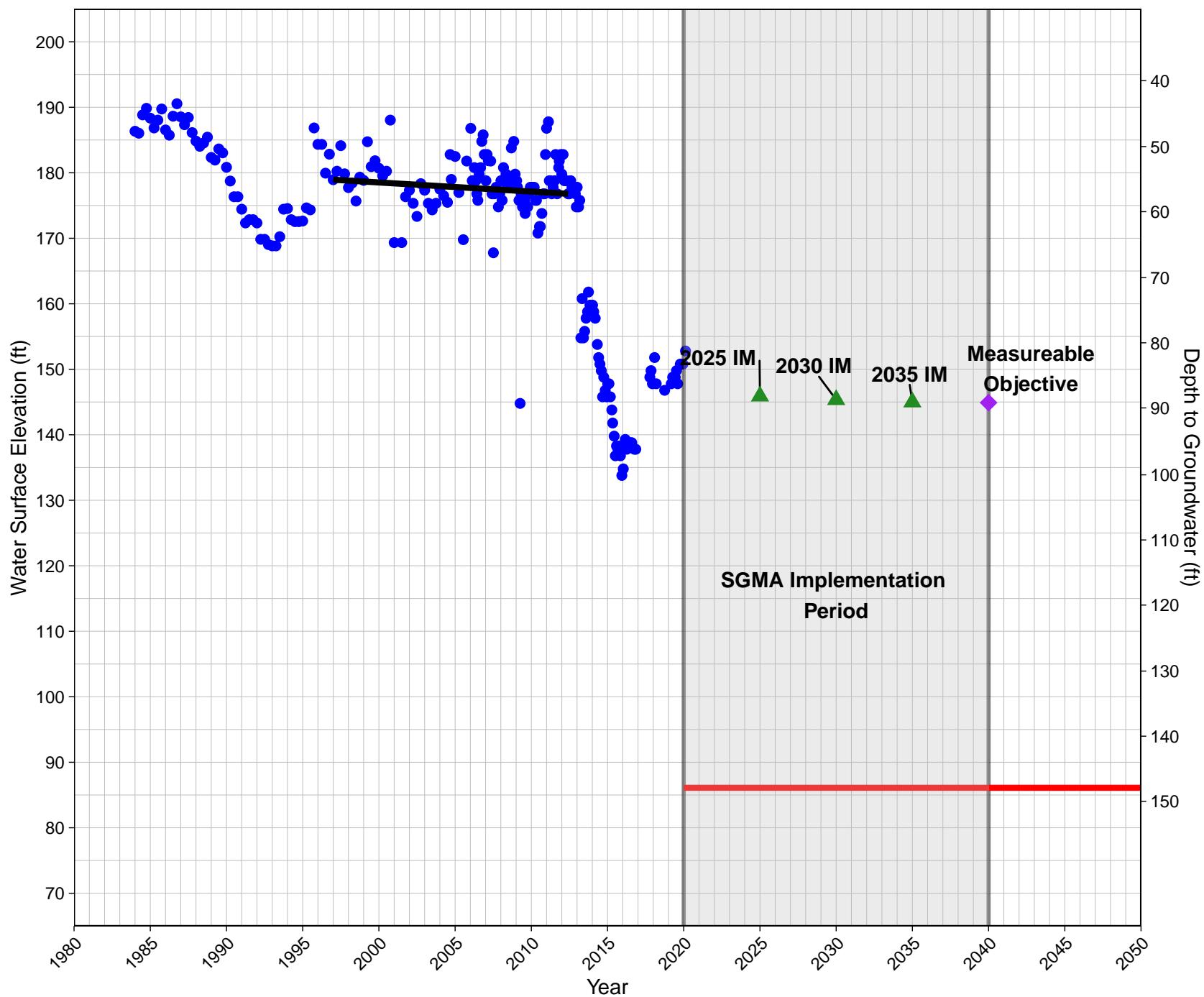


Trendline

13S17E25C001MX

Ground Surface Elevation: 234 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



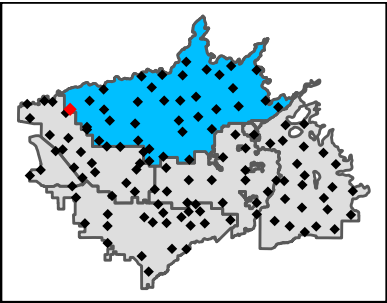
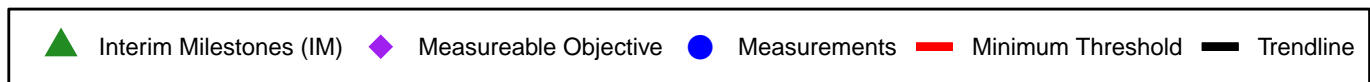
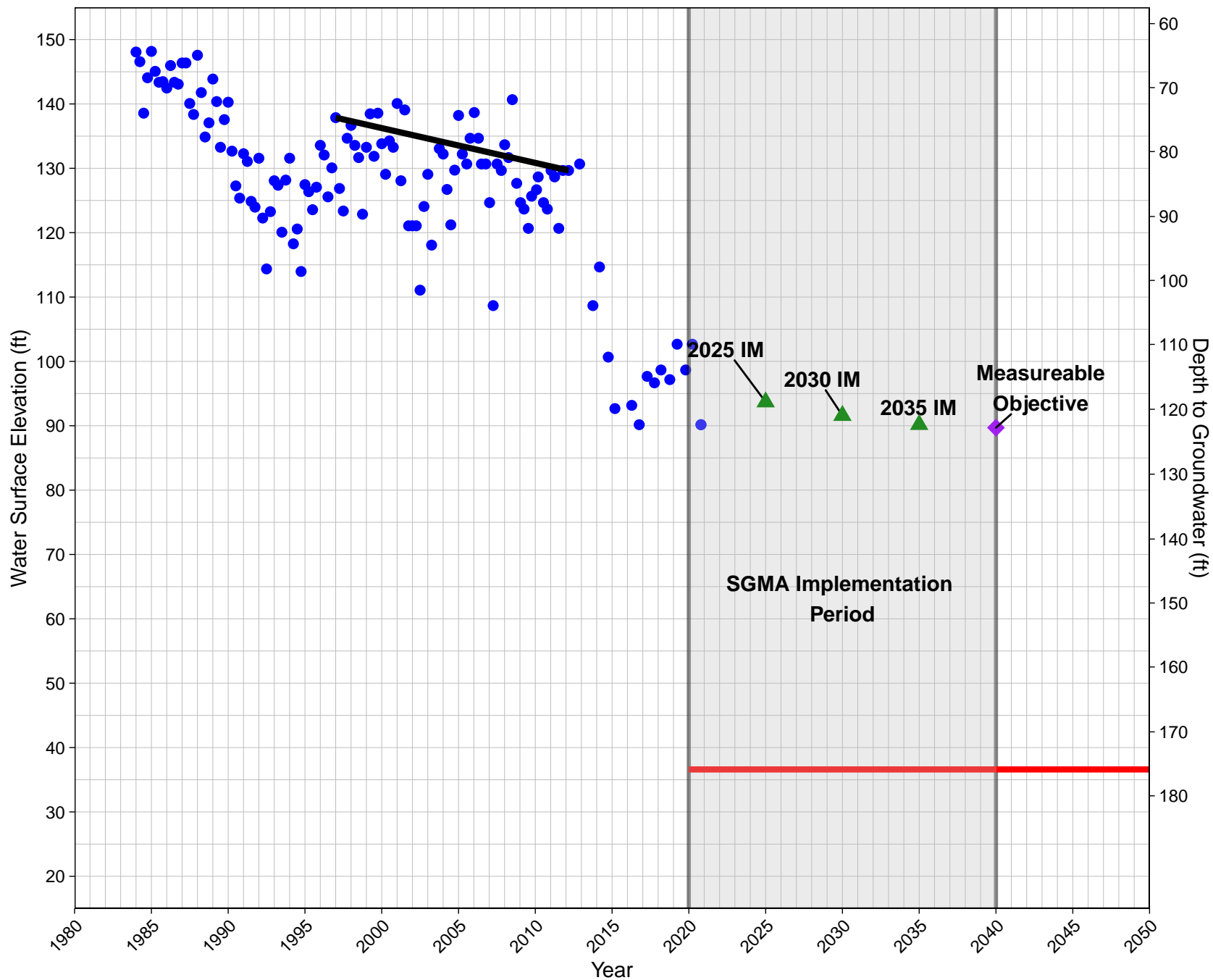
Trendline

13S17E33M001MX

State Well ID: 13S17E32H001M

Ground Surface Elevation: 213 ft

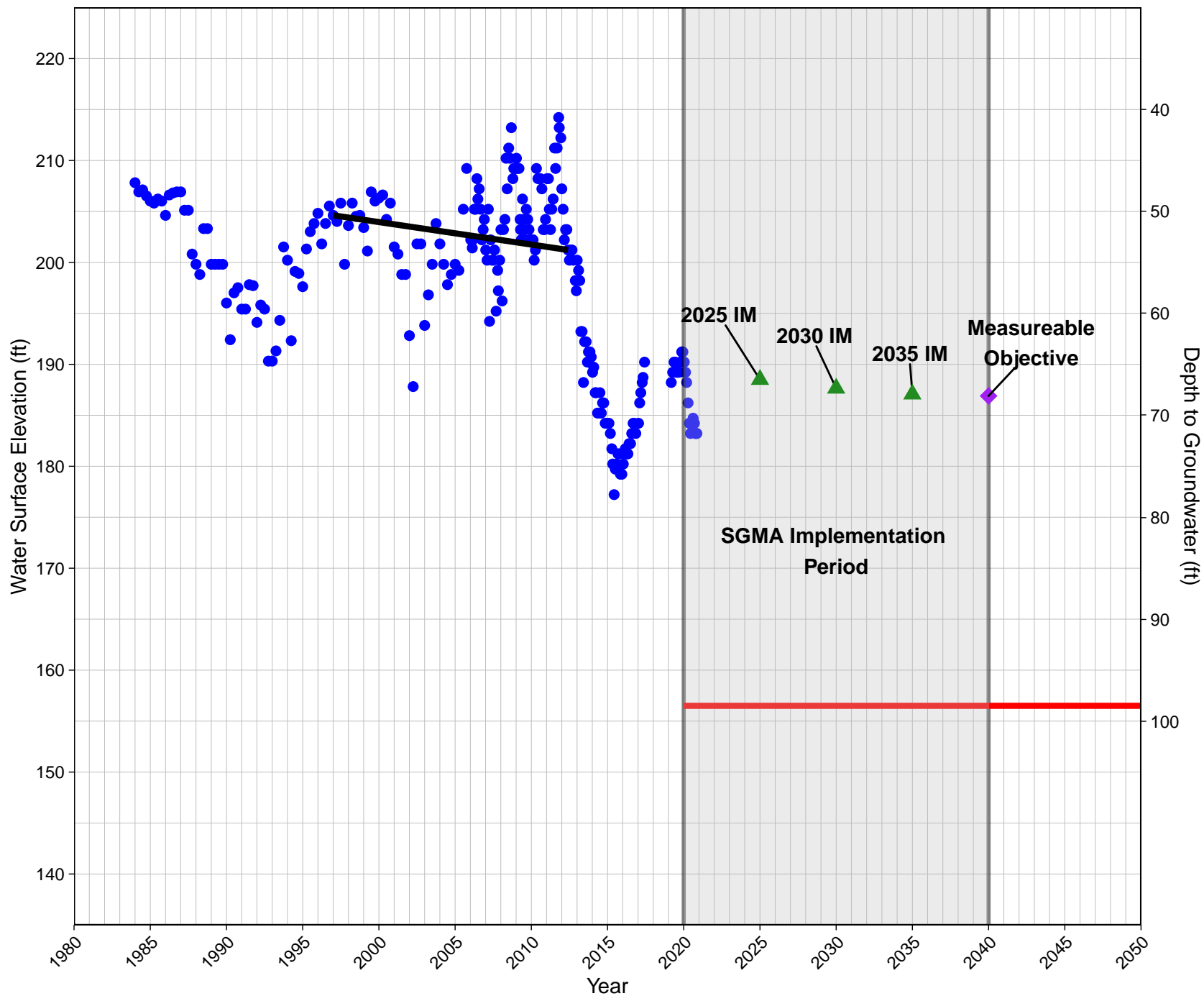
North Kings Groundwater Sustainability Agency



13S18E17A001MX

Ground Surface Elevation: 255 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

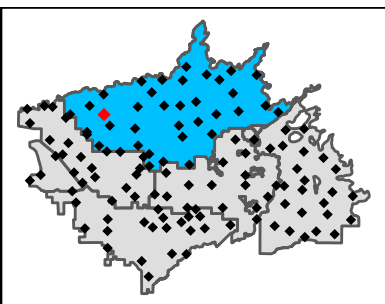
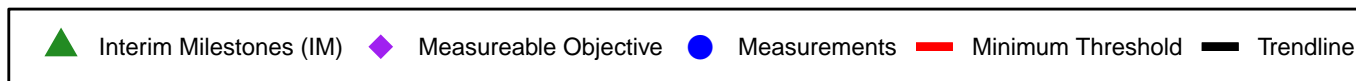
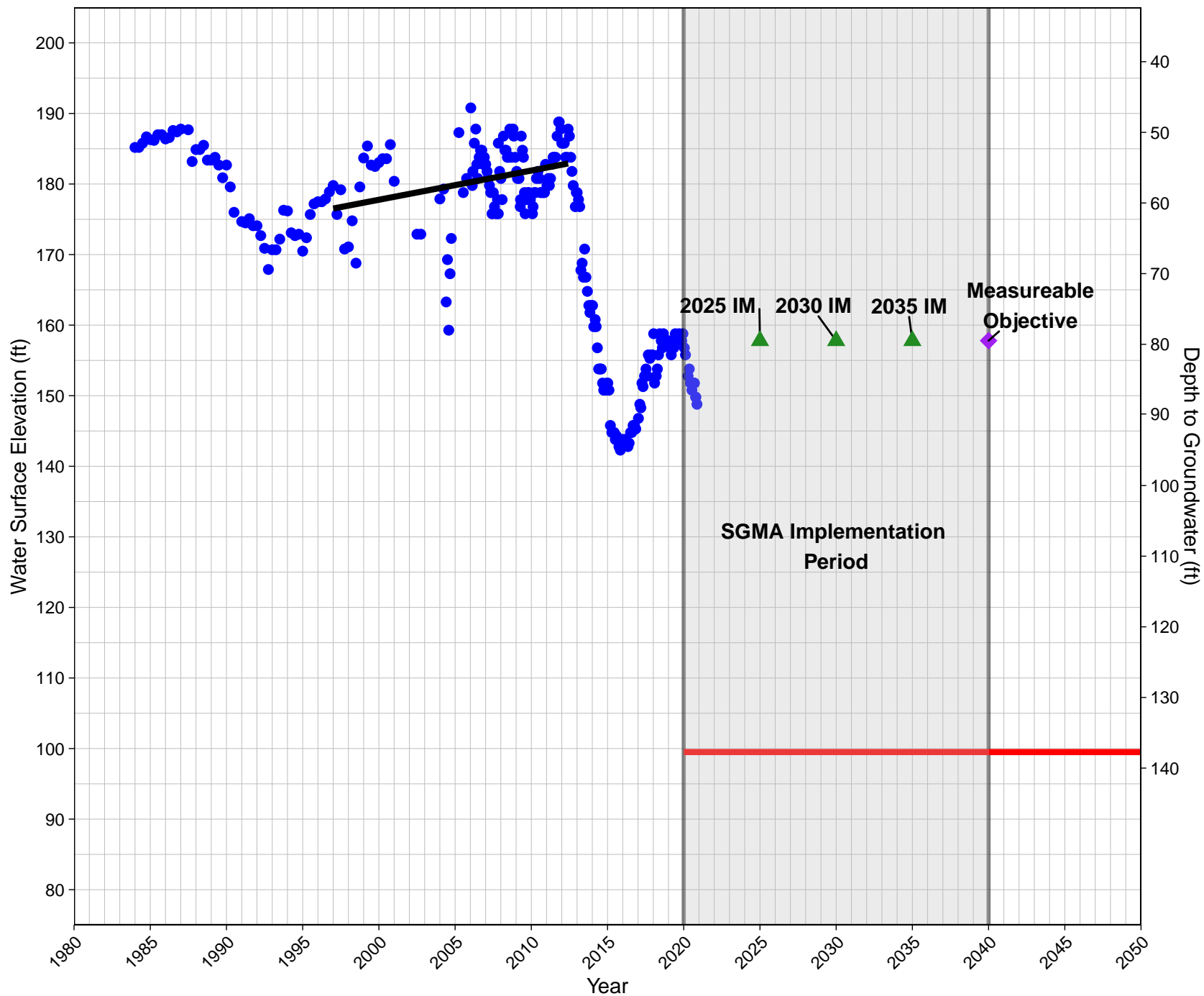


Trendline

13S18E33M001MX

Ground Surface Elevation: 237 ft

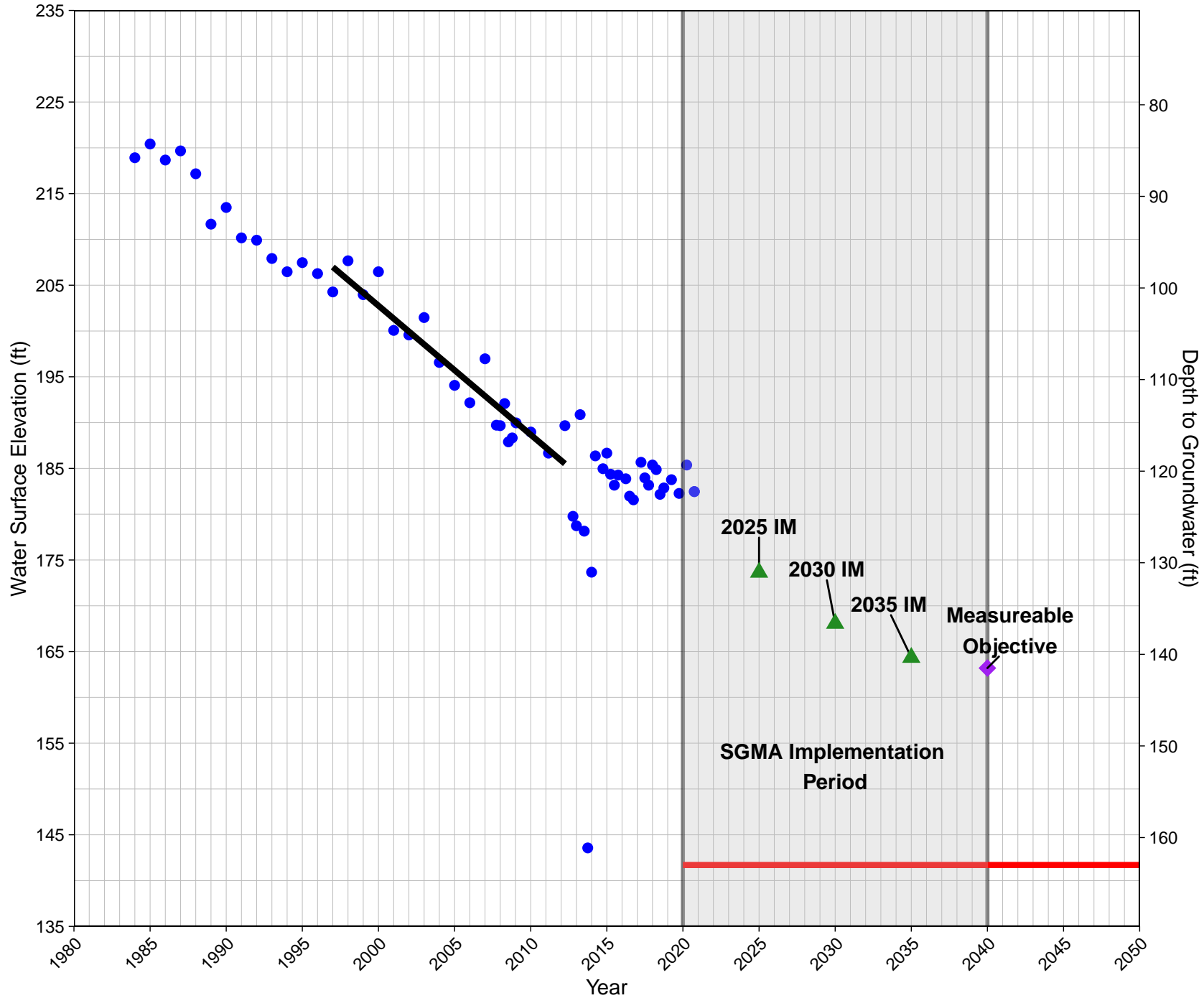
North Kings Groundwater Sustainability Agency



13S19E11L001MX

Ground Surface Elevation: 305 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

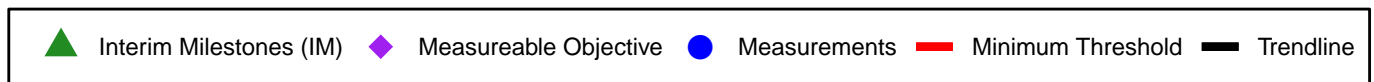
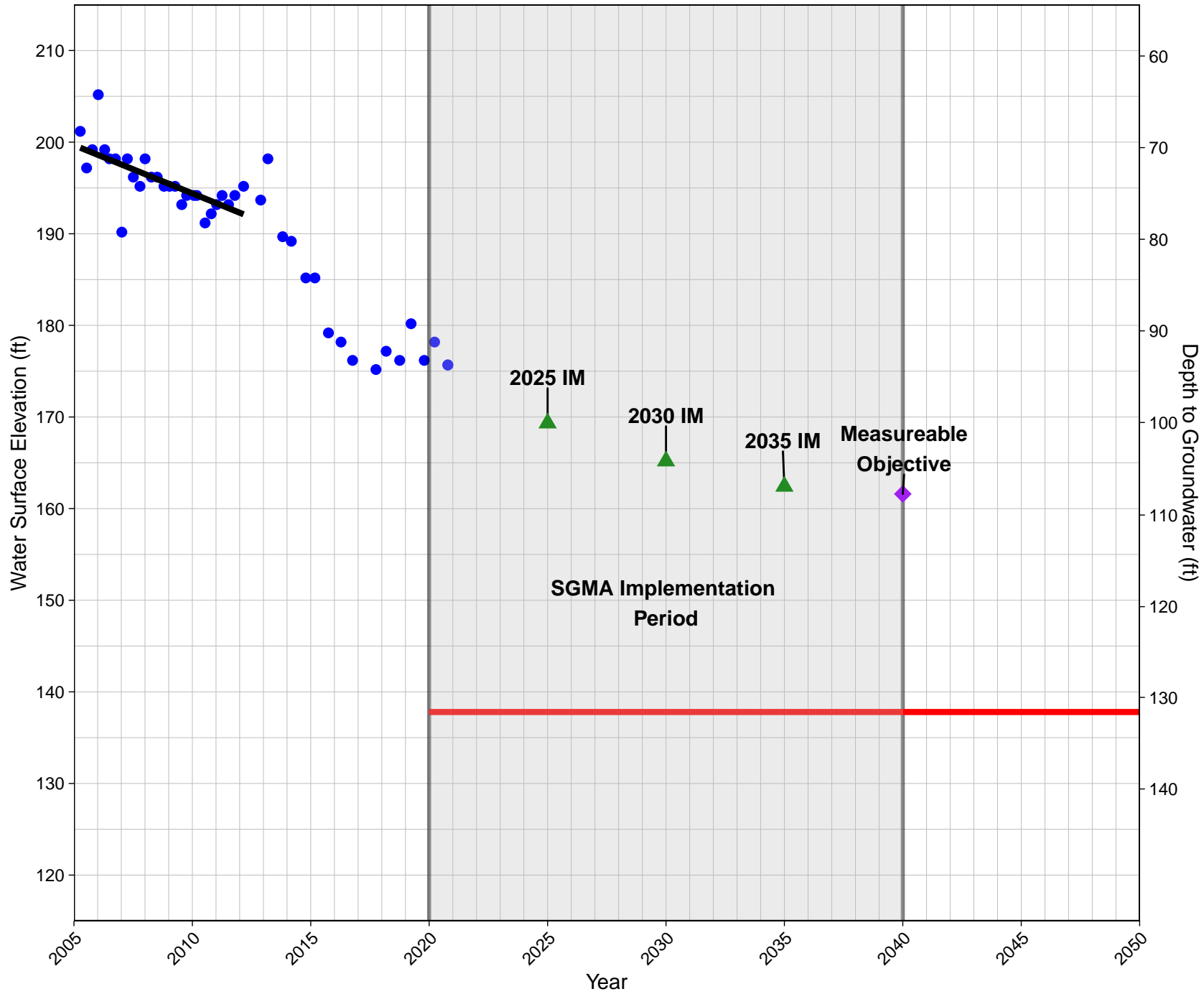
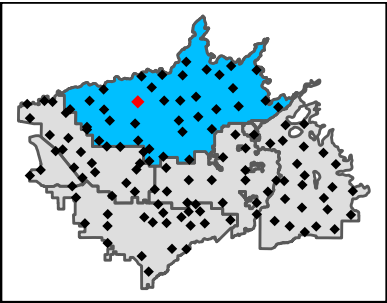


Trendline

13S19E29A001MX

Ground Surface Elevation: 269 ft

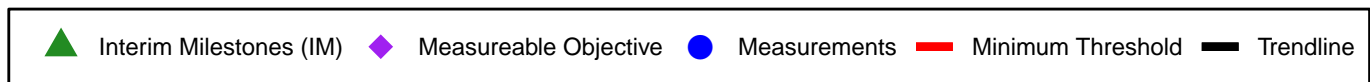
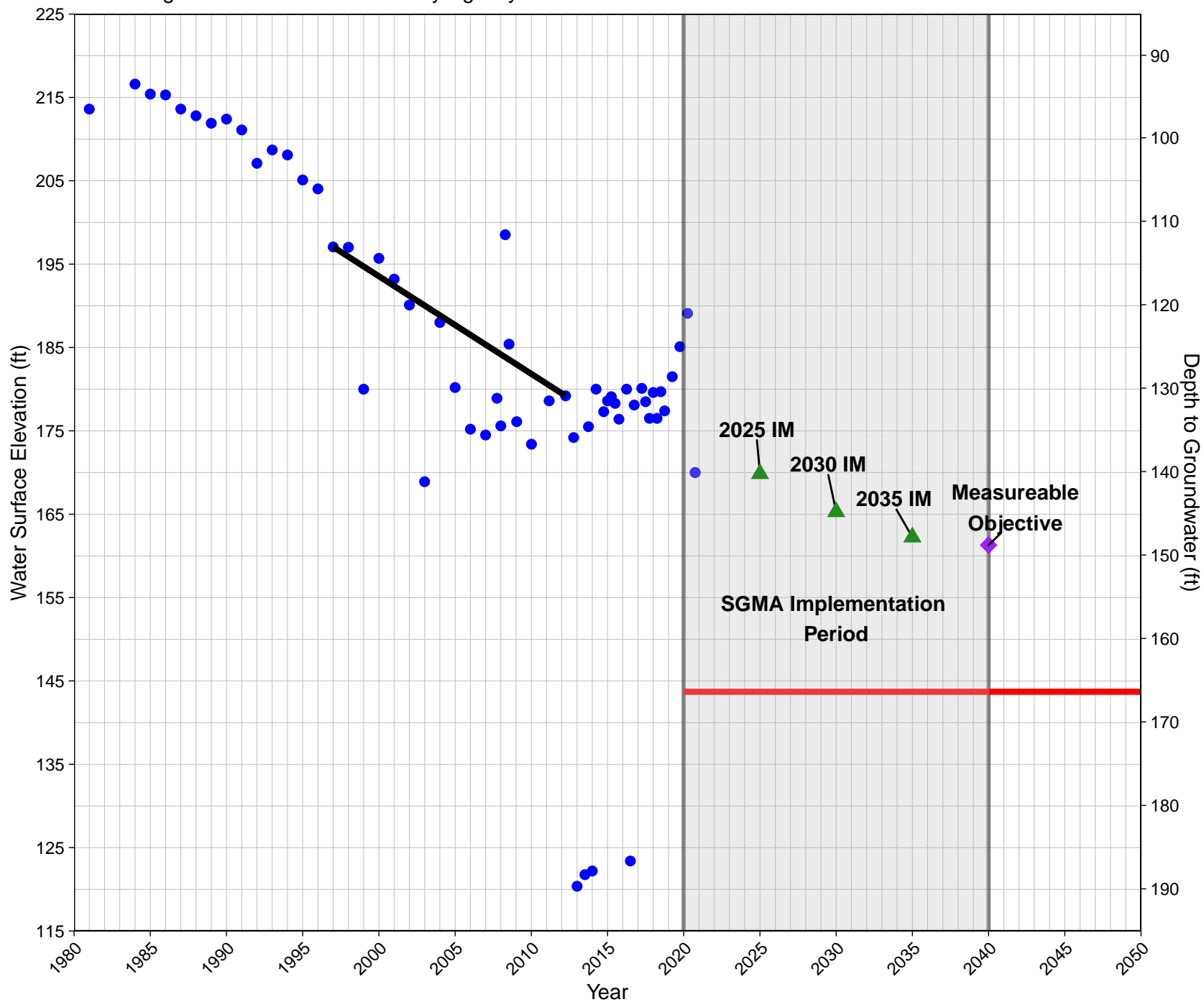
North Kings Groundwater Sustainability Agency



13S20E27C001MX

Ground Surface Elevation: 310 ft

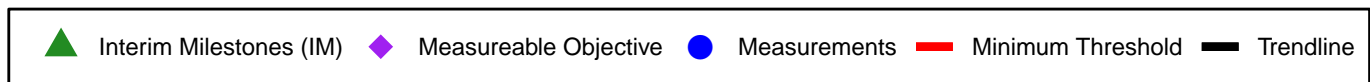
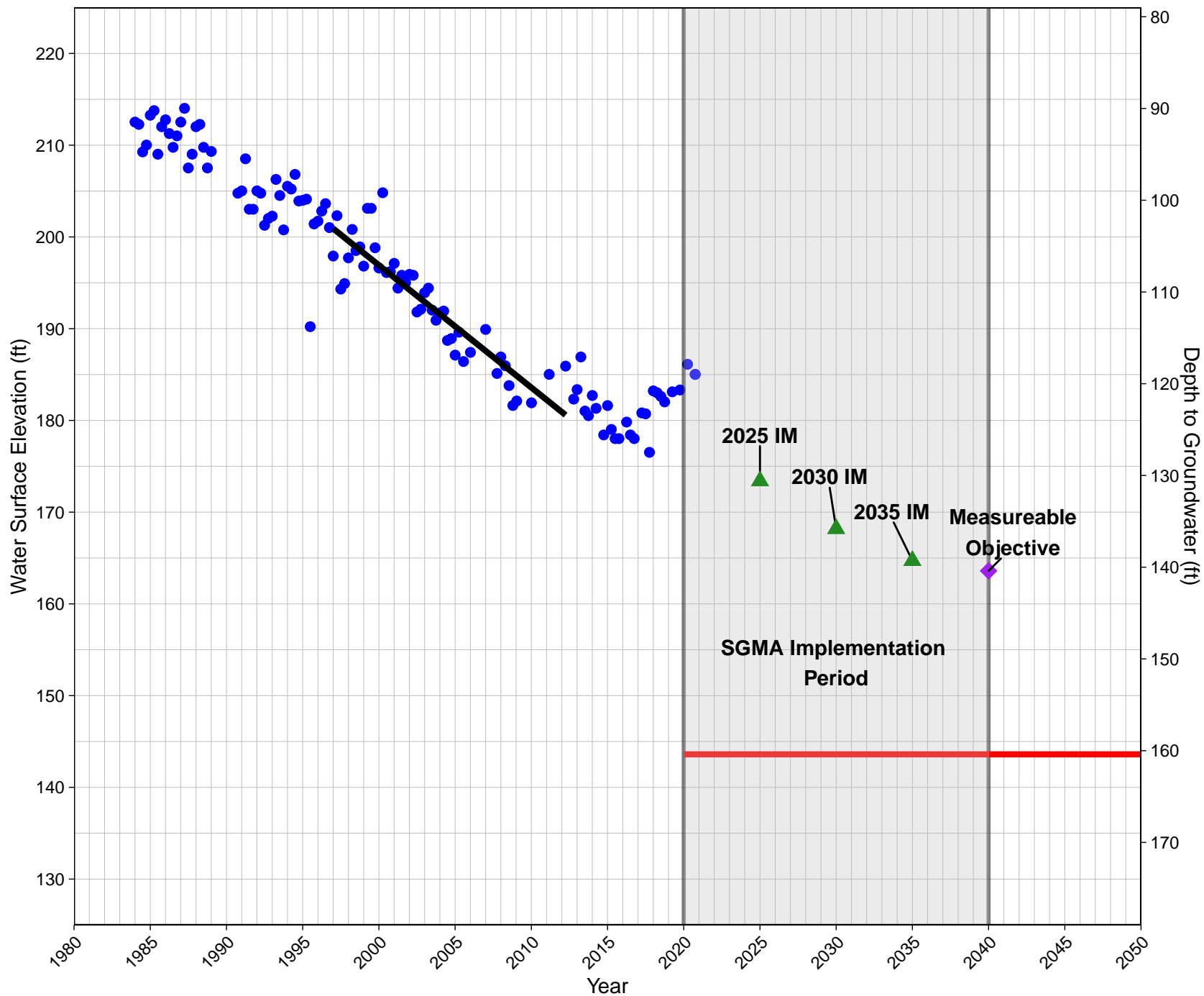
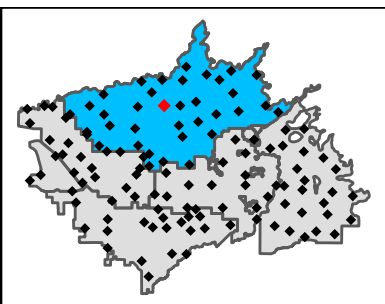
North Kings Groundwater Sustainability Agency



13S20E30B001MX

Ground Surface Elevation: 304 ft

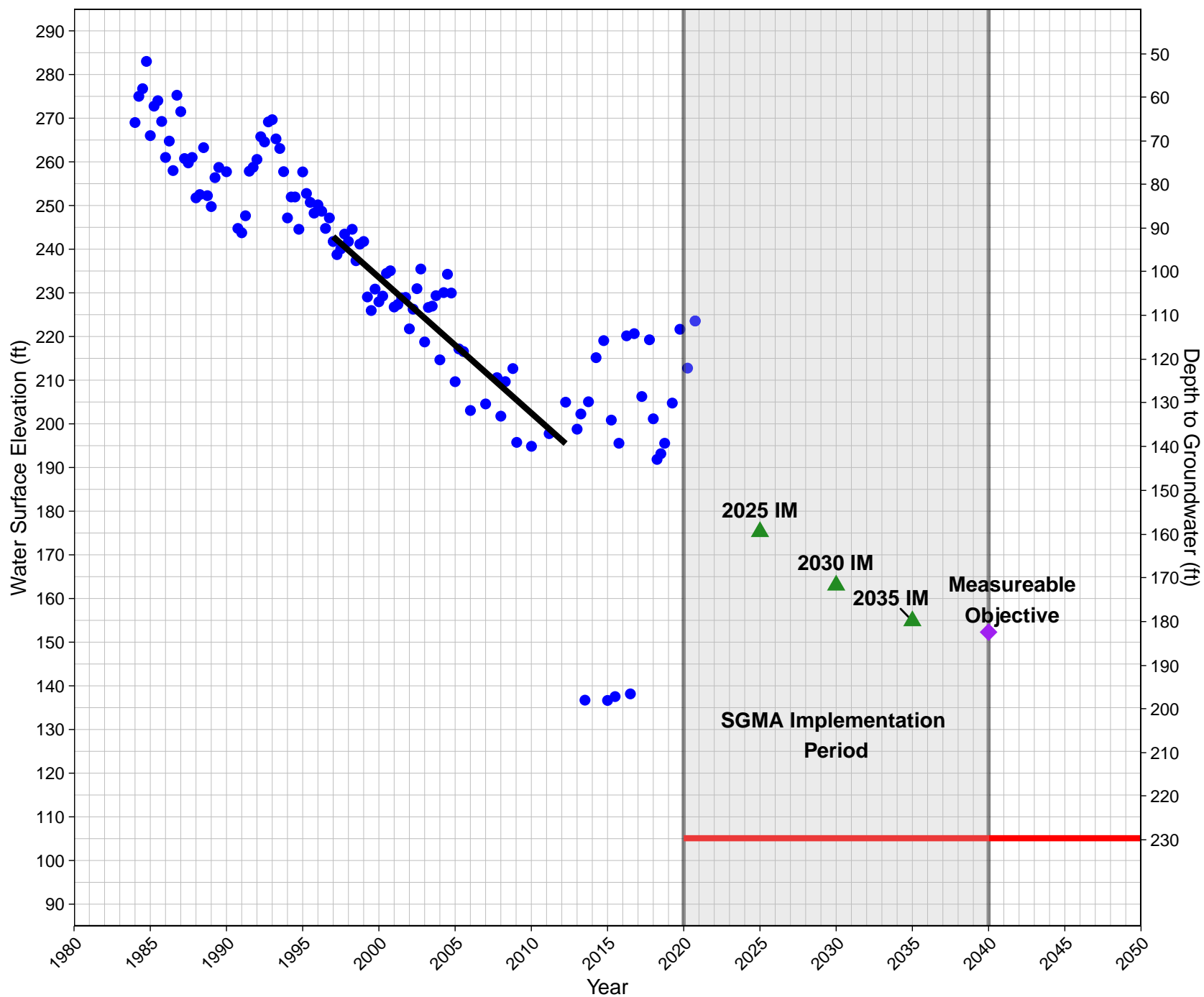
North Kings Groundwater Sustainability Agency



13S21E19E001MX

Ground Surface Elevation: 335 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

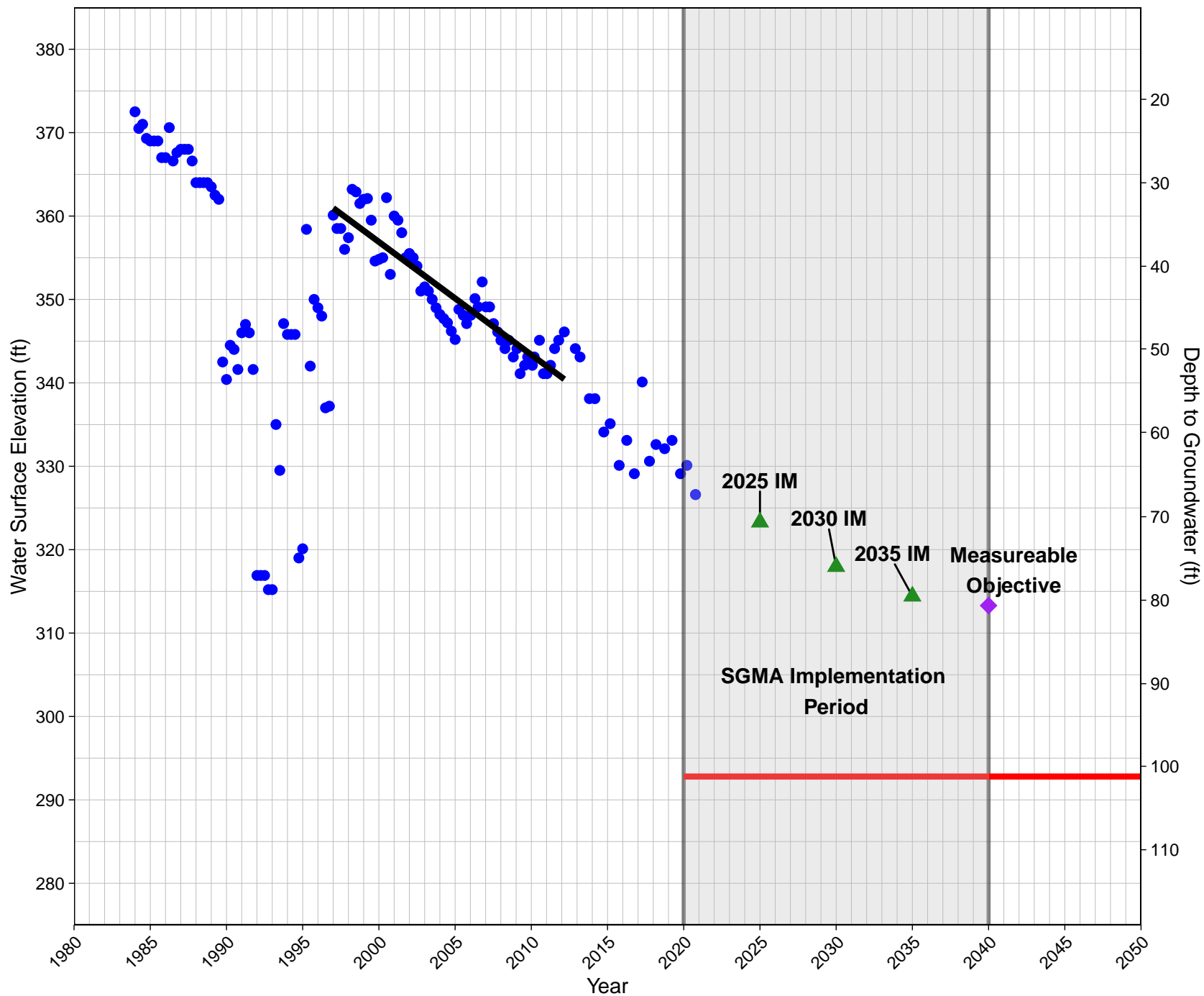


Trendline

13S22E07R001MX

Ground Surface Elevation: 394 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



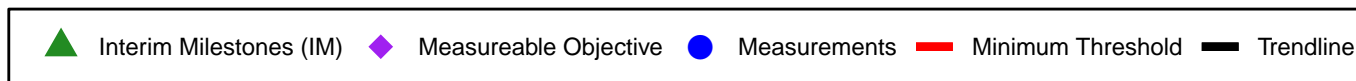
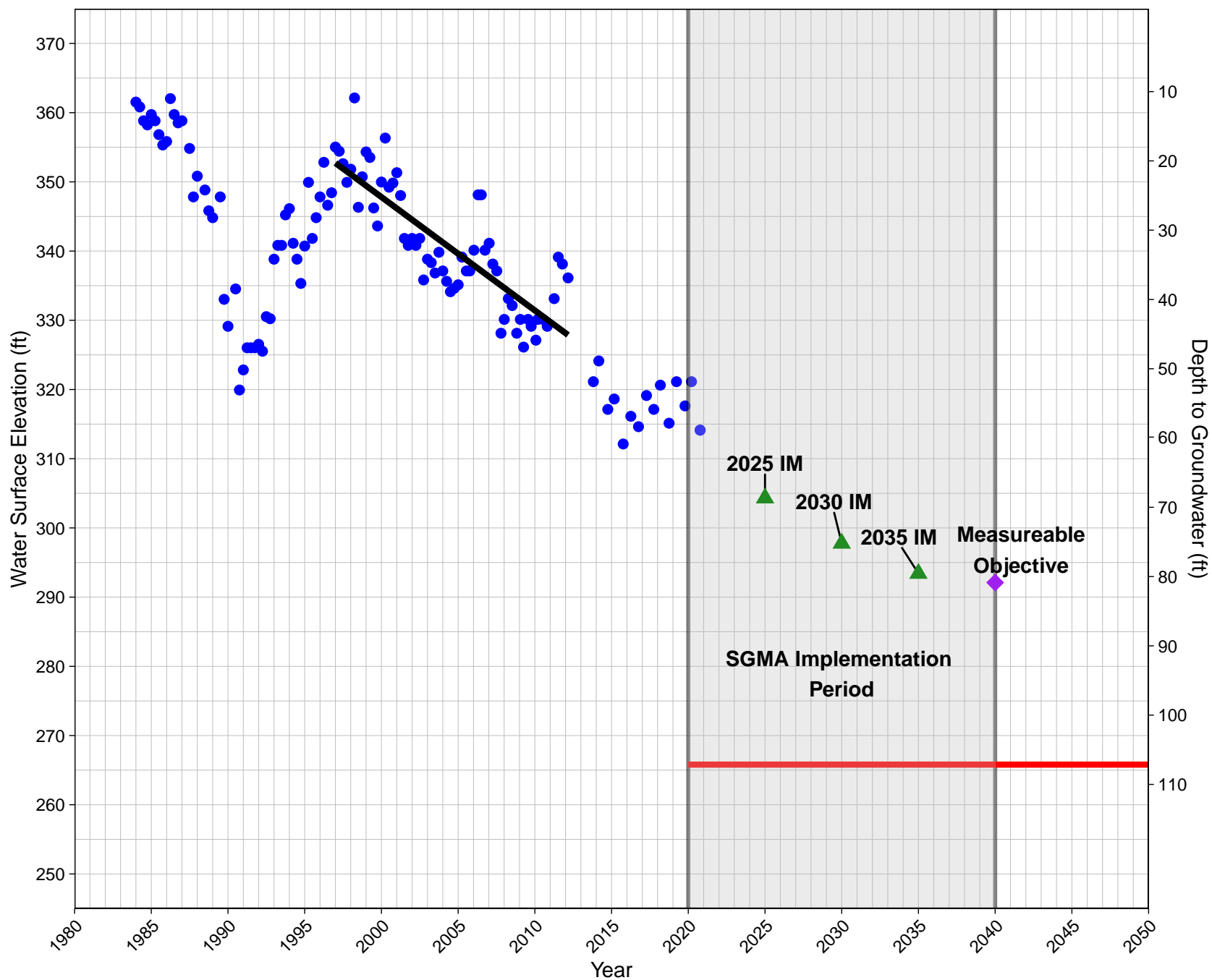
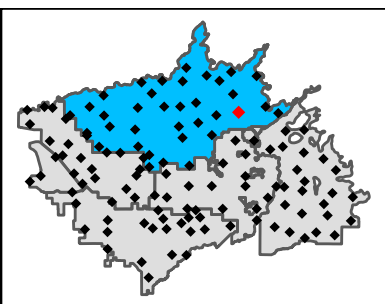
Trendline

13S22E32A001MX

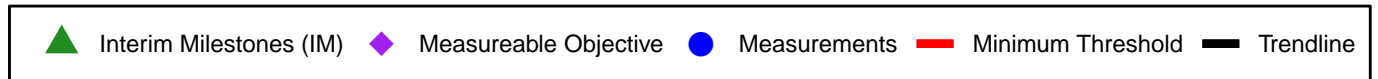
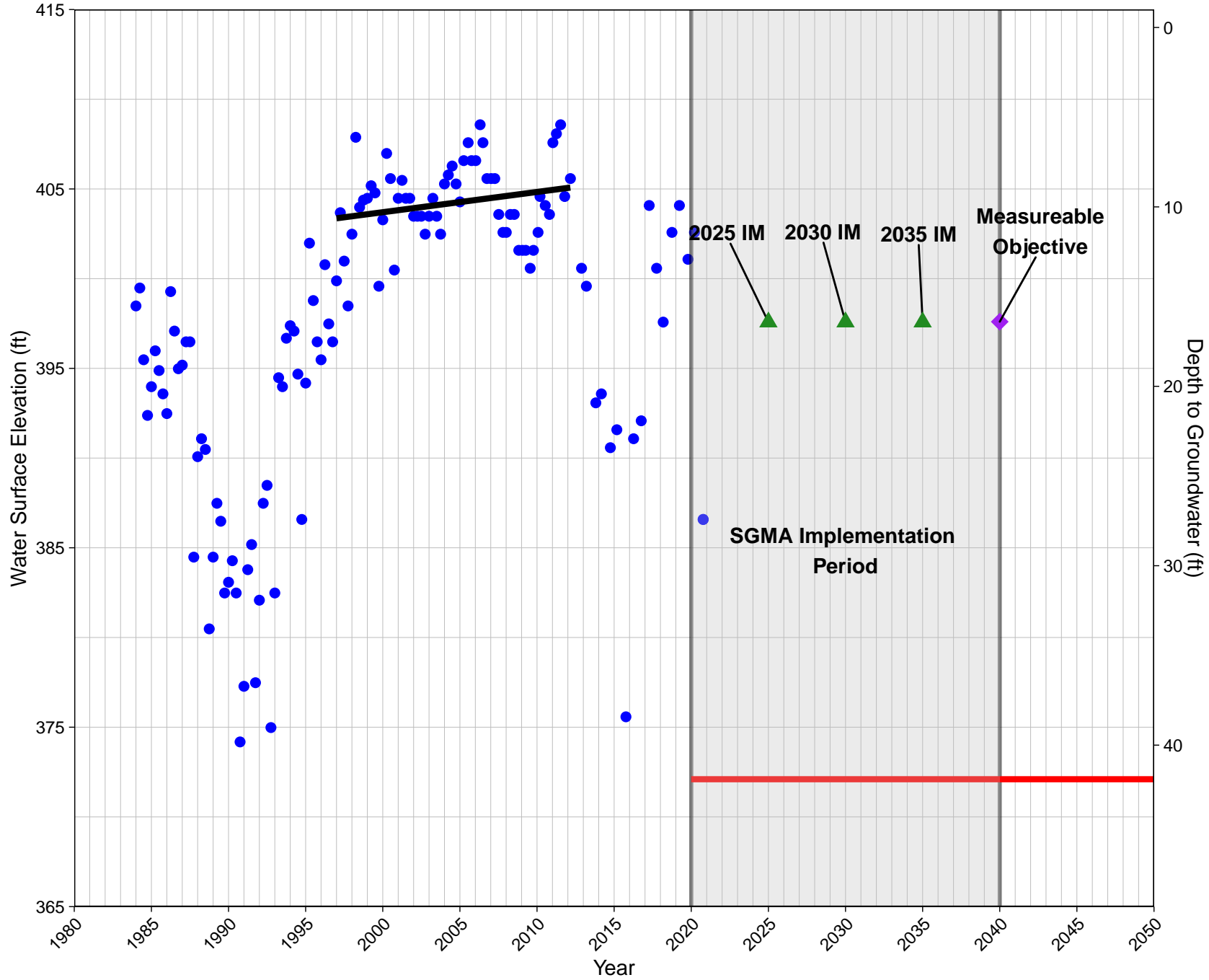
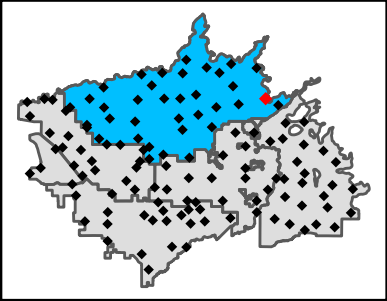
State Well ID: 13S22E32B001M

Ground Surface Elevation: 373 ft

North Kings Groundwater Sustainability Agency



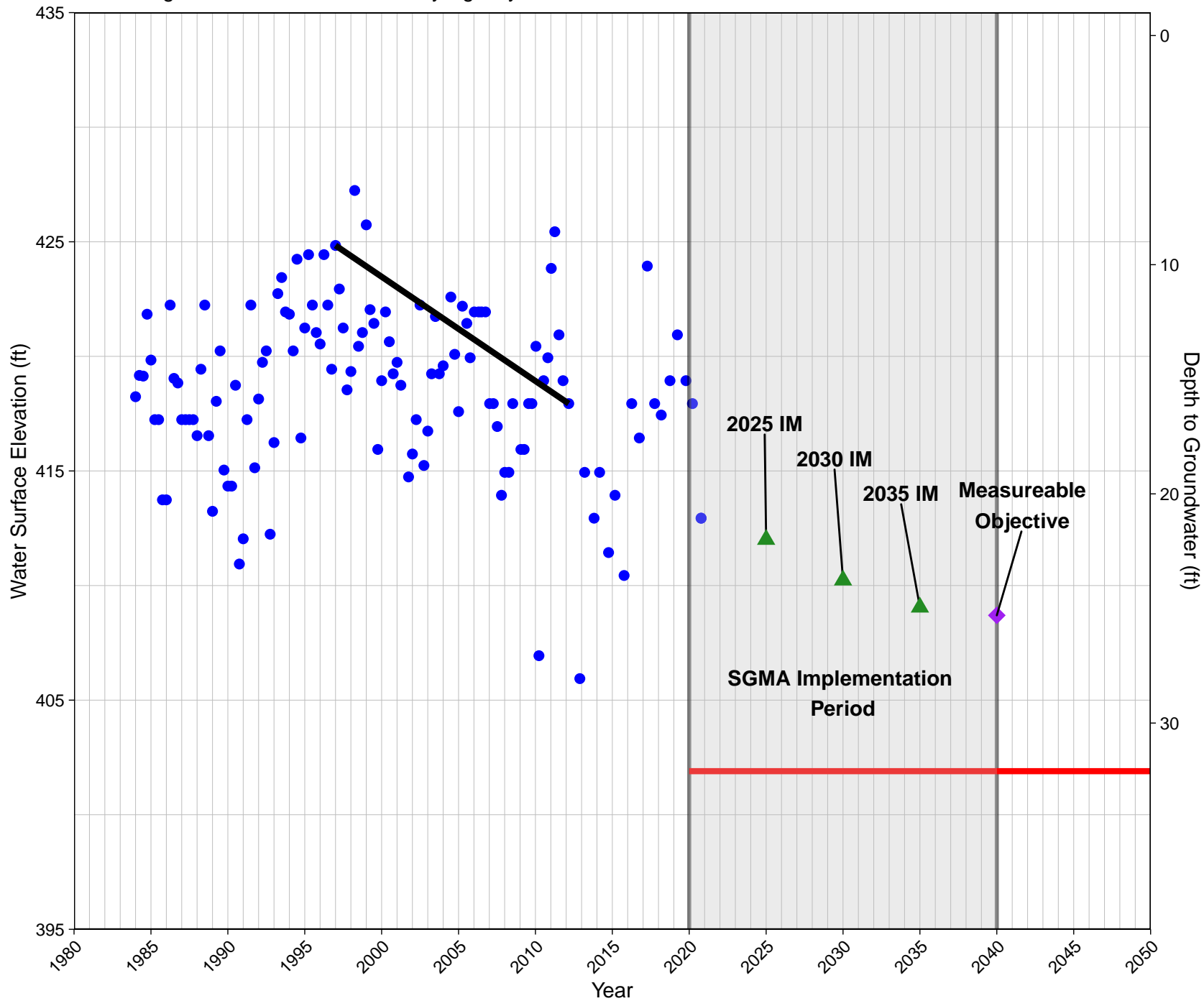
13S23E30B001MX
State Well ID: 13S23E30C001M
Ground Surface Elevation: 414 ft
North Kings Groundwater Sustainability Agency



13S23E33B001MX

Ground Surface Elevation: 434 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

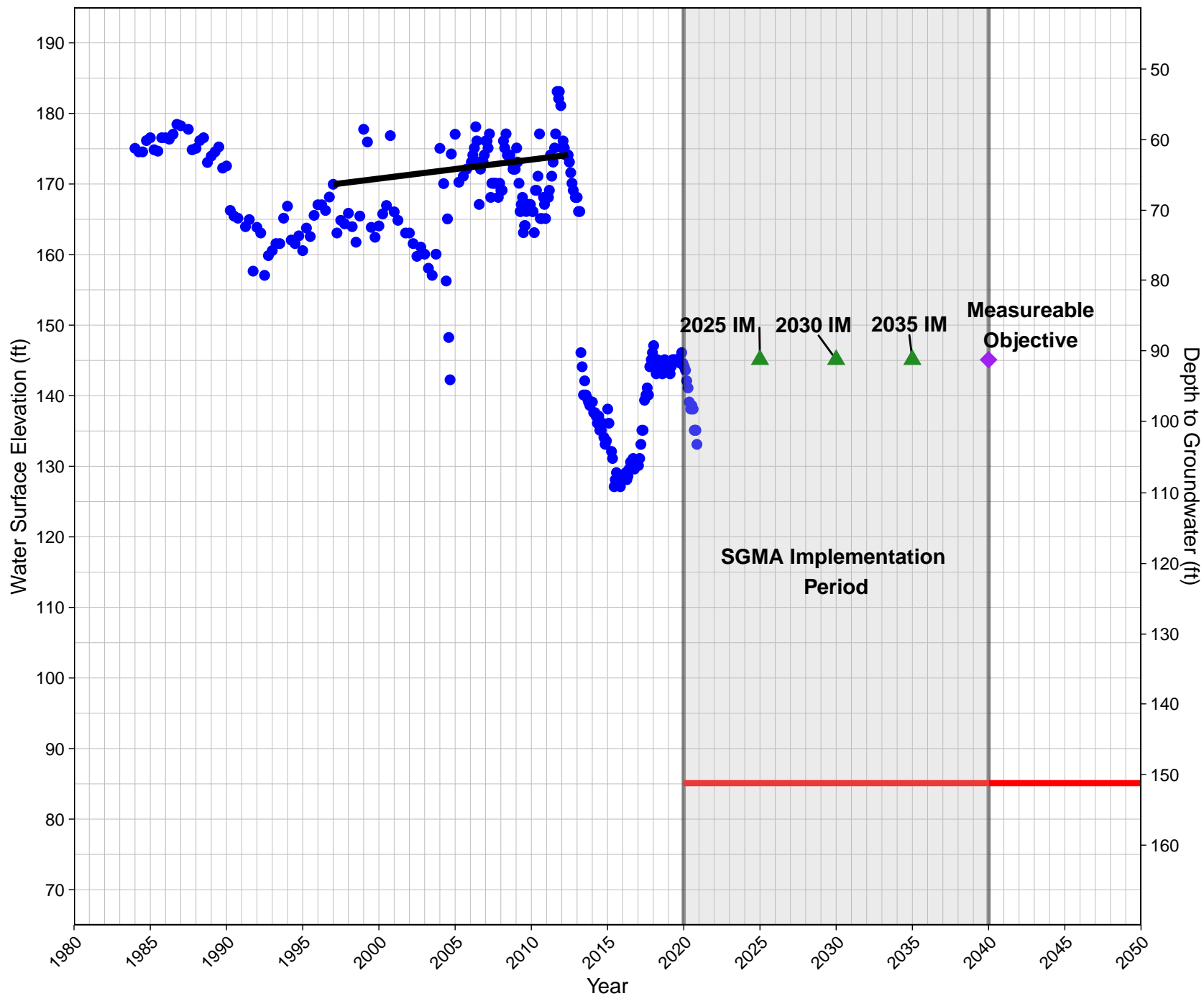


Trendline

14S18E09H001MX

Ground Surface Elevation: 236 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



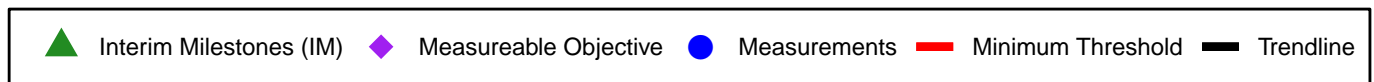
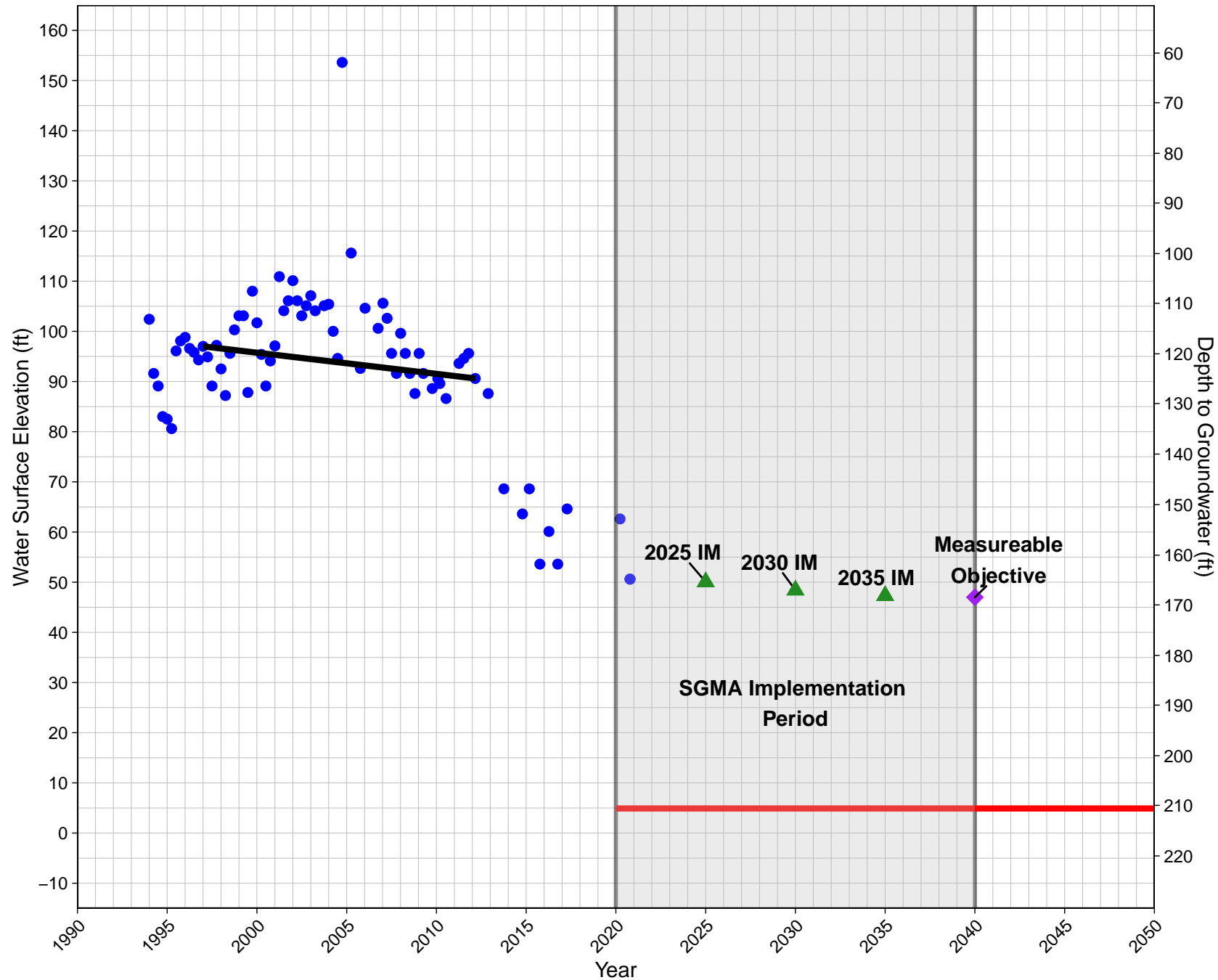
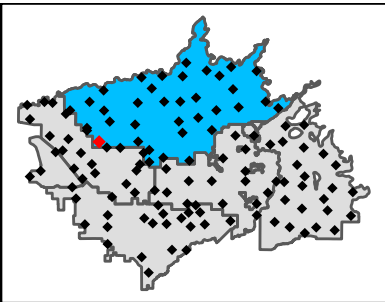
Trendline

14S18E32D001MX

State Well ID: 14S18E32C001M

Ground Surface Elevation: 216 ft

North Kings Groundwater Sustainability Agency

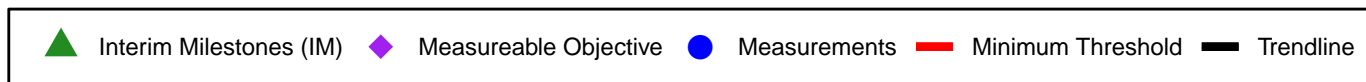
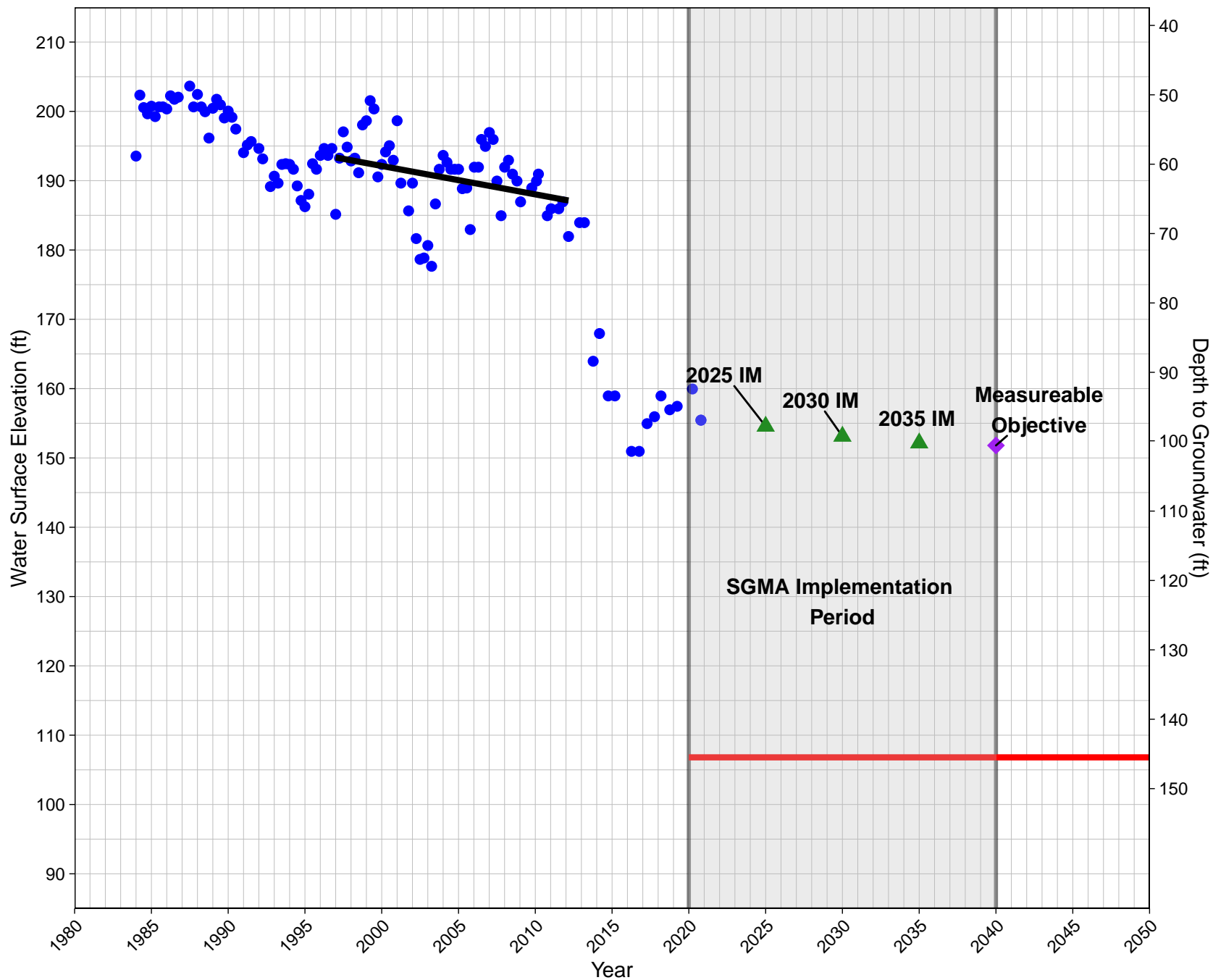
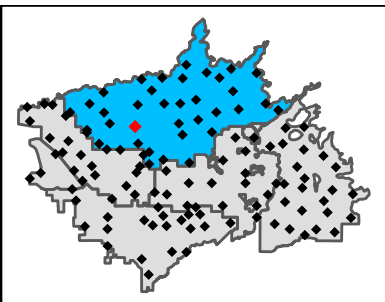


14S19E17C001MX

State Well ID: 14S19E17C003M

Ground Surface Elevation: 252 ft

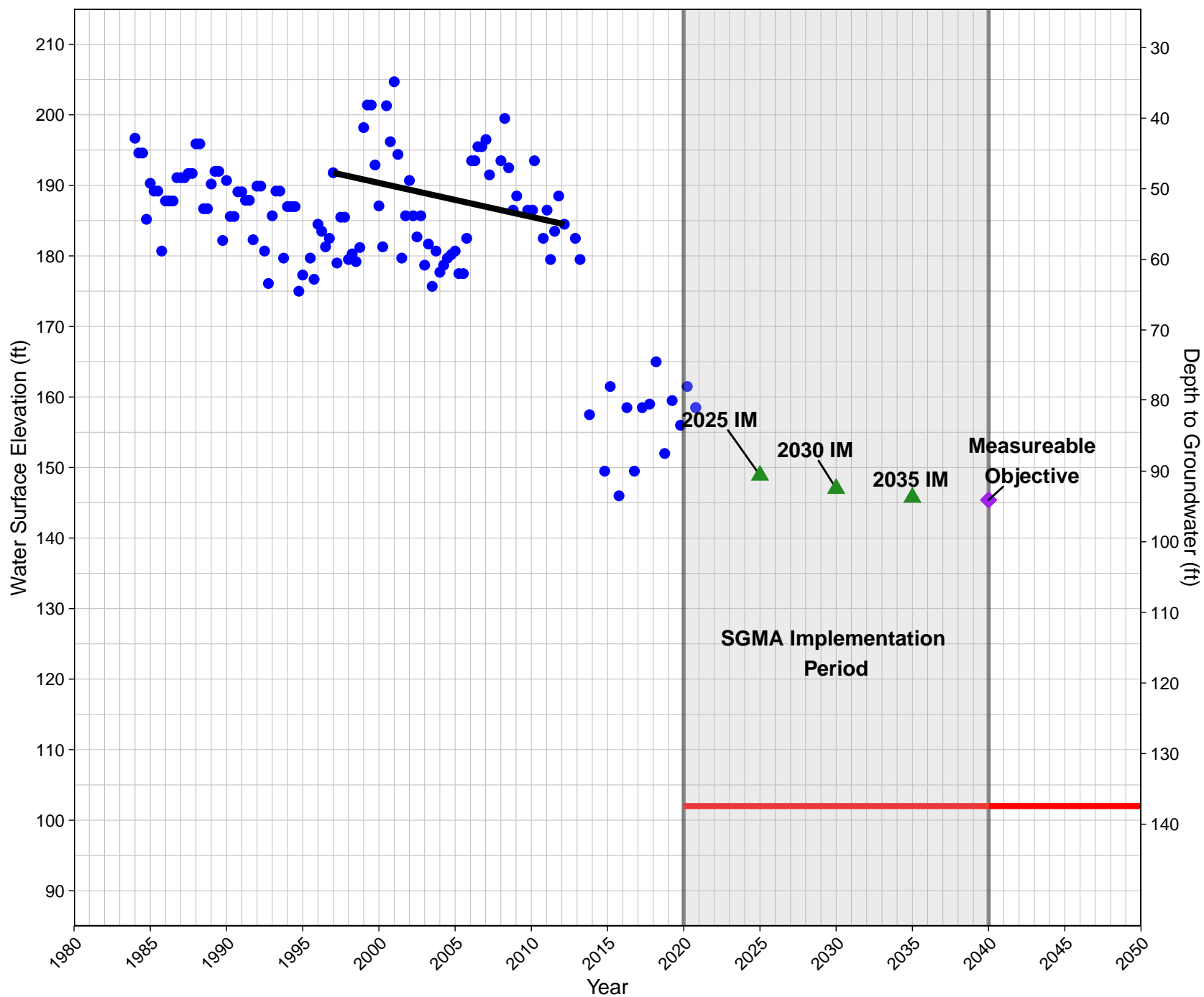
North Kings Groundwater Sustainability Agency



14S19E33D001MX

Ground Surface Elevation: 240 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

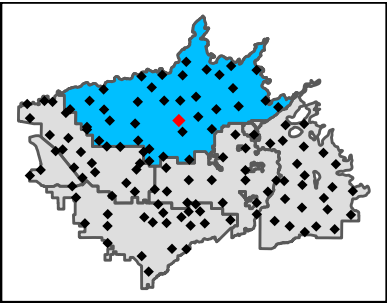
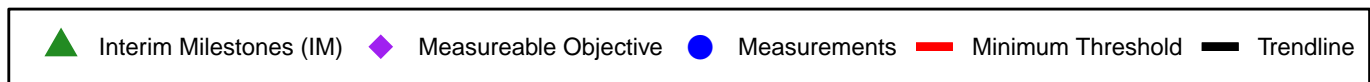
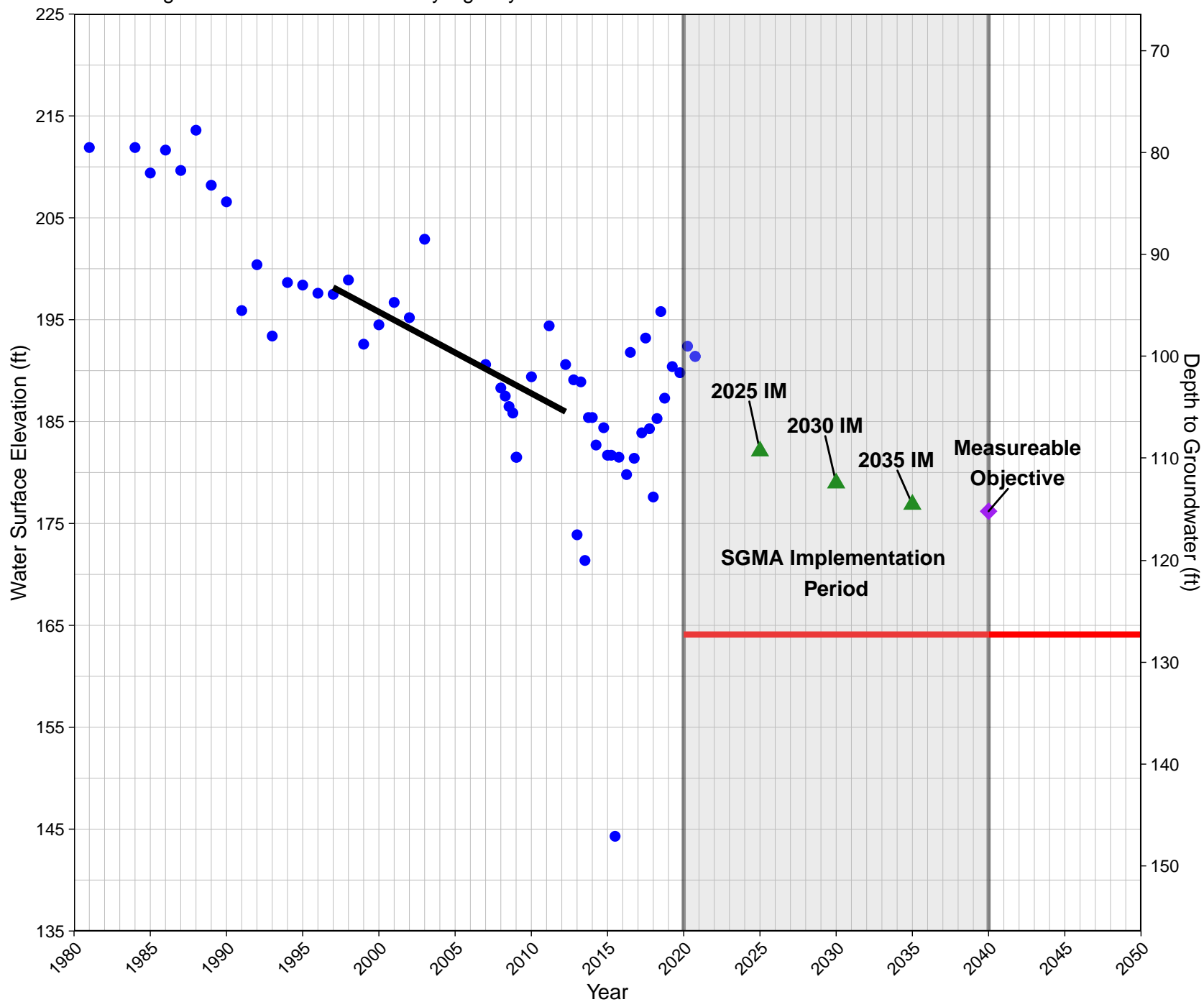


Trendline

14S20E10M001MX

Ground Surface Elevation: 291 ft

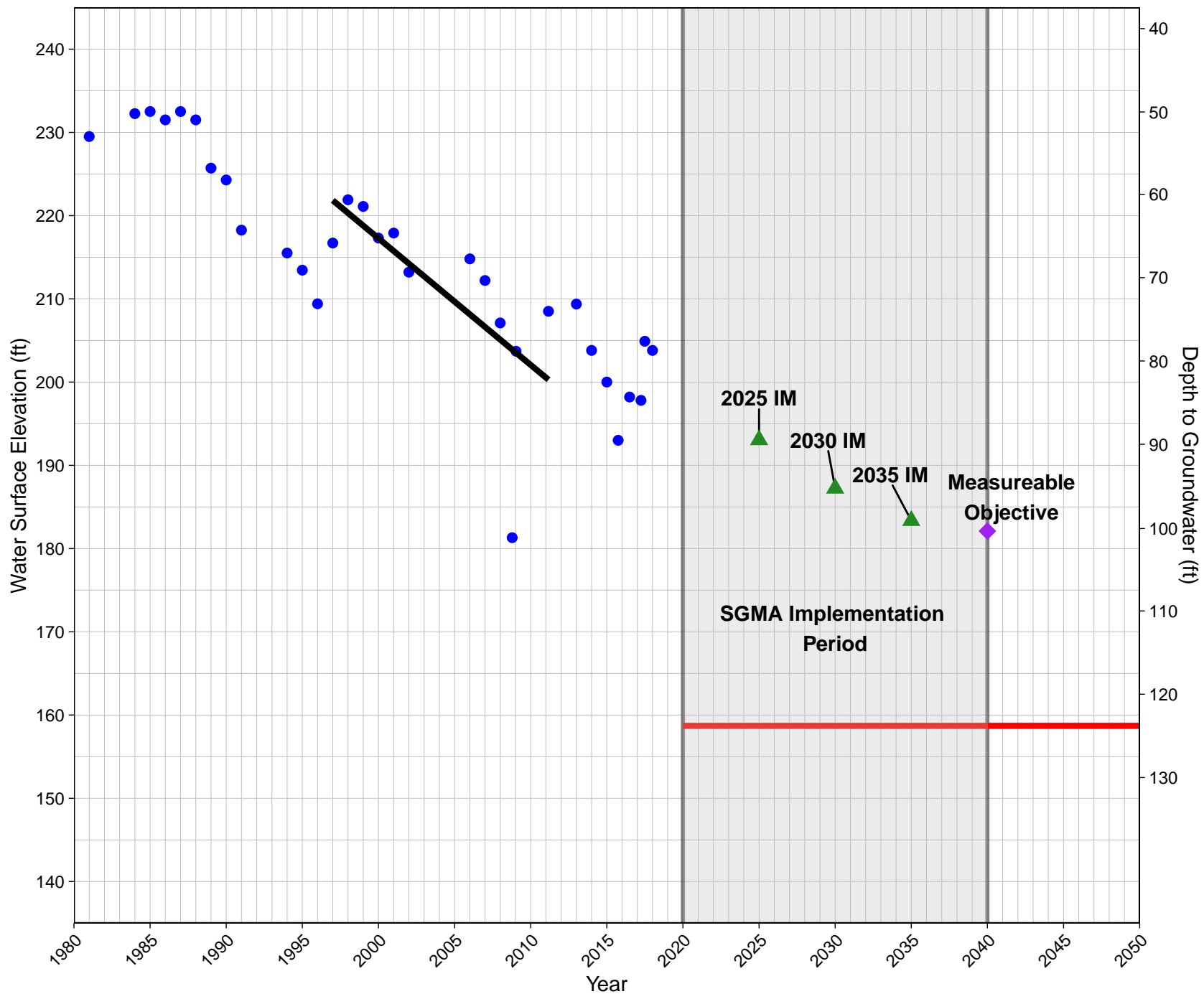
North Kings Groundwater Sustainability Agency



14S20E22J001MX

Ground Surface Elevation: 282 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

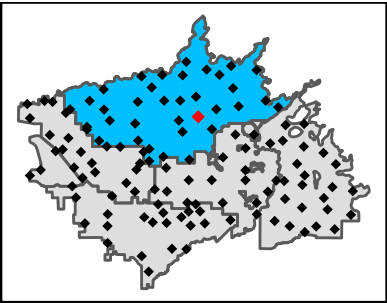
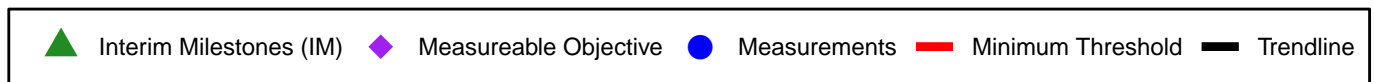
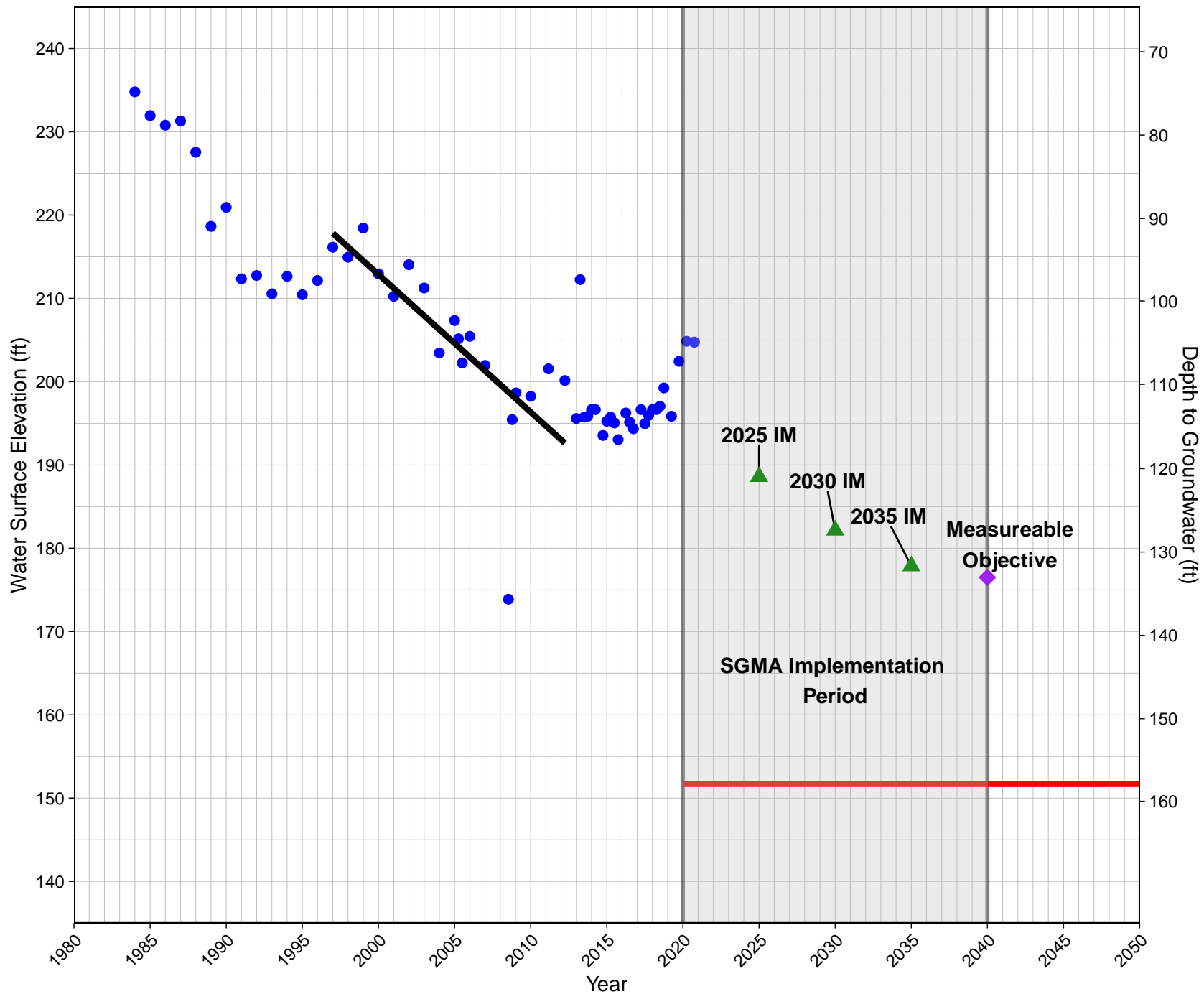


Trendline

14S21E06Q001MX

Ground Surface Elevation: 310 ft

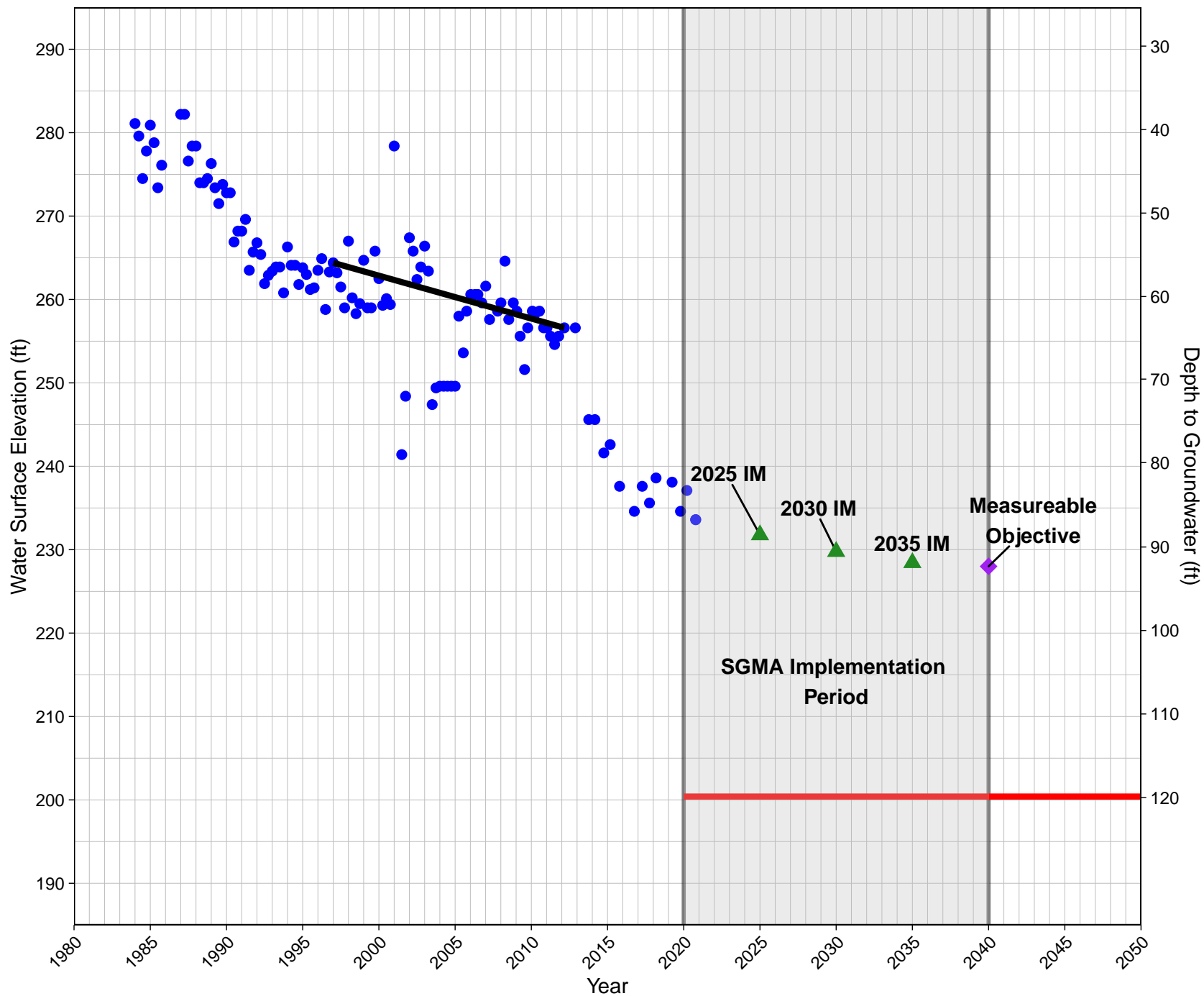
North Kings Groundwater Sustainability Agency



14S21E22D001MX

Ground Surface Elevation: 320 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



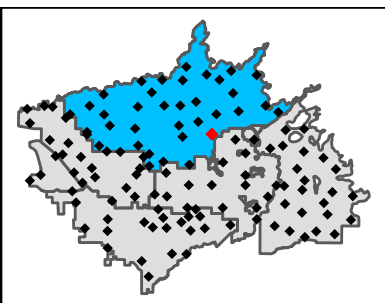
Measurements



Minimum Threshold



Trendline

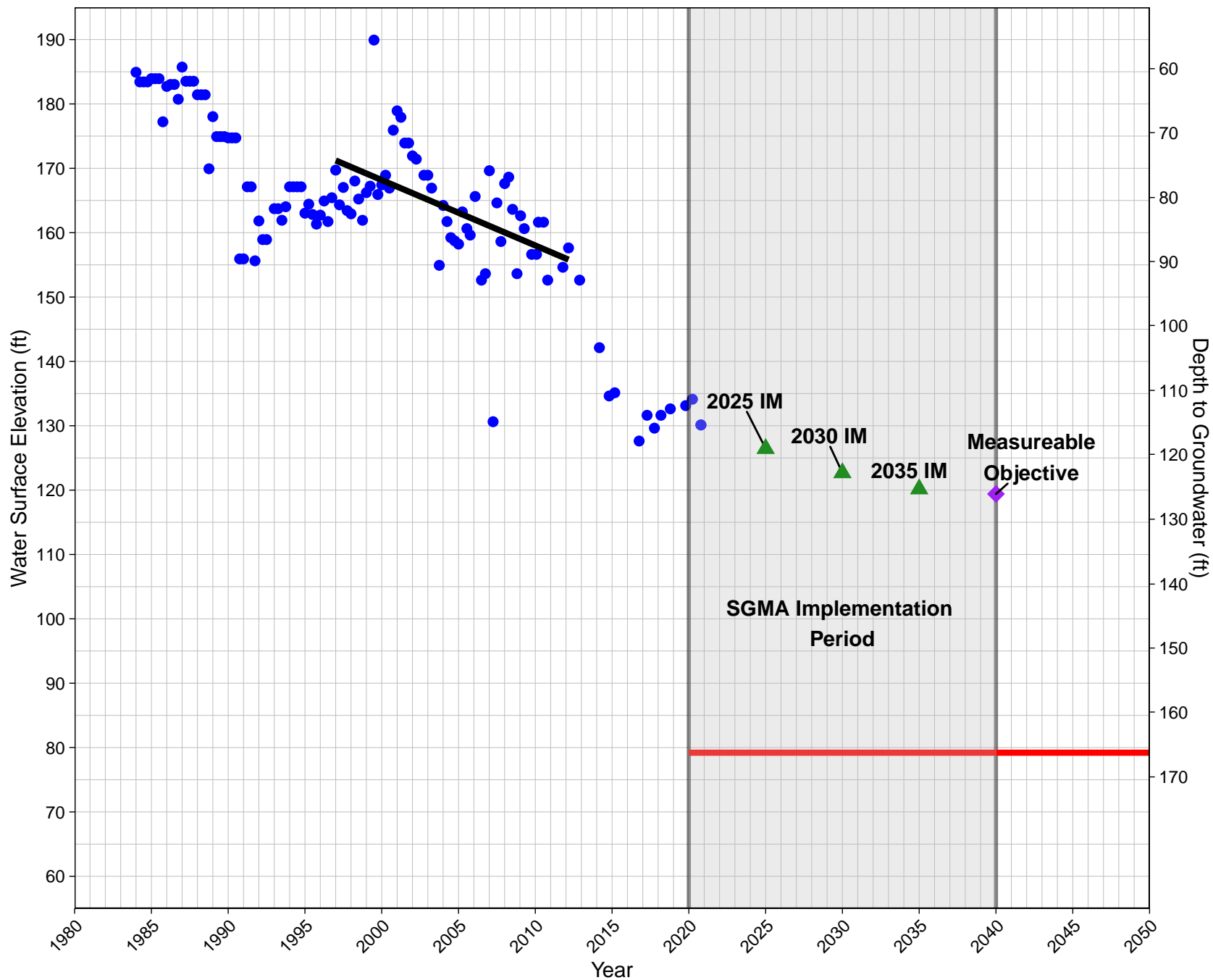


15S19E02M001MX

State Well ID: 15S19E03J001M

Ground Surface Elevation: 246 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

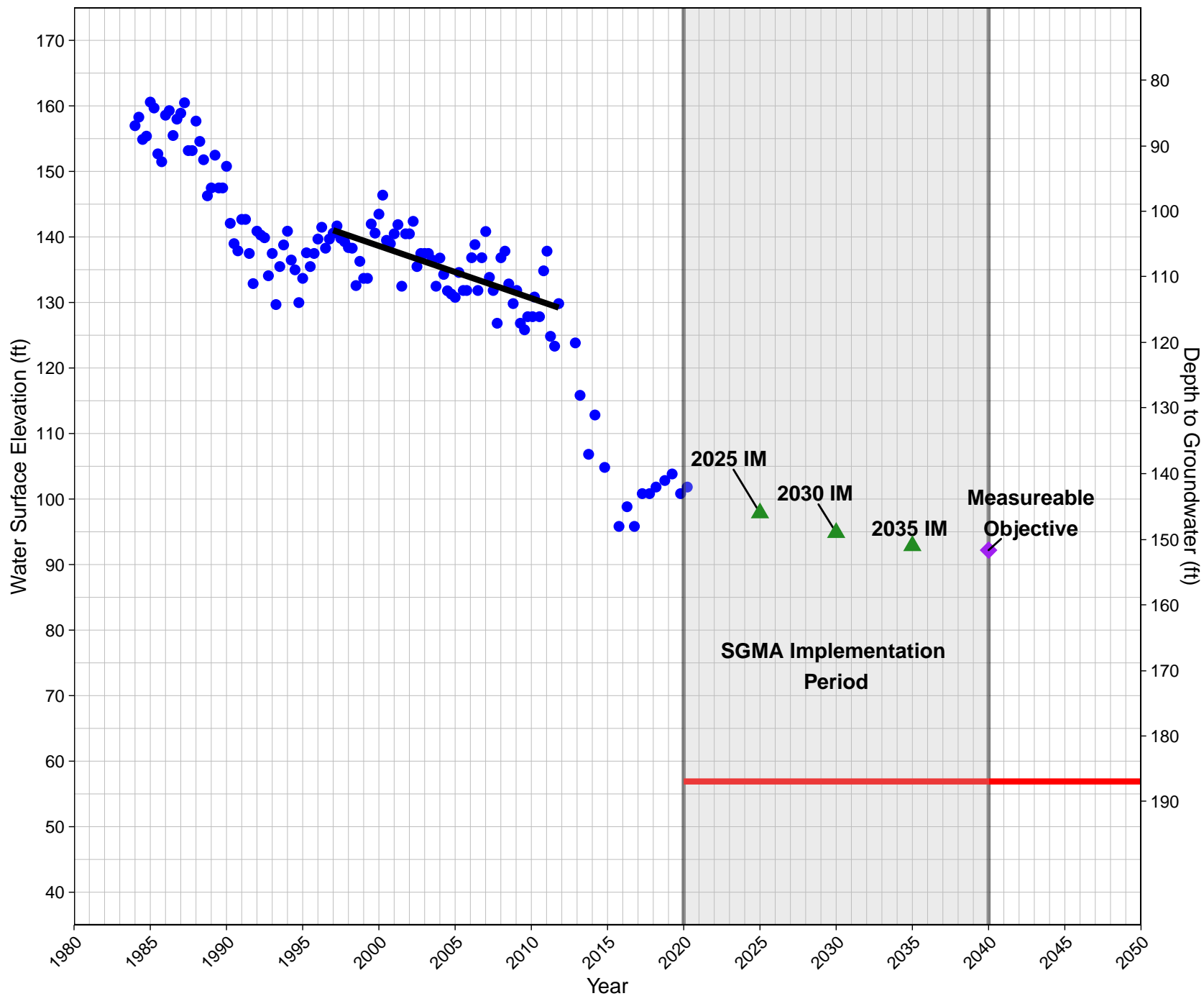


Trendline

15S19E14M001MX

Ground Surface Elevation: 244 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

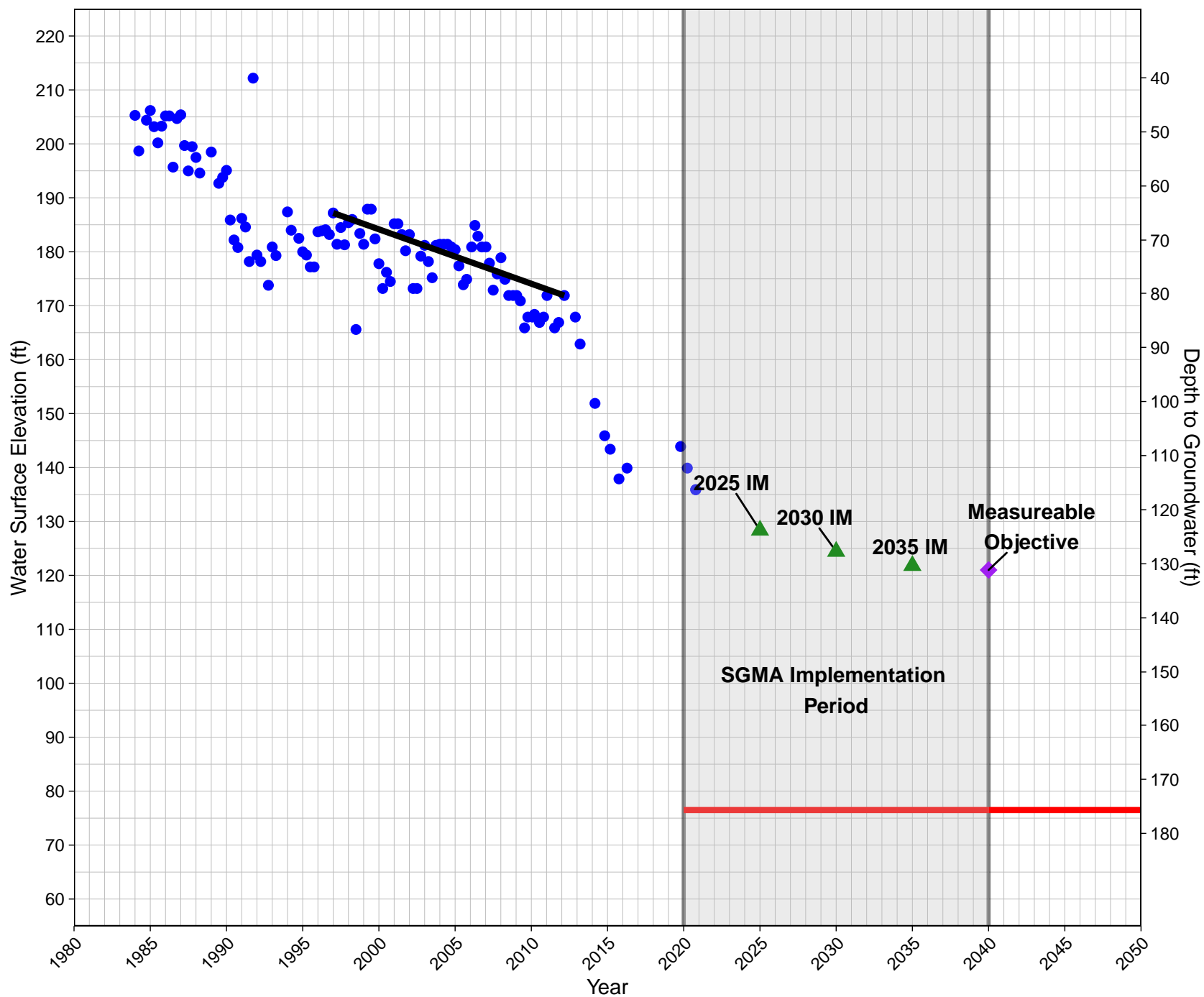


Trendline

15S20E07Q001MX

Ground Surface Elevation: 252 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

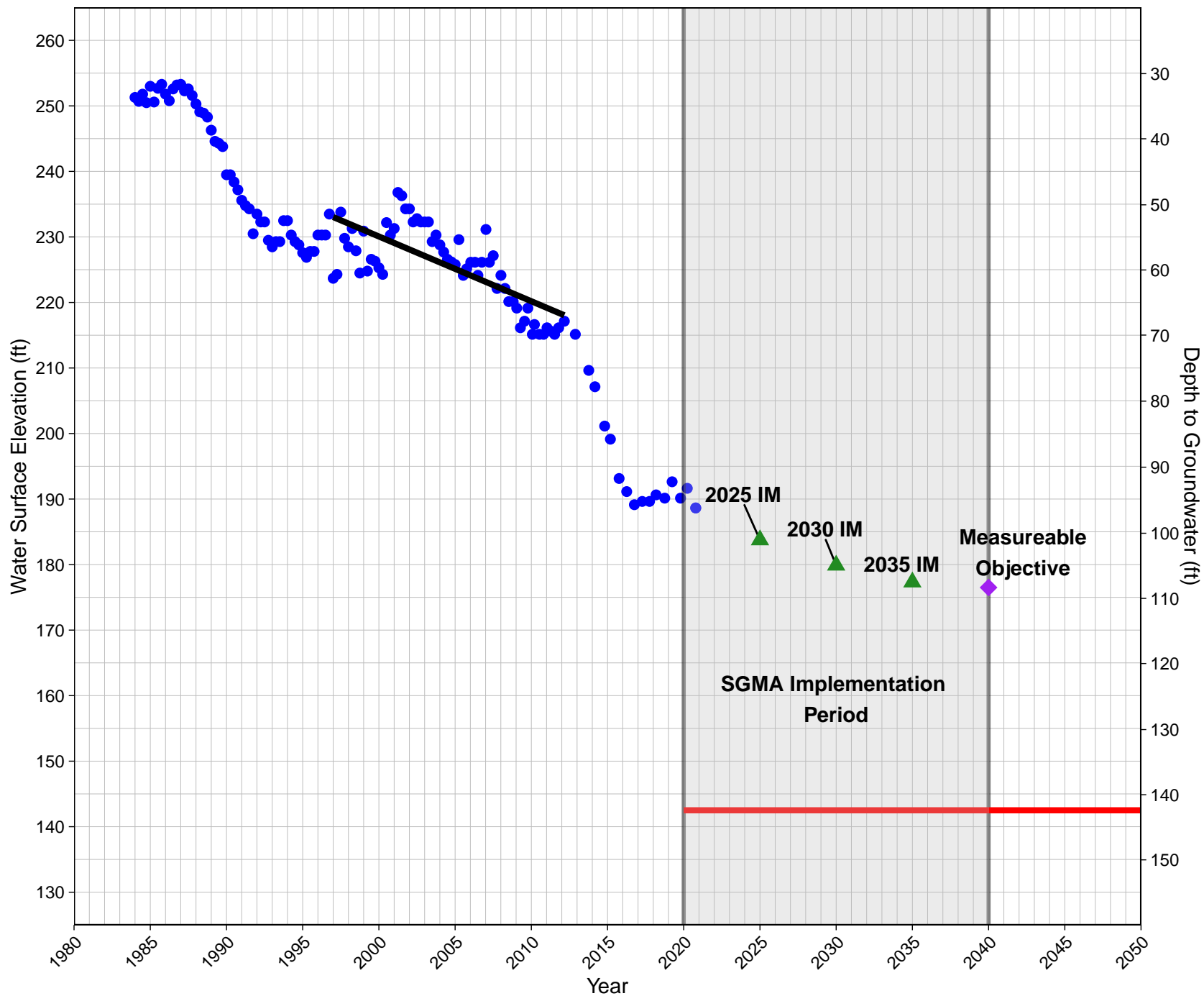


Trendline

15S20E13E001MX

Ground Surface Elevation: 285 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



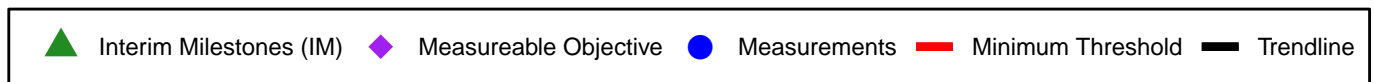
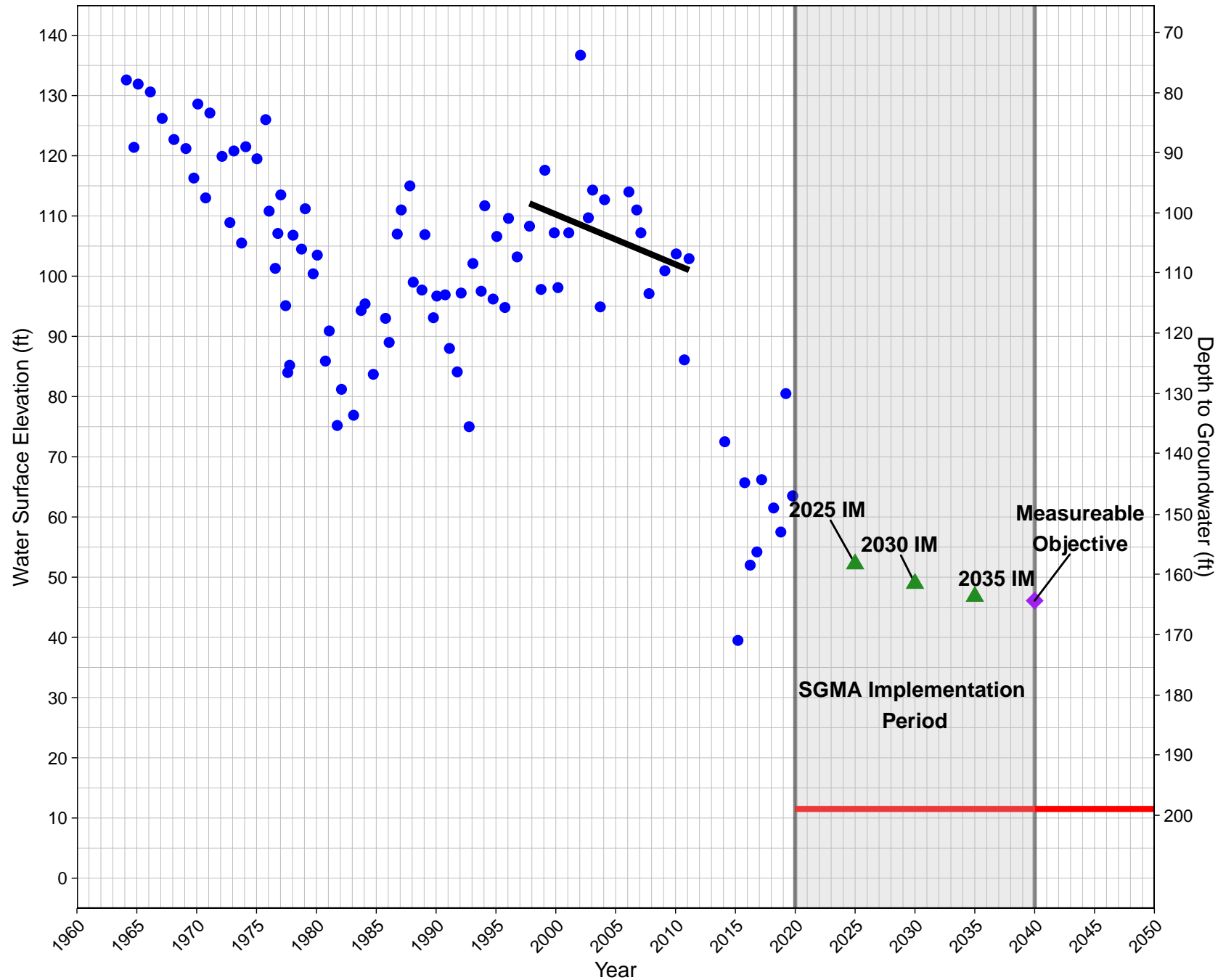
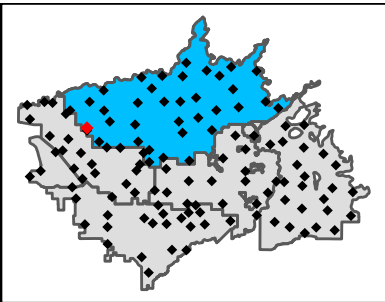
Trendline

367113N1200785W001

State Well ID: 14S17E14J001M

Ground Surface Elevation: 210 ft

North Kings Groundwater Sustainability Agency

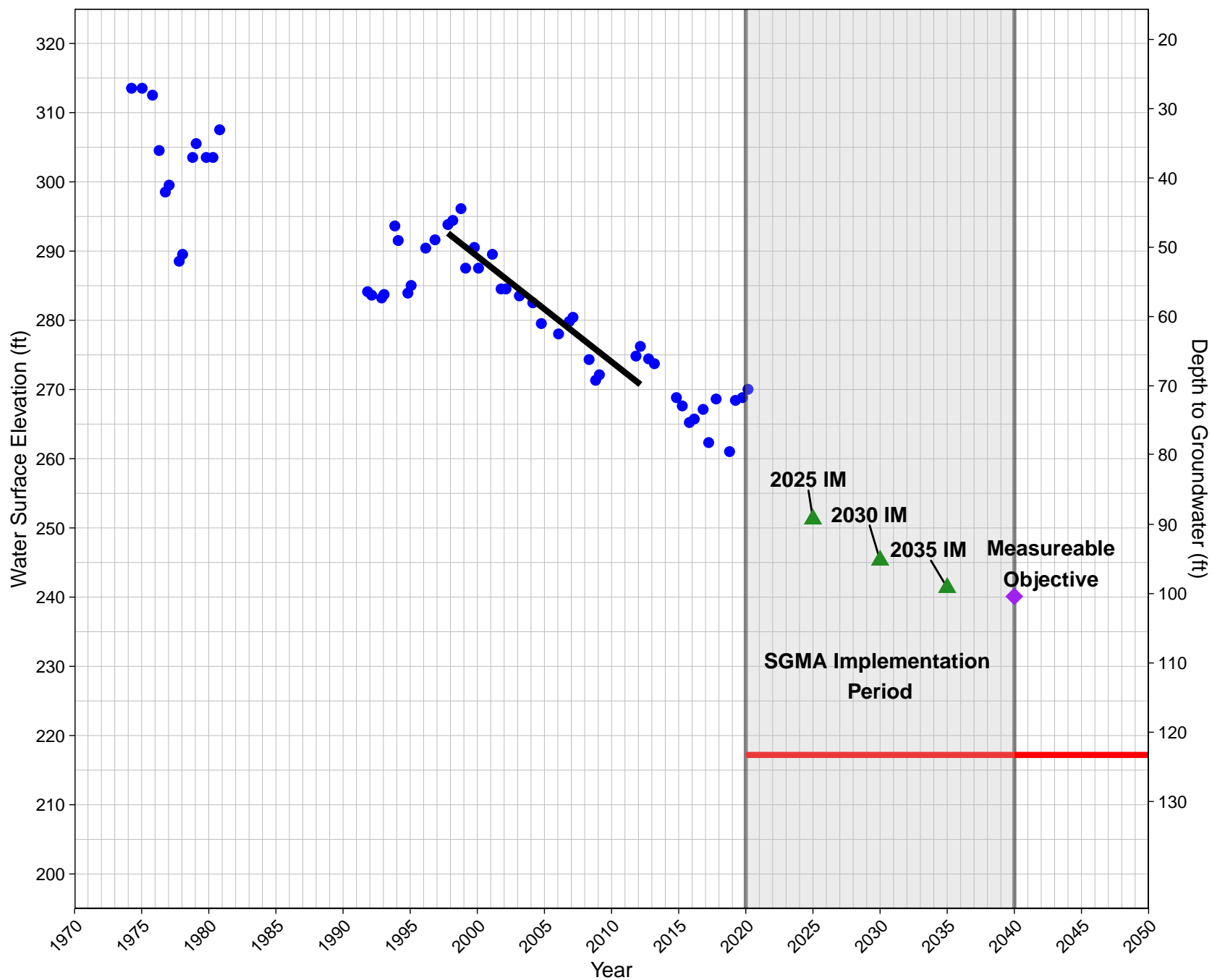


367556N1196666W001

State Well ID: 13S21E34J002M

Ground Surface Elevation: 341 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements

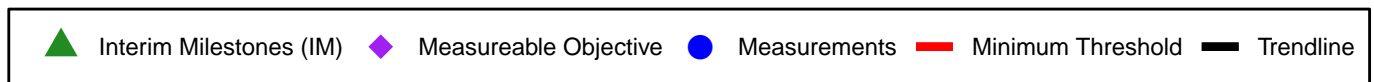
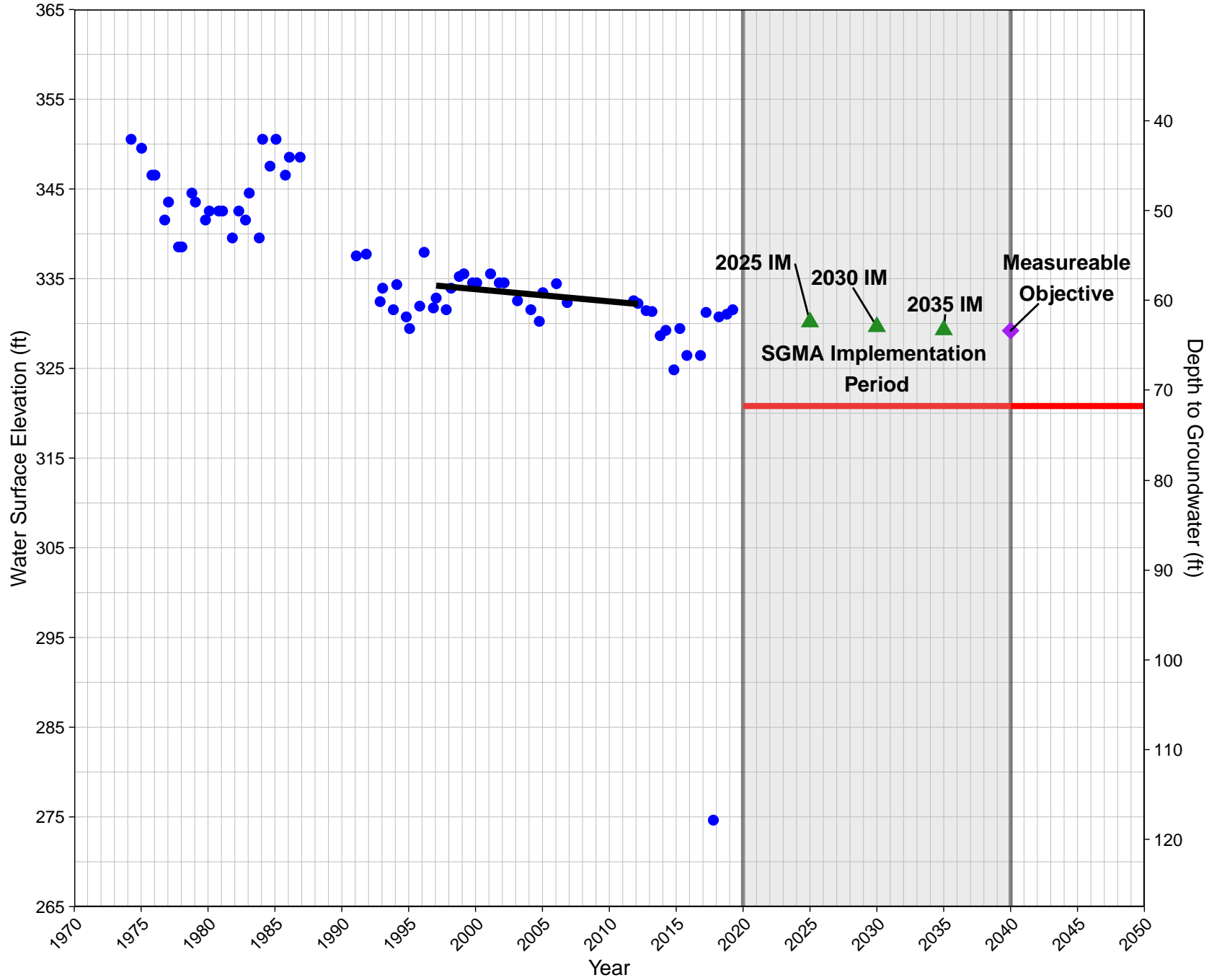
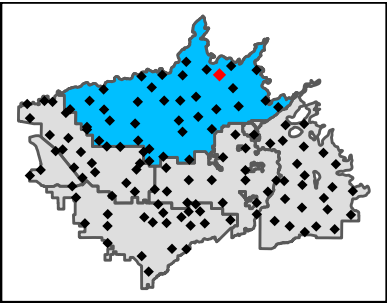


Minimum Threshold



Trendline

368468N1196593W001
State Well ID: 12S21E34H001M
Ground Surface Elevation: 393 ft
North Kings Groundwater Sustainability Agency

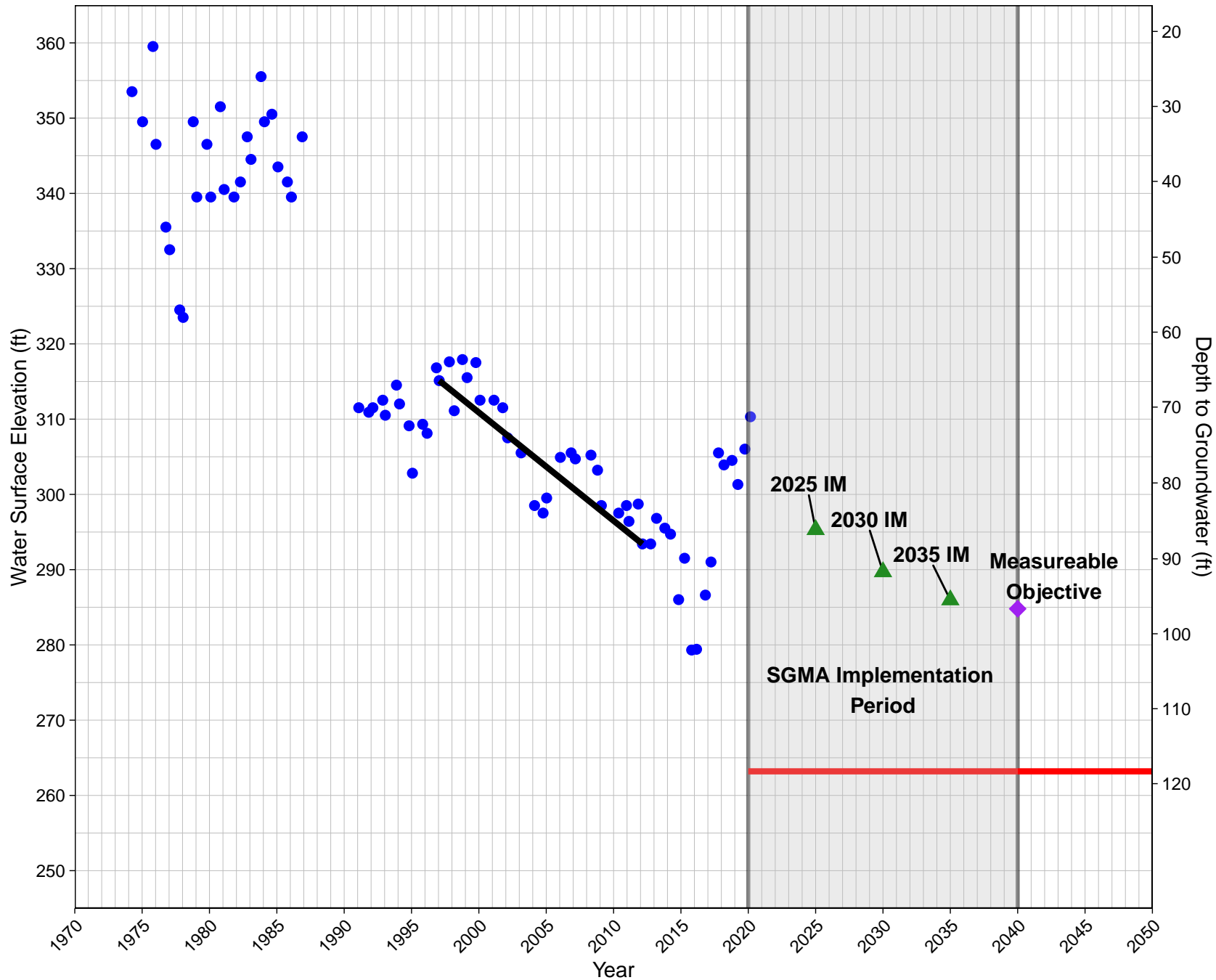


368571N1197002W001

State Well ID: 12S21E29K001M

Ground Surface Elevation: 382 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



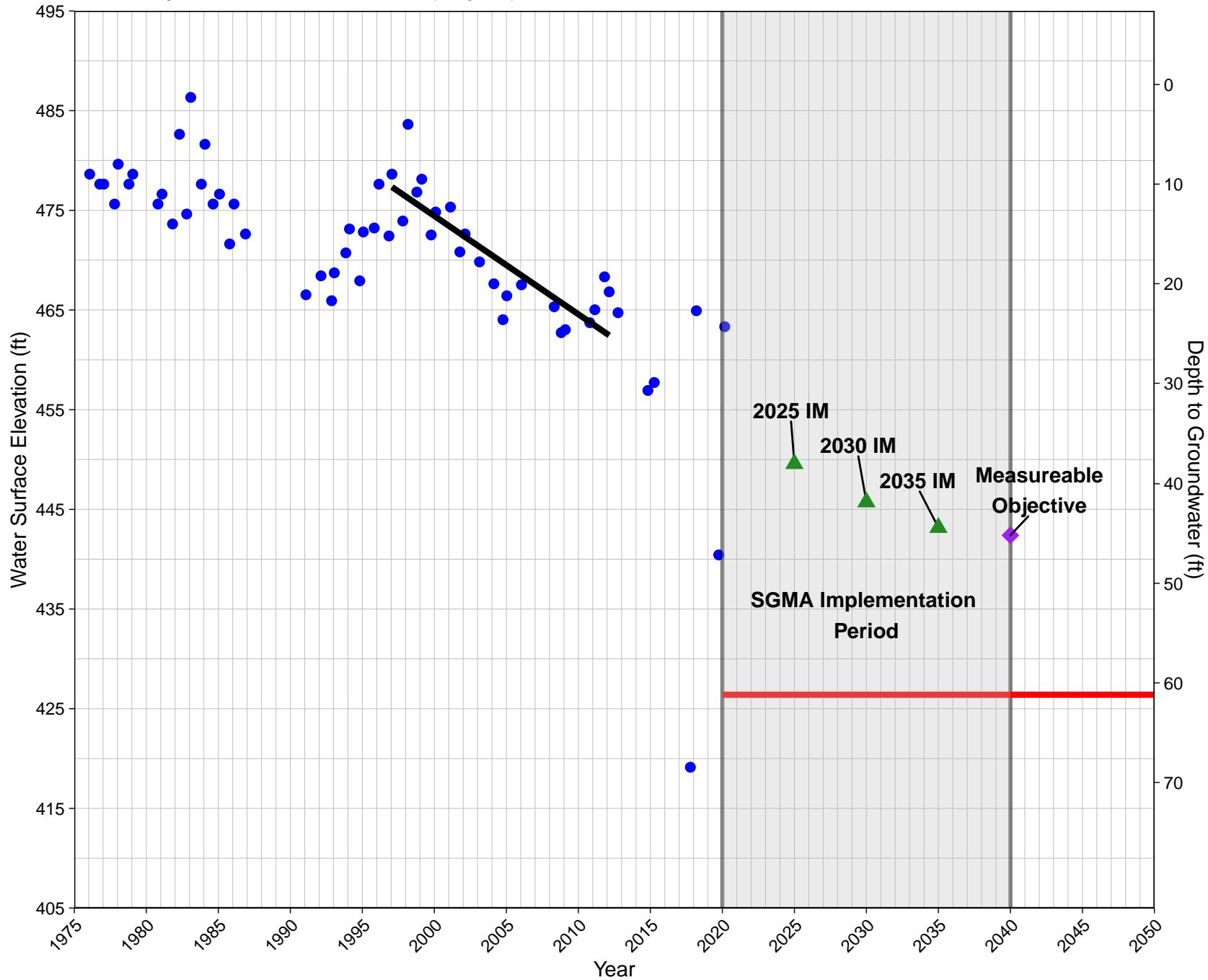
Trendline

368572N1195413W001

State Well ID: 12S22E26L001M

Ground Surface Elevation: 488 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



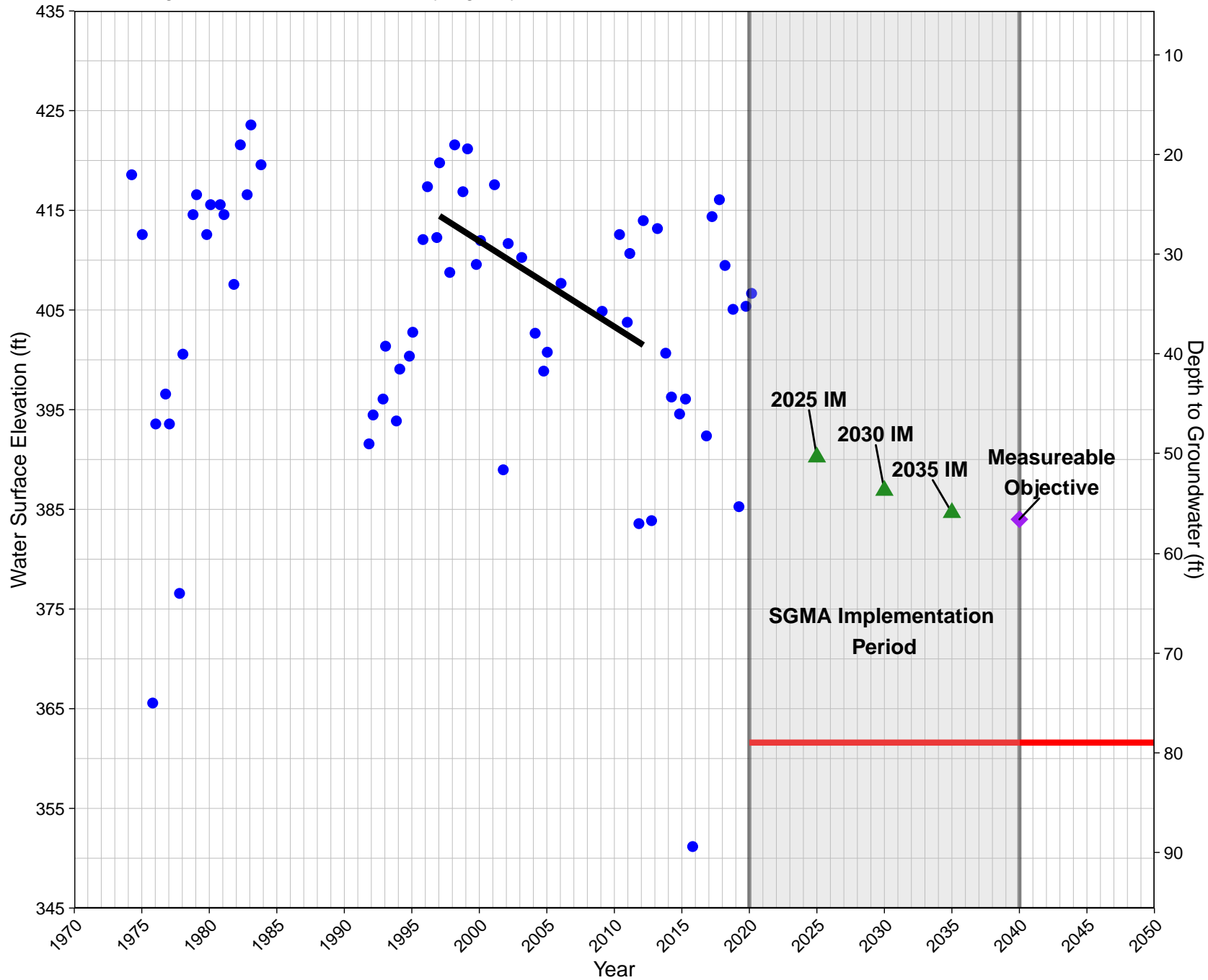
Trendline

368683N1196185W001

State Well ID: 12S22E19N001M

Ground Surface Elevation: 441 ft

North Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

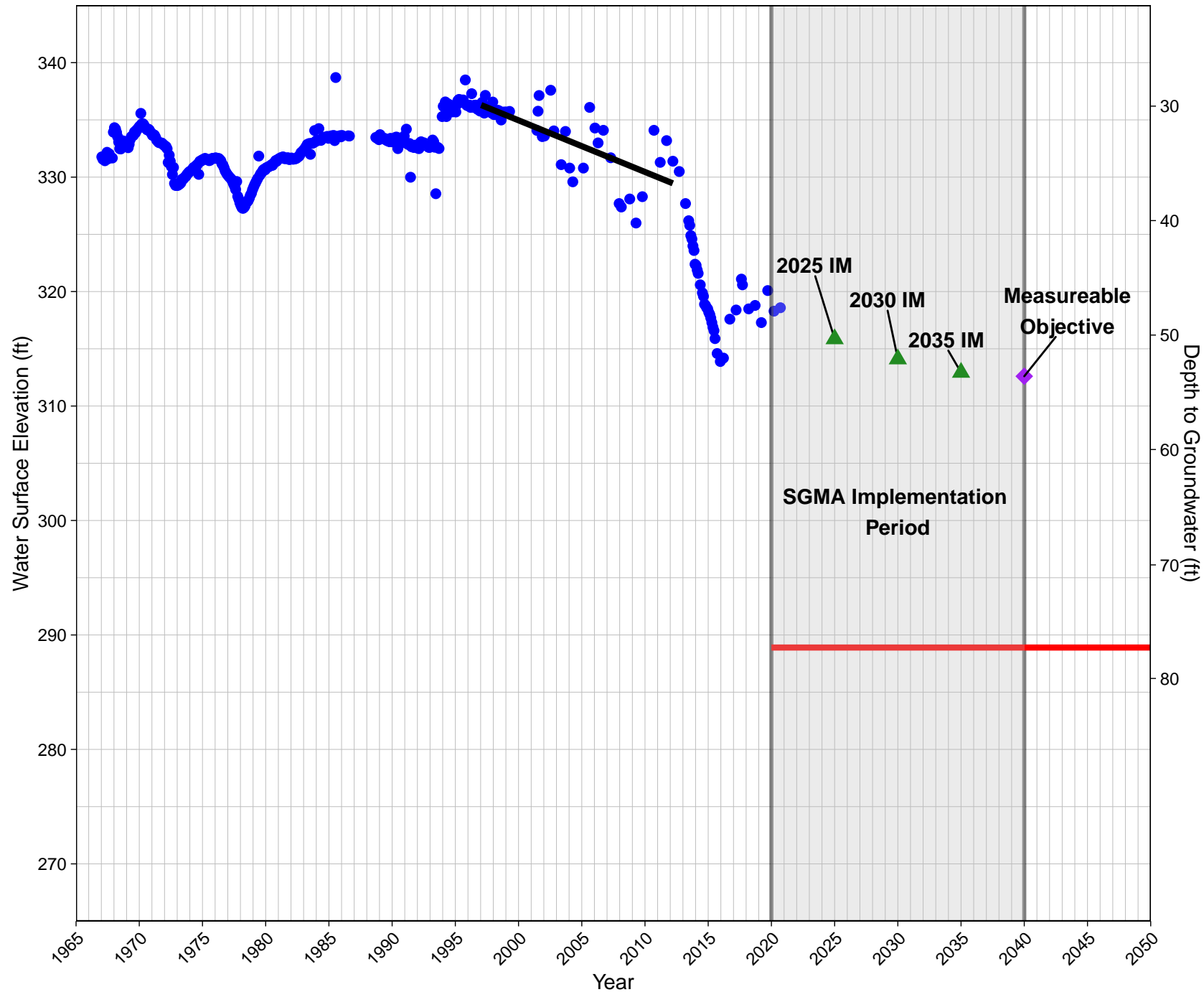


Trendline

CID10

Ground Surface Elevation: 366 ft

South Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold

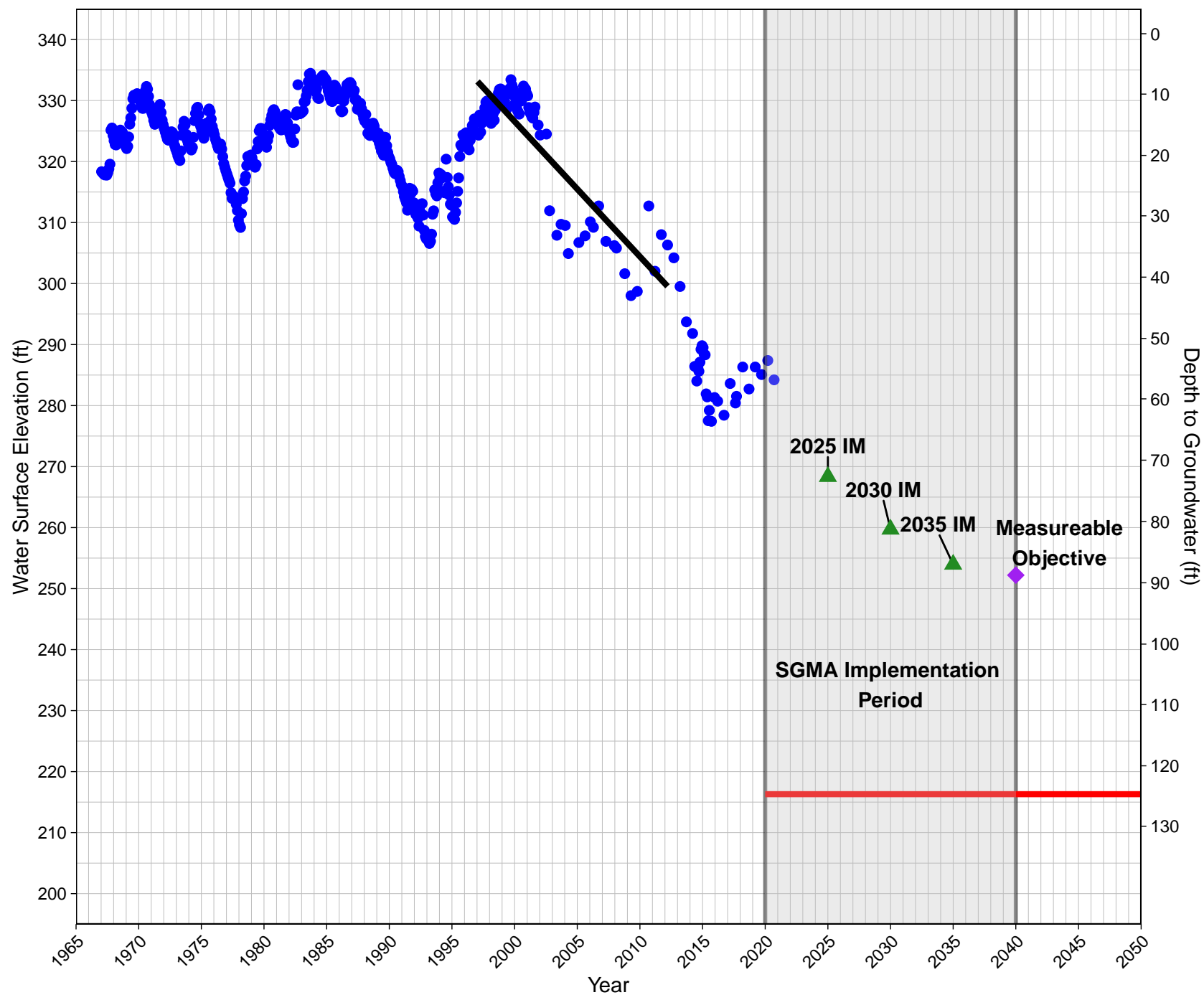


Trendline

CID12

Ground Surface Elevation: 341 ft

South Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



Minimum Threshold



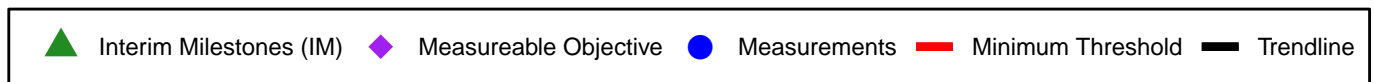
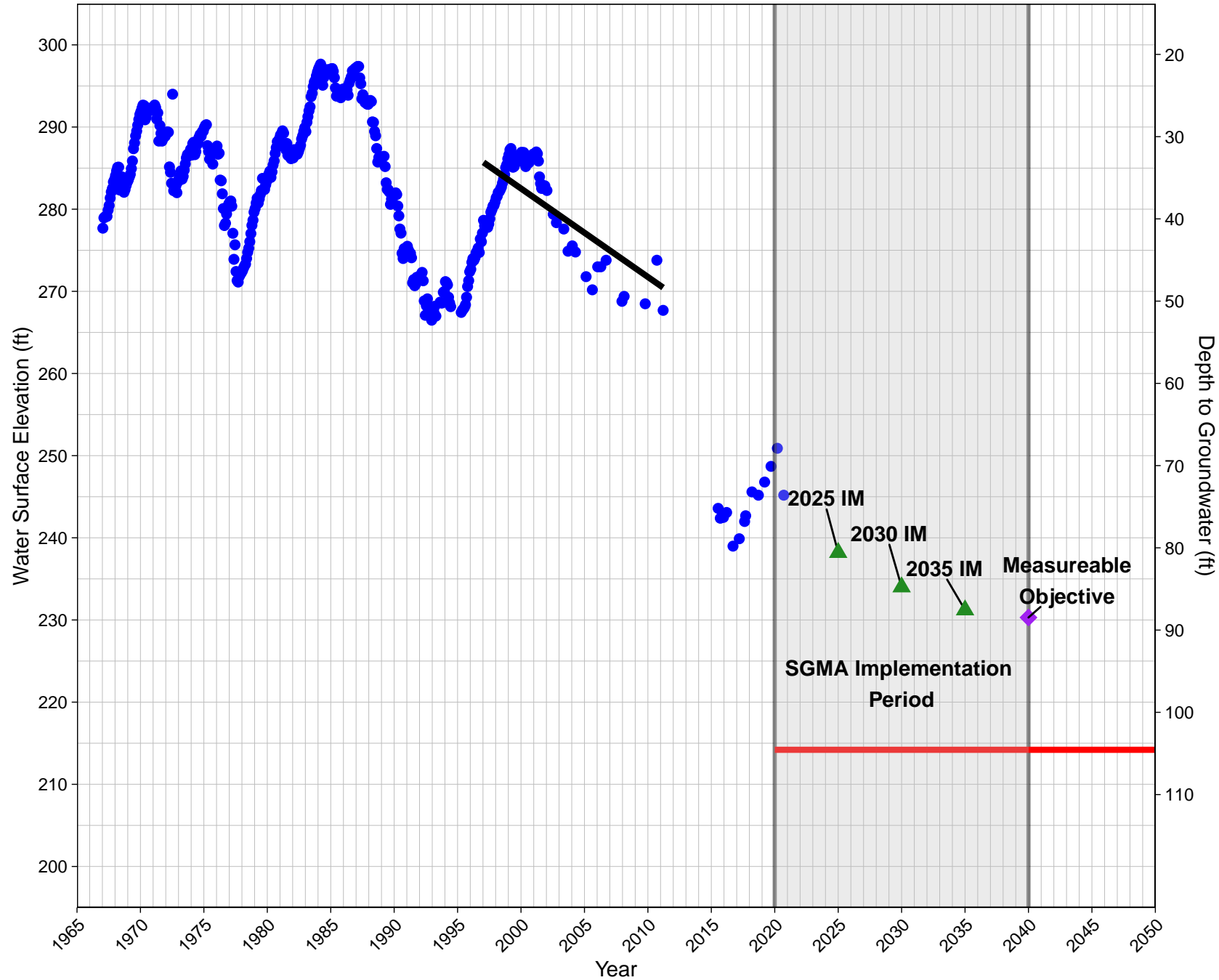
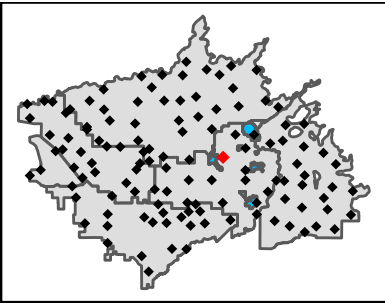
Trendline

CID16

State Well ID: 15S21E14A001M

Ground Surface Elevation: 319 ft

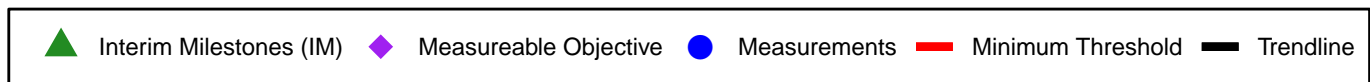
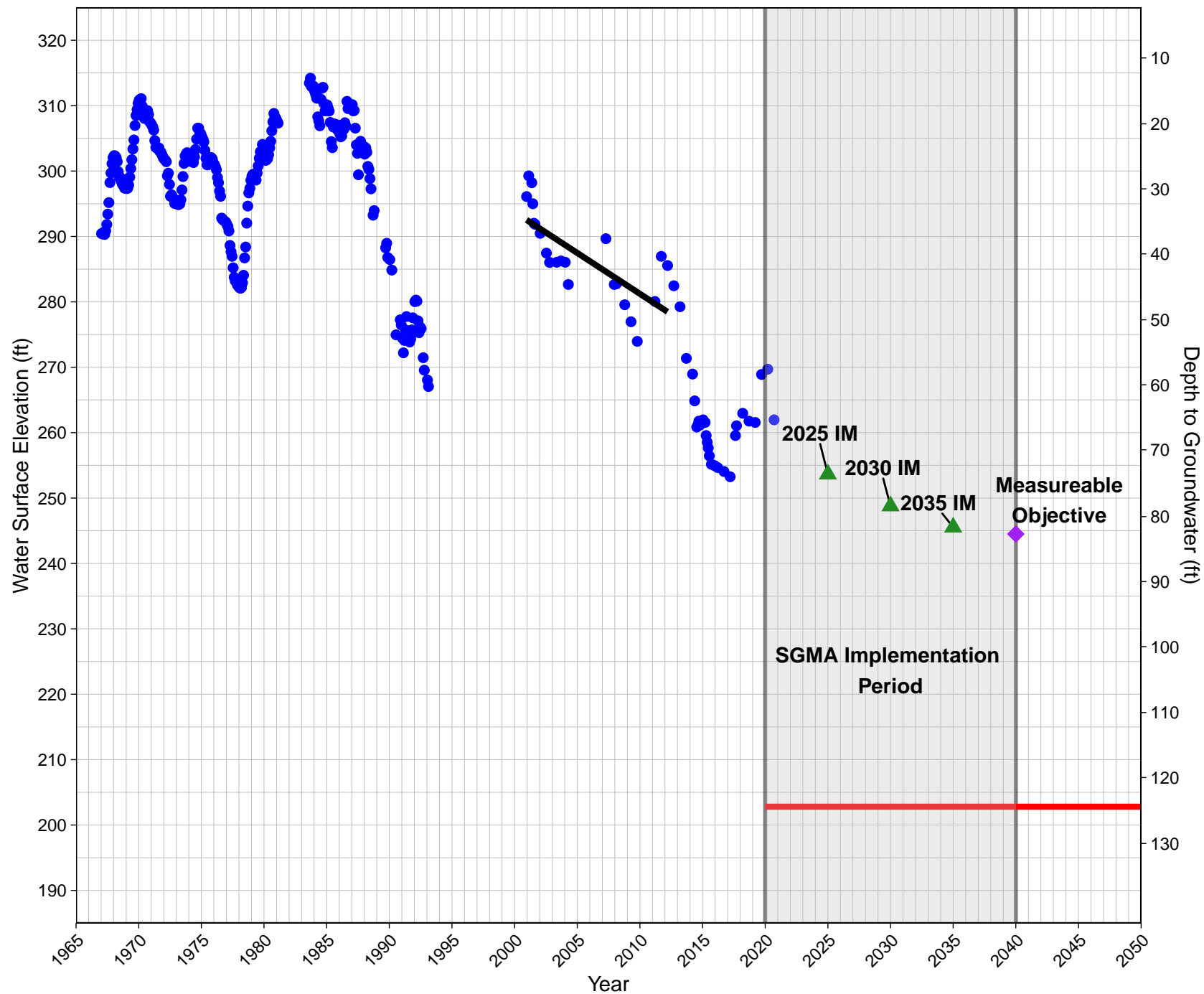
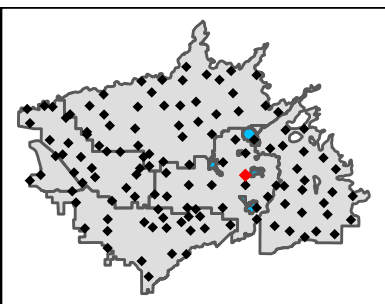
South Kings Groundwater Sustainability Agency



CID25

Ground Surface Elevation: 327 ft

South Kings Groundwater Sustainability Agency

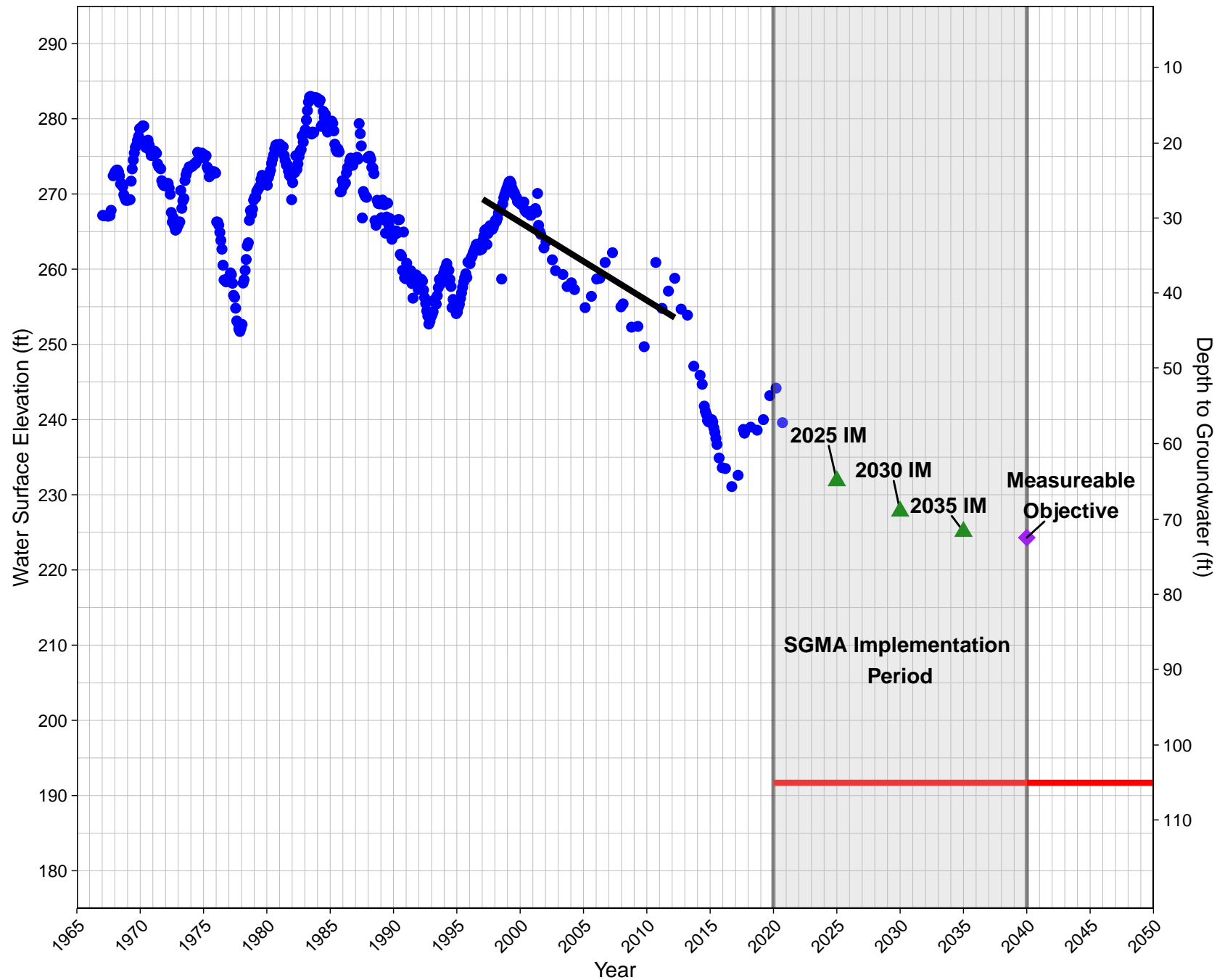


CID34

State Well ID: 16S22E23R001M

Ground Surface Elevation: 297 ft

South Kings Groundwater Sustainability Agency



Interim Milestones (IM)



Measureable Objective



Measurements



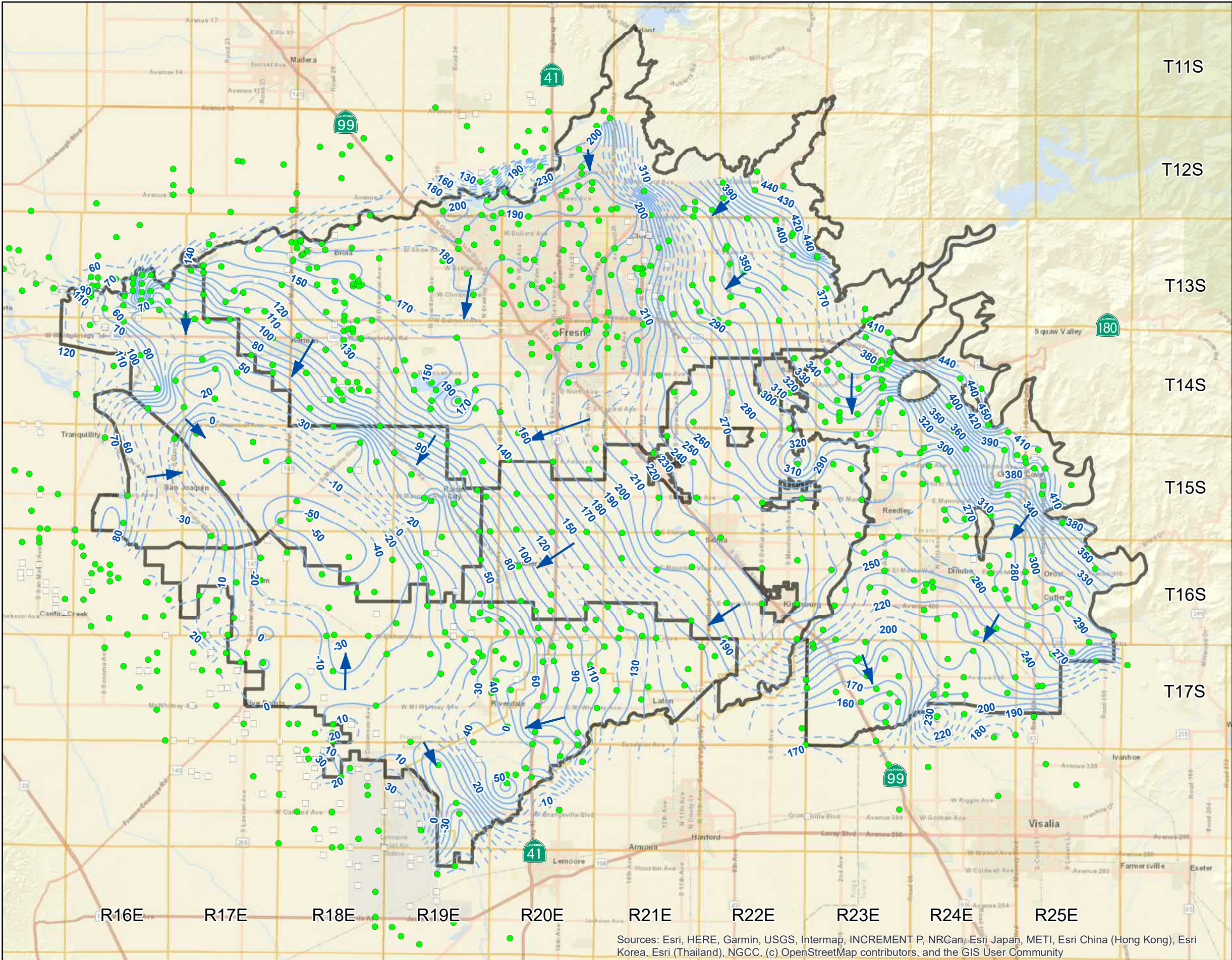
Minimum Threshold



Trendline

Appendix D – Groundwater Contour Maps – Water Surface Elevations

- | | |
|----------|--------------------------|
| Figure 1 | Spring 2015 WSE Contours |
| Figure 2 | Spring 2016 WSE Contours |
| Figure 3 | Spring 2017 WSE Contours |
| Figure 4 | Spring 2018 WSE Contours |
| Figure 5 | Fall 2018 WSE Contours |
| Figure 6 | Spring 2019 WSE Contours |

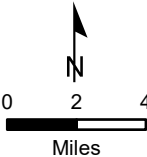


Kings Subbasin
Coordinated Effort
Kings Coordinated Effort GSAs
Fall 2015
Groundwater Elevation Contours

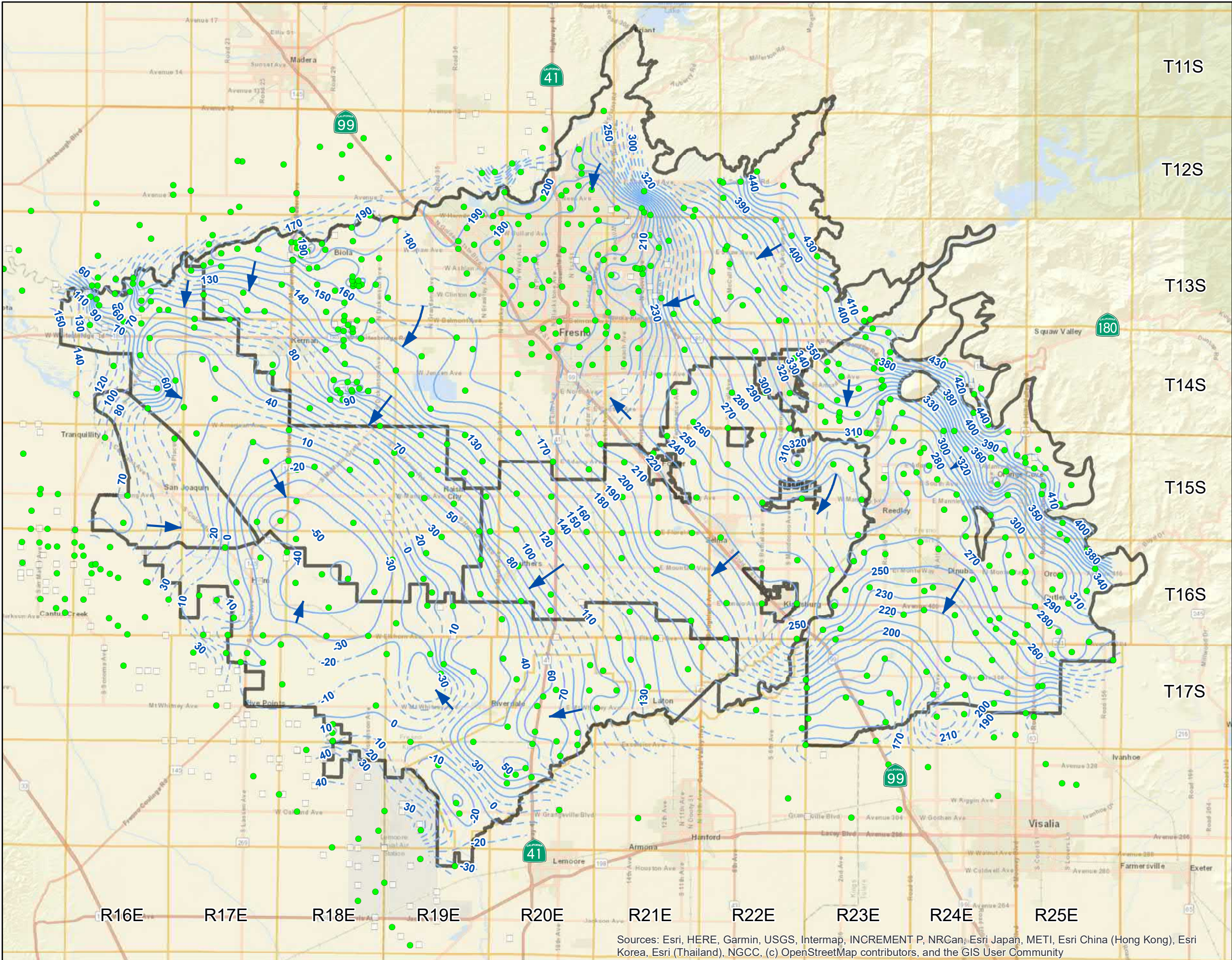
Legend

- Kings Subbasin GSAs
- Township/Range
- Well - Data Used
- Well - Data Not Used
- Generalized GW Flow Direction
- Water Level Contours**
 - Line of Equal Elevation (10ft interval)
 - *Dashed where inferred

Map Date: 3/30/2021



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

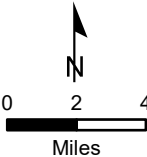


Kings Subbasin
Coordinated Effort
Kings Coordinated Effort GSAs
Fall 2016
Groundwater Elevation Contours

Legend

- Kings Subbasin GSAs
- Township/Range
- Well - Data Used
- Well - Data Not Used
- Generalized GW Flow Direction
- Water Level Contours**
 - Line of Equal Elevation (10ft interval)*
 - *Dashed where inferred

Map Date: 3/30/2021

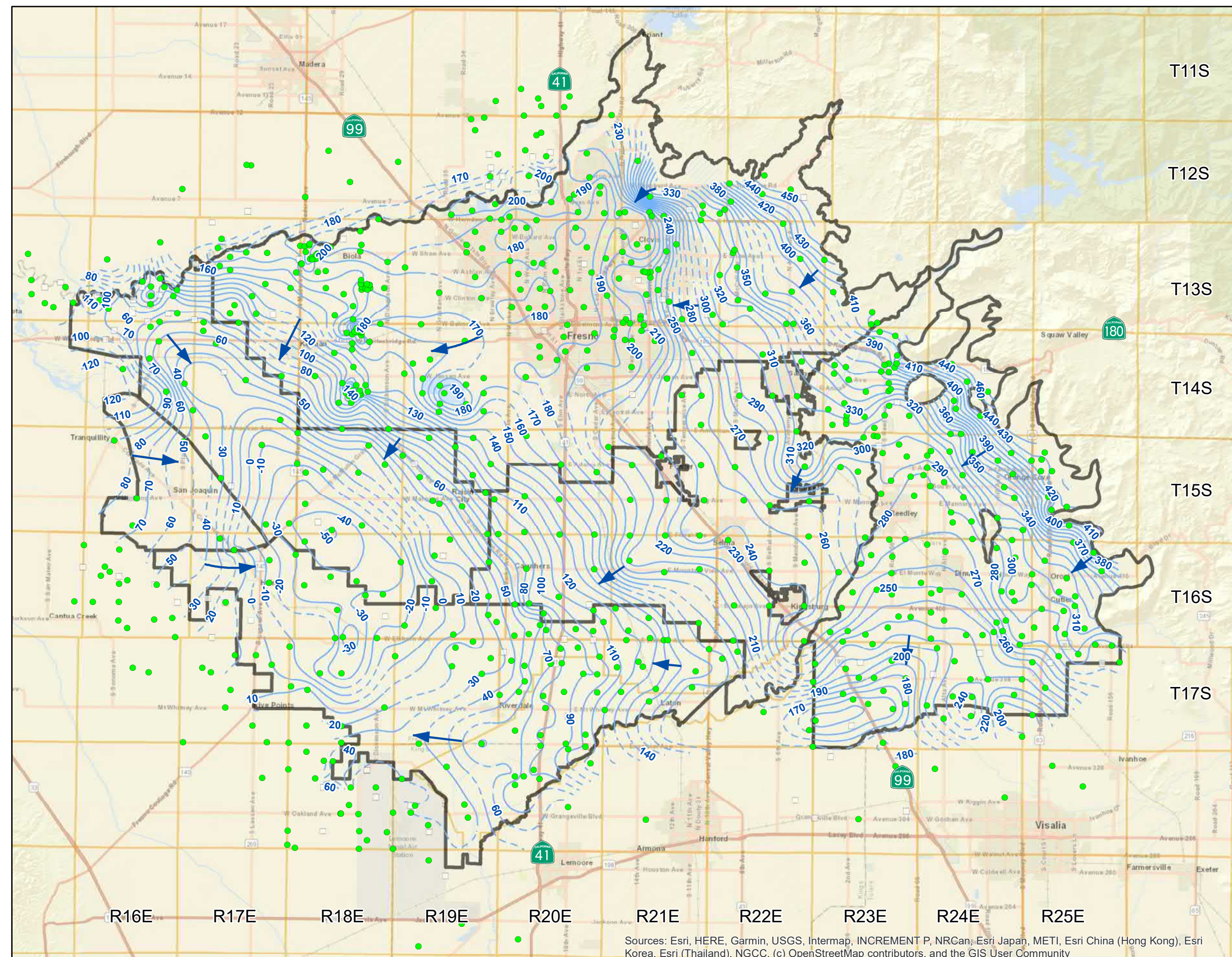


Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

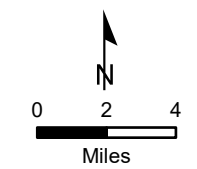
Kings Subbasin
Coordinated Effort
Kings Coordinated Effort GSAs
Fall 2017
Groundwater Elevation Contours

Legend

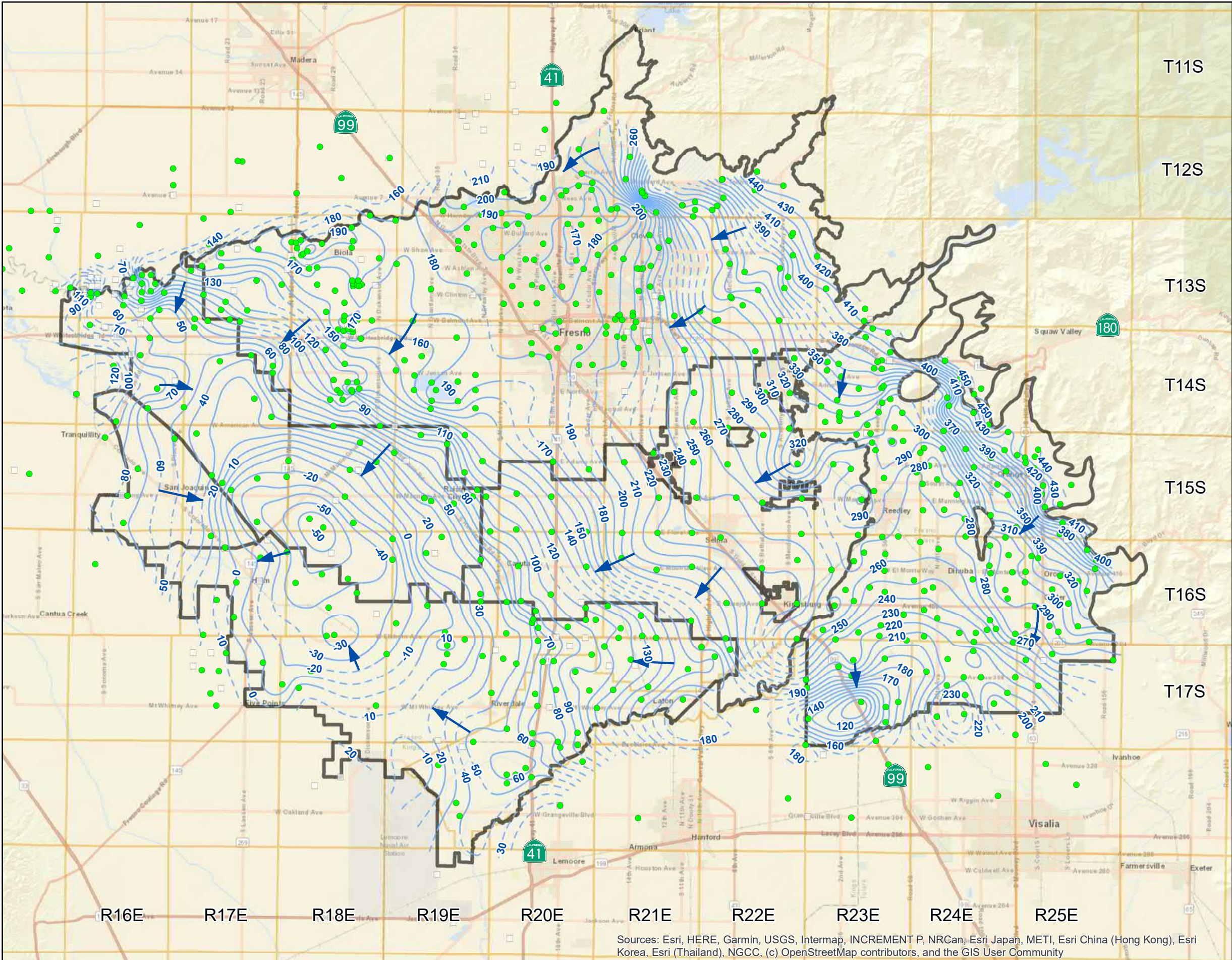
- Kings Subbasin GSAs
- Township/Range
- Well - Data Used
- Well - Data Not Used
- Generalized GW Flow Direction
- Water Level Contours**
 - Line of Equal Elevation (10ft interval)
 - *Dashed where inferred

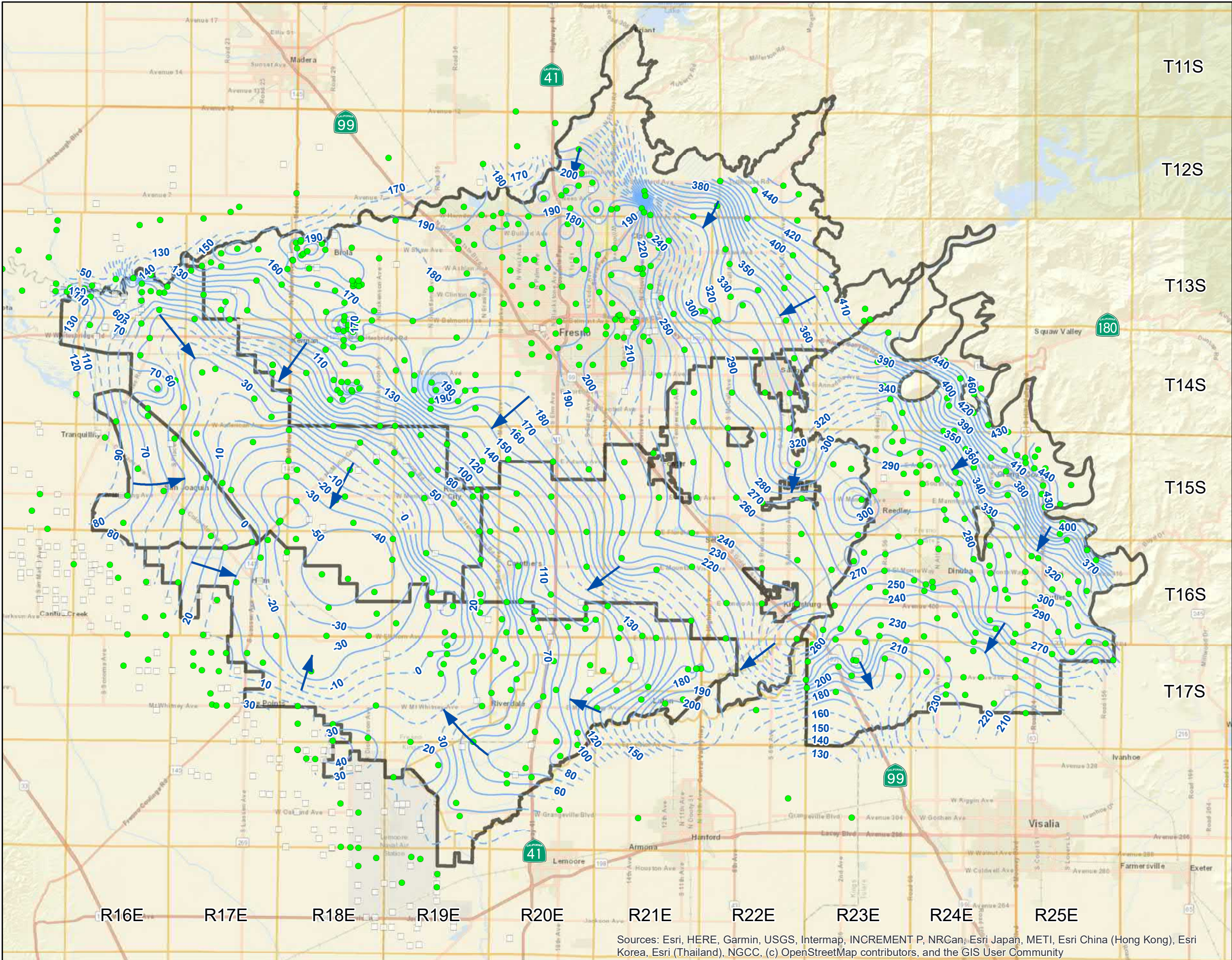


Map Date: 3/30/2021



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



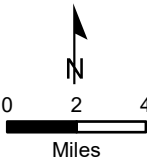


Kings Subbasin
Coordinated Effort
Kings Coordinated Effort GSAs
Fall 2019
Groundwater Elevation Contours

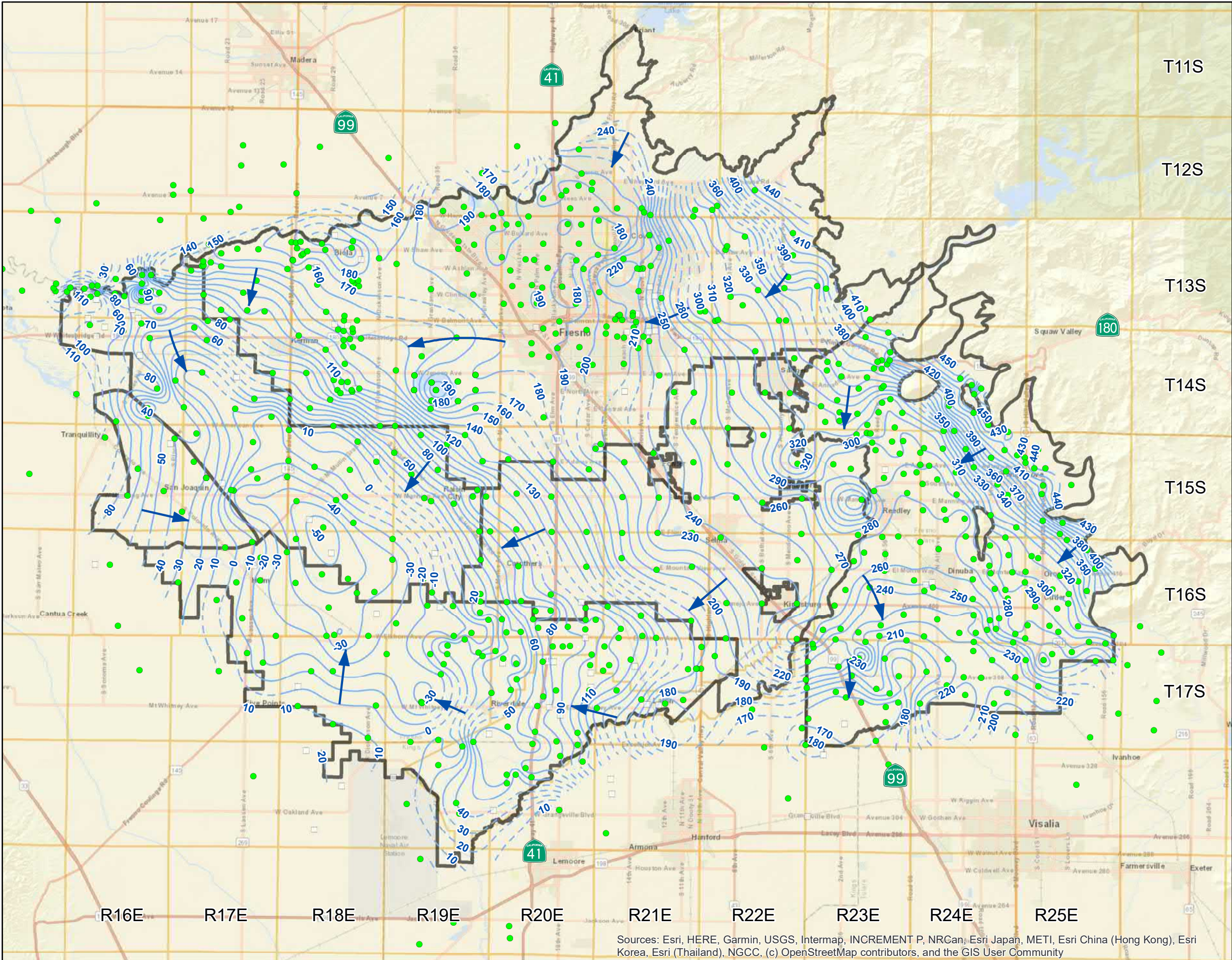
Legend

- Kings Subbasin GSAs
- Township/Range
- Well - Data Used
- Well - Data Not Used
- Generalized GW Flow Direction
- Water Level Contours**
 - Line of Equal Elevation (10ft interval)
 - *Dashed where inferred

Map Date: 3/30/2021



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



Kings Subbasin
Coordinated Effort
Kings Coordinated Effort GSAs
Fall 2020
Groundwater Elevation Contours

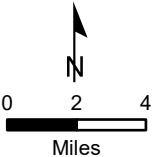
Legend

- Kings Subbasin GSAs
- Township/Range
- Well - Data Used
- Well - Data Not Used
- Generalized GW Flow Direction

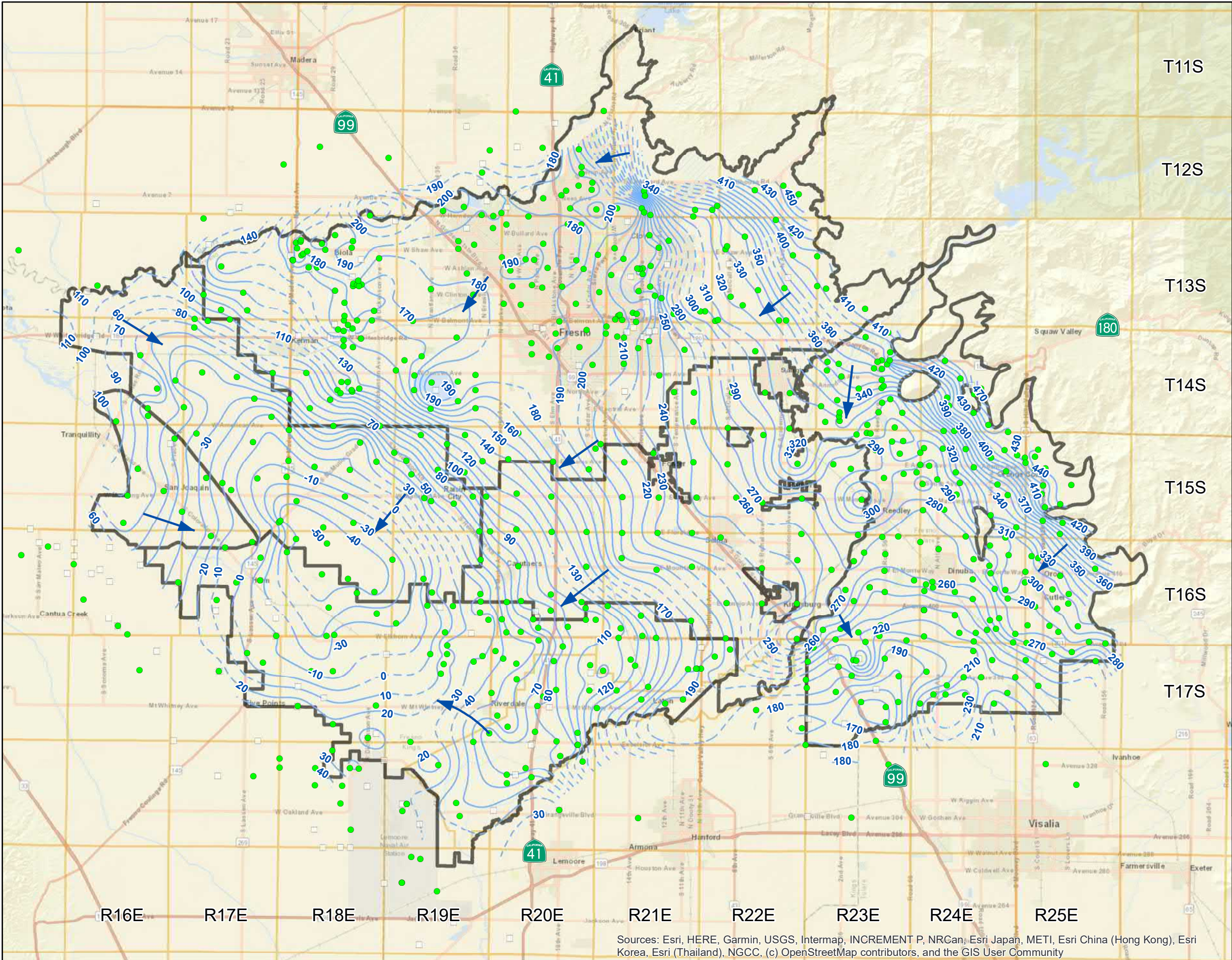
Water Level Contours

- Line of Equal Elevation (10ft interval)
- *Dashed where inferred

Map Date: 3/30/2021



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

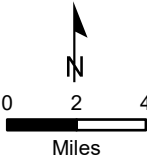


Kings Subbasin
Coordinated Effort
Kings Coordinated Effort GSAs
Spring 2020
Groundwater Elevation Contours

Legend

- Kings Subbasin GSAs
- Township/Range
- Well - Data Used
- Well - Data Not Used
- Generalized GW Flow Direction
- Water Level Contours**
 - Line of Equal Elevation (10ft interval)
 - *Dashed where inferred

Map Date: 3/30/2021



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community