



Merced Groundwater Subbasin

GROUNDWATER SUSTAINABILITY PLAN

Water Year 2025 Annual Report

Image courtesy: Veronica Adrover/UC Merced





**MERCED
GROUNDWATER
SUBBASIN
GROUNDWATER
SUSTAINABILITY
PLAN:**

**WATER YEAR
2025 ANNUAL
REPORT**

801 T Street
Sacramento, California 95811
800.426.4262

March 2026

woodardcurran.com

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ACRONYMS

Acronym	Definition
AFY	Acre-Feet per Year
APA	Additional Pumping Allowance
AWMP	Agricultural Water Management Plan
CCR	California Code of Regulations
CDEC	California Data Exchange Center
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CWC	California Water Code
DDW	Division of Drinking Water
DOC	California Department of Conservation
DPR	California Department of Pesticide Regulation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EC	electrical conductivity
ESJWQC	East San Joaquin Water Quality Coalition
GAMA	Groundwater Ambient Monitoring and Assessment
GAP	groundwater accounting platform
GPS	global positioning system
GQTMP	Groundwater Quality Trend Monitoring Program
GRAT	Groundwater Recharge Assessment Tool
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
ILRP	Irrigated Lands Regulatory Program
InSAR	Interferometric Synthetic Aperture Radar
IRWM	Integrated Regional Water Management
IWFM	Integrated Water Flow Model
LGAWD	Le Grand Athlone Water District
LiDAR	Light Detection and Ranging
MAF	million acre-feet
MAR	managed aquifer recharge
MCL	Maximum Contaminant Level
MCWD	Merquin County Water District
MercedMAR	Merced Subbasin Integrated Managed Aquifer Recharge Evaluation Tool
MID	Merced Irrigation District
MIUGSA	Merced Irrigation-Urban Groundwater Sustainability Agency
MLRP	Multibenefit Land Repurposing Program
MSGSA	Merced Subbasin Groundwater Sustainability Agency
NASA	National Aeronautics and Space Administration
NRCS	National Resources Conservation Service
PMA	projects and management actions
PRISM	Precipitation-Elevation Regressions on Independent Slopes Model
SDAC	Severely Disadvantaged Community
SGM	Sustainable Groundwater Management

SGMA	Sustainable Groundwater Management Act
SJRRP	San Joaquin River Restoration Program
SMC	sustainable management criteria
SMCL	secondary maximum contaminant level
SYNG	Sustainable Yield of Native Groundwater
TAF	thousand acre-feet
TDS	total dissolved solids
TIWD	Turner Island Water District
TIWD GSA-1	Turner Island Water District Groundwater Sustainability Agency #1
USBR	United States Bureau of Reclamation
USGS	United States Geological Survey
WY	water year

EXECUTIVE SUMMARY

The Merced Groundwater Subbasin (Subbasin) Groundwater Sustainability Plan (GSP) was adopted in late 2019 by the three Groundwater Sustainability Agencies (GSAs) that were formed in accordance with the Sustainable Groundwater Management Act (SGMA) to coordinate, develop, and implement a GSP for the Subbasin: Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), Merced Subbasin Groundwater Sustainability Agency (MSGSA), and Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1) (MIUGSA, MSGSA, & TIWD GSA-1, 2025). The GSP was initially submitted to the California Department of Water Resources (DWR) in January 2020, ahead of the January 31, 2020 regulatory deadline for submission of GSPs for critically overdrafted subbasins.

On January 28, 2022, DWR completed its review and evaluation of the Merced Subbasin GSP and made a determination that it was “incomplete.” The three GSAs worked collaboratively to respond to DWR’s comments and engage stakeholders and members of the public to address three identified deficiencies from February through June 2022. A revised GSP was adopted and submitted to DWR in July 2022 with updates in key places to address DWR’s recommendations.







On August 4, 2023, DWR formally approved the 2022 revised GSP, but provided a set of recommended corrective actions to further assist the GSAs with implementation of the GSP and achieving Subbasin sustainability goals (DWR, 2023). The GSAs developed an updated 2025 GSP and 2025 Periodic Evaluation which were both submitted to DWR in January 2025 and include responses to the recommended corrective actions. This Annual Report compares recent observations against the published sustainable management criteria (SMC) from the 2025 GSP.

California Water Code (CWC) §10728 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the GSP. This is the seventh annual report.

Section 356.2 of Title 23 of the California Code of Regulations (23 CCR § 356.2) requires annual reports to include information about groundwater elevations (contour maps and hydrographs), groundwater extraction, surface water supply, changes in groundwater storage, and a description of progress towards implementation of the GSP since the previous annual report. Table ES-1 provides a summary of the definition of undesirable results and summary of compliance with the SMC.

For WY 2025, the San Joaquin Valley Water Year Type Index was 2.55, classified as a below normal year type. The value of 2.55 is 79% of average (DWR, 2026). Following two years of wet and above normal conditions, the Subbasin experienced below average precipitation within the basin, below average streamflows, less abundant surface water supplies, and more demands for applied water relative to previous years. Together, these factors contributed to a decline in groundwater levels and groundwater storage.

Table ES-1-1: Summary of Sustainable Management Criteria

Sustainability Indicator	Minimum Threshold (MT)	Interim Milestone (IM)	Measurable Objective (MO)	Undesirable Result	WY 2025 Annual Report Status
 Groundwater Levels	Fall 2015 groundwater elevation	Based on range of projected values that account for hydrologic uncertainty	November or October 2011 groundwater elevation (measured, or estimation if historical record not available)	Greater than 25% of representative wells below MT in 2 consecutive years	10/29 wells (34%) are below MT. 26 of 29 wells are below MO. 3/29 are below 2025 IM. 2 wells not measured.
 Groundwater Storage	Groundwater levels used as a proxy for this sustainability indicator				
 Seawater Intrusion	Not applicable - not present and not likely to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta)				
 Degraded Water Quality	1,000 mg/L TDS	1,000 mg/L TDS	500 mg/L TDS	At least 25% representative wells exceed MT for 2 consecutive years	No wells exceeded MT. 3 wells exceeded MO.
 Land Subsidence	0 ft/year, subject to uncertainty of +/-0.16 ft/year	2025: -0.75 ft/year 2030: -0.5 ft/year 2035: -0.25 ft/year	0 ft/year	Exceedance of MT at 3 or more representative sites for 2 consecutive years	3/4 sites exceed MT. All sites within 2025 IM.
 Depletions of Interconnected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator				

Groundwater Levels

Generally, groundwater level decreases were observed in WY 2025. Based on data from 17 monitoring network wells in the Above Corcoran Clay Principal Aquifer, average groundwater level change was -3.7 ft from fall 2024 to fall 2025. Based on data from 20 wells in the Below Corcoran Clay Principal Aquifer, average groundwater level change was -3.4 ft from fall 2024 to fall 2025. Based on data from 17 wells in the Outside Corcoran Clay Principal Aquifer, average groundwater level change was -5.2 ft from fall 2024 to fall 2025. Hydrographs and contour maps of groundwater elevation can be found in **Appendix A** and **Appendix B**, respectively.

Approximately 34% of wells had groundwater levels below the MT. In the prior water year, WY 2024, 21% of wells had groundwater levels below the MT, so the formal definition of undesirable results is not met in WY 2025. Further, per DWR's draft Best Management Practice guidance document for sustainability

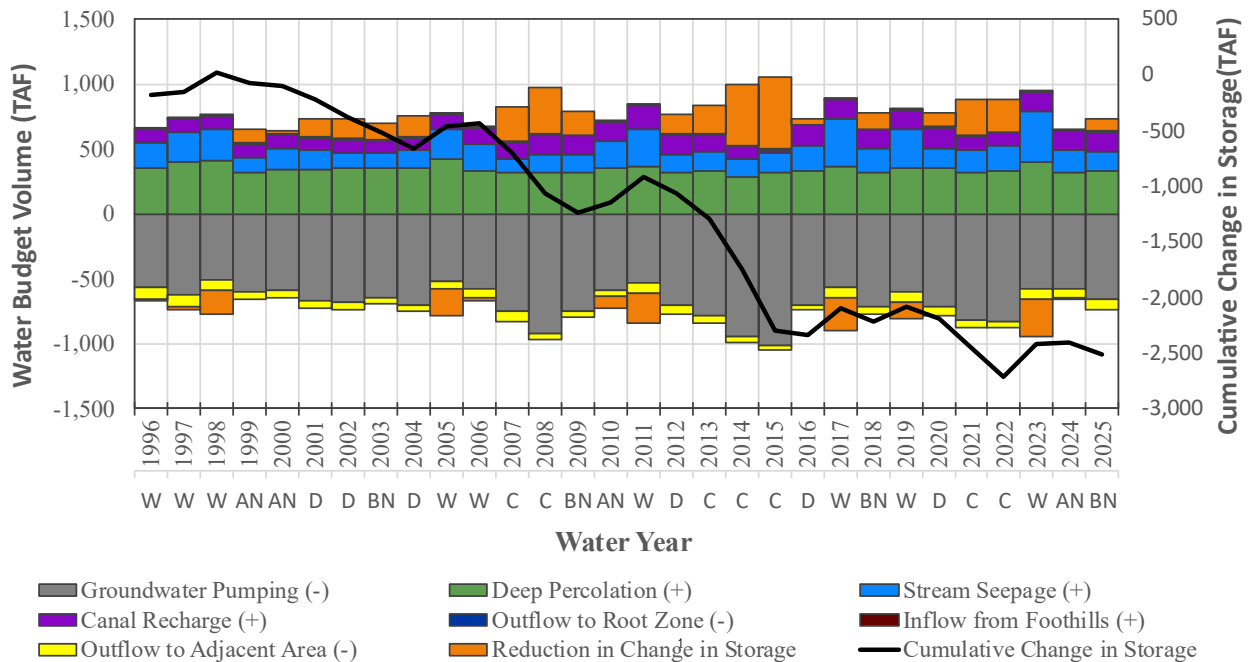
management criteria, “Avoidance of the defined undesirable results must be achieved within 20 years of GSP implementation. Some basins may experience undesirable results within the 20-year period, particularly if the basin has existing undesirable results as of January 1, 2015. The occurrence of one or more undesirable results within the initial 20-year period does not, by itself, necessarily indicate that a basin is not being managed sustainably, or that it will not achieve sustainability within the 20-year period” (DWR, 2017). Note that all measurements except for three (Station IDs 8604, 47541, and 47553) are above the 2025 IM. IMs were established to facilitate the Subbasin reaching its measurable objectives for groundwater levels. The GSAs expected some level of continued groundwater level decline in much of the Subbasin while projects and management actions are being developed and implemented, and due to hydrologic uncertainty. Thus, the IMs for groundwater levels allow for temporary groundwater level decline below the MT.

Groundwater Storage

The Merced Water Resources Model (MercedWRM) was updated with recent hydrologic and Subbasin operation information from WY 2025 to estimate the change in storage trends in the Merced Subbasin. The cumulative change in storage during water years 2006-2025 was estimated as -2.05 million acre-feet (MAF), or an average reduction of 103 thousand acre-feet (TAF) per year. During WY 2025, the cumulative change in storage was estimated as a decrease of 98 TAF. Note that the average annual reduction of 130 TAF per year established in the 2025 GSP using the hydrologically balanced period of WYs 2006-2022 remains the current estimate of long-term overdraft in the Subbasin.

Figure ES-1-1 shows the cumulative change in storage together with annual groundwater uses developed in the water budget; information is presented by water year, with water year type also provided. On the figure, cumulative change in storage (WYs 1996-2025) is shown as a black line with values indicated on the right vertical axis and the annual groundwater budget uses are shown as bar charts with values indicated on the left vertical axis.

Figure ES-1-1: Historical Annual Water Budget and Cumulative Change in Storage



Notes:

"Change in Storage" is placed on the chart to balance the water budget. For instance, if annual outflows (-) are greater than inflows (+), there is a decrease in storage, and this is shown on the positive side of the bar chart to balance out the increased outflows on the negative side of the bar chart.

Water year types based on San Joaquin Valley Water Year Index (DWR, 2026).

X-Axis Abbreviation	Description
W	Wet year type
AN	Above normal year type
BN	Below normal year type
D	Dry year type
C	Critically dry year type

Land Subsidence

Subsidence remains an ongoing concern in the Subbasin. Until July 2025, subsidence was measured through elevation monitoring at static GPS control points throughout a portion of the San Joaquin Valley by the United States Bureau of Reclamation (USBR) as part of the San Joaquin River Restoration Program. Per February 2026 communication with USBR, bi-annual subsidence monitoring is no longer needed for SJRRP purposes and has concluded as of the July 2025 survey. The GSAs are currently exploring options available for ongoing subsidence monitoring, but have used Interferometric Synthetic Aperture Radar (InSAR) data for purposes of this annual report. Based on InSAR data, ground surface elevation at the previously used representative control point locations in the Merced Groundwater Subbasin declined over the past year (October 2024 to October 2025), indicating land subsidence.

Subsidence is a gradual, regional process that takes time to develop and time to halt. As a result, some level of future subsidence, likely at rates similar to those experienced 2015 to 2025, is likely to be underway already and will not be able to be prevented.

Groundwater Quality

The GSAs established an MT for the degraded water quality sustainability indicator of 1,000 milligrams per liter (mg/L) of total dissolved solids (TDS) at representative monitoring sites. The MO and all IMs were set at 500 mg/L TDS. The GSAs are using electrical conductivity (EC) to estimate TDS where not sampled. Out of the 11 TDS measurements (direct or estimated) in WY 2025, none exceeded the MT or MO.

In addition to monitoring for TDS, the GSAs are conducting water quality coordination activities for other water quality constituents. These activities include review of monitoring reports published by other monitoring programs as well as compiling data submitted by the Department of Pesticide Regulation (DPR), State Water Resources Control Board Division of Drinking Water (DDW), and Department of Toxic Substances Control (DTSC) to the Groundwater Ambient Monitoring and Assessment (GAMA) database. The purpose of these reviews is to monitor the status of constituent concentrations throughout the Subbasin with respect to typical indicators such as maximum contaminant levels (MCL) or secondary maximum contaminant levels (SMCL). The GSAs have collected information from GAMA and will use this information to document regional groundwater quality and to assess whether there is a need for changing existing SMC or developing additional SMC for water quality as part of the GSP periodic evaluation.

Plan Implementation Progress

The GSAs made meaningful progress in GSP implementation in WY 2025, as described in the sections below.

Implementation of Projects

GSP projects are included in the Merced Integrated Regional Water Management (MercedIRWM) Opti project tracker, which, along with the GSP, is viewed by the GSAs as a “living” document. The GSAs have added numerous projects to the Opti project tracker in addition to the original 12 priority projects identified in the GSP. Updates to specific projects are described in Section 3.2 of this annual report. Future updates to the Opti project tracker will be incorporated into subsequent annual reports.

Implementation of Management Actions

The 2025 GSP includes five management actions. Progress during WY 2025 on these management actions are described below.

For the **water allocation framework**, an Ad Hoc Working Group was previously established with GSA staff and representatives to conduct discussions on an initial framework. Currently, the GSAs are continuing to work individually within their own jurisdictions to implement GSA-specific demand reduction and water allocation programs. A formal allocation agreement between the GSAs for the Subbasin as a whole has not been developed and is not scheduled for the upcoming water year.

The **MSGSA Demand Reduction Program** has begun implementation and continues to develop in recognition of the need to reduce groundwater pumping in the Subbasin. The MSGSA approved an objective that by WY 2025 the consumption of groundwater within the MSGSA will be reduced by a minimum of 15,000 AF annually, with this minimum to be increased annually thereafter. Through the Phase 1 activities, 14,128 acres of land have been repurposed for terms of three to five years and 163,775 AF of surface water has been diverted into the MSGSA for direct use in 2023, 2024, and 2025. In WY 2025, the approximate consumptive use reduction from land repurposing was 4,655 AF. 46,227 AF of surface water

use was reported to the GSA to receive a credit through the allocation program, but note that this does not fully account for all surface used within the GSA. MSGSA adopted the Groundwater Allocation Rule on October 10, 2024, which will achieve the significant reduction in the consumptive use of groundwater needed to reach sustainability as part of Phase 2. The Groundwater Allocation Rule sets the Sustainable Yield of Native Groundwater consumption allocation at 13 inches per acre for all Sustainability Zones within the GSA and an Additional Pumping Allowance starting at 11 inches per acre, declining every year until 2035. The Groundwater Allocation Rules went into effect January 1, 2026. 2025 was a test-run year for the allocation; the MSGSA conducted outreach to landowners to encourage registration on the Groundwater Accounting Platform and provided in person and online technical assistance setting up Water Accounts, managing parcel misclassifications, and Opt-in's according to the Rule.

The **MIUGSA Groundwater Allocation** program is underway, with several adopted Rules and Regulations that include an allocation program in addition to establishing a framework for measuring, monitoring, and enforcing the groundwater allocation through well registration and groundwater usage reporting systems. In January 2026, the MIUGSA Board extended the existing groundwater extraction allocation for agricultural parcels of 3.3 AF/ac over three years (1.1 AF/ac/yr on average) from January 1, 2026 through December 31, 2028. Previous policy adoptions for well registration requirements meant that by August 2024, effectively all agricultural wells serving greater than 10 acres have been registered with MIUGSA. Over the past year, MIUGSA prioritized implementation of the multi-year groundwater allocation and undertook a detailed review and correction of well locations and attributes in the State's Online System for Well Completion Reports database. This upfront data-cleaning effort has significantly improved the accuracy of MIUGSA's well inventory and will streamline the registration process for landowners once formal registration is initiated. In June 2024, the MIUGSA Board adopted an allocation for non-agricultural users of 1.4 AF/ac/yr through 2031, followed by an allocation of 1.1 AF/ac/yr after 2031 through 2040.

Significant progress was made on the development of the **Domestic Well Mitigation Program** in WY 2025, culminating in the adoption by all three GSAs in January/February 2026. The intent of this program is to respond to adverse impacts experienced by domestic well users where regional overdraft conditions occurring after January 2020 are causing declining groundwater levels that interfere with groundwater production or quality. Moreover, the program is solely focused on addressing impacts associated with groundwater level declines and not centered on addressing impacts caused by aging, faulty, or ill-maintained domestic well infrastructure. The program defines several eligibility criteria. If a well is eligible for mitigation, the Program will provide a Mitigation award, including the combination of approved Long-Term Mitigation Measures and amount of financial assistance. The program will issue reimbursement, in the maximum amount for full mitigation of \$30,000. In WY 2026, the GSAs anticipate developing and implementing the mechanics of the program, including setting up an intake form for requests and determining the logistics of how the requests will be routed for review and assistance.

The **Above Corcoran Sustainable Management Criteria Adjustment Consideration** management action would consider an adjustment to the groundwater level SMC for all or a portion of the Above Corcoran Clay Principal Aquifer. Monitoring wells installed in WYs 2023-2025 will provide much-needed supporting data for development of this management action. No action has been taken on this management action at this time.

Activities Anticipated for the Coming Year

The three GSAs intend to continue activities necessary to implement the GSP and put the Subbasin on a path toward sustainable management. Activities anticipated for 2026 include continuation of grant-funded projects, implementation of the groundwater accounting platform, implementation of the Domestic Well Mitigation Program, making progress on internal GSA-specific implementation of pumping reductions and water allocation frameworks, and more.

1. INTRODUCTION

The Merced Groundwater Subbasin (Subbasin) Groundwater Sustainability Plan (GSP) was initially adopted in late 2019 by the three Groundwater Sustainability Agencies (GSAs) that were formed in accordance with the Sustainable Groundwater Management Act (SGMA) to coordinate, develop, and implement the GSP: Merced Irrigation-Urban Groundwater Sustainability Agency (MIUGSA), Merced Subbasin Groundwater Sustainability Agency (MSGSA), and Turner Island Water District Groundwater Sustainability Agency #1 (TIWD GSA-1) (MIUGSA, MSGSA, & TIWD GSA-1, 2025). The GSP was initially submitted to the California Department of Water Resources (DWR) in January 2020, ahead of the January 31, 2020 regulatory deadline for submission of GSPs for critically overdrafted subbasins.

On January 28, 2022, DWR completed its review and evaluation of the Merced Subbasin GSP and made a determination that it was “incomplete.” The three GSAs worked collaboratively to respond to DWR’s comments and engage stakeholders and members of the public to address three identified deficiencies from February through June 2022. A revised GSP was adopted and submitted to DWR in July 2022 with updates in key places to address DWR’s recommendations.

On August 4, 2023, DWR formally approved the 2022 revised GSP, but provided a set of recommended corrective actions to further assist the GSAs with implementation of the GSP and achieving Subbasin sustainability goals (DWR, 2023). The GSAs developed a 2025 Periodic Evaluation and an updated 2025 GSP, which were both submitted to DWR in January 2025 and include responses to the recommended corrective actions. At the time of publication, both documents are still under review by the DWR. This Annual Report compares recent observations against the published sustainable management criteria (SMC) from the 2025 GSP.

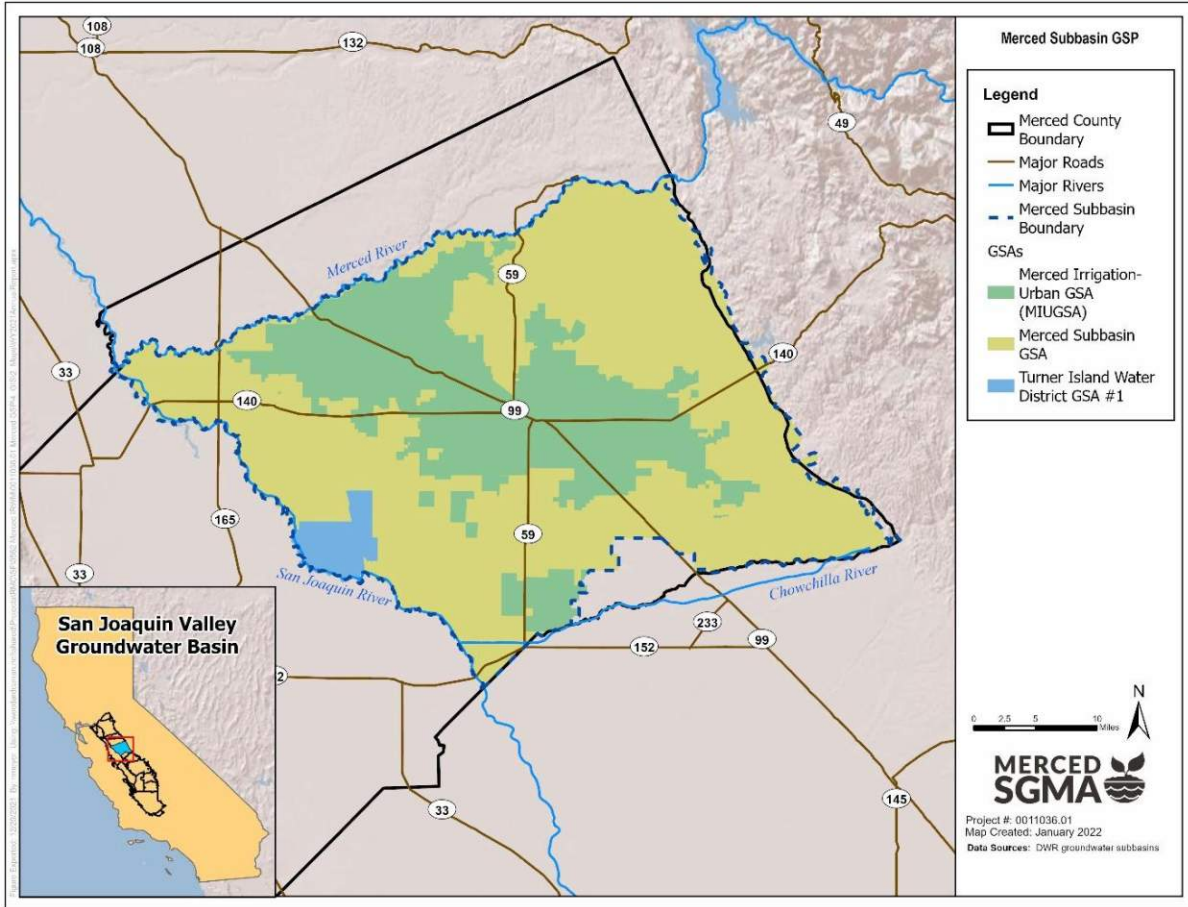
California Water Code (CWC) §10728 requires the submission of an annual report to DWR by April 1 of each year following the adoption of the GSP. This is the seventh annual report.

Section 356.2 of Title 23 of the California Code of Regulations (23 CCR § 356.2) requires annual reports to include information about groundwater elevations (contour maps and hydrographs), groundwater extraction, surface water supply, changes in groundwater storage, and a description of progress towards implementation of the GSP since the previous annual report.

The annual report is organized into two primary sections: Basin Settings and Plan Implementation Progress. The Basin Settings section provides updates to water budgets and other Subbasin-wide information for Water Year (WY) 2025 (October 1, 2024 – September 30, 2025). The Plan Implementation Progress section discusses progress on implementation of the GSP since the last Annual Report was submitted.

Figure 1-1 shows a map of the Merced Subbasin and the extent of the three GSAs. An inset map shows the location of the Merced Subbasin within the larger San Joaquin Valley Groundwater Basin located in the Central Valley of California. A more detailed description of the Merced Subbasin can be found in the GSP’s Section 1.2 (Plan Area) and Section 2.1 (Hydrogeologic Conceptual Model).

Figure 1-1: Location Map



2. BASIN SETTING

2.1 Hydrology

While groundwater management is critical for long-term sustainability, hydrology remains a critical driver on shorter time frames, such as WY 2025 covered by this annual report.

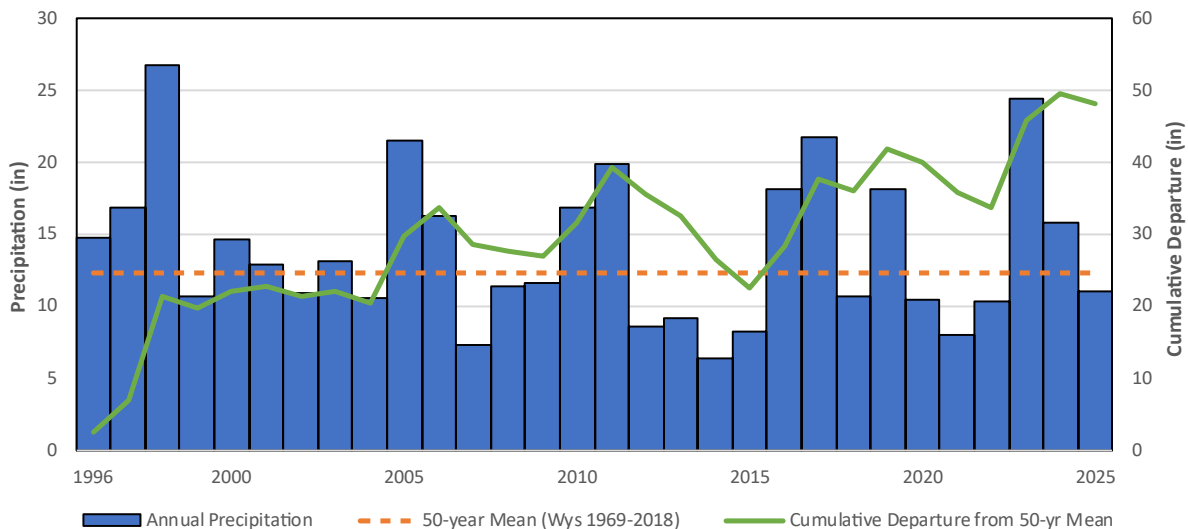
WY 2025 has been classified by DWR's San Joaquin Valley Water Year Index as below normal year (DWR, 2026). This contrasts with prior WY 2024 (above normal), WY 2023 (wet), and WYs 2021 and 2022 (critically dry). Figure 2-1 shows the annual precipitation and cumulative departure from mean precipitation¹ for WY 1996 through WY 2025, showing that the WY 2025 precipitation was lower than the prior "above normal" year, and slightly lower than the long-term average. In addition to precipitation, streamflow, driven substantially by winter snowpack, is also important to shorter-term groundwater conditions. Streamflow in the Merced River in WY 2025 averaged 274 cubic feet per second (cfs), which is lower than the 576 cfs of prior "above normal" WY 2024 and 1,881 cfs of "wet" WY 2023.²

These hydrologic trends should be considered when reviewing trends in sustainability indicators and using those trends to assess the effectiveness of overall groundwater management.

¹ Under this method, the long-term average precipitation is subtracted from annual precipitation within each water year to develop the departure from mean precipitation for each water year. Wet years have a positive departure and dry years have a negative departure; a year with exactly average precipitation would have zero departure. Starting at the first year analyzed, the departures are added cumulatively for each year. So, if the departure for Year 1 is 5 inches and the departure for Year 2 is -2 inches, the cumulative departure would be 5 inches for Year 1 and 3 inches (5 plus -2) for Year 2. A chart is used to graphically illustrate the cumulative departure from mean precipitation. The chart includes bars displaying annual precipitation for each water year starting in 1996, with a horizontal line representing the mean precipitation of 12.3 inches (1969-2018, from GSP). The cumulative departure from mean precipitation is displayed as a line that starts at zero and highlights wet periods with upward slopes and dry periods with downward slopes. More severe events are shown by steeper slopes and greater changes. Thus, the period from 2012 to 2015 illustrates a short period with dry conditions (16.8-inch decline in cumulative departure over 4 years).

² Source: CDEC for Station ID MBN (MERCED R AT SHAFFER BRIDGE NR CRESSY).

Figure 2-1: Cumulative Departure from Mean Precipitation, Merced, California



2.2 Groundwater Elevations

Groundwater levels generally declined during WY 2025. Out of 29 representative monitoring wells, 10 had October/November 2025 elevations below the minimum threshold (MT), 26 had October/November 2025 elevations below the measurable objective (MO), and 2 wells were not measured. The 2025 GSP defines undesirable results as “during GSP implementation when November groundwater levels at greater than 25 percent of representative monitoring wells (at least 8 of 29) fall below their minimum thresholds for two consecutive years” (MIUGSA, MSGSA, & TIWD GSA-1, 2025). Approximately 34% of wells had groundwater levels below the MT. In prior WY 2024, only 21% of wells had groundwater levels below the MT, so the formal definition of undesirable results is not met in WY 2025.

Additionally, per DWR’s draft Best Management Practice guidance document for sustainability management criteria, “Avoidance of the defined undesirable results must be achieved within 20 years of GSP implementation...Some basins may experience undesirable results within the 20-year period, particularly if the basin has existing undesirable results as of January 1, 2015. The occurrence of one or more undesirable results within the initial 20-year period does not, by itself, necessarily indicate that a basin is not being managed sustainably, or that it will not achieve sustainability within the 20-year period” (DWR, 2017). Note that all measurements except for three (Station IDs 8604, 47541, and 47553) are above the 2025 IM. IMs were established to facilitate the Subbasin reaching its measurable objectives for groundwater levels. The GSAs expected some level of continued groundwater level decline in much of the Subbasin while projects and management actions are being developed and implemented, and due to hydrologic uncertainty. Thus, the IMs for groundwater levels allow for temporary groundwater level decline below the MT.

Based on data from 17 monitoring network wells in the Above Corcoran Clay Principal Aquifer, average groundwater level change was -3.7 ft from fall 2024 to fall 2025. Based on data from 20 wells in the Below Corcoran Clay Principal Aquifer, average groundwater level change was -3.4 ft from fall 2024 to fall 2025. Based on data from 17 wells in the Outside Corcoran Clay Principal Aquifer, average groundwater level change was -5.2 ft from fall 2024 to fall 2025. These values do not account for the uneven distribution of

the monitoring wells throughout the Subbasin, but the overall values still function to provide an overview of trends based on available data. Figure 2-2 shows the location of the wells in the Merced Subbasin GSP monitoring network for groundwater levels.

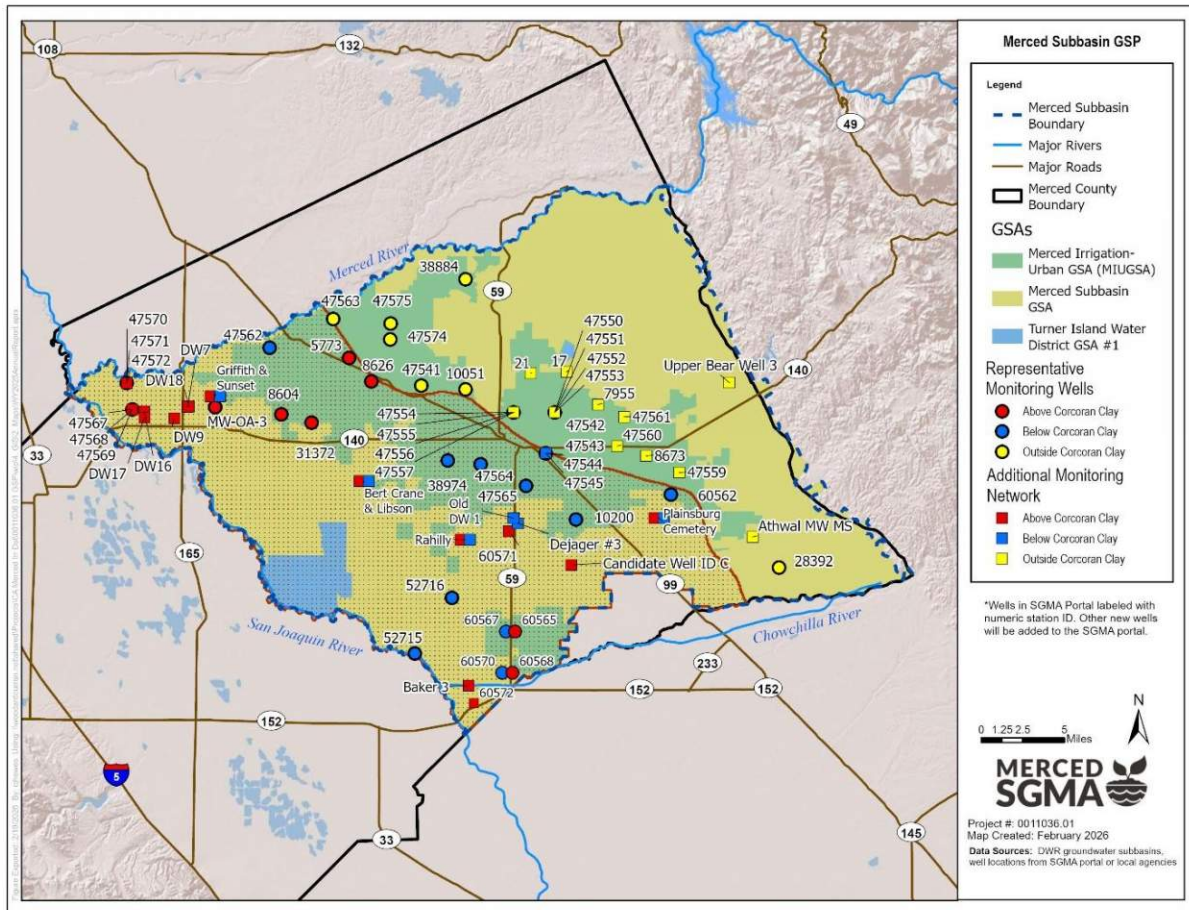
Individual hydrographs for these wells can be found in **Appendix A**. All available data are shown, except for measurements flagged for quality control reasons. Hydrographs for representative monitoring wells also display the MT, MO, and 2025 IM, as defined in Chapter 3 (Sustainability Indicators) of the GSP, as updated in 2025. The hydrographs also show a water year type indicator according to the San Joaquin Valley Water Year Hydrologic Classification Index. As previously stated, WY 2025 has been categorized as a below normal water year (DWR, 2026). Monitoring network data have been uploaded to the SGMA Portal and are displayed in the Merced Opti data management system (<https://opti.woodardcurran.com/merced>).

Figure 2-2 includes the locations of four new sets of multiple completion wells installed in winter 2025 (labeled "Griffith & Sunset", "Rahilly", "Bert Crane & Libson", and "Plainsburg Cemetery"). Each well site consists of a dual-completion monitoring well, with one casing monitoring the Above Corcoran Clay Aquifer and a second casing monitoring the Below Corcoran Clay Aquifer. Telemetry on the new monitoring wells is anticipated to be completed in the spring of 2026 and will be capable of remotely monitoring groundwater level and electrical conductivity.

As of the WY 2021 report, the following wells located in TIWD GSA-1 were anticipated to be added to the groundwater level monitoring network, pending site visit reviews to confirm well accessibility for ongoing future monitoring. At the time of publishing, their status remains the same while TIWD GSA-1 continues to evaluate these wells.

- Well "R", located in the northern portion of TIWD GSA-1 and completed within the Below Corcoran Clay Principal Aquifer.
- Well "I", located along the southern edge of TIWD GSA-1 and completed within the Below Corcoran Clay Principal Aquifer.
- Well "L", located along the southern edge of TIWD GSA-1 and completed within the Above Corcoran Clay Principal Aquifer.

Figure 2-2: Groundwater Level Monitoring Network



Appendix B shows contour maps of seasonal high (spring) and seasonal low (fall) groundwater elevations for each of the three principal aquifers for fall 2024, spring 2025, and fall 2025. Groundwater level data were obtained from the SGMA Data Viewer and the GSP monitoring network for groundwater levels³. Groundwater levels reported by both monitoring network wells and other voluntary and representative wells in the Merced, Turlock, Delta-Mendota, Chowchilla, and Madera Subbasins were used to develop contours. Measurements from neighboring subbasins were included to provide spatial coverage for contoured groundwater levels along the edges of the Merced Subbasin. The contour maps for the Above Corcoran Clay and Outside Corcoran Clay Principal Aquifers show hatched areas labeled "Area of increased uncertainty due to data limitations" which indicate regions with a relatively lower density of monitoring wells. Contours were developed based on available surrounding data, but the change in groundwater levels are considered to have a higher level of uncertainty in this area due to the data limitations. The GSP identifies this as a data gap and the GSAs are in the process of implementing recommendations from their Data Gaps Plan to address critical data gaps in the Subbasin.

³ TIWD GSA-1 also provided additional static water level measurements for wells within the GSA boundary that are not part of the SGMA Data Viewer system. Other monitoring wells without a numeric station ID in the network map and contour maps are considered provisionally part of the network and are not yet reported to the SGMA Data Viewer system.

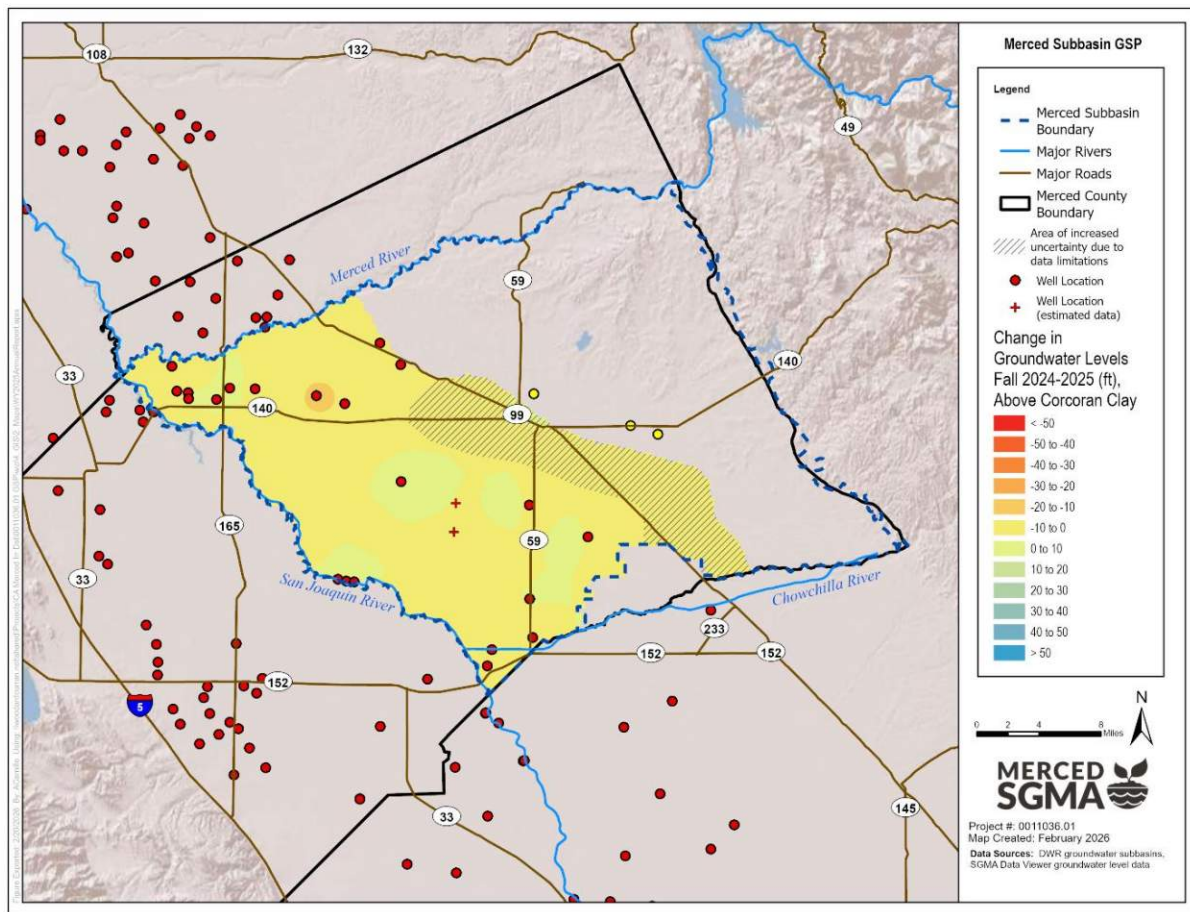
Groundwater level contours at 20-foot intervals were developed using the inverse distance weighting interpolation method, with local averaging performed to generate smoother contour lines. Groundwater level measurements were classified as spring if they were recorded in the month of March (± 5 days) and classified as fall if they were recorded in the month of November, or October if November not available (± 5 days). Contour maps for each season and principal aquifer can be found in **Appendix B**.

Many voluntary wells do not consistently report groundwater elevations each spring and fall. In some cases, measurements for monitoring network wells were not used in contouring due to nearby pumping or other data quality flags. A multiple linear regression tool was applied to estimate groundwater elevations for wells with missing seasonal data located within the Merced Subbasin. The estimate is necessary to provide consistent results between time periods, despite variability in available data. The multiple linear regression was applied separately at each well for fall and spring measurements where there were several years of historical data for each respective season. The multiple linear regression methodology makes use of historical observed data at the well being analyzed, and other observations such as water storage changes from the NASA Gravity Recovery and Climate Experiment, soil moisture from the Global Land Data Assimilation System, or the Palmer Hydrologic Drought Index, based on the methodology developed by the BYU Hydroinformatics Laboratory (n.d.). The methodology also uses inputs from up to five best correlated wells located within the same aquifer. Wells at which groundwater elevations were estimated for the purpose of developing contours are identified in the contour maps in **Appendix B**. All other data points use observed data.

Figure 2-3 through Figure 2-5 show the total change in groundwater levels between fall 2024 and fall 2025 for each principal aquifer, based on comparing the interpolated groundwater level surfaces. The Above Corcoran Clay Principal Aquifer generally shows a slight net decrease in groundwater levels throughout most of the aquifer, with small pockets of slight increase. The Below Corcoran Clay Principal Aquifer is roughly equal parts slight increase and decrease. The Outside Corcoran Clay Principal Aquifer shows a relatively greater magnitude of groundwater level decrease, with some increasing levels in the southern and northern ends of the aquifer. The northern end appears to be influenced by groundwater level change outside the basin boundary, with no groundwater level data in the northern portion of the Merced Subbasin to confirm.

Table 2-1 lists the representative monitoring wells for the chronic lowering of groundwater levels sustainability indicator, comparing fall 2025 groundwater elevations with MT, MO, and 2025 IM elevations. The SMC are updated based on the 2025 GSP.

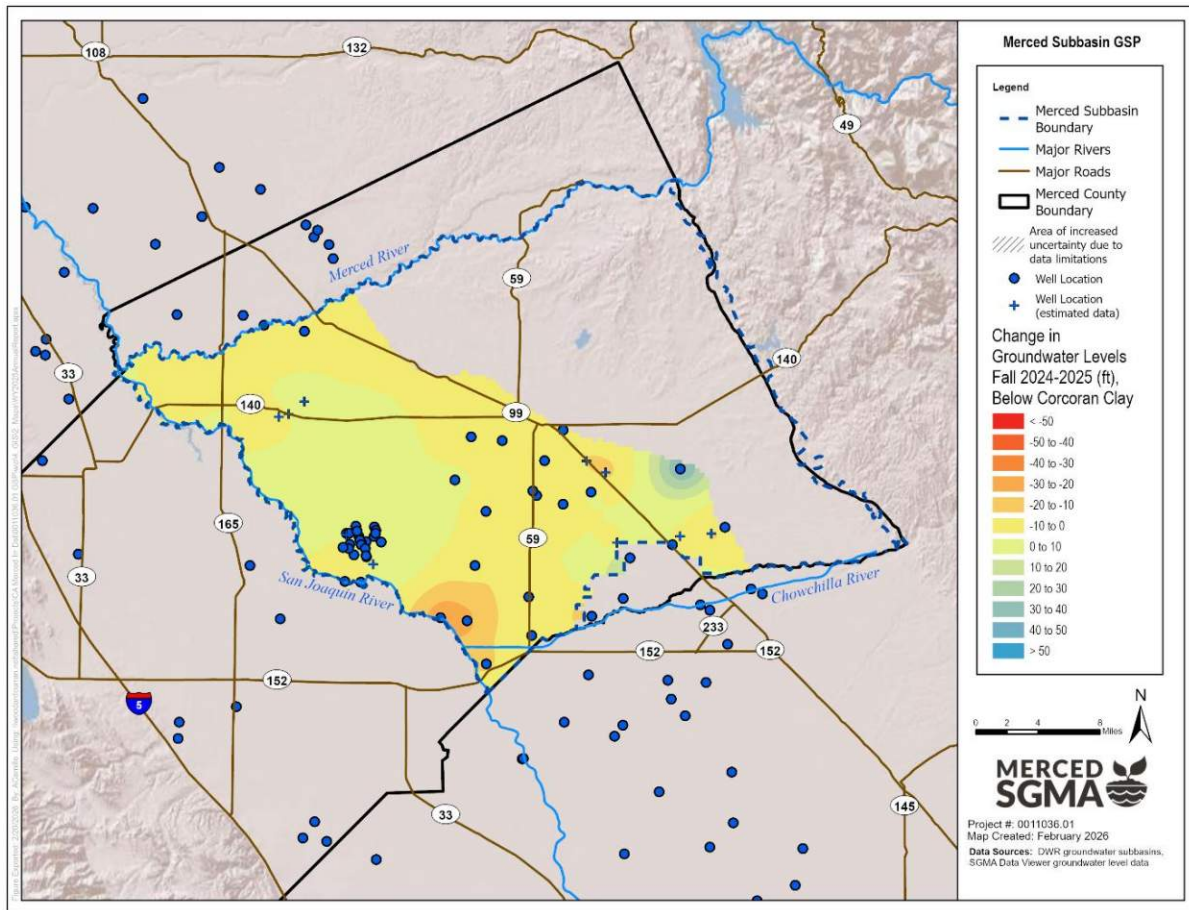
Figure 2-3: Change in Groundwater Levels Fall 2024 to Fall 2025, Above Corcoran Clay



Notes:

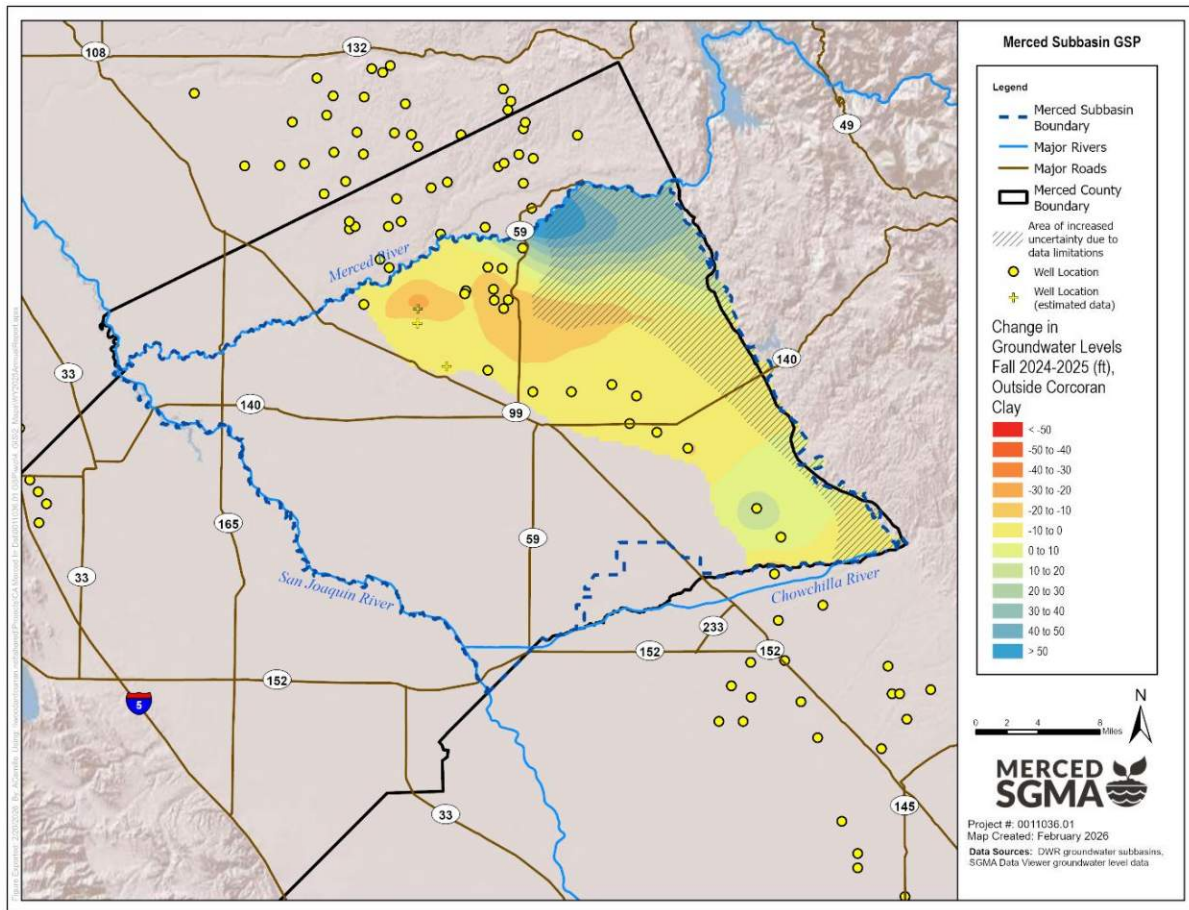
1. For additional details on change in groundwater levels in specific areas, please refer to contour maps for each season developed in **Appendix B**.
2. The hatched area labeled "Area of increased uncertainty due to data limitations" indicates a region with a relatively lower density of monitoring wells. Contours were developed based on available surrounding data, but the change in groundwater levels are considered to have a higher level of uncertainty in this area due to the data limitations. The GSP identifies this as a data gap; the GSAs developed a Data Gaps Plan in 2021 and are in the process of implementing the plan. In WY 2024, this area reduced in size slightly with the addition of a new monitoring well in the eastern edge of the aquifer.
3. Note that three Outside Corcoran Clay wells are shown in this figure. These have screened interval depths that are similar to or shallower than the depth of the eastern lateral extent of the Corcoran Clay. Groundwater levels at these wells were used to inform the contour map development.

Figure 2-4: Change in Groundwater Levels Fall 2024 to Fall 2025, Below Corcoran Clay



Note: For additional details on change in groundwater levels in specific areas, please refer to contour maps for each season developed in **Appendix B**.

Figure 2-5: Change in Groundwater Levels Fall 2024 to Fall 2025, Outside Corcoran Clay



Notes:

1. For additional details on change in groundwater levels in specific areas, please refer to contour maps for each season developed in **Appendix B**.
2. The hatched area labeled "Area of increased uncertainty due to data limitations" indicates a region with a relatively lower density of monitoring wells. Contours were developed based on available surrounding data, but the change in groundwater levels are considered to have a higher level of uncertainty in this area due to the data limitations. The GSP identifies this as a data gap; the GSAs developed a Data Gaps Plan in 2021 and are in the process of implementing the plan. In WY 2025, this area reduced in size slightly with the addition of monitoring wells in the eastern and northern edges of the aquifer.

Table 2-1: Groundwater Elevation at Representative Monitoring Wells

State Well ID	Site Code	Station ID	Principal Aquifer	Fall 2025 GW Elevation ¹	Minimum Threshold Elevation ¹	Measurable Objective Elevation ¹	Interim Milestone 2025 ¹
06S12E33D001M	373732N1206679W001	5773	Above	49.4	46.5	73.8	26.8
07S11E15H001M	373243N1207424W001	8604	Above	55.8	59.0	67.0	55.9
07S12E03F001M	373532N1206432W001	8626	Above	52.0	48.9	78.0	15.5
07S11E24A001M	373166N1207091W001	31372	Above	49.9	50.8	75.6	33.9
07S10E17D003M	373278N1209054W002	47569	Above	67.4	61.2	68.2	59.4
07S10E06K002M	373510N1209113W001	47571	Above	69.5	56.8	66.3	53.8
08S14E15R002M	372335N1204199W001	10200	Below	69.2	67.2	145.2	11.5
07S13E32H001M	372838N1205602W001	38974	Below	93.6	73.9	104.4	61.8
07S14E35E001M	372904N1204207W001	47542	Below	61.4	73.7	112.6	38.3
06S11E27F001M	373821N1207551W001	47562	Below	68.5 ²	58.8	75.3	48.8
07S13E34G001M	372806N1205241W001	47564	Below	79.7	70.2	108.7	53.5
08S14E06G001M	372617N1204747W001	47565	Below	55.0	55.9	100.9	28.5
07S13E09A001M	373457N1205429W001	10051	Outside	64.4 ²	73.7	92.6	48.1
08S16E34J001M	371902N1201985W001	28392	Outside	-51.3	-94.5	47.5	-169.7
06S13E04H001M	374421N1205407W001	38884	Outside	62.8	70.7	100.4	40.4
07S12E07C001M	373496N1205890W001	47541	Outside	23.5 ⁴	56.1	66.4	29.9
07S14E16F004M	373260N1204432W004	47553	Outside	49.4	87.4	118.1	56.8
07S13E13H004M	373260N1204880W004	47557	Outside	55.8	62.4	102.1	37.4
06S12E17M001M	374074N1206859W001	47563	Outside	57.3 ²	50.5	81.0	33.1
06S12E23P001M	370000N1200000W001	47574	Outside	-.3	56.0	80.0	40.0
06S12E23C001M	370000N1200000W002	47575	Outside	-.3	45.0	89.0	26.1
-	371153N1205958W002	52715	Below	-35.0	-142.7	1.5	-133.7
-	371640N1205556W002	52716	Below	-32.2	-79.6	-15.2	-75.6
-	370985N1204894W001	60568	Above	42.7	32.7	57.6	32.8
-	370985N1204895W001	60570	Below	-30.9	-47.6	4.5	-44.3
-	371347N1204928W001	60565	Above	69.9	44.8	92.3	41.0
-	371347N1204928W003	60567	Below	-17.2	-47.0	17.7	-43.2
-	372538N1203160W001	60562	Below	24.5	28.3	71.4	1.7
-	-	MW-OA-3	Above	68.7	62.7	76.1	63.5

1. All elevations reported in feet above sea level, datum NAVD88.
2. In previous years, Station IDs 47562, 10051, and 47563 have had a QA flag of "Oil or foreign substance in casing". While they were not flagged for this issue this year, it is likely the issue persists. Oil layer depths were not measured and thus an adjusted water surface elevation cannot be estimated.
3. Station IDs 47574 and 47575 were not recorded in fall 2025 due to issues described below:
 - a. 47574: Suspected issue at well due to dry conditions reported after water quality testing, despite normal groundwater levels in vicinity. The GSAs are investigating a potential replacement well to use instead in WY 2026.
 - b. 47575: Suspected mechanical issue making it difficult to record readings; still being investigated.
4. Station ID 47541 has a quality assurance flag of "Pumped Recently"; no secondary measurement was available.

2.3 Groundwater Extractions

Table 2-2 summarizes monthly groundwater extractions for WY 2025 by water use sector and method of measurement. An annual comparison of groundwater pumping by sector for Water Years 2016-2025 (the period of time over which annual reports have been developed) is shown in Table 2-3. Groundwater extraction data were requested from groundwater-using entities located in the Merced Subbasin, listed below:

- City of Atwater
- City of Livingston
- City of Merced
- Merced Irrigation District (MID)
- Turner Island Water District
- Stevinson Water District
- Merquin County Water District
- Planada Community Services District
- Lone Tree Mutual Water Company
- California American Water, Meadowbrook
- Winton Water and Sanitary District
- Le Grand Community Services District
- Merced National Wildlife Refuge

All reported values from these entities were directly measured. Data are a mixture of metered data and some data from pump tests using run time data. Quantitative estimates of accuracy of measurement (e.g., by percentage or +/- AF) were requested from each agency but not provided by all. Directly measured data are expected to have a qualitative high level of accuracy.

Groundwater extractions from private irrigators and domestic wells are estimated by the Merced Water Resources Model (MercedWRM) based on factors including land use, evapotranspiration, and population. Details about the MercedWRM can be found in the GSP, while recent updates to the model can be found in Section 3.4.1 of this annual report. A map illustrating the general location and volume of groundwater extractions as estimated by the MercedWRM for WY 2025 can be found in Figure 2-6; values in Figure 2-6 are presented in AF, but normalized based on the acreage of the reporting unit in MercedWRM, resulting in units of feet. These estimated data are expected to have a qualitative medium level of accuracy.

Table 2-2: Monthly Groundwater Extractions (in AF), Water Year 2025

Month	Sector						Total
	Agriculture		Urban		Habitat ⁴		
	Entity Pumping ¹	Private Pumping ²	Entity Pumping ¹	Private Pumping ³	Direct ⁴	Estimate ⁴	
Oct-2024	3,555	49,135	3,682	652	1,373	0	58,398
Nov-2024	2,447	146	2,547	419	2,024	0	7,583
Dec-2024	932	0	2,088	381	1,522	0	4,924
Jan-2025	373	1,426	2,068	380	2,238	0	6,485
Feb-2025	731	21,234	1,876	339	1,322	380	25,882
Mar-2025	1,601	35,119	2,074	403	957	150	40,304
Apr-2025	2,637	62,156	2,795	559	73	80	68,300
May-2025	4,016	90,264	3,812	736	43	76	98,947
Jun-2025	6,677	66,932	4,318	789	16	24	78,756
Jul-2025	8,395	80,274	4,567	847	0	0	94,082
Aug-2025	7,990	84,931	4,480	847	0	0	98,249
Sep-2025	5,627	60,064	3,991	715	0	0	70,396
TOTAL	44,982	551,682	38,297	7,067	9,568	710	652,307

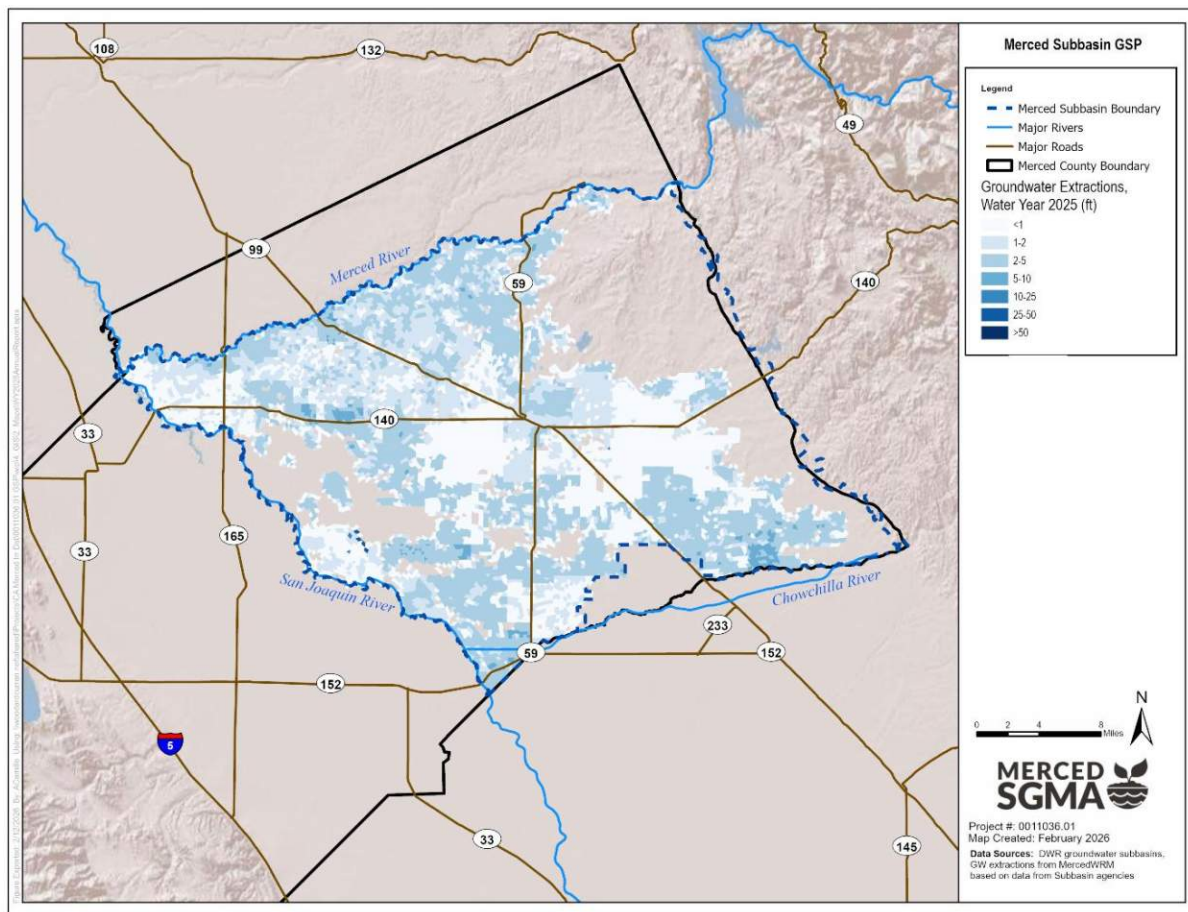
1. "Entity Pumping" indicates direct measurements of volumes of pumped groundwater reported by agricultural purveyors and urban water suppliers. Directly measured data are expected to have a qualitative high level of accuracy.
2. "Private Pumping" for the agricultural sector is estimated by the MercedWRM based on land use and evapotranspiration data. See Section 3.4.2 - MercedWRM Update (Water Year 2025). These estimated data are expected to have a qualitative medium level of accuracy.
3. "Private Pumping" for the urban sector (primarily from domestic wells in rural regions) is estimated by the MercedWRM based on census data for population multiplied by a volumetric water use factor averaged from the urban regions. See Section 3.4.2 - MercedWRM Update (Water Year 2025). These estimated data are expected to have a qualitative medium level of accuracy.
4. The "Habitat" sector includes directly measured volumes of groundwater extractions at Merced National Wildlife Refuge within the Merced Unit of the refuge. Directly measured data are expected to have a qualitative high level of accuracy. The Merced National Wildlife Refuge also provided some estimated groundwater extractions from the Arena Plains and Snowbird Units of the refuge. These estimated data are expected to have a qualitative medium level of accuracy. Groundwater pumping for other wetland/habitat areas are included in the "Agriculture" sector due to a lack of information for demands from these wetlands/habitat areas. Demands were estimated based on DWR land use categorizations of native vegetation or agricultural land.

Table 2-3: Annual Groundwater Extractions (in AF), Water Years 2016-2025

Water Year	Sector						Total
	Agriculture		Urban		Habitat ⁴		
	Entity Pumping ¹	Private Pumping ²	Entity Pumping ¹	Private Pumping ³	Direct ⁴	Estimate ⁴	
2016	23,310	580,083	33,364	10,661	9,060	0	656,477
2017	15,215	516,103	33,441	11,072	7,611	0	583,442
2018	25,994	611,986	33,528	15,057	12,065	0	698,630
2019	17,321	559,521	34,313	14,154	12,495	0	637,804
2020	59,505	575,499	41,074	10,422	14,891	0	701,391
2021	88,937	645,337	41,491	9,172	13,290	2,527	800,754
2022	105,225	715,297	38,189	13,389	7,773	2,527	882,399
2023	16,444	638,370	36,347	8,496	5,921	1,139	706,717
2024	32,649	478,133	37,614	8,744	11,789	869	569,798
2025	44,982	551,682	38,297	7,067	9,568	710	652,307

1. "Entity Pumping" indicates direct measurements of volumes of pumped groundwater reported by agricultural purveyors and urban water suppliers. Directly measured data are expected to have a qualitative high level of accuracy.
2. "Private Pumping" for the agricultural sector is estimated by the MercedWRM based on land use and evapotranspiration data. These estimated data are expected to have a qualitative medium level of accuracy.
3. "Private Pumping" for the urban sector (primarily from domestic wells in rural regions) is estimated by the MercedWRM based on census data for population multiplied by a volumetric water use factor averaged from the urban regions. These estimated data are expected to have a qualitative medium level of accuracy.
4. The "Habitat" sector includes directly measured volumes of groundwater extractions at Merced National Wildlife Refuge within the Merced Unit of the refuge. Directly measured data are expected to have a qualitative high level of accuracy. The Merced National Wildlife Refuge also provides some estimated groundwater extractions which are expected to have a qualitative medium level of accuracy. Groundwater pumping for other wetland/habitat areas are included in the "Agriculture" sector due to a lack of information for demands from these wetlands/habitat areas. Demands were estimated based on DWR land use categorizations of native vegetation or agricultural land.

Figure 2-6: Map of Groundwater Extractions (Water Year 2025)



2.4 Surface Water Supply

SGMA requires that the GSP annual report tabulate "*Surface water supply used or available for use...*" (emphasis added, CCR §356.2 [b] [3]). Table 2-4 summarizes total monthly surface water available for use for WY 2025, broken down by method of measurement. These tables report total surface water diversions and not surface water used, which is difficult to parse out by sector. Direct measurements were provided by MID, Stevinson Water District, TIWD, and Lone Tree Mutual Water Company. Directly measured data are expected to have a qualitative high level of accuracy. Note that MID diversions include surface water ultimately used by Stevinson Water District, Merquin County Water District, Merced National Wildlife Refuge, Le Grand-Athlone Water District, and Lone Tree Mutual Water Company, which fall under both the agricultural and habitat sectors. Diversions made by Lone Tree Mutual Water Company are exclusively flood flow diversions.

Note also that there are several riparian diverters in the Subbasin whose diversions have not been captured for the purpose of the annual report. It is anticipated that some of these data will be incorporated into future reports, as data will become available as a result of implementation of Senate Bill 88 (2015) which goes into effect in WY 2027 (October 2026).

Table 2-4: Monthly Surface Water Available for Use (in AF), Water Year 2025

Month	Method of Measurement ¹	Total
	Direct	
Oct-2024	39,283	39,283
Nov-2024	2,997	2,997
Dec-2024	1,808	1,808
Jan-2025	2,567	2,567
Feb-2025	3,203	3,203
Mar-2025	28,892	28,892
Apr-2025	51,782	51,782
May-2025	87,203	87,203
Jun-2025	101,457	101,457
Jul-2025	111,454	111,454
Aug-2025	85,904	85,904
Sep-2025	8,211	8,211
TOTAL	524,761	524,761

1. This table reports total surface water diversions and not surface water used due to data limitations. Both surface diversions and surface water used are difficult to parse out by sector as well. Note that MID diversions include surface water ultimately used by Stevinson Water District, Merquin County Water District, Merced National Wildlife Refuge, Le Grand-Athlone Water District, and Lone Tree Mutual Water Company, which fall under the agriculture and habitat sectors.

2.5 Total Water Use

Table 2-5 summarizes monthly combined groundwater use (Table 2-2) and surface water available for use (Table 2-4) for WY 2025 by water use sector and method of measurement. The same qualifications for method of measurement and sector of use apply from Table 2-2 and Table 2-4.

Table 2-5: Monthly Total Water Use, Water Year 2025

Month	Sector						Total
	Agriculture		Urban		Habitat		
	Direct ¹	Estimate ²	Direct	Estimate ²	Direct	Estimate	
Oct-2024	42,838	49,135	3,682	652	1,373	0	97,681
Nov-2024	5,444	146	2,547	419	2,024	0	10,580
Dec-2024	2,740	0	2,088	381	1,522	0	6,732
Jan-2025	2,940	1,426	2,068	380	2,238	0	9,053
Feb-2025	3,934	21,234	1,876	339	1,322	380	29,085
Mar-2025	30,493	35,119	2,074	403	957	150	69,196
Apr-2025	54,419	62,156	2,795	559	73	80	120,082
May-2025	91,219	90,264	3,812	736	43	76	186,150
Jun-2025	108,135	66,932	4,318	789	16	24	180,214
Jul-2025	119,849	80,274	4,567	847	0	0	205,536
Aug-2025	93,894	84,931	4,480	847	0	0	184,153
Sep-2025	13,838	60,064	3,991	715	0	0	78,608
TOTAL	569,744	551,682	38,297	7,067	9,568	710	1,177,068

1. Surface water diversions have been reported under the category of Agriculture, Direct. As described in Table 2-4, this includes total surface water diversions and not surface water used, and cannot be accurately separated between the agriculture and habitat sectors. Surface water diversions account for approximately 92% of this column.
2. See Table 2-2 for more detailed notes on groundwater pumping estimates.

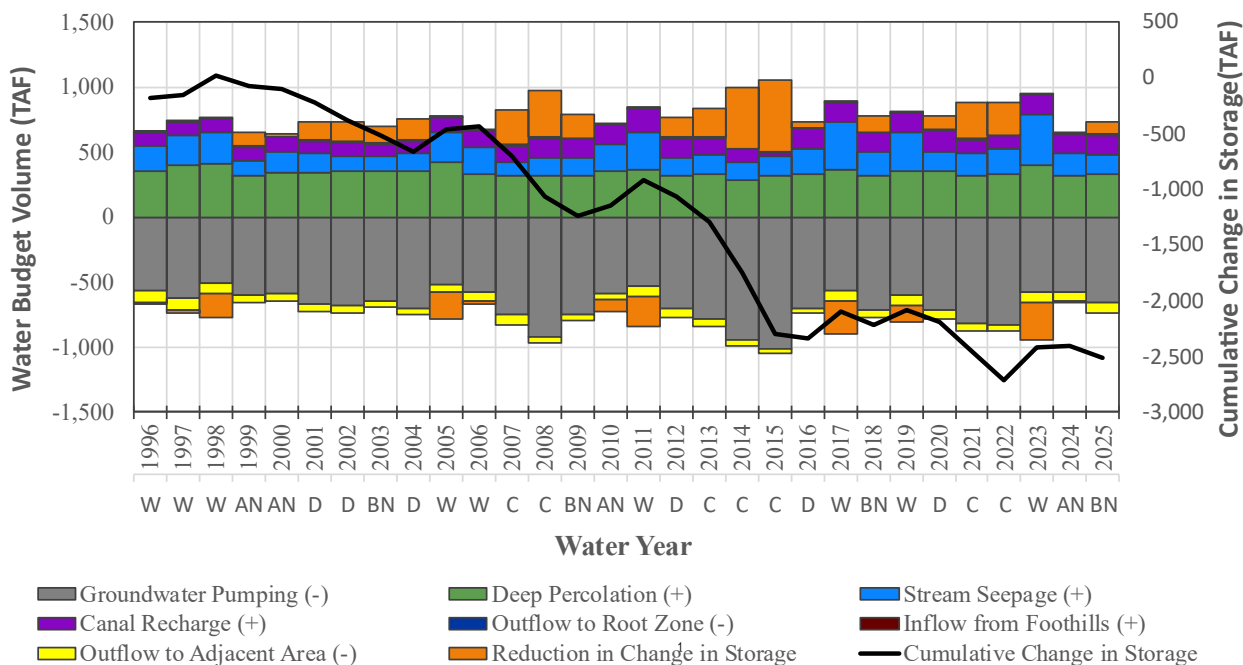
2.6 Change in Groundwater Storage

The MercedWRM was used to estimate historical change in groundwater storage in the Merced Subbasin from water years 1996-2021 for the Merced GSP and subsequent annual reports and then extended through WY 2025 to support quantification of storage change for this annual report. See Section 3.4.1 for more information about the recent model update for this annual report. Note that the time period of 2006-2022 was originally selected as the historical water budget time period reported in the Merced 2025 GSP as representative of average precipitation and capturing recent Subbasin operations.

After extending the historical water budget through WY 2025, the current (2025) total fresh groundwater storage was estimated as 45.9 million acre-feet (MAF) and the cumulative change in storage from WYs 2006-2025 was estimated as -2.05 MAF, or an average reduction of 103 thousand acre-feet (TAF) per year. During WY 2025, the change in storage was estimated as a decrease of 98 TAF. Note that the average annual reduction of 130 TAF per year established in the 2025 GSP using the hydrologically balanced period of WYs 2006-2022 remains the current estimate of long-term overdraft in the Subbasin.

Figure 2-7 shows the cumulative change in storage for WYs 1996-2025 against groundwater uses developed in the water budget and water year type.

Figure 2-7: Historical Annual Water Budget – Groundwater System, Merced Subbasin



1. "Change in Storage" is placed on the chart to balance the water budget. For example, if annual outflows (-) are greater than inflows (+), there is a decrease in storage, and this is shown on the positive side of the bar chart to balance out the increased outflows on the negative side of the bar chart.
Source: Water year types based on San Joaquin Valley Water Year Index (DWR, 2026).

X-Axis Abbreviation	Description
W	Wet year type
AN	Above normal year type
BN	Below normal year type
D	Dry year type
C	Critically dry year type

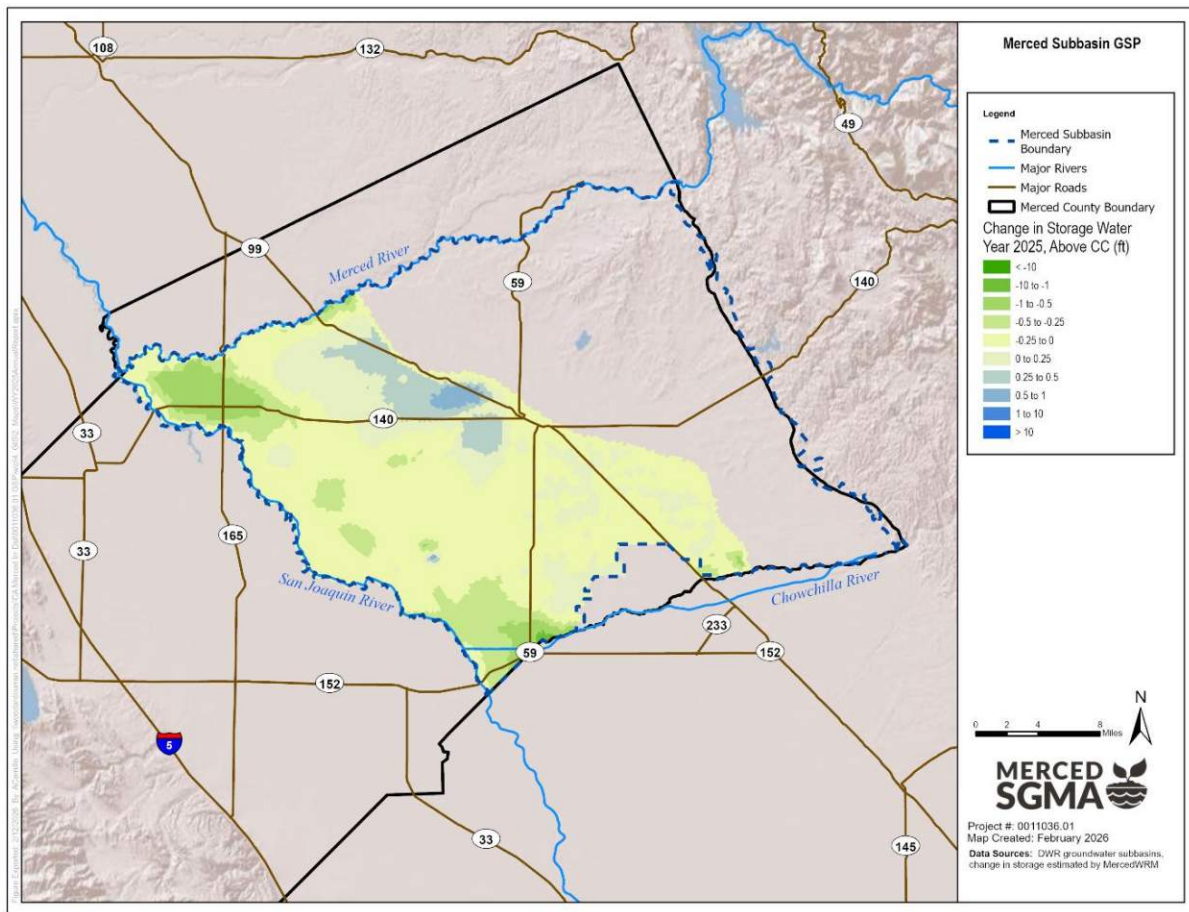
For SMC, the 2025 GSP established groundwater levels as a proxy for groundwater storage. Groundwater level SMC are reported in Table 2-1.

Figure 2-8 through Figure 2-10 show the total change in groundwater storage by principal aquifer for WY 2025 in a spatial format as estimated by outputs from the MercedWRM. The change in storage is shown in units of feet. The MercedWRM calculates a change in volume per area of each model element. Since the model elements vary in size, visually displaying a map of volume change per model element is not intuitive, so the results have been normalized to show change in units of feet by dividing the volume by the area of the associated model element.

Change in groundwater storage is a function of changes in groundwater levels and physical properties of the aquifer. As such, it would be expected that areas with increases in groundwater storage would also have increases in groundwater levels in Figure 2-3 through Figure 2-5 and that areas with decreases in groundwater storage would also have decreases in groundwater levels. While this is true in many cases, it is not true in all cases due to uncertainties in the underlying data. Uncertainties in the change in groundwater storage are associated with the MercedWRM, while uncertainties in the change in groundwater levels are associated with limited data points and individual data points that may be impacted by nearby pumping, screen depths, or otherwise provide non-representative values. It is useful to look at these figures together to better understand patterns of change in groundwater levels and storage.

Net overall Subbasin storage had a slight decline during WY 2025, but the figures below show a mixture of areas of relative increase in storage (shown in blue shades) and relative decrease in storage (shown in green shades). The Above Corcoran Clay shows an area of moderate decreases in storage along some surface water channels, increases towards the eastern edge of the Corcoran Clay, and remaining areas primarily showing little change. Most of the Below Corcoran Clay shows negligible change or a slight decrease. The Outside Corcoran Clay shows declines along portions of the Merced River and the southern edge of the aquifer, and negligible change throughout the remainder.

Figure 2-8: Change in Storage Water Year 2025 (feet), Above Corcoran Clay



Note: The eastern portion of the Above Corcoran Clay Principal Aquifer is a region with a relatively lower density of monitoring wells and thus higher level of uncertainty due to the data limitations. The GSP identifies this as a data gap; the GSAs developed a Data Gaps Plan in 2021 and are in the process of implementing the plan.

Figure 2-9: Change in Storage Water Year 2025 (feet), Below Corcoran Clay

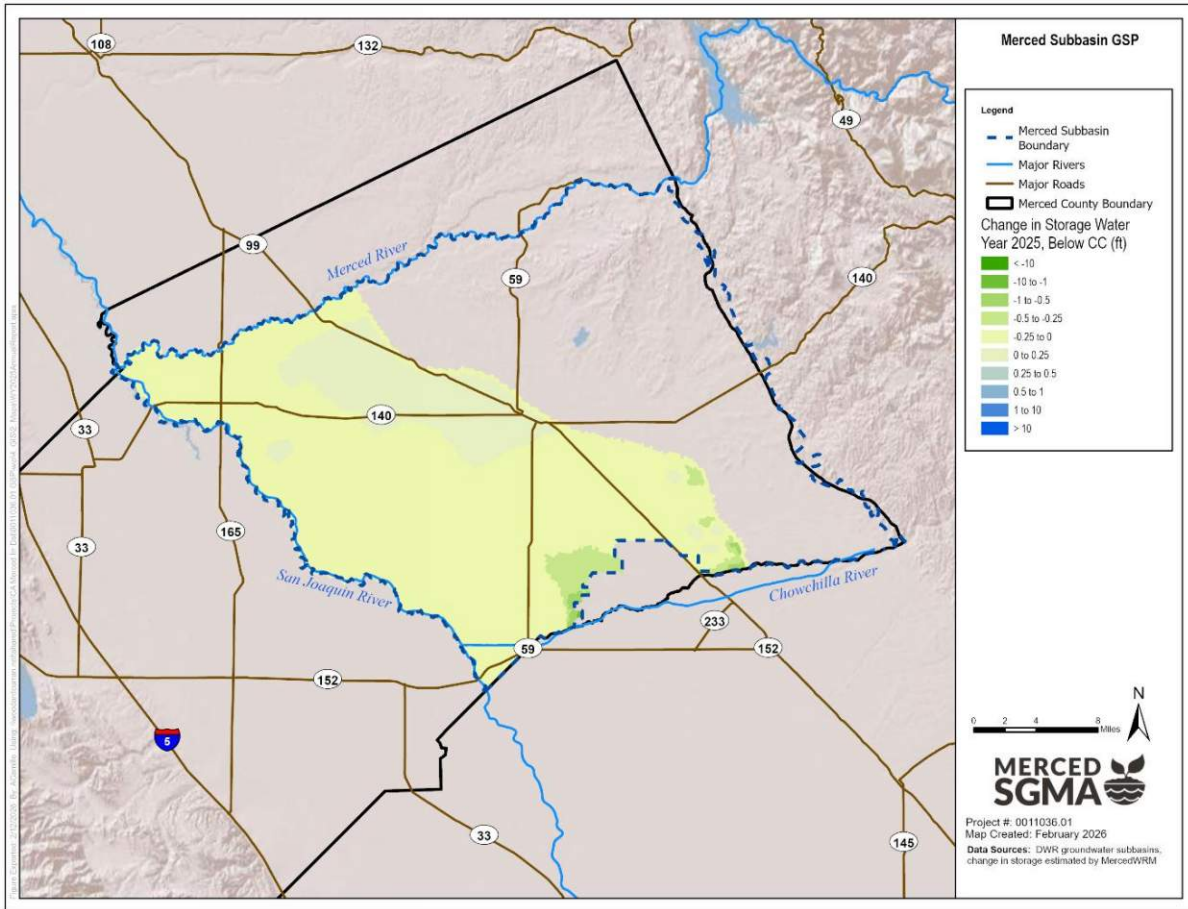
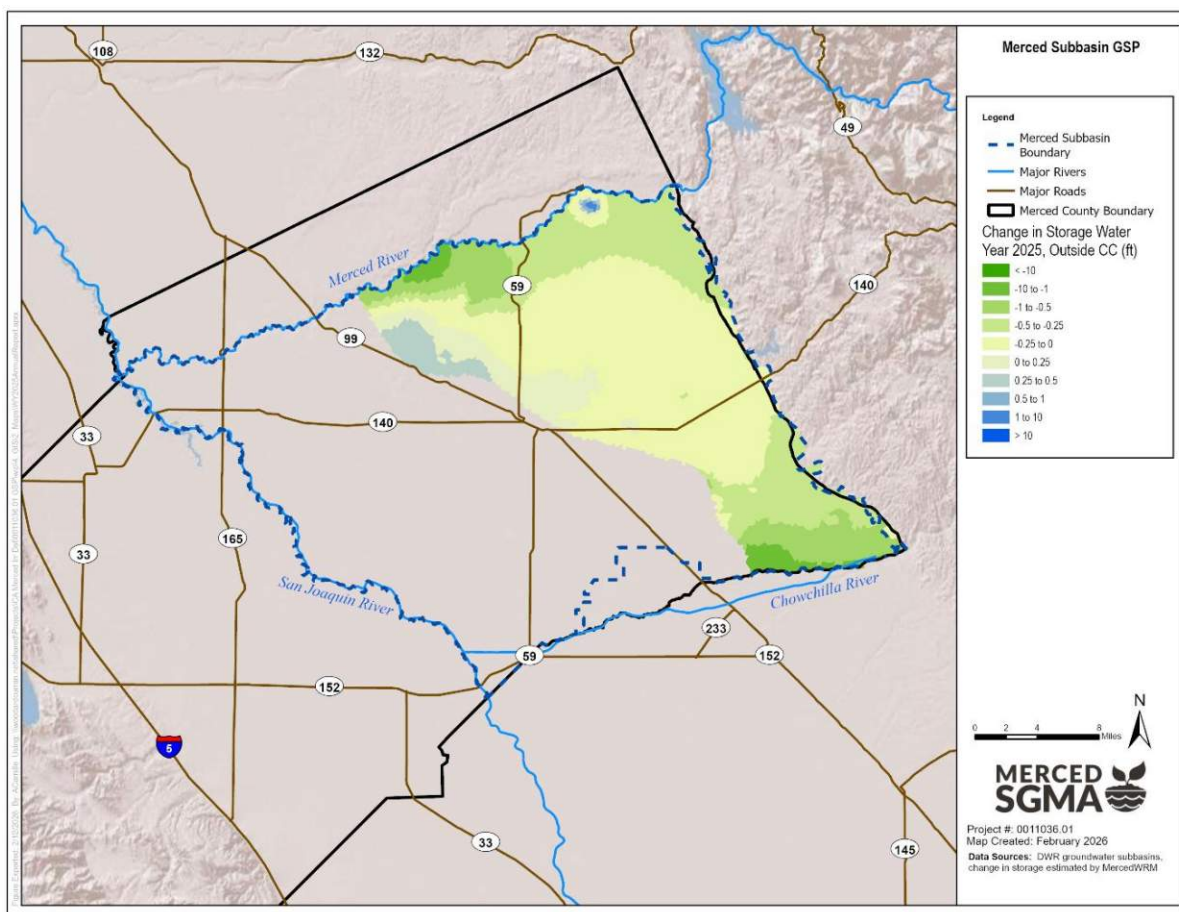


Figure 2-10: Change in Storage Water Year 2025 (feet), Outside Corcoran Clay



Note: The eastern portion of the Outside Corcoran Clay Principal Aquifer is a region with a relatively lower density of monitoring wells and thus higher level of uncertainty due to the data limitations. The GSP identifies this as a data gap; the GSAs developed a Data Gaps Plan in 2021 and are in the process of implementing the plan.

2.7 Land Subsidence

This section provides maps of the most recent subsidence measurements taken in and around the Subbasin and compares them to the GSP's SMC. Until July 2025, subsidence was measured through elevation monitoring at static GPS control points throughout a portion of the San Joaquin Valley by the US Bureau of Reclamation (USBR) as part of the San Joaquin River Restoration Program (SJRRP). Per February 2026 communication with USBR, bi-annual subsidence monitoring is no longer needed for SJRRP purposes and has concluded as of the July 2025 survey. Until then, measurements had been recorded semiannually in July and December of each year to monitor ongoing subsidence since 2011. The GSAs are currently exploring options available for ongoing subsidence monitoring.

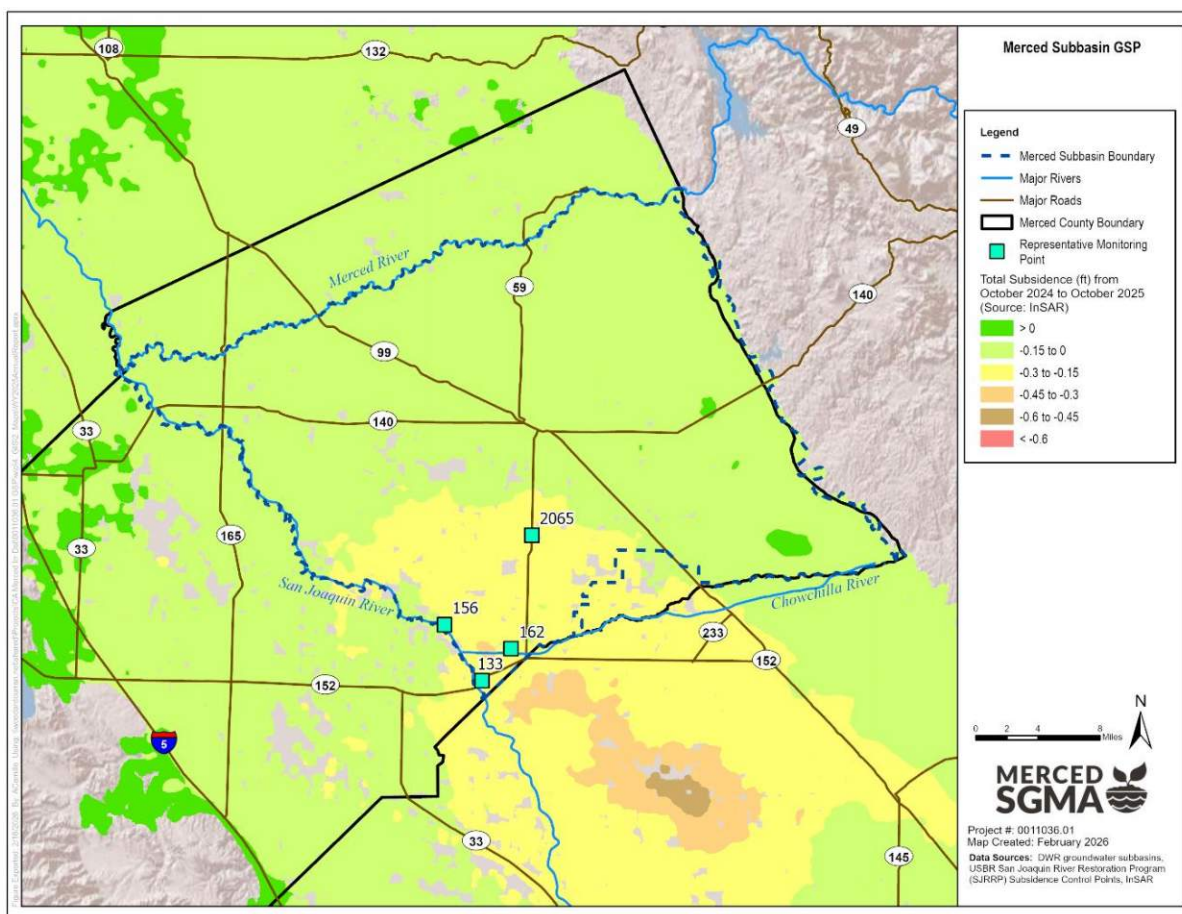
While a revised approach to monitoring and managing subsidence has not yet been adopted by the GSAs due to the abrupt cessation of monitoring by SJRRP, it is recognized that monitoring and management of subsidence is critical for achieving sustainability. For the purpose of reporting subsidence conditions in this

WY 2025 Annual Report, the GSAs have developed maps and evaluated subsidence through Interferometric Synthetic Aperture Radar (InSAR) data collected by DWR. This is an interim measure and a formalized approach to continued subsidence monitoring and management is expected to be developed in Water Year 2026.

InSAR measures vertical ground surface displacement changes at high degrees of measurement resolution and spatial detail via satellite imagery (DWR, 2024). InSAR data coverage began in late 2014. The InSAR dataset includes point data that represent average vertical displacement values for 100 meter by 100 meter areas, as well as total vertical displacement relative to June 13, 2015 and annual vertical displacement rates in monthly time steps. InSAR data has been compared to available ground based continuous global position systems and found to be within 18 mm vertical accuracy at a 95% confidence level.

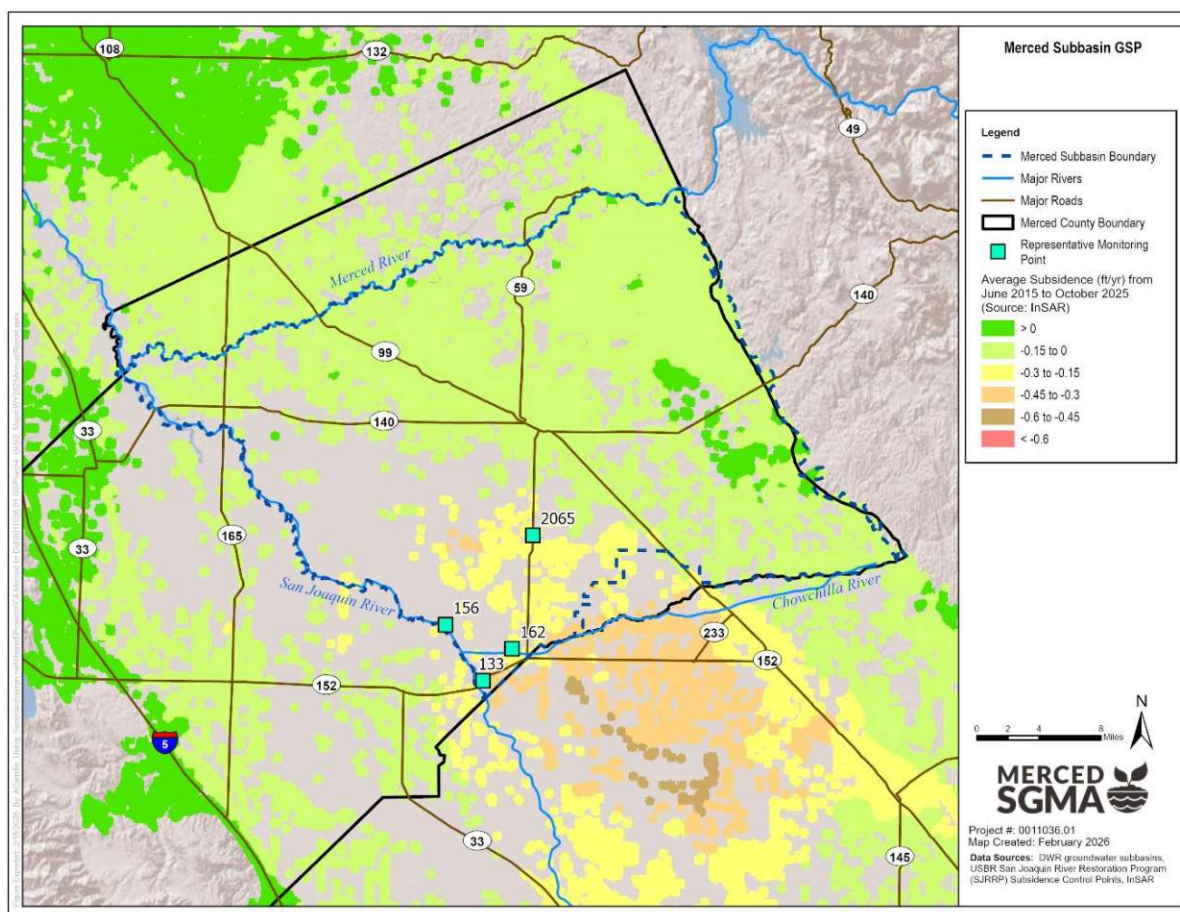
Figure 2-11 shows the total subsidence occurring from October 2024 to October 2025. Figure 2-12 shows the average subsidence rate occurring from June 2015 through October 2025 (calculated by dividing total displacement by 10.3 years). Negative values indicate subsidence.

Figure 2-11: Total Subsidence October 2024 to October 2025



Note: Negative values on the map represent lowered ground surface elevations (subsidence)

Figure 2-12: Average Subsidence Rate June 2015 to October 2025



In the 2022 revised GSP, the GSAs established a MT of 0 ft/year (subject to uncertainty of ± 0.16 ft/year) at four representative monitoring stations. In the 2025 GSP, the GSAs added a metric of calculating subsidence over a five-year period to demonstrate that inclusion of the annual uncertainty of ± 0.16 ft/year will not have a measurable impact on long-term compliance with the SMC. The MO is also 0 ft/year, with IMs of -0.75 ft/year (2025), -0.50 ft/year (2030), and -0.25 ft/year (2035) of subsidence. The GSP identifies undesirable results for subsidence as “exceedances of minimum threshold rates of land subsidence at three or more monitoring sites out of four for two consecutive years” (MIUGSA, MSGSA, & TIWD GSA-1, 2025).

As shown in Table 2-6, a decrease in the elevation of control points has consistently been observed (i.e., subsidence with a greater magnitude than the MT and MO of 0 ft/yr) at the representative monitoring sites from 2015 to 2024. Through that period, the rate of subsidence has consistently been less than the 2025 IM of 0.75 ft/yr. Note that land surface elevation change between December 2022 – December 2023 was positive, potentially due to the impact of a very wet winter in late 2022/early 2023 resulting in rebounding from elastic subsidence. Subsidence from December 2023 – December 2024 and October 2024 – October 2025 resumed at rates more similar to prior years.

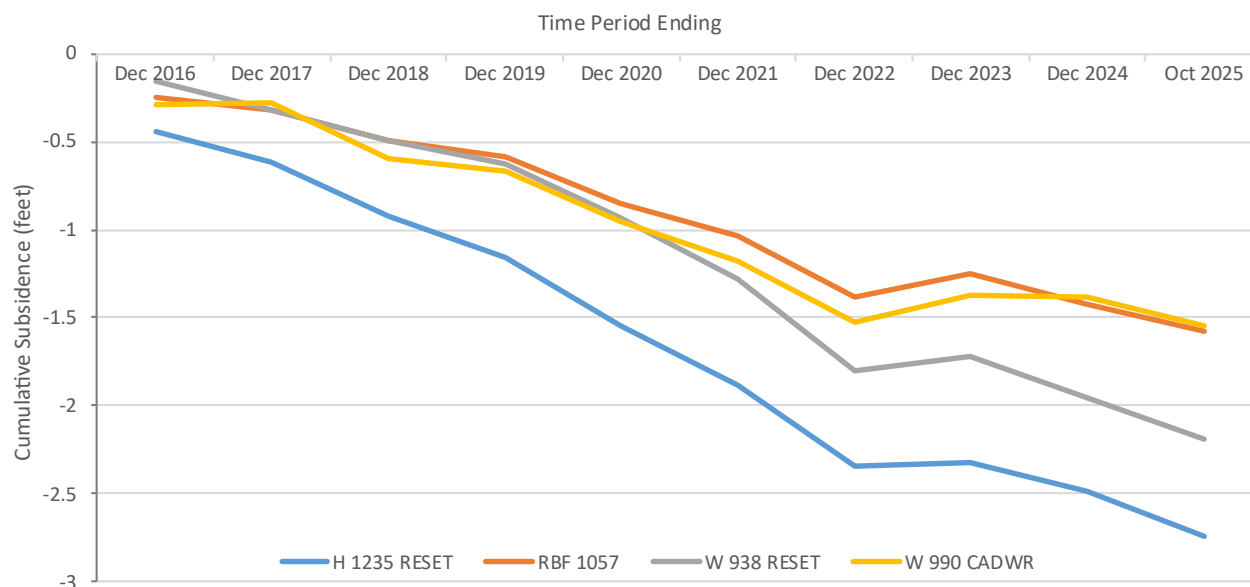
Work is currently underway to better understand how to stabilize subsidence in the Subbasin, and projects and management actions have been designed to address declining groundwater levels, which are the root cause of subsidence. Subsidence is a regional, gradual process that takes time to develop and time to halt. As a result, some level of future subsidence, likely at rates similar to those experienced 2015 to 2025, is likely to be underway already and will not be able to be prevented.

Table 2-6: Subsidence at Representative Monitoring Stations

	Point ID	133	162	2065	156	
	Station Name	H 1235 RESET	RBF 1057	W 938 RESET	W 990 CADWR	Units
Subsidence	Dec 2015-Dec 2016	-0.44	-0.25	-0.16	-0.29	ft
	Dec 2016-Dec 2017	-0.18	-0.07	-0.16	0.01	ft
	Dec 2017-Dec 2018	-0.30	-0.17	-0.17	-0.32	ft
	Dec 2018-Dec 2019	-0.24	-0.10	-0.14	-0.07	ft
	Dec 2019-Dec 2020	-0.39	-0.26	-0.30	-0.28	ft
	Dec 2020-Dec 2021	-0.33	-0.19	-0.35	-0.23	ft
	Dec 2021-Dec 2022	-0.46	-0.34	-0.52	-0.35	ft
	Dec 2022-Dec 2023	+0.02	+0.13	+0.08	+0.16	ft
	Dec 2023-Dec 2024	-0.17	-0.17	-0.24	-0.01	ft
	Oct 2024-Oct 2025¹	-0.25	-0.16	-0.23	-0.17	ft
Minimum Threshold	0 ± 0.16	0 ± 0.16	0 ± 0.16	0 ± 0.16	ft/yr	
Measurable Objective	0	0	0	0	ft/yr	
2025 Interim Milestone	-0.75	-0.75	-0.75	-0.75	ft/yr	
Total 5-Year Subsidence Dec 2019-Dec 2024²	N/A ²	N/A ²	N/A ²	N/A ²	ft	

1. As noted earlier in this section, USBR has discontinued SJRRP subsidence monitoring as of July 2025. While the GSAs explore options for subsidence monitoring, for the purpose of this Annual Report, the October 2024 – October 2025 vertical displacement at each of the representative monitoring locations has been evaluated based on InSAR measurements.
2. In the 2025 GSP, the GSAs added a metric of calculating subsidence over a five-year period to demonstrate that inclusion of the annual uncertainty of ±0.16 ft/year will not have a measurable impact on long-term compliance with the SMC. Due to the discontinuation of the SJRRP subsidence monitoring program in July 2025, this value could not be calculated for this Annual Report. The GSAs are currently evaluating subsidence monitoring options.

Figure 2-13: Cumulative Subsidence from December 2015



Note: Cumulative subsidence by site is calculated by summing the annual subsidence values reported in Table 2-6 starting from the change in land surface elevation measured December 2015 – December 2016.

2.8 Groundwater Quality

In addition to comparing water quality monitoring to the GSP’s IMs and other SMC, this section provides a summary of ongoing water quality coordination activities being conducted by the GSAs.

2.8.1 Representative Monitoring

In the GSP, the GSAs established an MT of 1,000 mg/L of total dissolved solids (TDS) at representative monitoring sites for the degraded water quality sustainability indicator. The MO and all IMs were set at 500 mg/L TDS. Undesirable results are defined in the 2025 GSP as “during GSP implementation when at least 25% of representative monitoring wells (11 of 44 sites) exceed the minimum threshold for degraded water quality for two consecutive years” (MIUGSA, MSGSA, & TIWD GSA-1, 2025).⁴ No representative monitoring wells exceeded the MT in WY 2025.

Figure 2-14 through Figure 2-16 show the spatial distribution of TDS concentration measurements in the three principal aquifers based on TDS and electrical conductivity (EC) data reported in the Groundwater Ambient Monitoring & Assessment (GAMA) database within WY 2025 for wells in the Merced Subbasin monitoring network (including more than just representative wells).⁵ EC measurements were converted to estimates of TDS concentrations only if TDS samples were not measured directly during WY 2025. Figure

⁴ Note that one of the 44 sites (GAMA ID T10000004224-071415) was added in the 2025 GSP, but later determined to be part of the Water Board Cleanup dataset in GAMA, and thus unsuitable for being a representative monitoring well. Starting in the WY 2024 Annual Report, it has been moved from being a “complementary” well to a “supplementary” well. Thus, there are only 43 remaining representative monitoring sites.

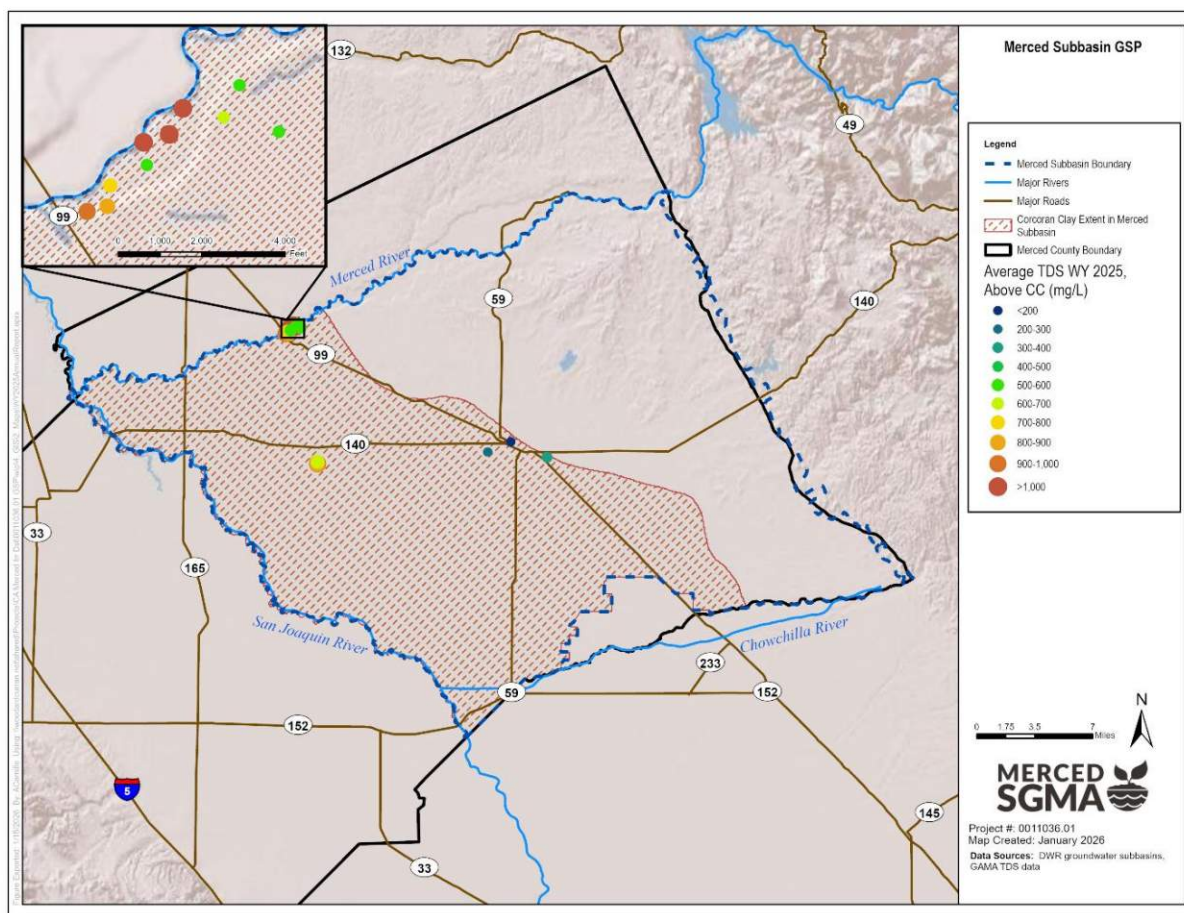
⁵ TDS concentration was estimated using the estimation formula of $TDS (mg/L) \approx EC (\mu S/cm) * 0.640$, described later in this section.

2-17 shows concentrations for which the principal aquifer is unknown due to a lack of well construction data (e.g., lacking total well depth or screened interval). The GSP monitoring network includes both designated representative wells as well as any public water supply wells that report data to the Division of Drinking Water (DDW) at the State Water Resources Control Board.

While elevated TDS (sampled and/or estimated from EC) concentrations (greater than 1,000 mg/L) were observed at five locations in WY 2025, they were confirmed to be at sites where samples were collected at environmental monitoring wells that are monitored by regulated facilities, none of which are representative monitoring sites.

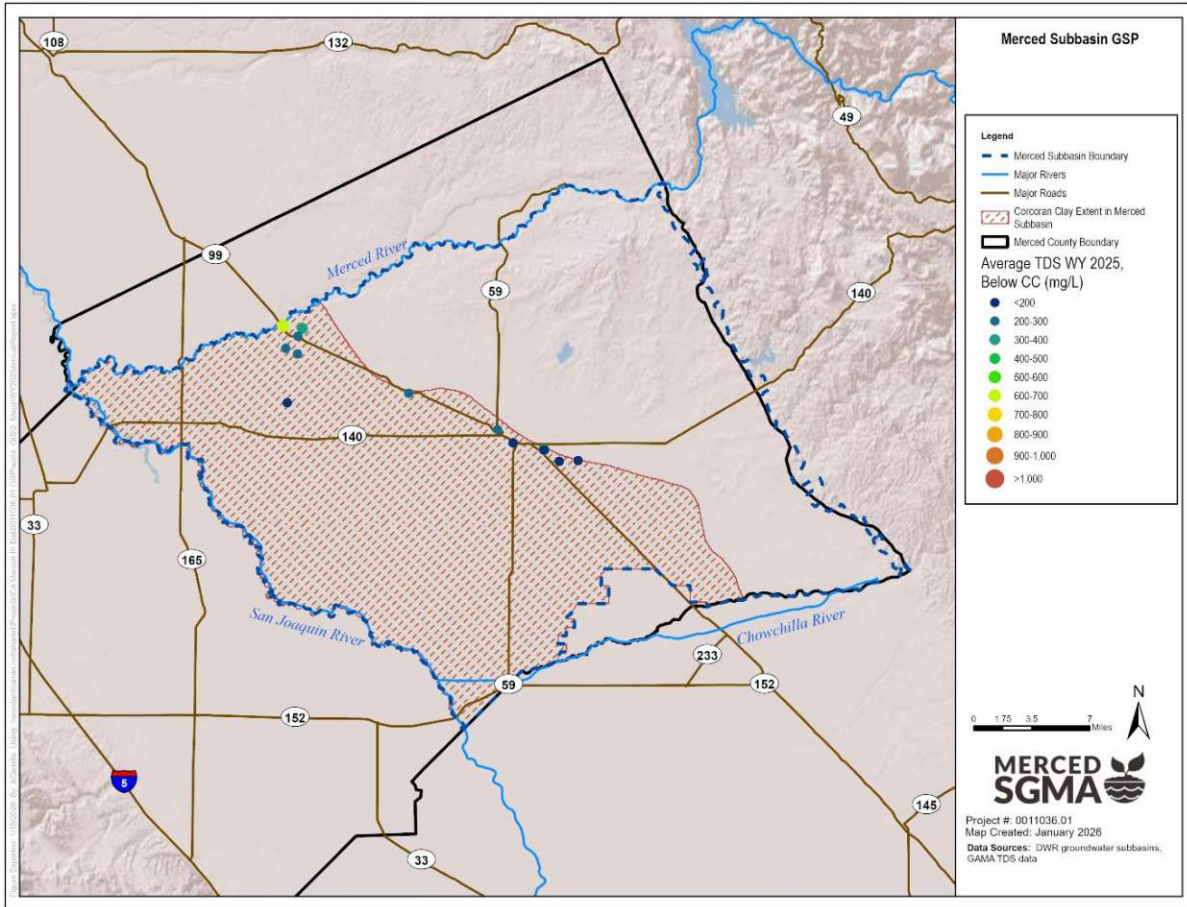
The Merced GSP describes that there are pockets of the Subbasin known to have such elevated concentrations, and water use behaviors have already shifted to accommodate these concentrations. For example, agriculture has focused on more salt-tolerant crops, and more saline water supplies are blended with less saline water supplies. As a result, TDS concentrations in excess of 1,000 mg/L where currently experienced are not unexpected. There is, however, a desire on the part of Subbasin stakeholders to limit increases in salinity in parts of the Subbasin where TDS is below 1,000 mg/L to prevent undesirable results such as requirements to change cropping, blending supplies, etc.

Figure 2-14: Average TDS Concentration Water Year 2025, Above Corcoran Clay Principal Aquifer



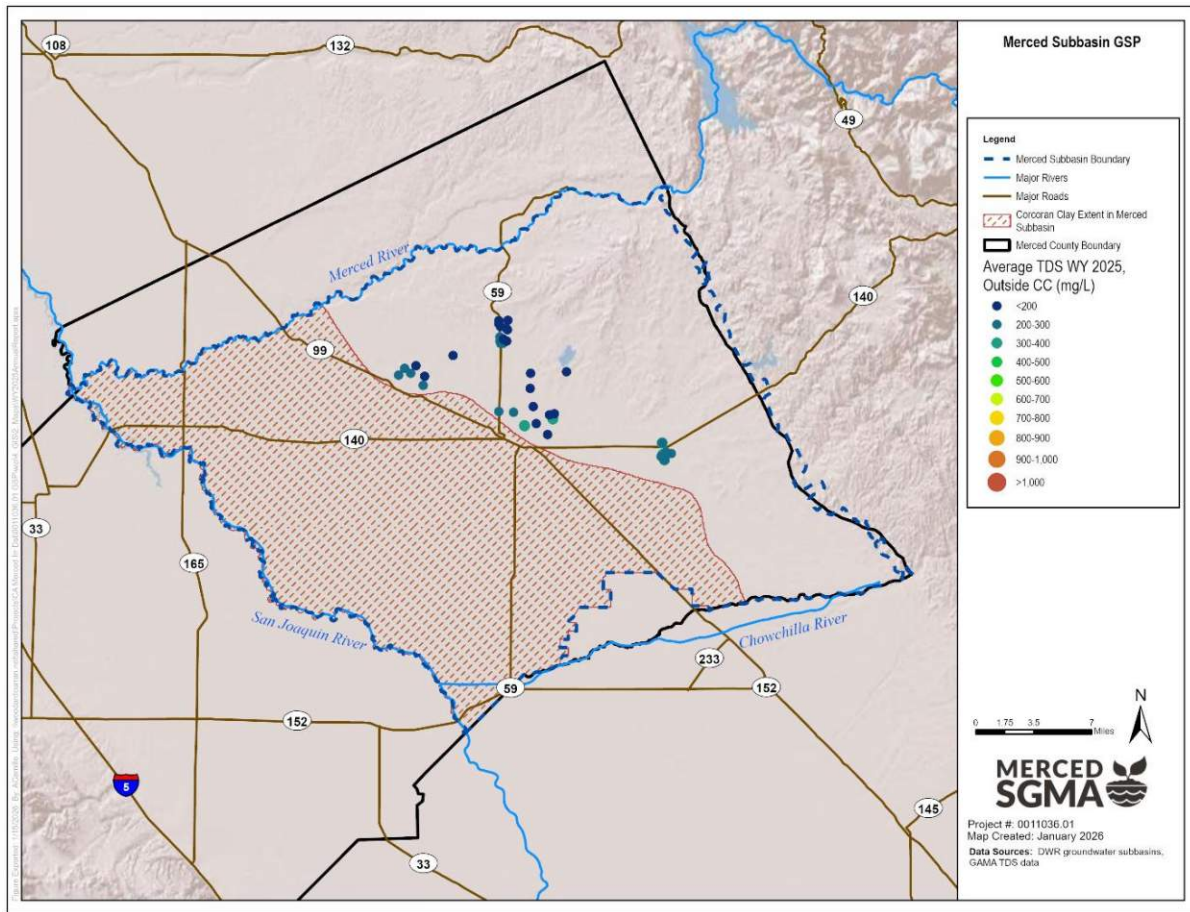
Note: Some TDS concentrations are estimated based on EC measurements.

Figure 2-15: Average TDS Concentration Water Year 2025, Below Corcoran Clay Principal Aquifer



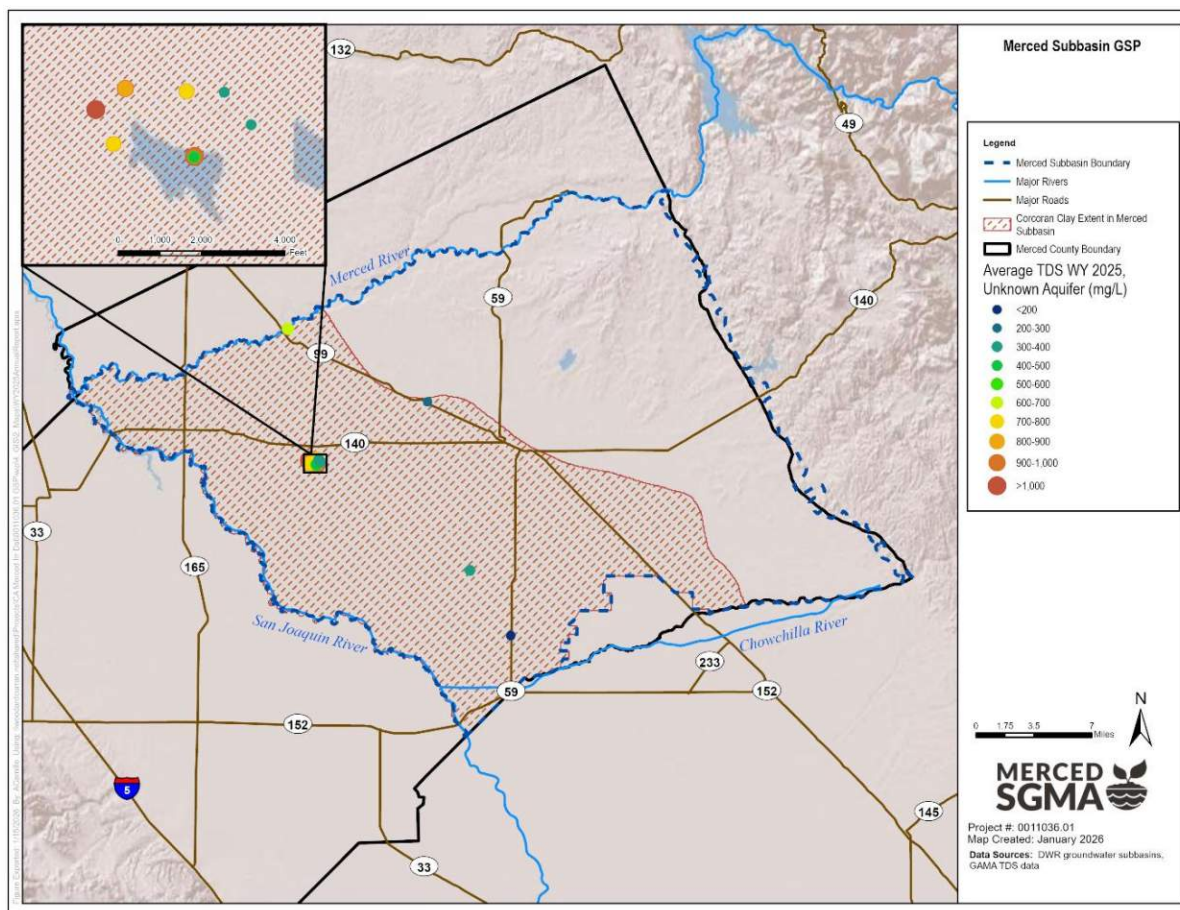
Note: Some TDS concentrations are estimated based on EC measurements.

Figure 2-16: Average TDS Concentration Water Year 2025, Outside Corcoran Clay Principal Aquifer



Note: Some TDS concentrations are estimated based on EC measurements.

Figure 2-17: Average TDS Concentration Water Year 2025, Unknown Principal Aquifer



Note: Some TDS concentrations are estimated based on EC measurements.

The East San Joaquin Water Quality Coalition (ESJWQC) is a group of agricultural interests and growers formed to represent dischargers who own or operate irrigated lands east of the San Joaquin River within Madera, Merced, Stanislaus, Tuolumne, and Mariposa Counties, as well as portions of Calaveras County. The ESJWQC has developed a Groundwater Quality Trend Monitoring Program (GQTMP) as part of the Irrigated Lands Regulatory Program (ILRP), which includes a targeted set of domestic wells (denoted as principal wells) supplemented by public water system wells (denoted as complementary wells) (ESJWQC, 2018). There are currently nine principal wells and 34 complementary wells in the Merced Subbasin that are designated as representative monitoring wells in the Merced GSP at which SMC are established for groundwater quality (shown in Table 2-7). ESJWQC submits their collected data to GAMA annually.

ESJWQC monitors EC, pH, dissolved oxygen, temperature, and nitrate as nitrogen (as N) annually. TDS and other constituents are monitored every five years. Wells are on a five-year cycle for direct measurement of TDS, with most having been last recorded directly in 2022. The most recent EC field measurements collected by the ESJWQC were used to estimate TDS. The most recent TDS observations (whether direct or estimated) for Merced GSP representative wells are summarized in Table 2-7. None of the wells with reported data have sampled or estimated TDS concentrations above the MT. No wells sampled in WY 2025 exceed the

MO, but three wells showed a TDS concentration that is above the MO and IM that were sampled in WY 2025. Note that for the 34 complementary wells (identified with GAMA Well ID beginning with "CA"), 10 had TDS or EC data reported in GAMA for the reporting period.

See the WY 2024 Annual Report for the most recent detailed analysis backing up the estimation of TDS by multiplying EC observations by 0.64, as supported (SWRCB, 2004) and (American Public Health Association, American Water Works Association, and Water Environment Foundation, 1999).

Table 2-7: TDS Concentrations at Representative Monitoring Wells

GQTMP Well ID	GAMA Well ID	EC (µS/cm)	TDS (mg/L)	Date of Measurement ^b	Minimum Threshold (mg/L TDS)	Measurable Objective and Interim Milestones (mg/L TDS)	Principal Aquifer
P06	AGC100012331-ESJQC00006	307	196 ^a	8/5/2020	1,000	500	Outside
P07	AGC100012331-ESJQC00007		182 ^a	8/26/2025	1,000	500	Below
P08	AGC100012331-ESJQC00008	465	297 ^a	8/26/2024	1,000	500	Outside
P09	AGC100012331-ESJQC00009	645	413 ^a	7/25/2023	1,000	500	Below
P10	AGC100012331-ESJQC00010	1,344	860 ^a	8/26/2024	1,000	500	Below
ESJQC00019	AGC100012331-ESJQC00019	1,137	728 ^a	8/27/2024	1,000	500	Below
ESJQC00022	AGC100012331-ESJQC00022	955	611 ^a	8/26/2024	1,000	500	Above
ESJQC00030	AGC100012331-ESJQC00030	769	492 ^a	7/27/2021	1,000	500	Below
ESJQC00043	AGC100012331-ESJQC00043		333	7/25/2023	1,000	500	Outside
C35	CA2400172_001_001		362	1/22/2009	1,000	500	Above
C41	CA2400220_001_001	710	454 ^a	5/5/2016	1,000	500	Above
C45	CA2400089_001_001		c		1,000	500	Above
C38	CA2410004_011_011	400	256 ^a	2/29/2024	1,000	500	Below
C44	CA2400218_001_001	460	294 ^a	6/19/2024	1,000	500	Below
C40	CA2410001_006_006		290	3/16/2006	1,000	500	Outside
C42	CA2400046_002_002		320	8/11/2022	1,000	500	Outside
C43	CA2410007_005_005	400	256 ^a	2/18/2025	1,000	500	Outside
C46	CA2410007_002_002		209	1/31/1991	1,000	500	Outside
C47	CA2400194_001_001		c		1,000	500	Outside
C39	CA2400119_001_001		c		1,000	500	Outside
C48	CA2410011_005_005		220	10/18/2022	1,000	500	Outside
C49	CA2400172_012_012		300	12/16/2020	1,000	500	Unknown
C50	CA2400079_001_001	320	205 ^a	11/2/2020	1,000	500	Unknown
2400134-003	CA2400134_003_003	320	205 ^a	6/11/2024	1,000	500	Unknown
2400172-002	CA2400172_002_002		480	3/22/2023	1,000	500	Above
2410004-008	CA2410004_008_008		370 ^a	9/30/2025	1,000	500	Below
2410004-009	CA2410004_009_009		230 ^a	9/30/2025	1,000	500	Below
2410004-012	CA2410004_012_012		270 ^a	9/30/2025	1,000	500	Below
2410004-013	CA2410004_013_013		250 ^a	12/17/2024	1,000	500	Below

GQTMP Well ID	GAMA Well ID	EC (µS/cm)	TDS (mg/L)	Date of Measurement ^b	Minimum Threshold (mg/L TDS)	Measurable Objective and Interim Milestones (mg/L TDS)	Principal Aquifer
2410004-025	CA2410004_025_025	360	230 ^a	2/29/2024	1,000	500	Below
2410004-028	CA2410004_028_028		250	9/5/2023	1,000	500	Unknown
2410007-001	CA2410007_001_001		310 ^a	1/21/2025	1,000	500	Outside
2410007-004	CA2410007_004_004		240 ^a	1/21/2025	1,000	500	Outside
2410007-006	CA2410007_006_006	516	330 ^a	9/18/2025	1,000	500	Outside
2410007-007	CA2410007_007_007	389	249 ^a	6/12/2025	1,000	500	Outside
2410007-014	CA2410007_014_014		300 ^a	1/21/2025	1,000	500	Outside
2410008-004	CA2410008_004_004		340	6/20/2023	1,000	500	Unknown
2410008-005	CA2410008_005_005		230	6/20/2023	1,000	500	Below
2410008-010	CA2410008_010_010		430	4/20/2023	1,000	500	Unknown
2410009-057	CA2410009_057_057		230	10/31/2023	1,000	500	Unknown
2410010-014	CA2410010_014_014		220	5/11/2023	1,000	500	Outside
2410010-019	CA2410010_019_019		220	5/11/2023	1,000	500	Outside
5000433-008	CA5000433_008_008		140	11/13/2023	1,000	500	Outside

a. TDS concentration was estimated using the formula $TDS (mg/L) \approx EC (\mu S/cm) * 0.640$.

b. All WY 2025 data are shown. If no data for WY 2025 are available, the most recent measurement of TDS (or TDS estimated from EC) is shown.

c. No data reported for EC or TDS in GAMA.

2.8.2 Water Quality Coordination Activities

In addition to monitoring for TDS (see Section 2.8.1 - Representative Monitoring), the GSAs are conducting water quality coordination activities to track other water quality constituents. These activities include review of monitoring reports published by other monitoring programs as well as compiling data submitted by the Department of Pesticide Regulation (DPR), DDW, and Department of Toxic Substances Control (DTSC) to the GAMA database. The purpose of these reviews is to evaluate the status of constituent concentrations throughout the Subbasin with respect to typical indicators such as applicable maximum contaminant level (MCL)⁶ or secondary maximum contaminant levels (SMCL)⁷ associated with drinking water.

Established in 2000, the GAMA Program monitors groundwater quality throughout California. GAMA is intended to create a comprehensive groundwater monitoring program throughout the state and increase public availability and access to groundwater quality and contamination information. Agencies submit data from wells for 244 constituents. GAMA data for the Merced Subbasin contains wells monitored or regulated by the DDW, DPR, DWR, United States Geological Survey (USGS), and environmental monitoring wells monitored by regulated facilities. The GSAs have collected information from GAMA and use this information to document regional groundwater quality and to assess whether there is a need for changes to existing SMC or developing additional SMC for water quality as part of GSP updates.

⁶ MCLs are drinking water standards that are adopted as regulations and describe the highest level of a contaminant allowed in drinking water, based on health risks and also detectability, treatability, as well as the costs of treatment.

⁷ Secondary MCLs are established by the USEPA and then adopted by the State Water Resources Control Board. The secondary MCL is a secondary drinking water standard that is established for aesthetic reasons such as taste, odor, and color and is not based on public health concerns.

3. PLAN IMPLEMENTATION PROGRESS

This section of the Annual Report provides updates on:

- Interim milestones (Section 3.1)
- Projects (Section 3.2)
- Management actions (Section 3.3)
- Additional implementation support activities (Section 3.4)
- Anticipated upcoming activities (Section 3.5)

This Annual Report provides a snapshot of projects and management actions (PMAs) and their respective implementation status. The PMAs are also included in the Merced Integrated Regional Water Management (MercedIRWM) Opti project tracker (<https://opti.woodardcurran.com/irwm/merced/>), which, along with the GSP, is viewed by the Merced Subbasin GSAs as a “living” document. The list of PMAs maintained in the MercedIRWM Opti system will be revised periodically and reflects, at any time in the future, the list of PMAs associated with the GSP. When revised, the PMA list will be approved by the Merced Subbasin Coordination Committee or other body, as appropriate, following updating, and will be made available via the MercedIRWM Opti system. As such, the list of PMAs maintained in the MercedIRWM Opti system is considered to be the official Merced Subbasin GSP PMA list; no formal GSP adoption is required for PMA list updating.

3.1 Interim Milestones

IMs were identified in Chapter 3 (Sustainable Management Criteria) of the GSP for all Sustainability Indicators and provided in tabular form for Groundwater Elevations and Groundwater Quality Sustainability Indicators (see Tables 3-1 and 3-2 in GSP). These IMs are anticipated to be achieved over the course of GSP implementation in increments of five years, pursuant to the CCR definition “Target values representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan” [CCR Title 23, Division 2, §351(q)]. Progress toward achieving IMs since submitting the original 2019 and revised 2022 and 2025 GSPs are provided in Sections 2.2 (Groundwater Elevations), 2.7 (Land Subsidence), and 2.8 (Groundwater Quality). Groundwater elevations are used a proxy for groundwater storage and interconnected surface waters.

Note that the sustainability indicator for seawater intrusion is noted in the GSP as not present and not likely to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta).

3.2 Implementation of Projects

Since the initial publishing of the GSP in 2020, projects have been started, completed, and new projects have been added. The different sources of projects are described in the subsections below, after which Table 3-1 describes completed projects and Table 3-2 describes projects in progress.

Original GSP Projects

The original GSP (2019) identified twelve priority projects. These projects were selected for inclusion in the original GSP based on their ability to address a list of priorities identified by the Stakeholder Advisory Committee and Coordination Committee members and the public. Nine of the twelve priority projects are considered complete (see Table 3-1). One additional project is no longer being pursued. Table 3-2 provides a summary of updated project information for the two ongoing priority projects since the previous annual report, as provided by project proponents.

Proposition 68 SGM Grant Program Planning Grant

The Merced Subbasin was awarded a Proposition 68 SGM Grant Program Planning Grant which was formalized through an agreement with DWR in May 2020. The grant funded a GSP Development Project for Addressing Critical Data Gaps which consisted of developing a Data Gaps Plan, upgrading & incorporating existing wells into the monitoring network, installing a new well in a critical location, and stakeholder outreach. It also funded the development of a remote-sensing decision support tool. Both projects (data gaps and remote sensing tool) are completed as described in Table 3-1.

Proposition 68 SGM Grant Program Implementation Grant

The Merced Subbasin received a Proposition 68 SGM Grant Program Implementation Grant in 2021 for two projects, "El Nido Conveyance System Improvements Project" and "LeGrand-Athlone Water District Intertie and Recharge Project (Phase 1)". Both projects are completed as described in Table 3-1.

Round 1 Sustainable Groundwater Management Implementation Planning and Projects Grant

At the end of February 2022, the GSAs submitted an application and spending plan to DWR for a total of approximately \$13.7 million of grant funding for 18 projects and received \$7.6 million of funding for 15 of those projects. Completed projects are described in Table 3-1, while in progress projects are shown in Table 3-2 as Project Source "Projects Funded by the SGM Implementation Grant Round 1".

Round 2 Sustainable Groundwater Management Implementation Planning and Projects Grant

In December 2022, the GSAs submitted an application and spending plan to DWR for a total of approximately \$18.4 million of grant funding for 7 projects and received \$3.4 million of funding for 2 of those projects. These projects are shown in Table 3-2 as Project Source "Projects Funded by the SGM Implementation Grant Found 2".

Table 3-1: Completed Projects

Project Name	Project Update Description
Project 1: Planada Groundwater Recharge Basin Pilot Project	Cone Penetration Tests did not show favorable geologic conditions for a recharge basin; a dry well recharge facility was installed as an alternative to a traditional recharge basin. Pre-filtration methods designed for the pilot were insufficient; MIUGSA continues to consider and evaluate alternative approaches to filtration; no feasible approaches have been identified at this time. Proposed permanent monitoring well installed in September 2020. This well has been added to the Merced Subbasin's Monitoring Network.
Project 2: El Nido Groundwater Monitoring Wells	All planned well site installations (two wells, three completions each) have been completed. These wells have been added to the Merced Subbasin's Monitoring Network.
Project 3: Meadowbrook Water System Intertie Feasibility Study	Study completed in January 2021.
Project 5: Merced Irrigation District to Lone Tree Mutual Water Company Conveyance Canal	Completed fall 2022 and currently in operation. 6,345 AF were delivered to Lone Tree Mutual Water Company in WY 2025 through the conveyance canal.
Project 7: Merced Region Water Use Efficiency Program	<p>Water providers in the Merced Region have continued a range of urban and agricultural water use efficiency activities since 2020 that align with the Merced Region Water Use Efficiency Program. Activities include distribution of free indoor conservation devices, outdoor irrigation evaluations, municipal irrigation equipment, enforced water waste rules, and used meter data to identify high use irrigation accounts. Agricultural efforts have included expanded groundwater and surface water flowmeter installations, telemetry and datalogger upgrades, and grower outreach on irrigation scheduling. Together, these actions support long-term conservation, improved measurement, and equitable access to groundwater resources.</p> <p>Savings are not readily quantifiable, but the activities contribute to sustained regional demand reduction.</p>
Project 8: Merced Groundwater Subbasin LiDAR	Funding for this project was awarded under the Proposition 1 Round 1 IRWM Implementation Grant in 2020. LiDAR data was collected in December 2020 for portions of the Subbasin and is currently utilized with weather forecast data to predict local stormflows from rainfall events.
Project 9: Study for Potential Water System Intertie Facilities from MID to Le Grand-Athlone Water District (LGAWD) and Chowchilla Water District	The study has been completed. The GSAs received Proposition 68 Implementation Grant funding for the phase 1 portion of this work in 2021. An additional, separate phase 2 of work has been funded as part of the SGM Implementation Grant Round 1. Further, LGAWD has adopted an assessment with the intention of fully funding the remaining portion of the cost estimate, which is approximately \$25,000,000. The WIFIA loan

Project Name	Project Update Description
	should be obtained by approximately September 2026, with construction starting soon after and completing by approximately September 2027.
Project 11: Mini-Big Conveyance Project	Completed; combined with Project 9 above due to substantial overlap in scope.
Project 12: Streamlining Permitting for Replacing SubCorcoran Wells	The study has been completed and has been used by Merced County to support well permitting from below to above the Corcoran Clay in the subsidence area.
El Nido Conveyance System Improvements Project	Provides conveyance improvements at four existing siphons/pipelines in MID's El Nido Conveyance System to allow more surface water to be diverted from the Mariposa Creek to the El Nido area, an Underrepresented Community ¹ suffering from declining groundwater levels and subsidence. Construction concluded in March 2022. Funded via Proposition 68 SGM Grant Program Implementation Grant. In WY 2025, 3,460 AF was delivered to out of district land downstream of the El Nido Siphons that were replaced.
Project 10: Vander Woude Dairy Offstream Temporary Storage; also known as Vander Woude Storage Reservoir	Original GSP Project 10 was approved for funding in May 2022 as part of the Round 1 Sustainable Groundwater Management Implementation Planning and Projects Grant ("Vander Woude Storage Reservoir") and reflects some minor modifications to what was initially proposed in the GSP. Construction completed in 2024 and the project is operating. The project built a 30-acre storage reservoir with a capacity of 250 AF and diverts flood water from Mariposa and Owens Creeks and stores it for later use to meet crop demand. The estimated yield is 750 AFY. In addition, the project also permanently fallowed 30-acres of productive farmland that had a crop demand of 150 AFY. The total project yield is 900 AFY. In WY 2025, 700 AF was diverted into the basin.
Vander Dussen Subsidence Priority Area Flood-MAR Project	Construction is complete. The project involved building a 1.25 mile earthen canal from Merced Irrigation District's El Nido Canal to 685-acres of agricultural fields, of which approximately 325-acres are located within Sandy Mush Mutual Water Company and 333-acres in the Madera County GSA. With 90 days of flood flows, the 20 cfs canal will yield ~3,600 AF of recharge. In WY 2025, the pipeline was utilized for 4 days which equates to approximately 200 AF of recharge.
Buchanan Hollow Mutual Water Company Floodwater Recharge Project	The Groundwater Recharge Feasibility Study was completed in fall 2024. The three tested sites were found to be poorly to moderately suitable for groundwater recharge. At the best of the three sites, the small acreage means that the volume of potential recharge is still minimal. Thus, no recharge project is anticipated.

¹ Underrepresented Communities are defined by the SGM Grant Program as a DAC, SDAC, or EDA; Tribal Lands/Tribes; California Communities Environmental Health Screening Tool Classified DACs (EnvDACs); and Fringe Communities.

Project Name	Project Update Description
Amsterdam Water District Surface Water Conveyance and Recharge Project	The Groundwater Recharge Feasibility Study was completed in fall 2024. For the first of two sites (flat pasture), the results of the investigation stated that a full-scale project is not recommended for this site due to the generally low permeability of the soils near the surface. At the second of two sites (almond orchard), the soils below 5-10 feet deep were found to be suitable for recharge.
LeGrand-Athlone Water District Intertie and Recharge Project (Phase 1)	The Intertie project includes an approximately 2-mile canal to connect MID's Booster Lateral 3 to Dutchman Creek. Phase 1 construction was completed in February 2025. Note that Phase 2 of the project is described in the next table. Phase 1 was funded via Proposition 68 SGM Grant Program Implementation Grant. In WY 2025, Phase 1 of the project was able to deliver 1,407 AF to land that had never received surface water, thus replacing groundwater pumping.
Merced Subbasin GSP Development Project for Addressing Critical Data Gaps	<p>The Remote Sensing Decision Support Tool for the Subbasin was completed in spring 2023.</p> <p>The "Addressing GSP Gaps" component has multiple sub-components:</p> <ul style="list-style-type: none"> • The Data Gaps Plan document was completed in July 2021 and provides tools to prioritize filling the data gaps and identifies implementation procedures necessary to fill such gaps. The Data Gaps Plan does not attempt to completely fill all identified gaps, but rather acts as a starting point and guidance framework for ongoing efforts to do so. • Upgrade and Incorporate Existing Wells into Monitoring Network – MIUGSA and MSGSA have identified existing candidate wells for potential incorporation into the monitoring network and instrumented several of those wells for monitoring. In early 2024, the GSAs completed remaining work to investigate wells through video logs, site visits, and well completion reports. Suitable wells were then instrumented and incorporated. Ultimately, 12 wells were identified as additional wells for potential incorporation into the monitoring network. • Install New Monitoring Well(s) in Critical Locations – a dual completion (2 casings) monitoring well was installed in the southwest corner of the Subbasin in spring 2023. <p>Funded through Proposition 68 SGM Grant Program Planning Grant.</p>
Filling Data Gaps Identified in Data Gaps Plan	Four new groundwater level monitoring wells were installed and completed in the winter of 2025. Each well site consists of a dual-completion monitoring well, with one casing monitoring the Above Corcoran Clay Aquifer and a second casing monitoring the Below Corcoran Clay Aquifer. Telemetry on the new monitoring wells is

Project Name	Project Update Description
	<p>anticipated to be completed in the spring of 2026 and will be capable of remotely monitoring groundwater level and electrical conductivity. Funded via the SGM Implementation Grant Round 1.</p>
<p>Merced Subbasin Integrated Managed Aquifer Recharge Evaluation Tool (MercedMAR)</p>	<p>The project began mid-2023 and was completed in December 2025. Funded via the SGM Implementation Grant Round 1. The GSAs anticipate using the tool in the coming years to more efficiently evaluate opportunities for FloodMAR and additional recharge projects in the Subbasin.</p>

1. *The following projects were reported previously but are no longer being pursued:*
 - a. *GSP Project 4: "Merquin County Water District (MCWD) Recharge Basin" because MCWD is not currently pursuing this project.*
 - b. *"MCWD Sustainable Yield Management Plan and Plan Implementation" because MCWD withdrew this project from the SGM Implementation Grant Round 1 grant agreement.*

Table 3-2: Description of In Progress Project Implementation Updates

Project Source	Project Name	Project Update Description
Original GSP Project	Project 6: Merced IRWM Region Climate Change Modeling	No update of information in 2025 GSP to report at this time.
Projects Funded by the SGM Implementation Grant Round 1 ¹	LeGrand-Athlone Water District Intertie Canal (Phase 2)	The design of Phase 2 is complete. Construction on a portion of Phase 2 began in 2025. Project proponent is still working on acquiring easements and WIFIA financing for the remainder. The WIFIA loan should be obtained by approximately September 2026, with construction starting soon after and completing by approximately September 2027.
	GSP Project 31: Crocker Control Structure Rehabilitation (previously called Crocker Dam Modification)	Project Planning and Design is fully funded and underway.
	G Ranch Groundwater Recharge, Habitat Enhancement & Floodplain Expansion Project – Planning	Planning is complete. See project update in row immediately below.
	G Ranch Groundwater Recharge, Habitat Enhancement & Floodplain Expansion Project - Implementation	La Paloma Mutual Water Company has partnered with River Partners and Ducks Unlimited for this project which will provide both wildlife and groundwater recharge benefits by re-establishing flood plains. Implementation has begun on Phase 1. Phase 2 is in final environmental permitting and should begin construction by or before January 2027.
	Turner Island Water District (TIWD) Water Conservation	Project is funded and is ongoing. The Project, which includes the construction of an approximate 25 acre regulating reservoir and the appurtenant pump station and control gates was sent out to public bid in late 2025. TIWD has awarded the contract and construction is slated to commence February 20, 2026.
	TIWD Shallow Well Drilling	Project is funded and is ongoing. The Well Drilling portion of the Project was put out to public bid and construction was completed in the fall of 2025. It included two shallow wells in the eastern portion of the TIWD boundary. Selection of the appropriate pump and motor for each of the two wells is in progress. Both shallow wells should be up and running by June 1, 2026.

Project Source	Project Name	Project Update Description
Projects Funded by the SGM Implementation Grant Round 2 ²	La Paloma Mutual Water Company G Ranch Groundwater Recharge, Habitat Enhancement, and Floodplain Expansion – Phase II (Construction)	See earlier rows for “G Ranch Groundwater Recharge, Habitat Enhancement & Floodplain Expansion Project”. Separate line items were entered for grant funding purposes, but together comprise the same project.
	La Paloma Mutual Water Company Bear Creek Ranch Groundwater Recharge, Habitat Enhancement, and Floodplain Expansion – Phase I (Planning)	As of February 2026, Planning and Design are nearly complete. The project was awarded a grant from the Mult-Benefit Land Repurposing Program for some transition seeding of natives; the related work has been completed.

Notes:

1. See notes below:
 - a. Three projects from the SGM Implementation Grant Round 1 were not funded:
 - 1 MIUGSA Groundwater Extraction Measurement Program
 - 2 Deadman Creek Canal Off Stream Storage and Recharge
 - 3 Tri City’s Water Recharge/Underground Storage Feasibility
 - b. The following two originally funded projects have not proceeded due to a policy conflict that has rendered the project infeasible for the applicant to pursue:
 - 1 Purdy Project (E. Purdy, W. Purdy, and Kevin Recharge Basins) (Project No. 38)
 - 2 Purdy Project (East Pike Recharge Basin) (Project No. 37)
2. Several additional projects from the SGM Implementation Grant Round 2 (not listed) were not funded. The application process was particularly competitive, with over \$780 million in grant fund requests submitted and only \$187 million available to be awarded statewide.

3.3 Implementation of Management Actions

The 2025 Merced Subbasin GSP includes five management actions:

- Integrated Groundwater Allocation Framework
- MSGSA Demand Reduction Program
- MIUGSA Groundwater Allocation
- Domestic Well Mitigation Program
- Above Corcoran Sustainable Management Criteria Adjustment Consideration

Integrated Groundwater Allocation Framework: An Ad Hoc Coordination Committee Working Group, supported by GSA staff, was previously established to conduct discussions on an initial framework. Currently, the GSAs are working individually within their own jurisdictions to develop GSA-specific demand reduction and water allocation programs, described immediately below for MSGSA and MIUGSA. A formal allocation agreement between the GSAs for the Subbasin as a whole has not been developed and is not scheduled for the upcoming water year.

MSGSA Demand Reduction Program: The MSGSA has initiated a demand reduction program in recognition of the need to reduce groundwater pumping in the subbasin. On July 8, 2021, the MSGSA Board approved Resolution 2021-01 which described an objective that by WY 2025 the consumptive use of groundwater within the MSGSA will be reduced by a minimum of 15,000 AF annually, with this minimum to be increased annually thereafter.

The MSGSA has adopted a Two Phased GSP Implementation Approach, with Phase 1 having focused on land repurposing as the short-term option to achieve the WY 2025 objective, combined with importing surface water in the GSA (flood waters or purchased water). Through the Phase 1 activities, 14,128 acres of land have been repurposed for terms of three to five years and 163,775 AF of surface water has been diverted into the MSGSA for direct use in 2023, 2024, and 2025. In WY 2025, the approximate consumptive use reduction from land repurposing was 4,655 AF. 46,227 AF of surface water use was reported to the GSA to receive a credit through the allocation program, but note that this does not fully account for all surface used within the GSA. Phase 2 went into effect on January 1, 2026 and will involve increasing to substantially greater reductions by 2040.

Phase 1's voluntary land repurposing program was designed and launched in WY 2022 to encourage landowner participation through the use of an incentive payment system driven by landowner applications. Three rounds of applications have been solicited and completed through WYs 2022-2024. Over the three application rounds, 14 land repurposing applications were accepted and the MSGSA entered into three-to-five year agreements with the property owners. WY 2025 brought the completion of three, three-year land repurposing program agreements. The remaining 11 agreements will continue for one to two years more, depending on the term of each agreement. According to the agreements, the minimum water use reduction over the five years of the program is estimated to be 25,911 AF. Quarterly monitoring of the program, conducted by the MSGSA using OpenET indicates estimates of water use reductions for some participants is coming in lower than expected, due to trees remaining in the ground and soil moisture retention from the especially wet WY 2023.

Phase 2 went into effect January 1, 2026 and focuses on implementing the Groundwater Allocation Rule adopted on October 10, 2024 (“Rule”), which will achieve the significant reduction in the consumptive use of groundwater necessary to reach sustainability. The Rule will allow the MSGSA to accomplish the 2040 objective by the end of WY 2035. The Rule establishes an allocation of groundwater for each agricultural parcel of land within the MSGSA’s boundary. The allocation includes, at a minimum, Sustainable Yield of Native Groundwater (SYNG) and, for some parcels, a temporary Additional Pumping Allowance (APA). To address spatial variability in hydrogeologic conditions in the MSGSA and allow for adaptive management in 2030-2040, 8 Sustainability Zones were established. Eligible parcels within each Sustainability Zone are allocated a consumptive use of 13 inches of SYNG. Beginning in 2026, eligible parcels within each Sustainability Zone will receive an APA of an additional 11 inches of Native Groundwater consumption. The APA will decline by 10% per year over a 10 year period (2026-2035) until it reaches a value of zero by 2036. In 2030 and 2035, additional data and improved understanding of groundwater level responses to the Rule in each Sustainability Zone will allow the SYNG to be adjusted higher or lower, and the APA to be reduced more quickly or slowly, further assuring sustainability objectives will be achieved. Finally, a five-year rolling bucket concept is intended to provide flexibility for growers to manage change across time. In 2025, additional elements of the Rule were adopted, including accounting for Alternative Sources of water for direct use and recharge credits, effective precipitation, and general appeals and variance processes.

The year 2025 was a “test-run” for the MSGSA Groundwater Allocation Rule and use of the Groundwater Accounting Platform (GAP). MSGSA participates in a pilot program of the GAP, developed by the California Water Data Consortium and Environmental Defense Fund and funded by DWR and USBR. In 2025, growers subject to the Groundwater Allocation Rule were able to log onto the GAP to monitor their consumption against the groundwater allocation prior to the allocation enforcement being in effect in 2026. Throughout 2025 the MSGSA conducted outreach to landowners to encourage registration on the Platform and provided in person and online technical assistance setting up Water Accounts, managing parcel misclassifications, and Opt-in's according to the Rule.

In addition to reducing demand through the Groundwater Allocation Rule, the MSGSA will reduce demand through multibenefit land repurposing. The MSGSA was awarded a Multibenefit Land Repurposing Program (MLRP) grant from the California Department of Conservation (DOC) in the amount of \$8.9 million in fall 2023. The MLRP has been working with stakeholders to identify, prioritize, develop, and implement land repurposing projects that are targeted to provide the greatest meaningful impact on groundwater sustainability, while providing additional benefits such as soil health, air quality, and habitat connectivity. Through this effort, MSGSA has partnerships with East Merced Resource Conservation District, River Partners, United States Fish and Wildlife Service, SocioEnvironmental and Educational Development Strategies, Sandy Mush Mutual Water Company, and La Paloma Mutual Water Company. Table 3-3 shows implementation projects approved by the MSGSA and DOC and are under contract.

Table 3-3: MLRP Approved Projects

Project	Project Funding	Status
Amsterdam-Johnson Recharge Basin	\$539,000	Under contract with MSGSA
Nevada Ranch	\$1,200,000	Under contract with MSGSA
Bear Creek Transitional Seeding	\$1,200,000	Under contract with MSGSA
Le Grand Community Project	\$1,080,811	Under contract with MSGSA
G Ranch	\$1,000,000	DOC approved, contract negotiations with MSGSA

In October 2025, the solicitation for Project Development Funding for planning, design, and permitting was opened, closing on January 30, 2026. The Project Development Funding was available in the total amount of \$750,000 with a maximum project award of \$150,000. Twelve applications were received, four approved by the MSGSA Board in March 2026, and two others have been recommended for approval and are pending Board approval.

MIUGSA Groundwater Allocation: In 2023, MIUGSA adopted Rules and Regulations that include an allocation program in addition to establishing a framework for measuring, monitoring, and enforcing the groundwater allocation through well registration and groundwater usage reporting systems. In January 2026, the MIUGSA Board extended the existing groundwater extraction allocation for agricultural parcels of 3.3 AF/ac over three years (1.1 AF/ac/yr on average) from January 1, 2026 through December 31, 2028. In June 2024, the MIUGSA Board adopted an allocation for non-agricultural users of 1.4 AF/ac/yr through 2031, followed by an allocation of 1.1 AF/ac/yr after 2031 through 2040. The adopted allocation values were considered consistent with the GSP's sustainable yield of native groundwater at the time. MIUGSA has incorporated flexibility and tools into the rules and policies that will allow users to comply with the allocation. These include combining allocated water over multiple parcels, allowing carry-over of recharged water and any unused water to future years, and accounting for developed supply from an agricultural user's water provider (MIUGSA, 2023b). In Fall 2024, MIUGSA adopted flow meter requirements and installation timelines for agricultural, commercial, and industrial wells. As an interim approach, groundwater extraction volumes are derived using remotely sensed evapotranspiration and best accepted scientific methods and data. Methods and data include accounting for precipitation, local soil types, irrigation efficiencies, and more. MIUGSA staff are also reading flow meters on private wells for those well owners that installed meters before the required installation timelines.

On October 12, 2022, a well registration requirement was also adopted, with a goal of establishing an online platform and procedure to register all wells in the GSA prior to December 31, 2025. Previous policy adoptions for well registration requirements meant that by August 2024, effectively all agricultural wells

serving greater than 10 acres were registered with MIUGSA. Over the past year, MIUGSA prioritized implementation of the multi-year groundwater allocation and undertook a detailed review and correction of well locations and attributes in the State's Online System for Well Completion Reports database. This upfront data-cleaning effort has significantly improved the accuracy of MIUGSA's well inventory and will streamline the registration process for landowners once formal registration is initiated.

MIUGSA also participates in a pilot program of the GAP developed by the California Water Data Consortium, and Environmental Defense Fund, funded by DWR and USBR, to provide MIUGSA staff the ability to monitor and enforce groundwater extraction within MIUGSA and landowners with groundwater accounts providing details related to available groundwater supply, use, and remaining balance. MIUGSA has begun rolling out the Groundwater Accounting Platform and is actively providing Groundwater Account Statements to landowners.

Domestic Well Mitigation Program: Significant progress was made on this management action in WY 2025, resulting in adoption of a Domestic Well Mitigation Program by each GSA Board (MIUGSA on 1/14/2026, MSGSA on 1/8/2026, and TIWD GSA-1 on 2/26/26).

In WY 2025, the GSAs continued to work collaboratively to define the various roles and responsibilities of the Domestic Well Mitigation Program. The intent of this program is to respond to adverse impacts experienced by domestic well users where regional overdraft conditions occurring after 2020 are causing declining groundwater levels that interfere with groundwater production or quality. Moreover, the program is solely focused on addressing impacts associated with groundwater level declines and not centered on addressing impacts caused by aging, faulty, or ill-maintained domestic well infrastructure.

The Domestic Well Mitigation Program identifies criteria for eligible wells:

- The well is within the Merced Subbasin
- The well existed prior to adoption of the Domestic Well Mitigation Program or if drilled to a GSA-recommended depth if constructed after adoption of the Program
- The cause of well failure is declining groundwater levels resulting from overdraft pumping that occurred after January 28, 2020, and is attributable to sustainable groundwater management under the Merced GSP
- There is evidence connecting GSA management actions to well's ability to provide potable water
- The well does not supply water for non-domestic use
- The well does not extract more than 2 AF
- The well has not been previously mitigated by this program or any other mitigation program

If a well is eligible for mitigation, the Domestic Well Mitigation Program will provide a mitigation award, including the combination of approved long-term mitigation measures and amount of financial assistance. The program will issue reimbursement, in the maximum amount for full mitigation of \$30,000. Eligible wells replaced after January 28, 2020 and before the adoption of the program may be reimbursed at maximum amount of \$30,000.

The mitigation measures considered are 1) Emergency Water Supply, including bottled drinking water and tanked supply, and 2) Long Term Solutions which may include connection to a public system, modifications

to existing well system, well deepening, or well replacement. Any decision by the Domestic Well Mitigation Program may be appealed through written appeal within 30 days.

The full text of the Domestic Well Mitigation Program can be found at MercedSGMA.org/resources.

In WY 2026, the GSAs anticipate developing and implementing the mechanics of the program, including setting up an intake form for requests and determining the logistics of how the requests will be routed for review and assistance.

Above Corcoran Sustainable Management Criteria Adjustment Consideration: This management action would consider an adjustment to the groundwater level SMC for all or a portion of the Above Corcoran Clay Principal Aquifer. The Above Corcoran Clay Principal Aquifer has traditionally seen lower levels of use for water supply. As a result, MTs in this area are likely to be relatively high, as they are based on fall 2015 levels. A large component of the selection of fall 2015 as the MT was to limit impacts to domestic well users and to limit impacts of subsidence. Much of the Above Corcoran Clay Principal Aquifer has few domestic wells, and the Above Corcoran Clay Principal Aquifer is not thought to contribute to subsidence.

No action has been taken since the prior WY 2023 on this management action.

3.4 Additional Implementation Support Activities

Additional activities have taken place within or just after the Annual Reporting period that contribute to the overall GSP implementation progress. These are described below in Section 3.4.1, while Section 3.4.2 includes the MercedWRM update for WY 2025.

3.4.1 Interbasin Coordination

Agencies from each GSA continued to participate in the GSP processes of neighboring Subbasins, including MID and Merced County in Turlock to the north, Merced County and TIWD in Delta-Mendota to the west, and Merced County in Chowchilla to the south. The Chowchilla GSP was updated and submitted to DWR in 2025, but is still under review. The Delta-Mendota GSP was last revised in July 2024 to consolidate the prior six GSPs into a single GSP, which is being considered for return from SWRCB to DWR for continued state evaluation and assessment at the SWRCB's April 7, 2026 meeting. The Turlock GSP was last updated and submitted to DWR in early 2024 and approved in March 2025.

3.4.2 MercedWRM Update (Water Year 2025)

The MercedWRM was originally developed and calibrated to model historical groundwater storage from WY 1996-2015, updated with WY 2015-2020 data in the 2020 annual report, and updated yearly for annual reports in WY 2021-2024. The WY 2024 version of the model was updated for this annual report to reflect more recent data. Data from WY 2025 were collected from the same public and private sources that had provided the historical data used in the GSP and previous annual reports. The historical water budget was extended through WY 2025, including an updated estimate of the change in groundwater storage reflecting the latest data.

The WY 2025 continuation of the historical water budget is intended to further evaluate the aquifer system under a variety of hydrologic and anthropogenic conditions. The full annual groundwater budget for WY 1996-2025 is shown earlier in Figure 2-7.

Data Sources

Data were requested and received from the following entities in the Subbasin to complete the MercedWRM update:

Agricultural and Environmental Water Purveyors

- Merced Irrigation District
- Stevinson Water District
- Merquin County Water District
- Turner Island Water District
- Lone Tree Mutual Water Company
- Merced National Wildlife Refuge

Urban Water Purveyors

- City of Merced
- City of Atwater
- City of Livingston
- Le Grand Community Services District
- Planada Community Services District
- Winton Water and Sanitary District
- California American Water, Meadowbrook

Publicly Available Data

- DWR SGMA Data Viewer
- DWR California Data Exchange Center (CDEC)
- DWR California Irrigation Management Information System (CIMIS)
- California Department of Finance Demographic Research Unit
- Oregon State University PRISM Group

Updated Components

The above data sources provided the necessary data to allow the historical model simulation to reflect the most recent conditions. The following components of the model were updated for the annual report.

Surface Water Diversions and Deliveries: Monthly surface water diversions and deliveries were provided for October 2024 through September 2025 by MID, TIWD, Stevinson Water District, Merquin County Water District, and Lone Tree Mutual Water Company. MID deliveries were aggregated at the subregional level for both in- and out-of-district sales, whereas the other water agencies were summarized within their boundaries.

Groundwater Pumping: Groundwater extractions from October 2024 to September 2025 were provided by all agricultural and urban water purveyors listed in Section 2.3. Agency pumping by MID and TIWD were simulated using measured data at each production well whereas other entities have pumping distributed evenly across their institutional boundaries based on aggregate reported data. Pumping estimates were made for private agriculture and domestic wells based on land use type, climatic data, and population.

Population: For the City of Merced, City of Atwater, and the City of Livingston, populations were updated based on data publicly available from the California Department of Finance population estimates for 2025 (Report E-4). Rural population were updated based on projection of historical trends.

Land Use: Each element within the MercedWRM is comprised of some fraction of 27 land uses, including 24 agricultural crop categories, native vegetation, riparian vegetation, and urban. For the WY 2025 update, the model utilizes the most recently available annual data based on DWR's Statewide Crop Mapping for 2024, which provides land use categories on a field scale based on remotely sensed satellite imagery with ground reference/truth data.

Additional land use cropping data was incorporated in the TIWD area based on parcel information given by TIWD GSA-1. The parcel information was mapped to the crop categories used in MercedWRM and the spatial distribution used in the model.

Precipitation: Monthly precipitation in the Subbasin and its watersheds was derived on a four-kilometer grid using the Precipitation-Elevation Regressions on Independent Slopes Model (PRISM) dataset available online from Oregon State University through a partnership the National Resources Conservation Service (NRCS) National Water and Climate Center.

Evapotranspiration: The MercedWRM uses OpenET data to define evapotranspiration on a high-resolution basis throughout the Subbasin. At the time of the model update for this annual report, OpenET data were only available through 2021. Reference evapotranspiration reported by Merced's CIMIS station was used as a factor to extend the OpenET data through WY 2024. However, the CIMIS station was decommissioned by DWR in early 2024 and data were only available through March 2024. For this Annual Report, reference evapotranspiration was estimated by averaging all observed values for the same month and water year type (in this case, assumed to be Below Normal year) in the historical record, (e.g. all previous April months in below normal water year types, then all May months, etc.). The Los Banos II CIMIS station was used for validation of the resulting reference evapotranspiration.

Streamflow: Monthly inflow to the Merced Subbasin was downloaded for the San Joaquin River from the USGS and from CDEC for Merced River, Bear Creek, Owens Creek, and Mariposa Creek. Chowchilla River flows were estimated based on similar months and water year types from historical USGS gauge data; the gauge has not been monitored since 1994. Non-gauged tributaries into the Subbasin were estimated internally by the model using the Integrated Water Flow Model (IWFM) small-watershed package.

Boundary Conditions: Groundwater elevation contours were downloaded from DWR's SGMA Data Viewer for fall 2024 and spring 2025, and used to update the groundwater elevation boundary conditions in the model, particularly in the region of the MercedWRM that extends beyond the boundary of the Merced Subbasin. As groundwater level contours are only available in semiannual intervals, intermediary months were estimated through linear interpolation.

Canal Recharge: The MercedWRM estimates MID canal recharge based on historical monthly diversions and the water year index. An in-depth analysis of MID operational water budgets was developed as part of MID's 2020 Agricultural Water Management Plan (AWMP) (MID, 2021). Stevinson Water District and TIWD have also estimated seepage from unlined canals due to their conveyance of developed supply as described in the GSP Section 6.2.1.

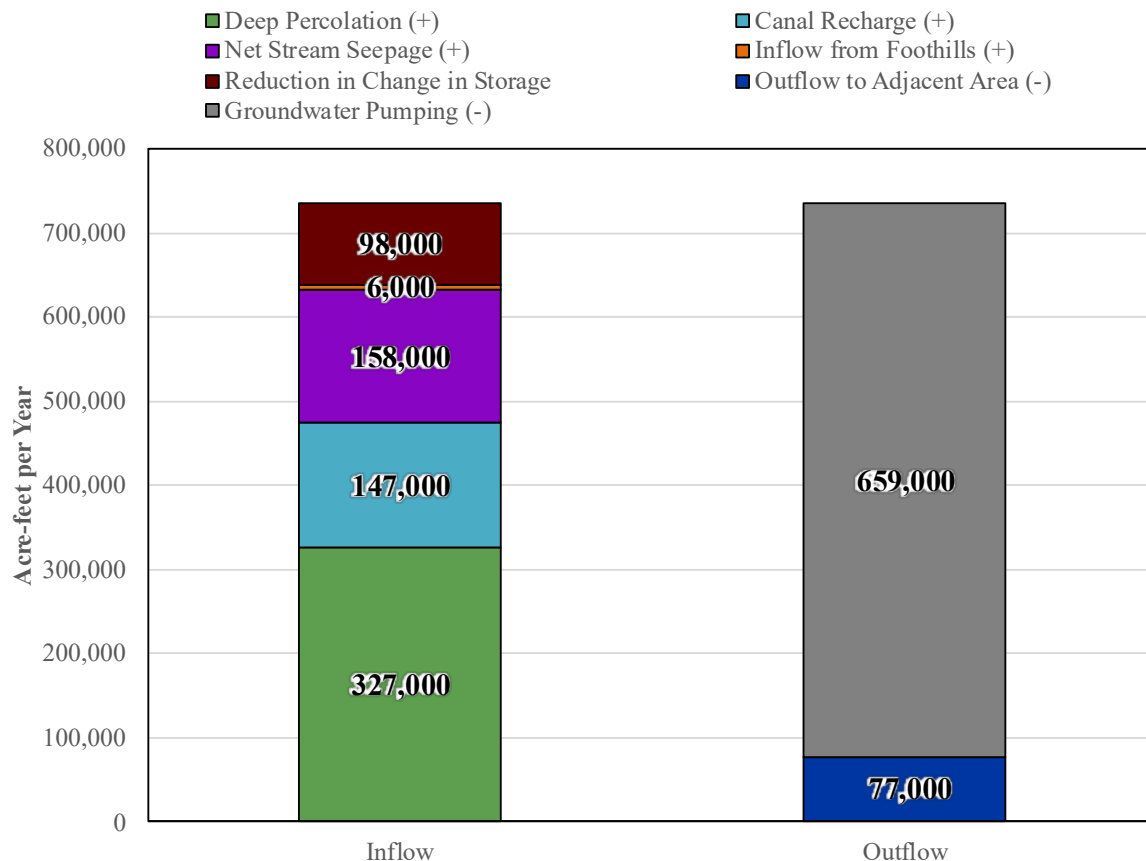
Interbasin Flows: The MercedWRM simulates groundwater flow between the Merced Subbasin and the neighboring subbasins to the north (Turlock), west (Delta-Mendota) and south (Chowchilla). The rate and direction of this interbasin subsurface flow depends on the groundwater operations and levels during the historical period on both sides of the boundary. The MercedWRM has been calibrated using limited available data for areas in the vicinity of the boundaries in neighboring subbasins (circa 2013-2015). Modeling for the Merced GSP shows net flows from the Merced Subbasin to the Turlock Subbasin.

All neighboring subbasins have now completed their GSPs. Additional data and/or assumptions on neighboring operations (e.g. groundwater pumping and surface water diversions) have not yet been incorporated into the MercedWRM's historical conditions scenario. Interbasin coordination meetings have been held with all three surrounding subbasins, and coordination agreements have been put in place with the Turlock and Chowchilla Subbasins to facilitate such exchange of data and information.

Results

Evaluation of WY 2025 (Figure 3-1) shows that the Merced Subbasin experienced net 638,000 AF of inflows and 736,000 AF of outflow, resulting in a total decrease in groundwater in storage of 98,000 AF. Net-recharge from the stream and canal systems (305,000 AFY = 158,000 AFY streams + 147,000 AFY canals) is a large contributor of groundwater inflow, as well as deep percolation from rainfall and irrigation applied water (327,000 AFY) and net-subsurface inflows from local subbasins and the Sierra Nevada foothills (6,000 AFY). Groundwater production (659,000 AFY) accounts for the greatest outflow from the Merced Subbasin, followed by outflow to adjacent areas (77,000 AFY).

Figure 3-1: Annual Estimated Groundwater Budget WY 2025, Merced Subbasin



3.5 Activities Anticipated for the Coming Year

The Merced GSAs intend to continue activities necessary to implement the GSP and keep the Subbasin on a path toward sustainable management through the activities described in the subsections below.

Project Implementation

Implementation continues for various grant-funded activities described in more detail in Section 3.2, including numerous projects to increase recharge and to improve the understanding of the groundwater system.

Management Actions

As described in Section 3.3, the GSAs plan to develop and implement the mechanics of the Domestic Well Mitigation Program in WY 2026, including setting up an intake form for requests and determining the logistics of how the requests will be routed for review and assistance.

All three GSAs plan to continue making progress on implementing internal GSA plans for pumping reductions and GSA-specific water allocation frameworks.

The MSGSA will be implementing the first year of its Groundwater Allocation Rule. The MSGSA will focus on implementing the Two Phased GSP Implementation Approach which was adopted via resolution in November 2021. Phase 1 activities included the implementation of the Land Repurposing Program and making parcel-based water budgets available to growers through the Groundwater Accounting Platform, and using available surface water in place of groundwater use. Phase 2's Groundwater Allocation Rule was adopted October 2024 and went into effect on January 1, 2026.

MSGSA will continue to implement land repurposing through the \$8.89 million MLRP grant award from the California DOC. The MSGSA approved five implementation projects in 2025 which will undergo significant implementation activities during 2026. Additionally, the MSGSA will continue the process to award project development MLRP funds in 2026. The MLRP grant deadline for project activities is March 2027.

It is anticipated that MIUGSA will actively monitor and enforce the allocation and registration policies that were adopted in WY 2022 and will continue to develop and adopt additional Rules and Regulations, and various policies for implementation of the Merced GSP within MIUGSA's boundaries during WY 2026. In January 2026, the MIUGSA Board adopted a new allocation for the period of January 1, 2026 through December 31, 2028. MIUGSA will continue to manage parcel-based groundwater allocations at the sustainable yield of native groundwater for the Merced Groundwater Subbasin. To improve monitoring of groundwater conditions, MIUGSA will continue working with its constituents to install additional groundwater level monitoring equipment, enhance groundwater extraction and use tracking through improved evapotranspiration measurement methods, and refine local environmental data collection, such as precipitation.

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APPENDIX A: HYDROGRAPHS

Appendix A - Hydrographs WY 2025

The hydrographs proceed in this order:

Section 1 - Time period 1974-2026

- >Representative wells

- >Other monitoring wells

Section 2 - Time Period last 10 years (2016-2026)

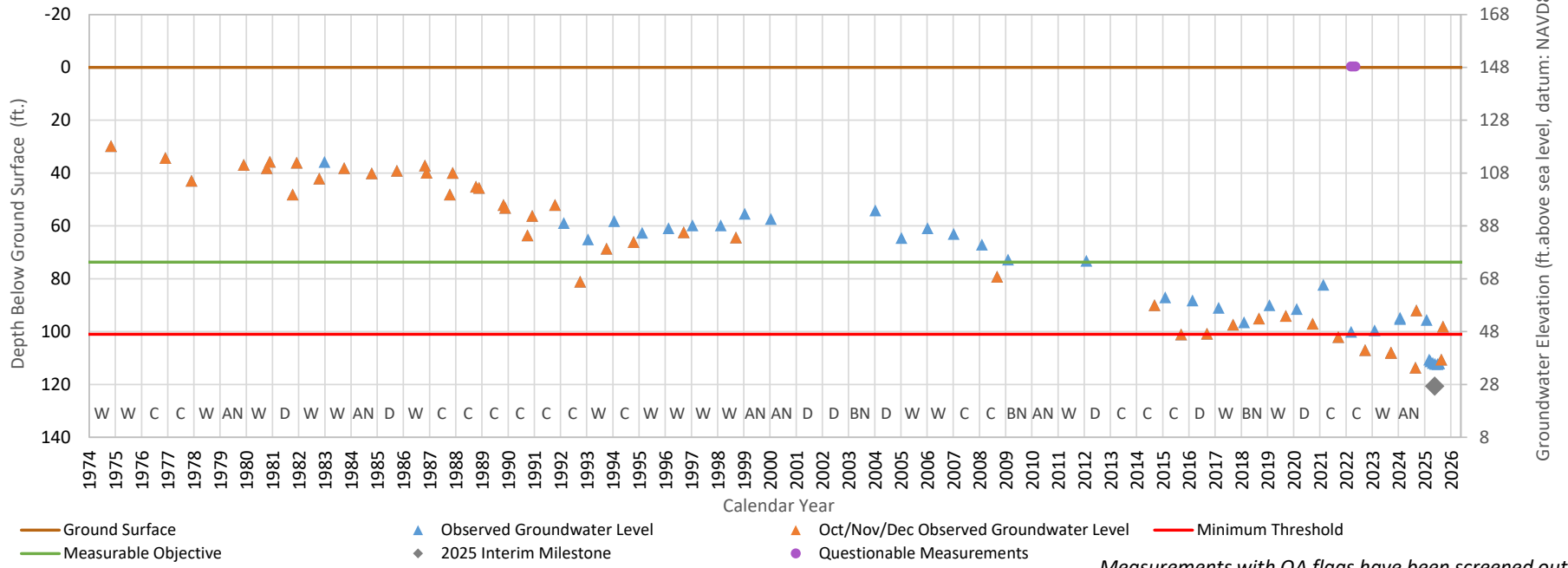
- >Representative wells

- >Other monitoring wells

Section 1 - Time period 1974-2026

Ground Surface Elevation: 147.5 ft.
 Minimum Threshold Elevation: 46.5 ft.
 Measurable Objective Elevation: 73.8 ft.

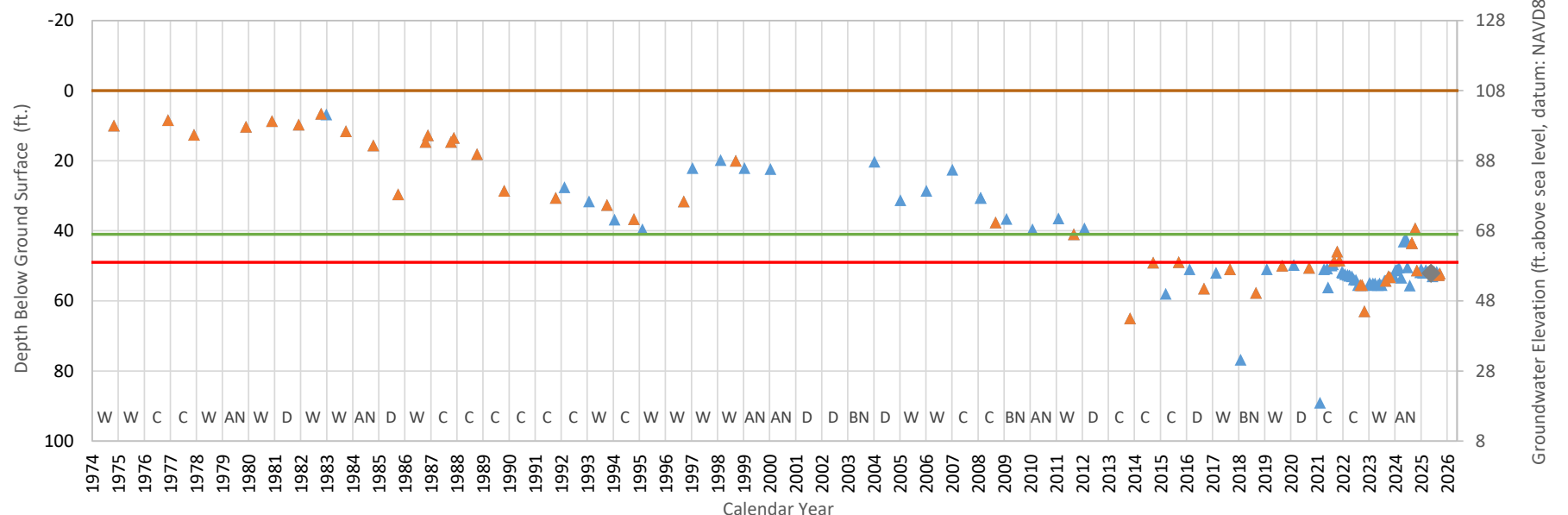
Hydrograph Station ID 5773 - Above Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 108.0 ft.
 Minimum Threshold Elevation: 59.0 ft.
 Measurable Objective Elevation: 67.0 ft.

Hydrograph Station ID 8604 - Above Corcoran Clay

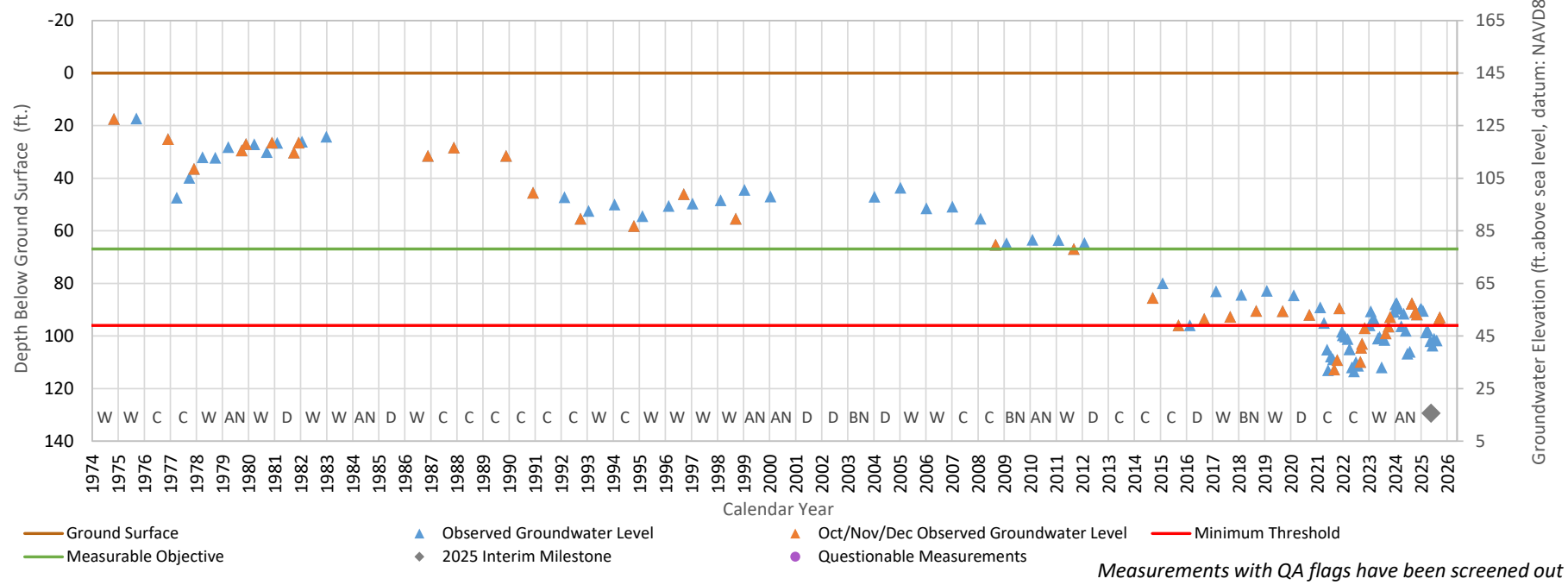


— Ground Surface
 ▲ Observed Groundwater Level
 ▲ Oct/Nov/Dec Observed Groundwater Level
 — Minimum Threshold
— Measurable Objective
 ◆ 2025 Interim Milestone
 ● Questionable Measurements

Measurements with QA flags have been screened out

Ground Surface Elevation: 144.9 ft.
 Minimum Threshold Elevation: 48.9 ft.
 Measurable Objective Elevation: 78.0 ft.

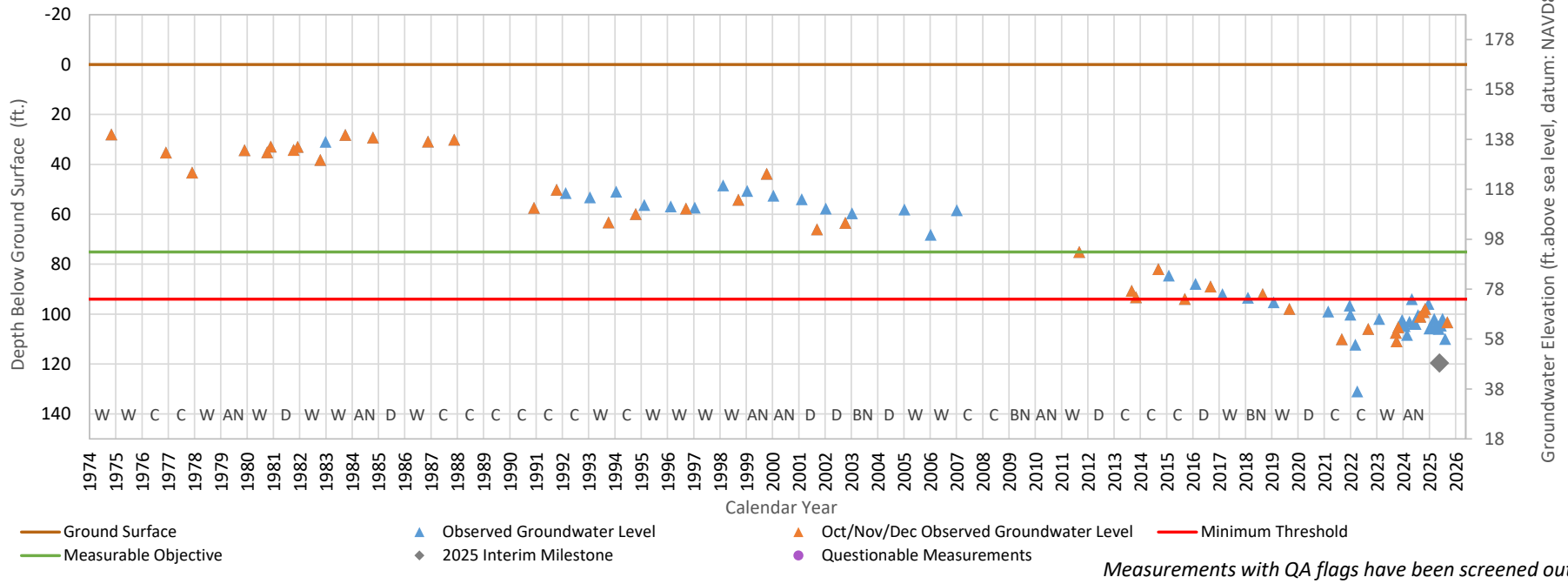
Hydrograph Station ID 8626 - Above Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 167.7 ft.
 Minimum Threshold Elevation: 73.7 ft.
 Measurable Objective Elevation: 92.6 ft.

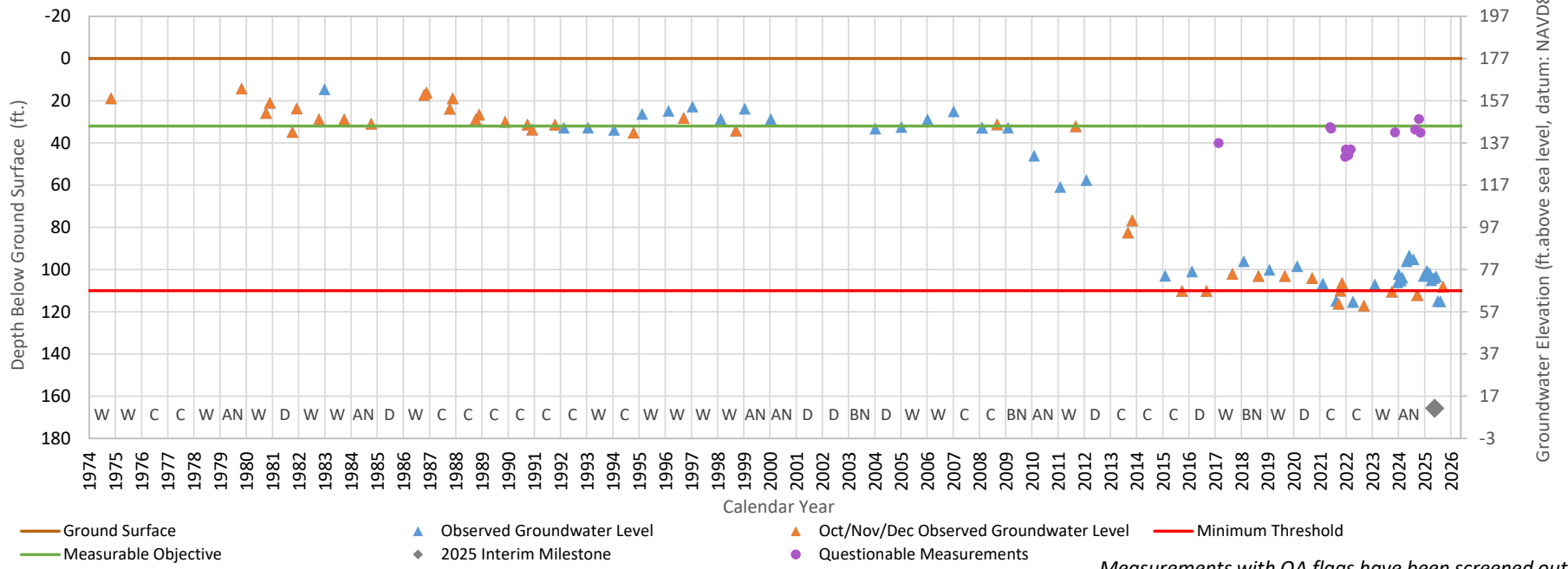
Hydrograph Station ID 10051 - Outside Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 177.2 ft.
 Minimum Threshold Elevation: 67.2 ft.
 Measurable Objective Elevation: 145.2 ft.

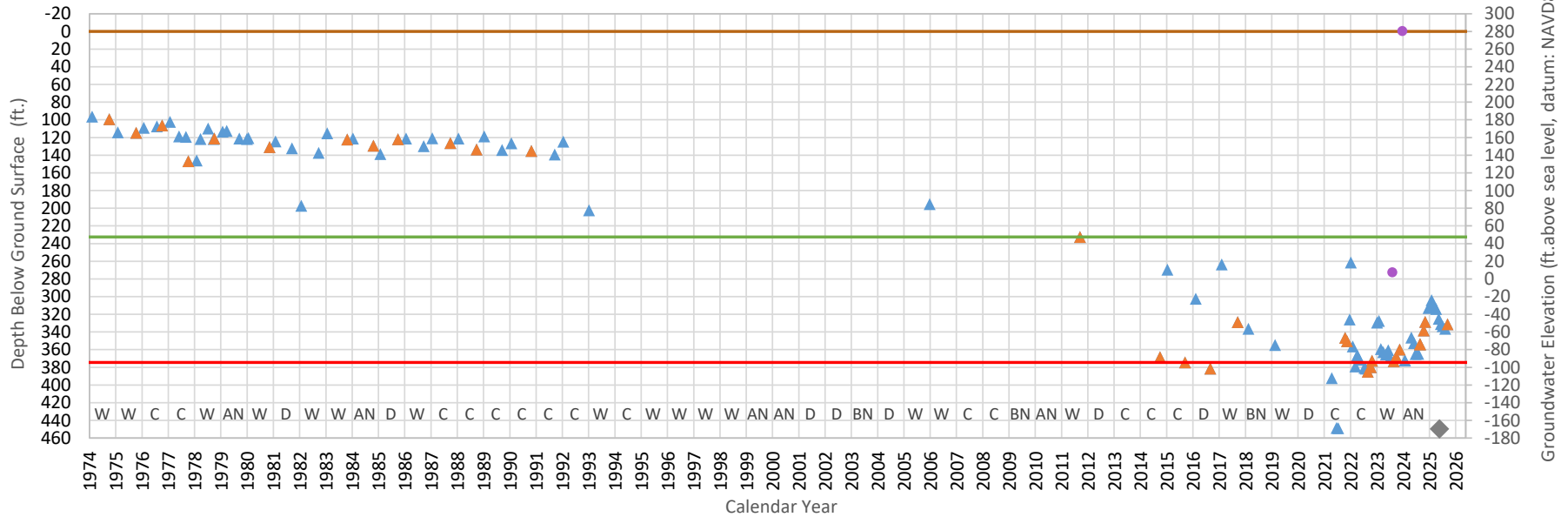
Hydrograph Station ID 10200 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 280.0 ft.
 Minimum Threshold Elevation: -94.5 ft.
 Measurable Objective Elevation: 47.5 ft.

Hydrograph Station ID 28392 - Outside Corcoran Clay

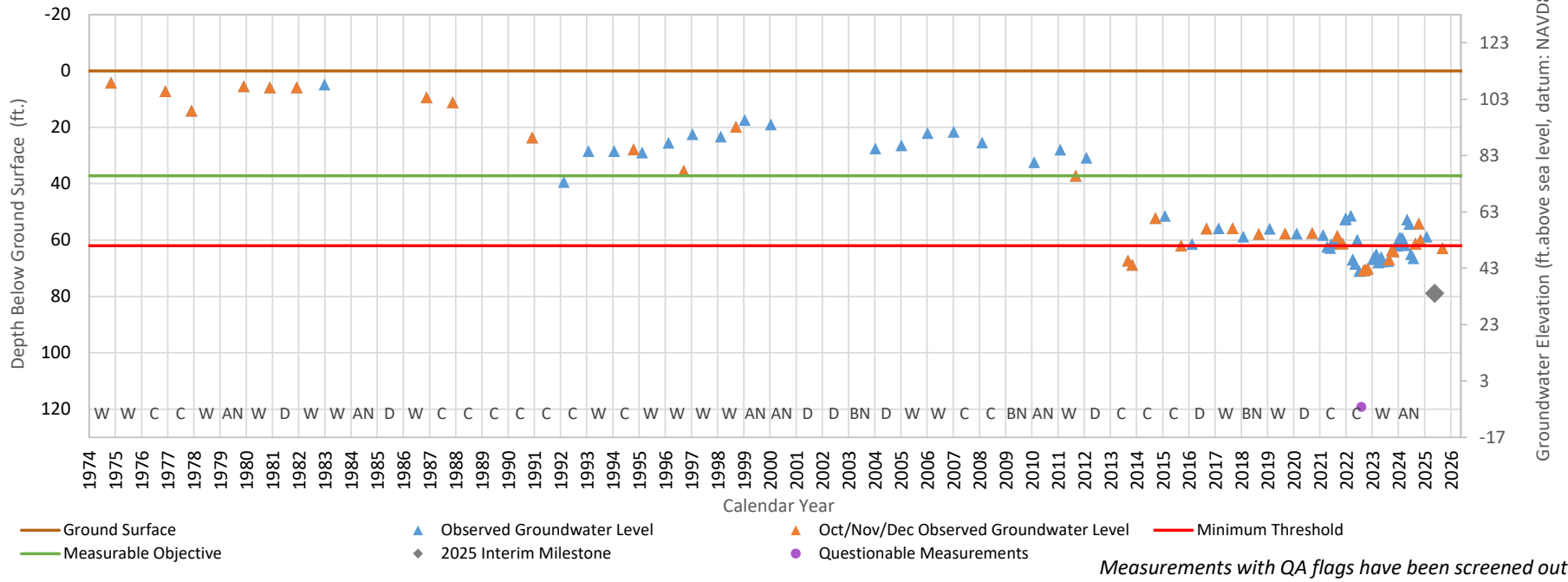


— Ground Surface ▲ Observed Groundwater Level ▲ Oct/Nov/Dec Observed Groundwater Level — Minimum Threshold
— Measurable Objective ◆ 2025 Interim Milestone ● Questionable Measurements

Measurements with QA flags have been screened out

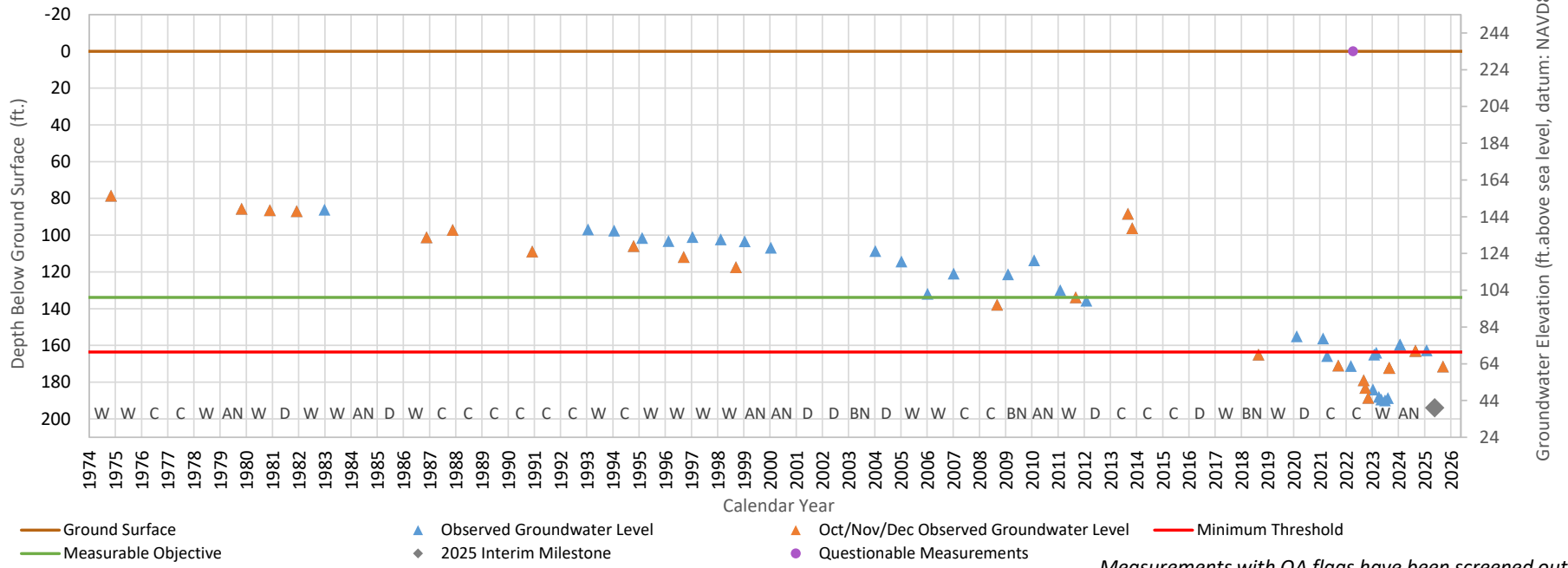
Ground Surface Elevation: 112.8 ft.
 Minimum Threshold Elevation: 50.8 ft.
 Measurable Objective Elevation: 75.6 ft.

Hydrograph Station ID 31372 - Above Corcoran Clay



Ground Surface Elevation: 234.3 ft.
 Minimum Threshold Elevation: 70.7 ft.
 Measurable Objective Elevation: 100.4 ft.

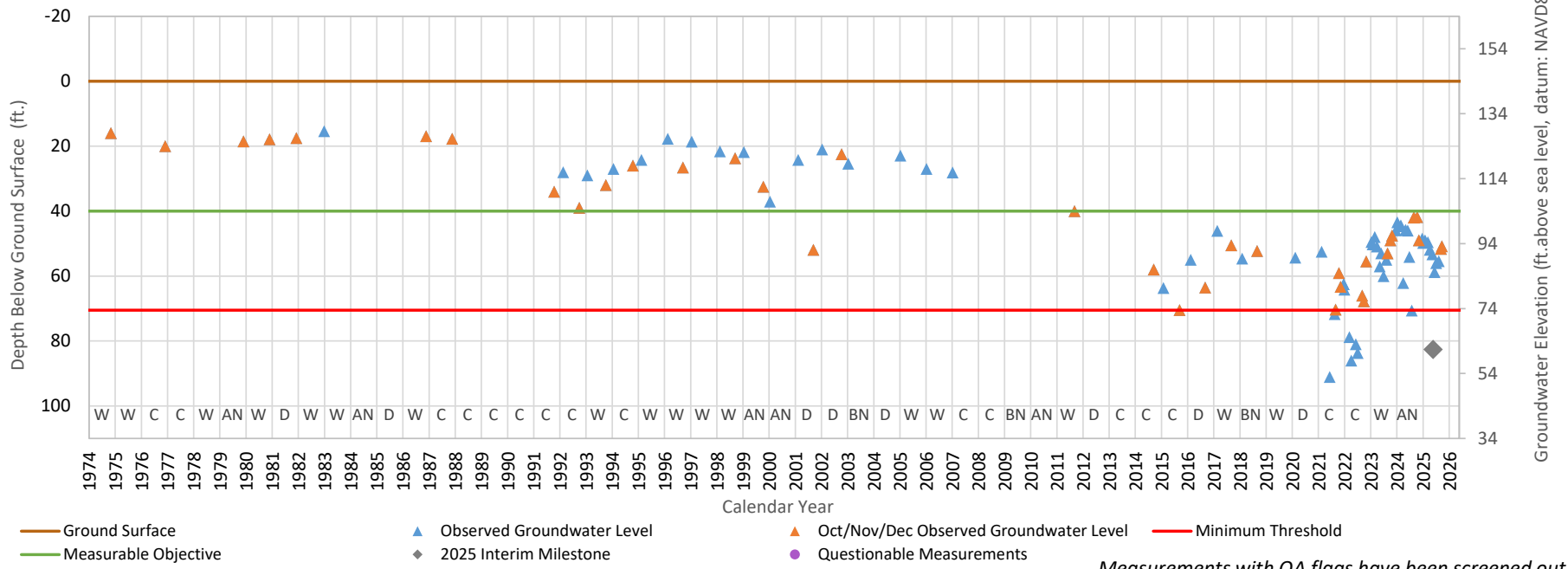
Hydrograph Station ID 38884 - Outside Corcoran Clay



Measurements with QA flags have been screened out

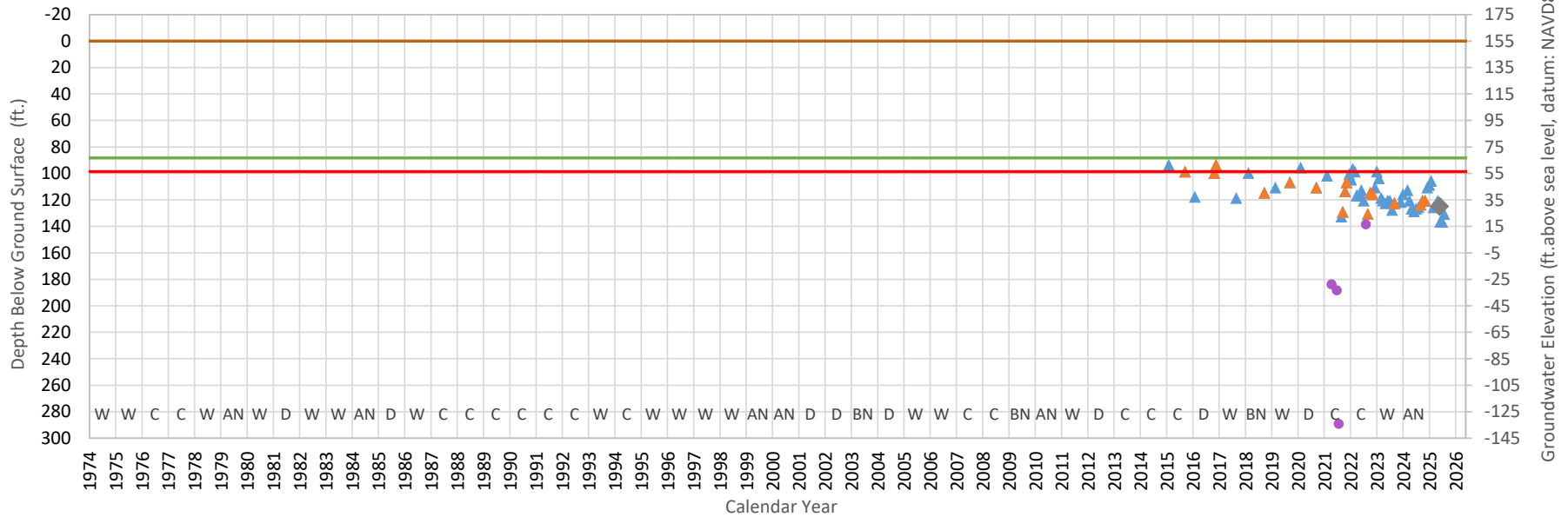
Ground Surface Elevation: 144.4 ft.
 Minimum Threshold Elevation: 73.9 ft.
 Measurable Objective Elevation: 104.4 ft.

Hydrograph Station ID 38974 - Below Corcoran Clay



Ground Surface Elevation: 154.7 ft.
 Minimum Threshold Elevation: 56.1 ft.
 Measurable Objective Elevation: 66.4 ft.

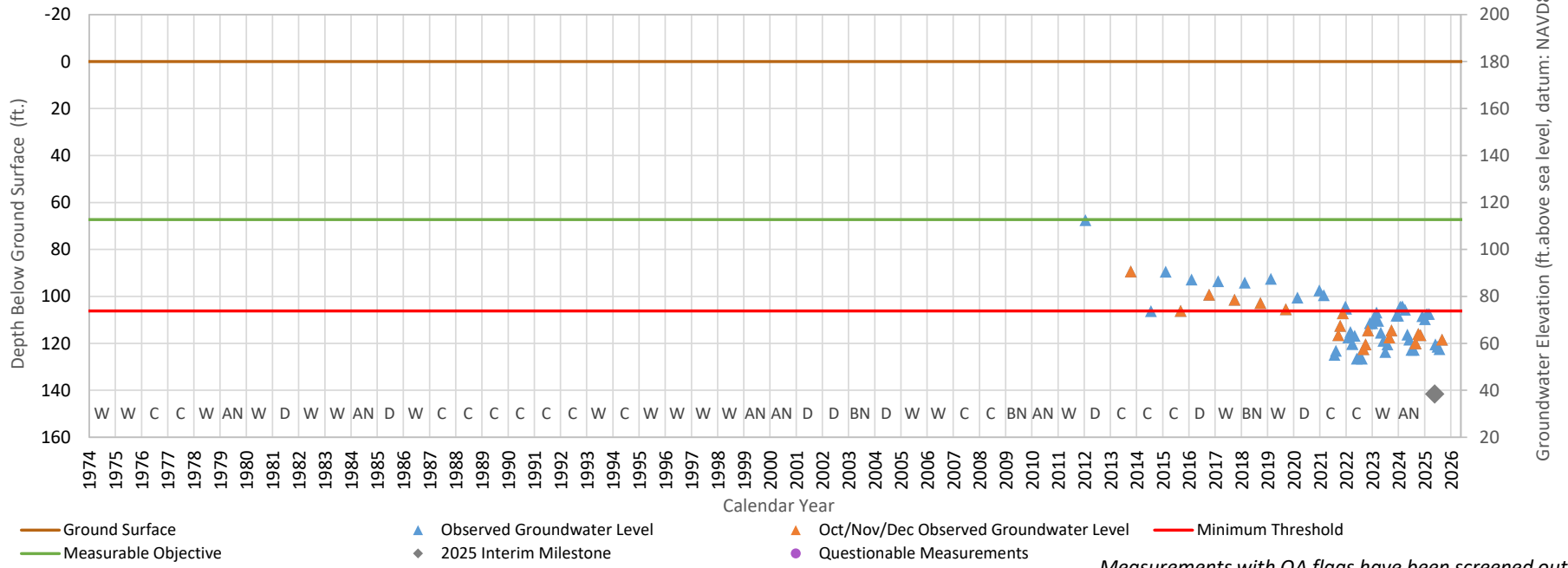
Hydrograph Station ID 47541 - Outside Corcoran Clay



- Ground Surface
 - Measurable Objective
 - ▲ Observed Groundwater Level
 - ◆ 2025 Interim Milestone
 - ▲ Oct/Nov/Dec Observed Groundwater Level
 - Questionable Measurements
 - Minimum Threshold
- Measurements with QA flags have been screened out*

Ground Surface Elevation: 179.9 ft.
 Minimum Threshold Elevation: 73.7 ft.
 Measurable Objective Elevation: 112.6 ft.

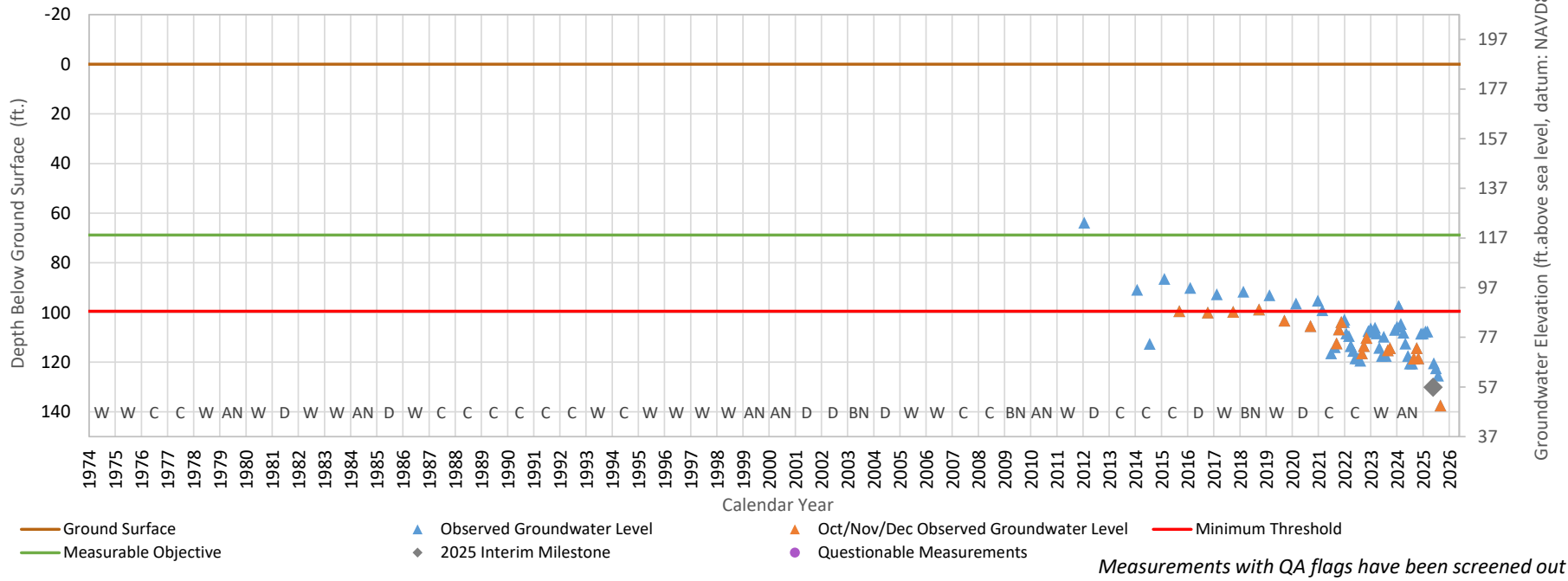
Hydrograph Station ID 47542 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 186.9 ft.
 Minimum Threshold Elevation: 87.4 ft.
 Measurable Objective Elevation: 118.1 ft.

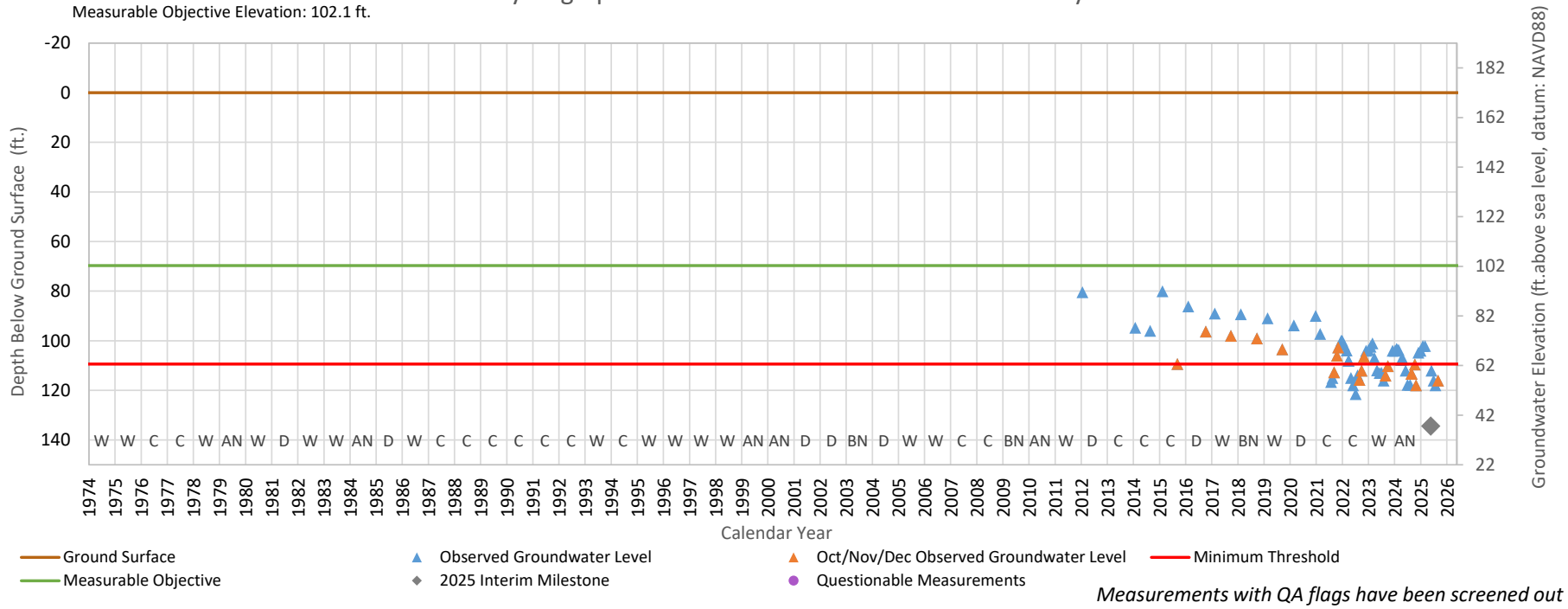
Hydrograph Station ID 47553 - Outside Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 171.8 ft.
 Minimum Threshold Elevation: 62.4 ft.
 Measurable Objective Elevation: 102.1 ft.

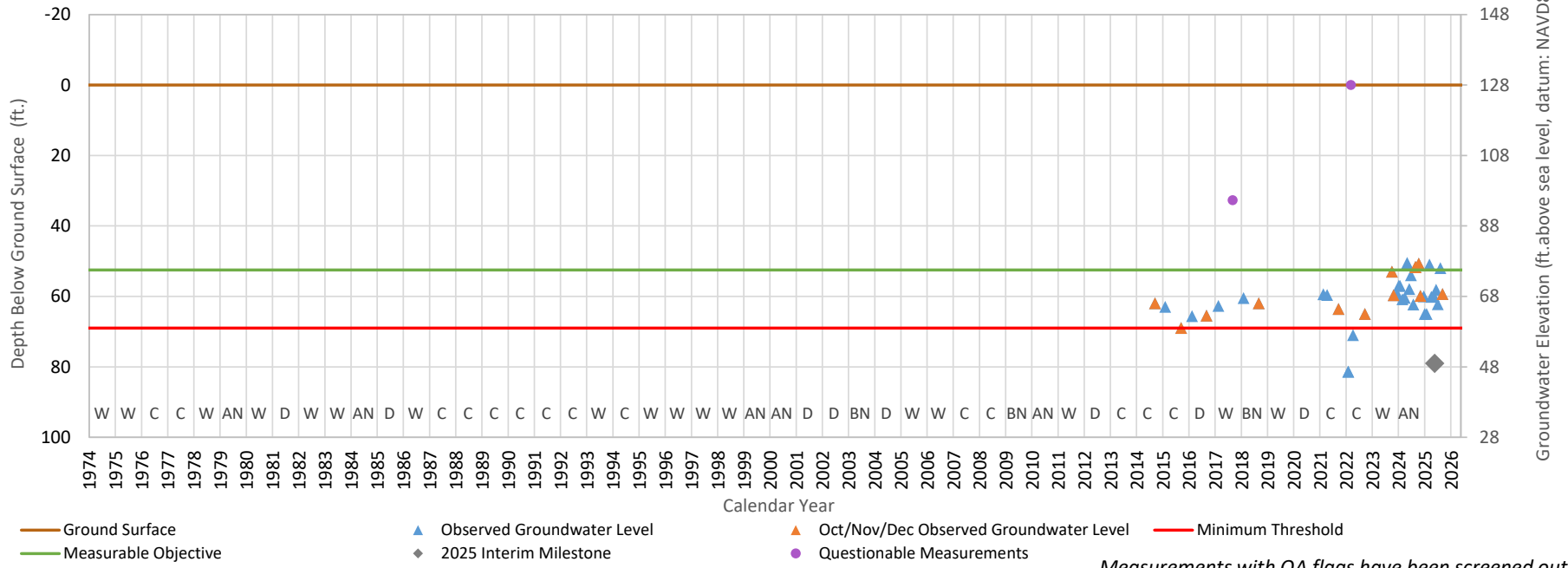
Hydrograph Station ID 47557 - Outside Corcoran Clay



Measurements with QA flags have been screened out

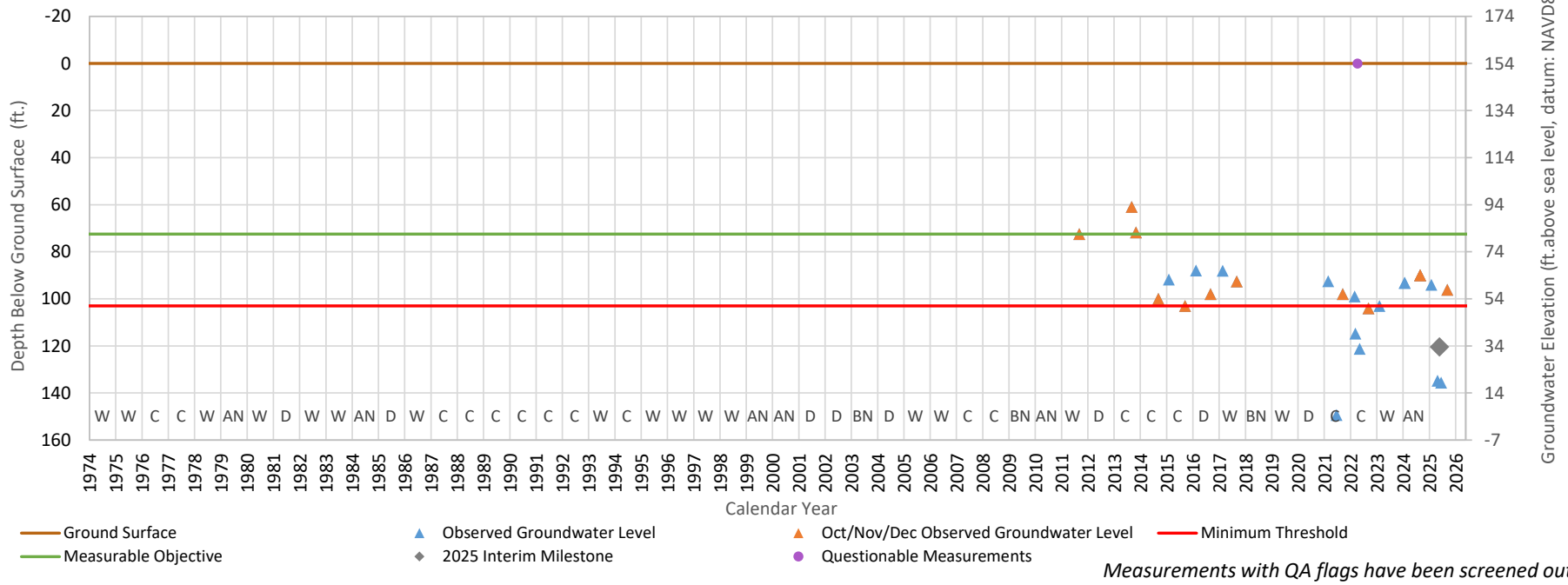
Ground Surface Elevation: 127.8 ft.
 Minimum Threshold Elevation: 58.8 ft.
 Measurable Objective Elevation: 75.3 ft.

Hydrograph Station ID 47562 - Below Corcoran Clay



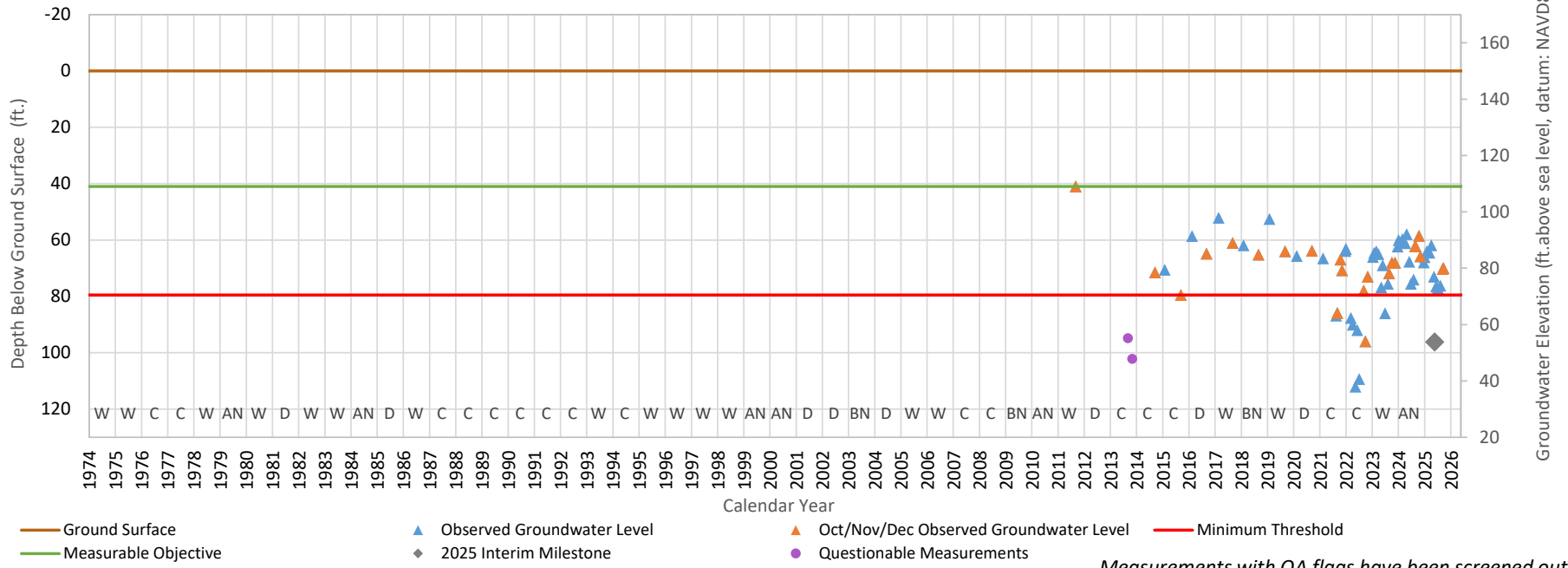
Ground Surface Elevation: 153.5 ft.
 Minimum Threshold Elevation: 50.5 ft.
 Measurable Objective Elevation: 81.0 ft.

Hydrograph Station ID 47563 - Outside Corcoran Clay



Ground Surface Elevation: 149.7 ft.
 Minimum Threshold Elevation: 70.2 ft.
 Measurable Objective Elevation: 108.7 ft.

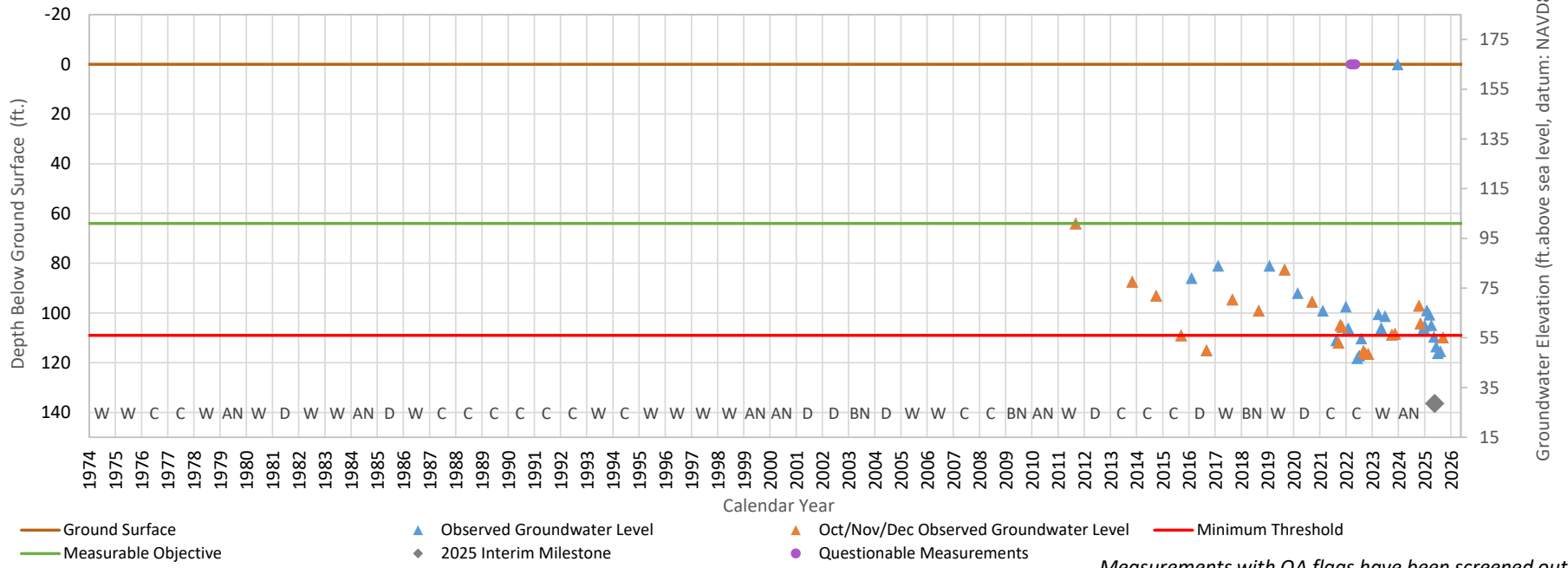
Hydrograph Station ID 47564 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 164.9 ft.
 Minimum Threshold Elevation: 55.9 ft.
 Measurable Objective Elevation: 100.9 ft.

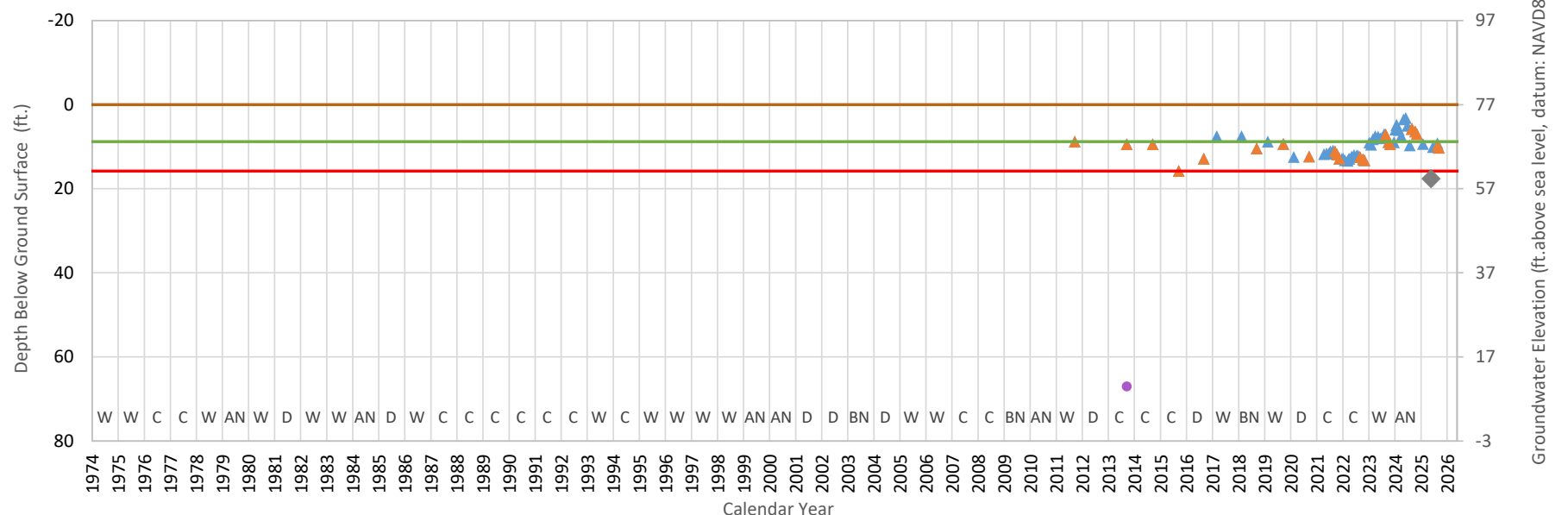
Hydrograph Station ID 47565 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 77.0 ft.
 Minimum Threshold Elevation: 61.2 ft.
 Measurable Objective Elevation: 68.2 ft.

Hydrograph Station ID 47569 - Above Corcoran Clay

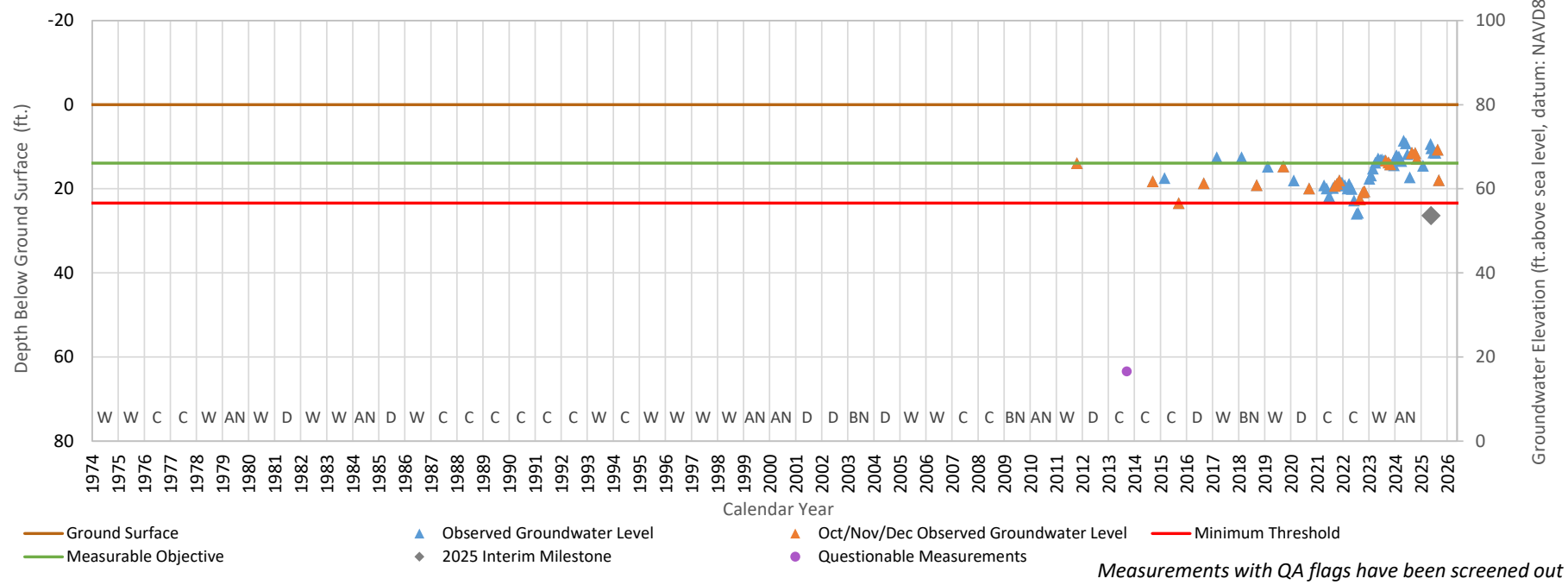


— Ground Surface
 ▲ Observed Groundwater Level
 ▲ Oct/Nov/Dec Observed Groundwater Level
 — Minimum Threshold
— Measurable Objective
 ◆ 2025 Interim Milestone
 ● Questionable Measurements

Measurements with QA flags have been screened out

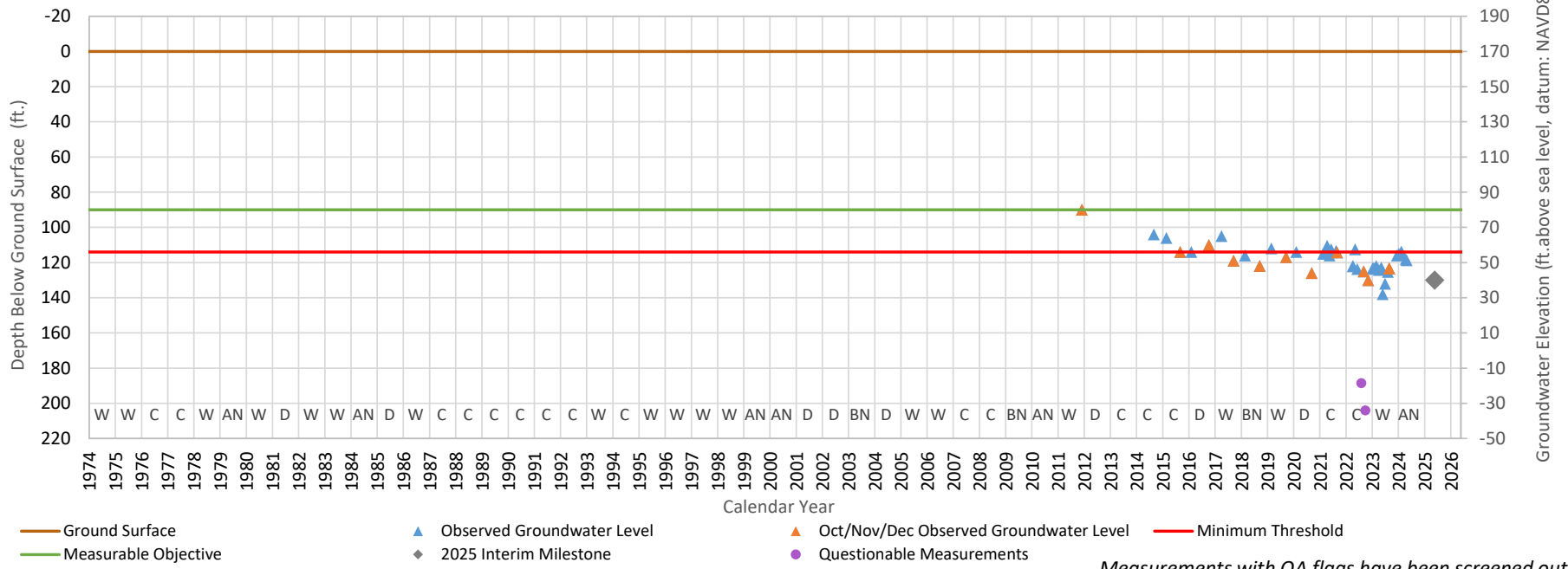
Ground Surface Elevation: 80.2 ft.
 Minimum Threshold Elevation: 56.8 ft.
 Measurable Objective Elevation: 66.3 ft.

Hydrograph Station ID 47571 - Above Corcoran Clay



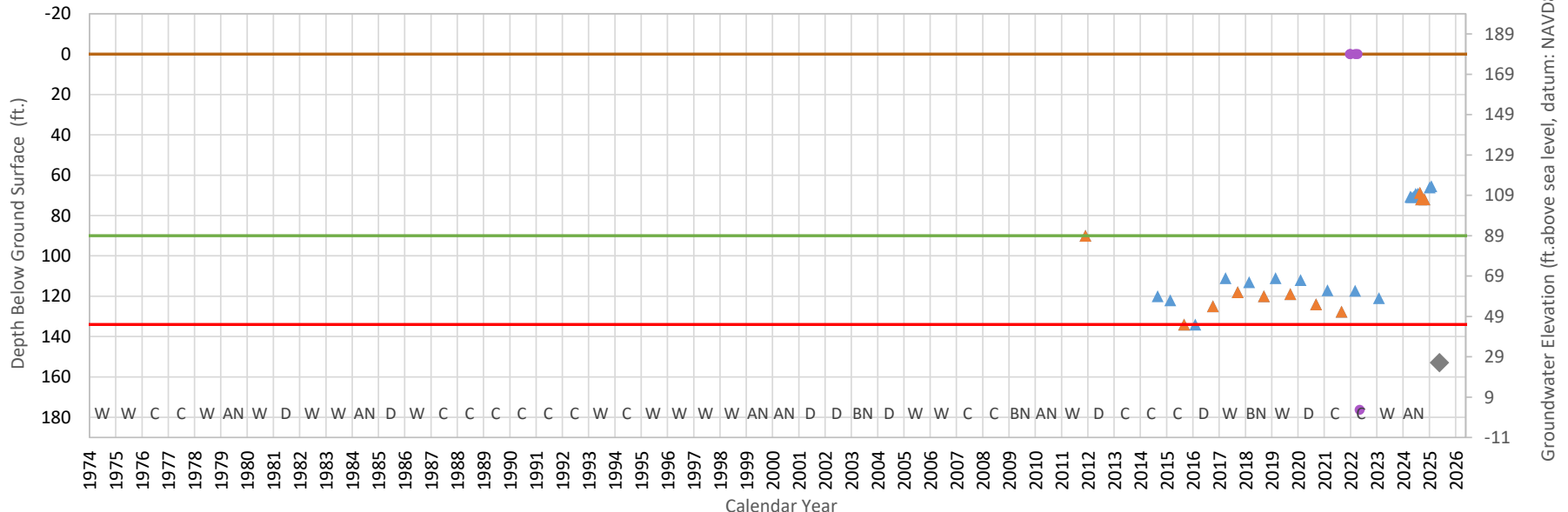
Ground Surface Elevation: 170.0 ft.
 Minimum Threshold Elevation: 56.0 ft.
 Measurable Objective Elevation: 80.0 ft.

Hydrograph Station ID 47574 - Outside Corcoran Clay



Ground Surface Elevation: 179.0 ft.
 Minimum Threshold Elevation: 45.0 ft.
 Measurable Objective Elevation: 89.0 ft.

Hydrograph Station ID 47575 - Outside Corcoran Clay

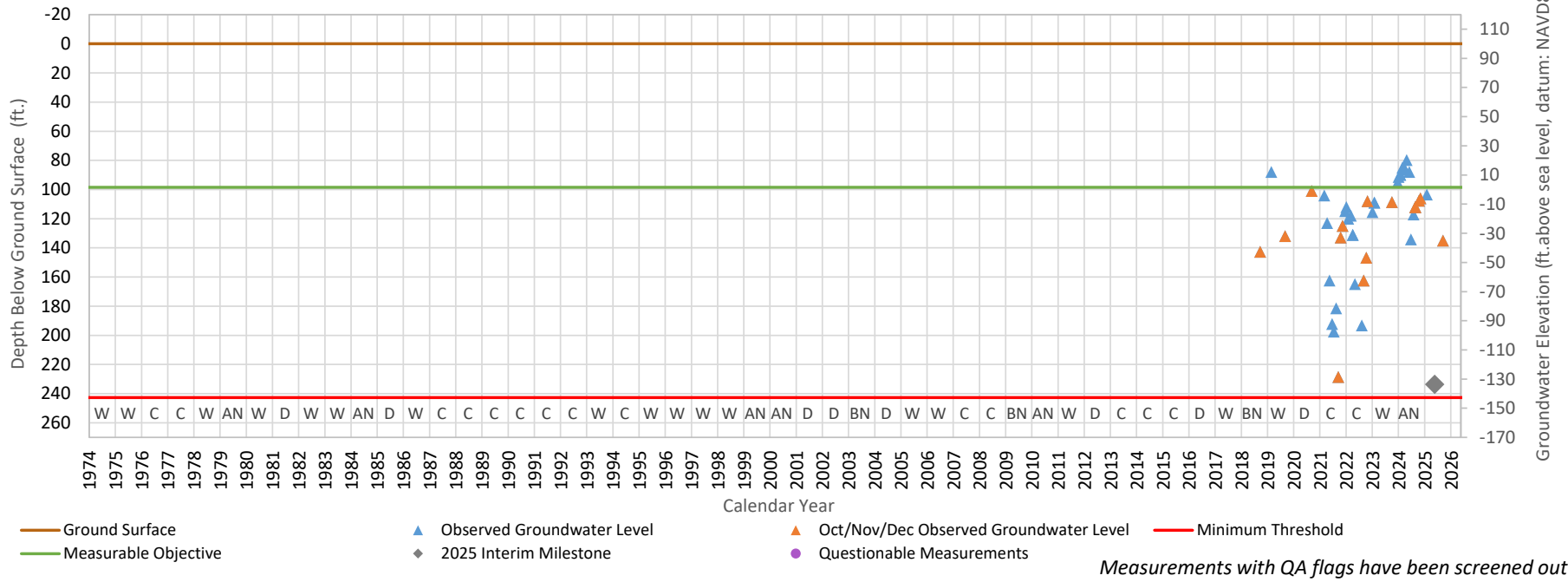


— Ground Surface
 ▲ Observed Groundwater Level
 ▲ Oct/Nov/Dec Observed Groundwater Level
 — Minimum Threshold
— Measurable Objective
 ◆ 2025 Interim Milestone
 ● Questionable Measurements

Measurements with QA flags have been screened out

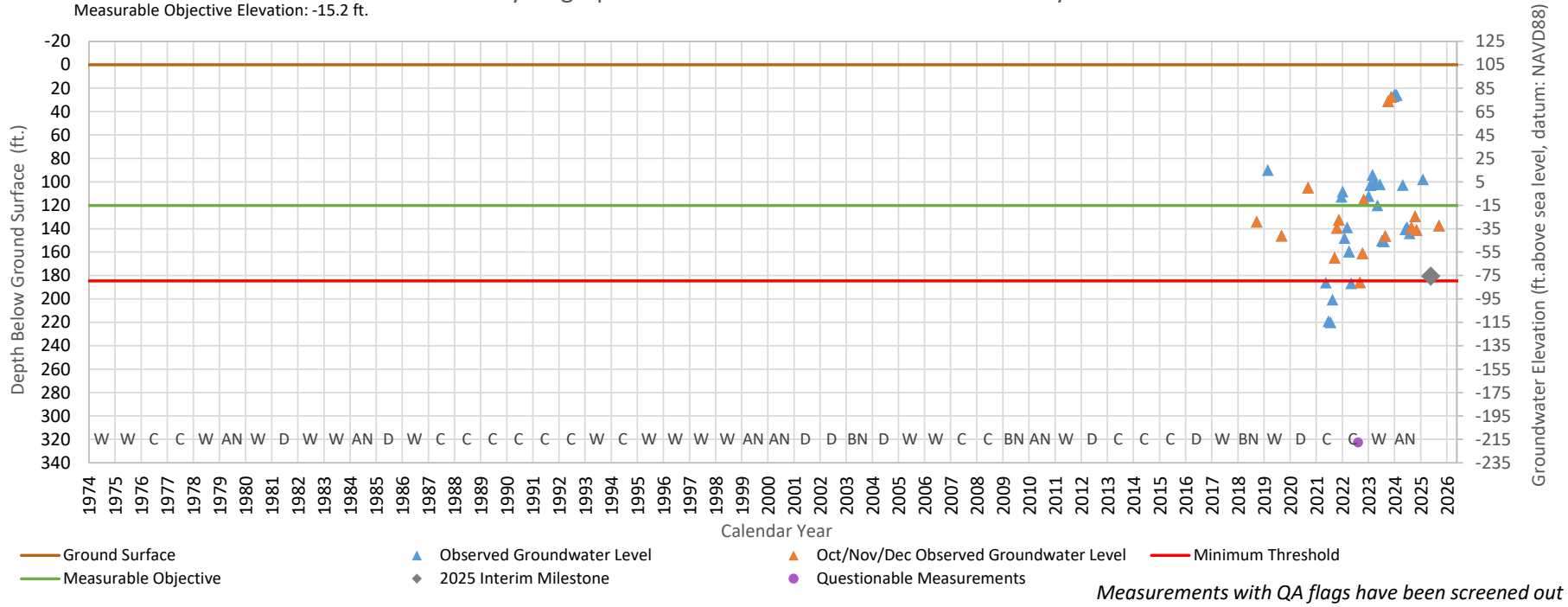
Ground Surface Elevation: 100.0 ft.
 Minimum Threshold Elevation: -142.7 ft.
 Measurable Objective Elevation: 1.5 ft.

Hydrograph Station ID 52715 - Below Corcoran Clay



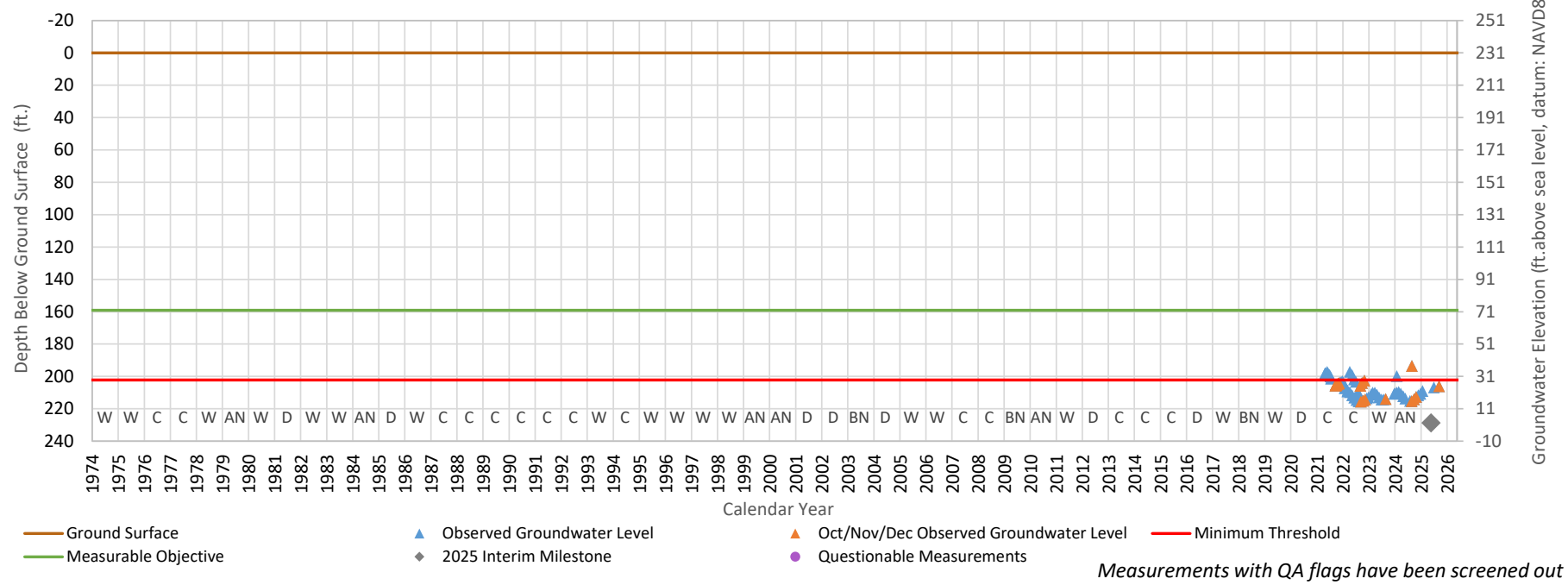
Ground Surface Elevation: 105.0 ft.
 Minimum Threshold Elevation: -79.6 ft.
 Measurable Objective Elevation: -15.2 ft.

Hydrograph Station ID 52716 - Below Corcoran Clay



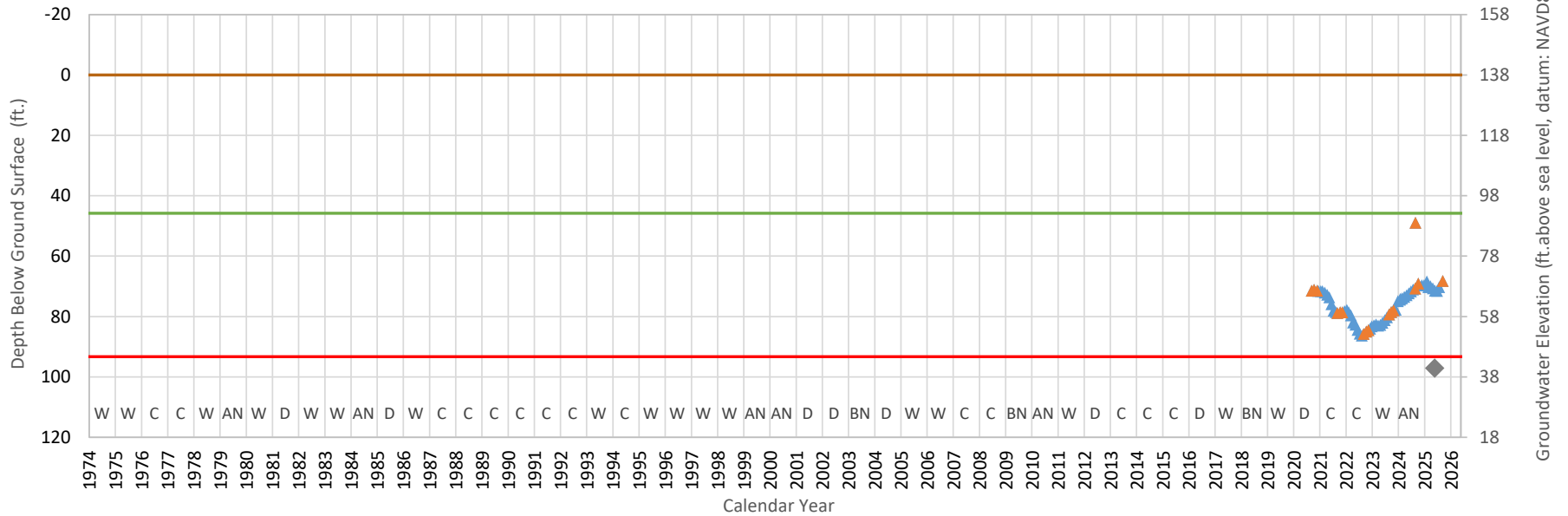
Ground Surface Elevation: 230.5 ft.
 Minimum Threshold Elevation: 28.3 ft.
 Measurable Objective Elevation: 71.4 ft.

Hydrograph Station ID 60562 - Below Corcoran Clay



Ground Surface Elevation: 138.1 ft.
 Minimum Threshold Elevation: 44.8 ft.
 Measurable Objective Elevation: 92.3 ft.

Hydrograph Station ID 60565 - Above Corcoran Clay

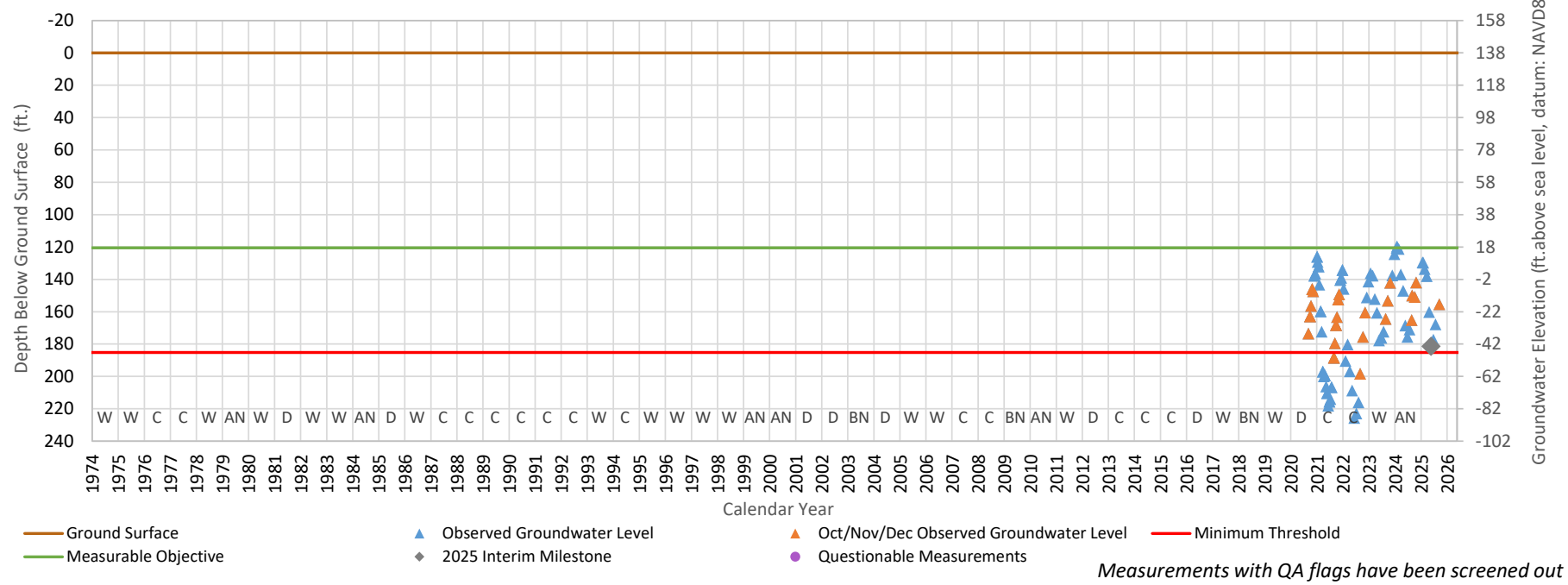


— Ground Surface
 ▲ Observed Groundwater Level
 ▲ Oct/Nov/Dec Observed Groundwater Level
 — Minimum Threshold
— Measurable Objective
 ◆ 2025 Interim Milestone
 ● Questionable Measurements

Measurements with QA flags have been screened out

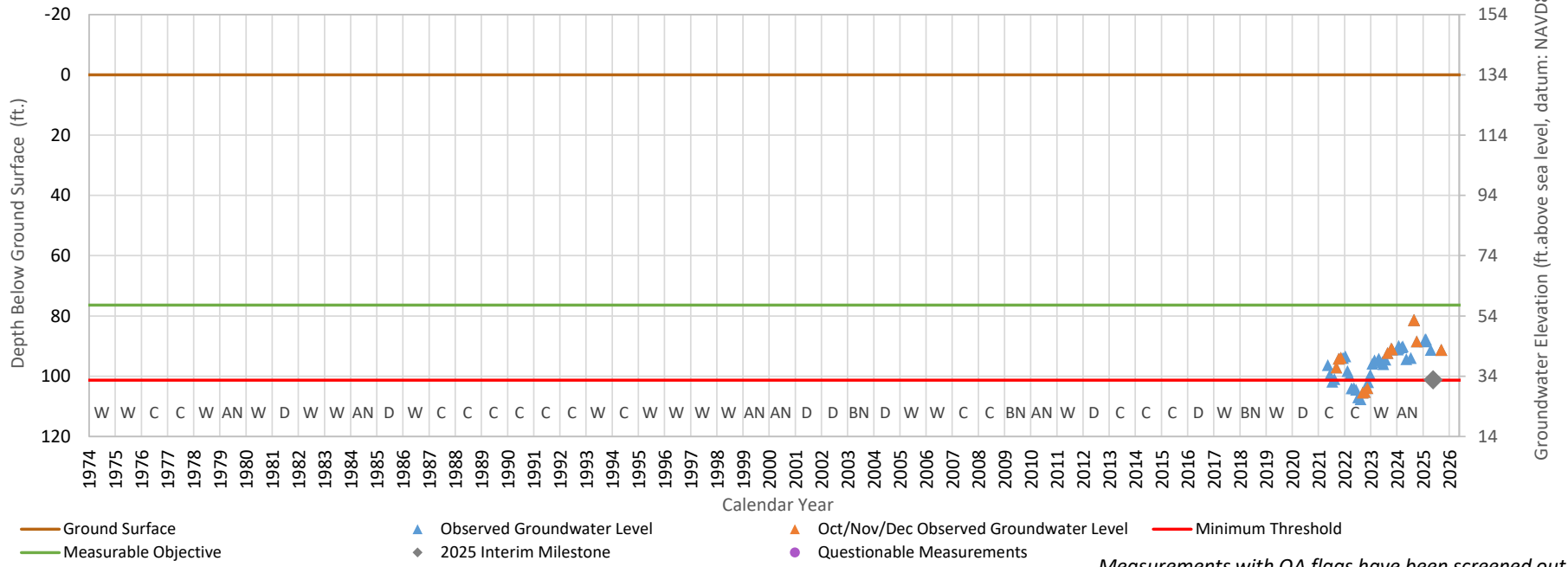
Ground Surface Elevation: 138.2 ft.
 Minimum Threshold Elevation: -47.0 ft.
 Measurable Objective Elevation: 17.7 ft.

Hydrograph Station ID 60567 - Below Corcoran Clay



Ground Surface Elevation: 134.0 ft.
 Minimum Threshold Elevation: 32.7 ft.
 Measurable Objective Elevation: 57.6 ft.

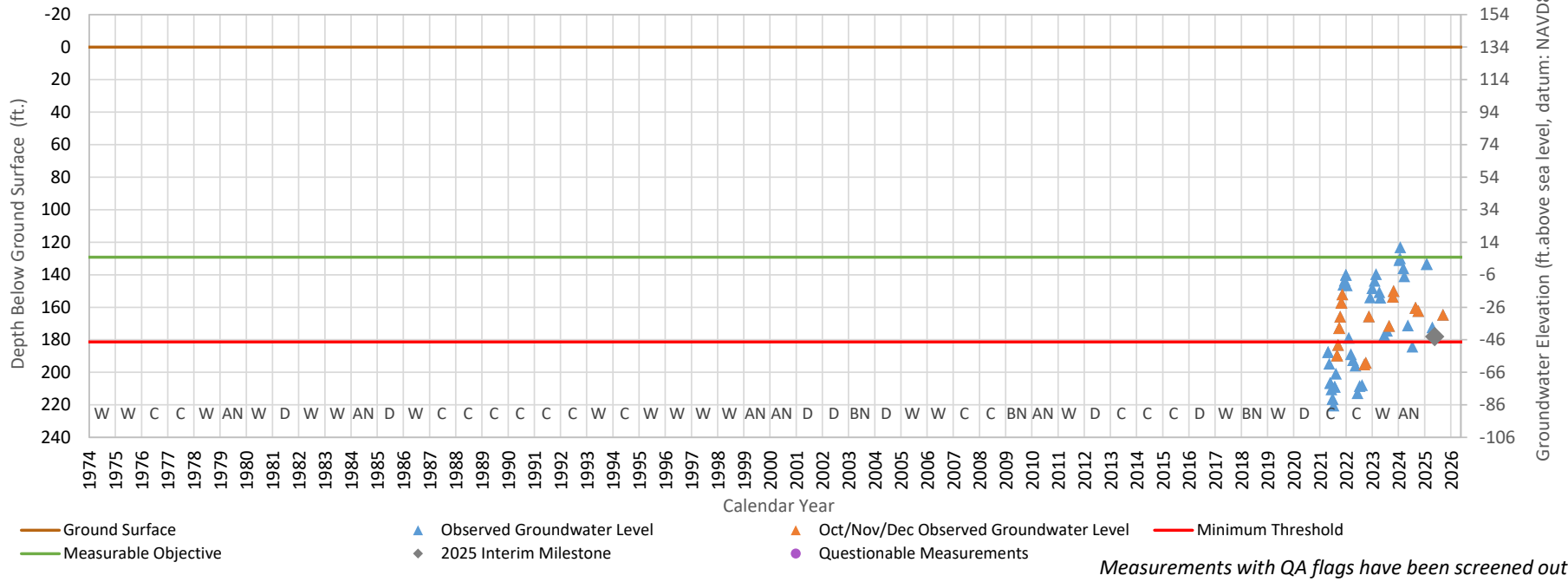
Hydrograph Station ID 60568 - Above Corcoran Clay



Measurements with QA flags have been screened out

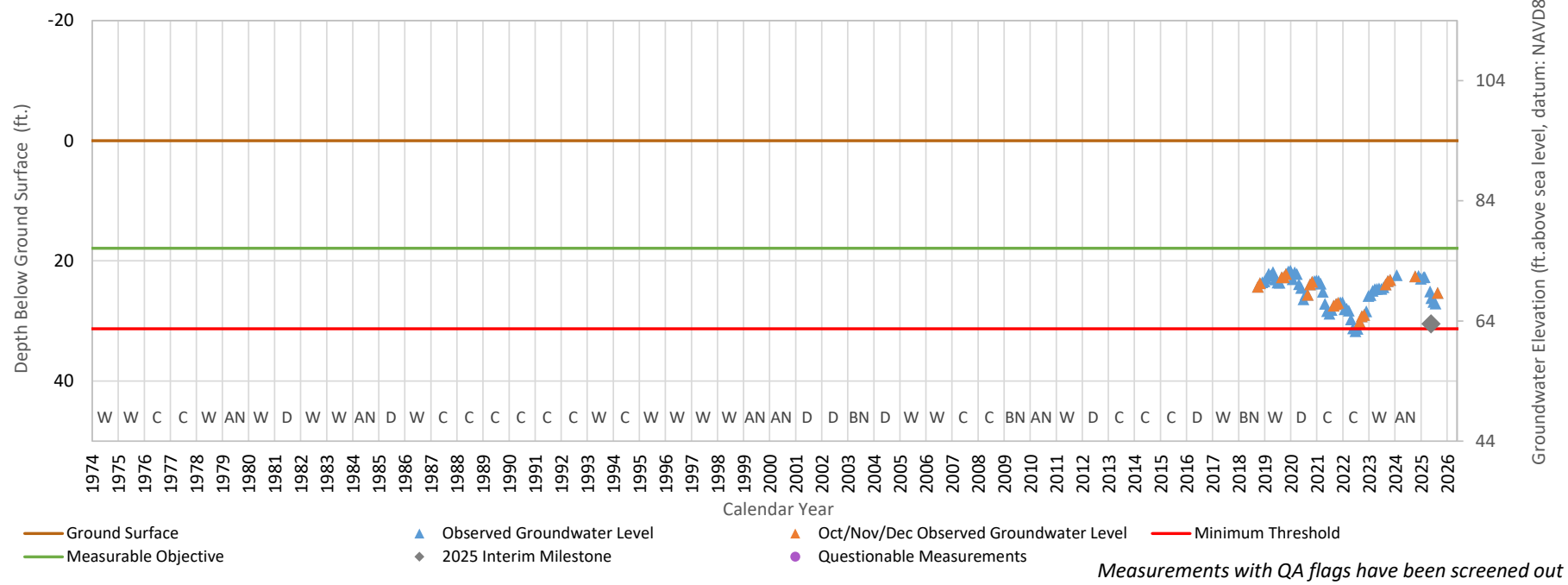
Ground Surface Elevation: 133.7 ft.
Minimum Threshold Elevation: -47.6 ft.
Measurable Objective Elevation: 4.5 ft.

Hydrograph Station ID 60570 - Below Corcoran Clay



Ground Surface Elevation: 94.0 ft.
 Minimum Threshold Elevation: 62.7 ft.
 Measurable Objective Elevation: 76.1 ft.

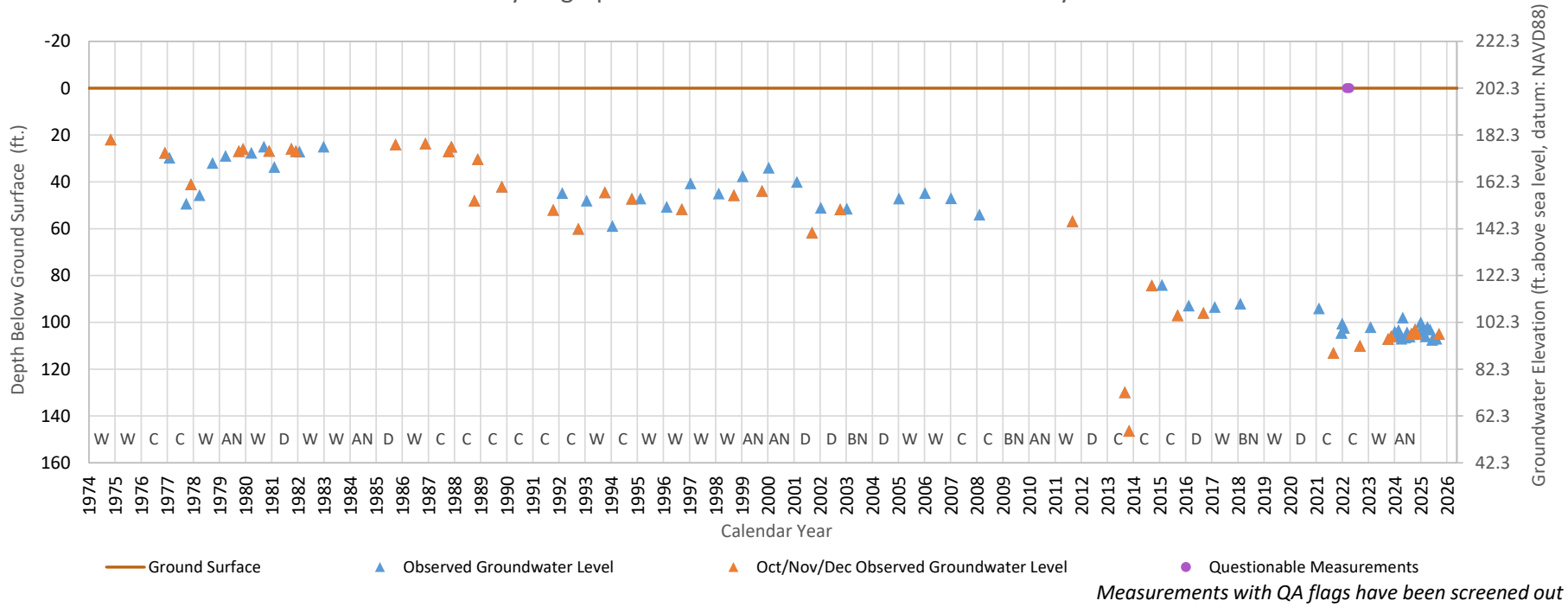
Hydrograph Station ID MW-OA-3 - Above Corcoran Clay



Measurements with QA flags have been screened out

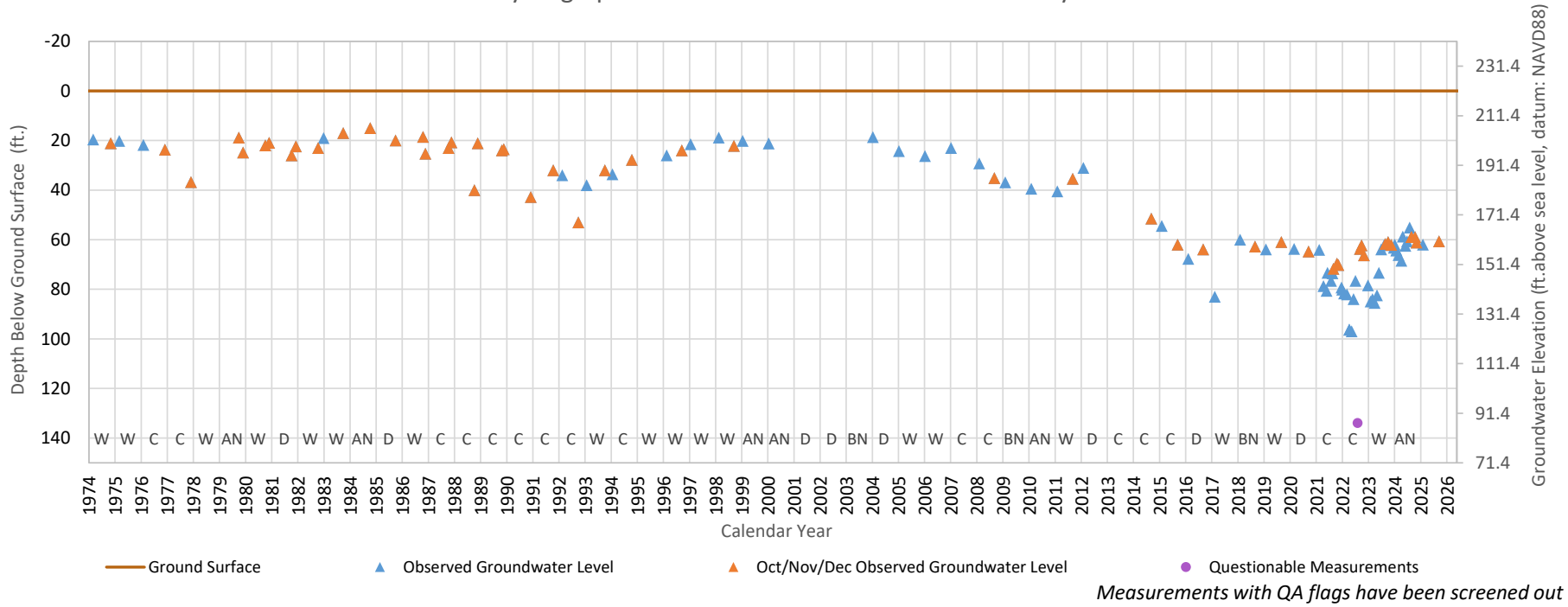
Ground Surface Elevation: 202.3 ft.

Hydrograph Station ID 7955 - Outside Corcoran Clay



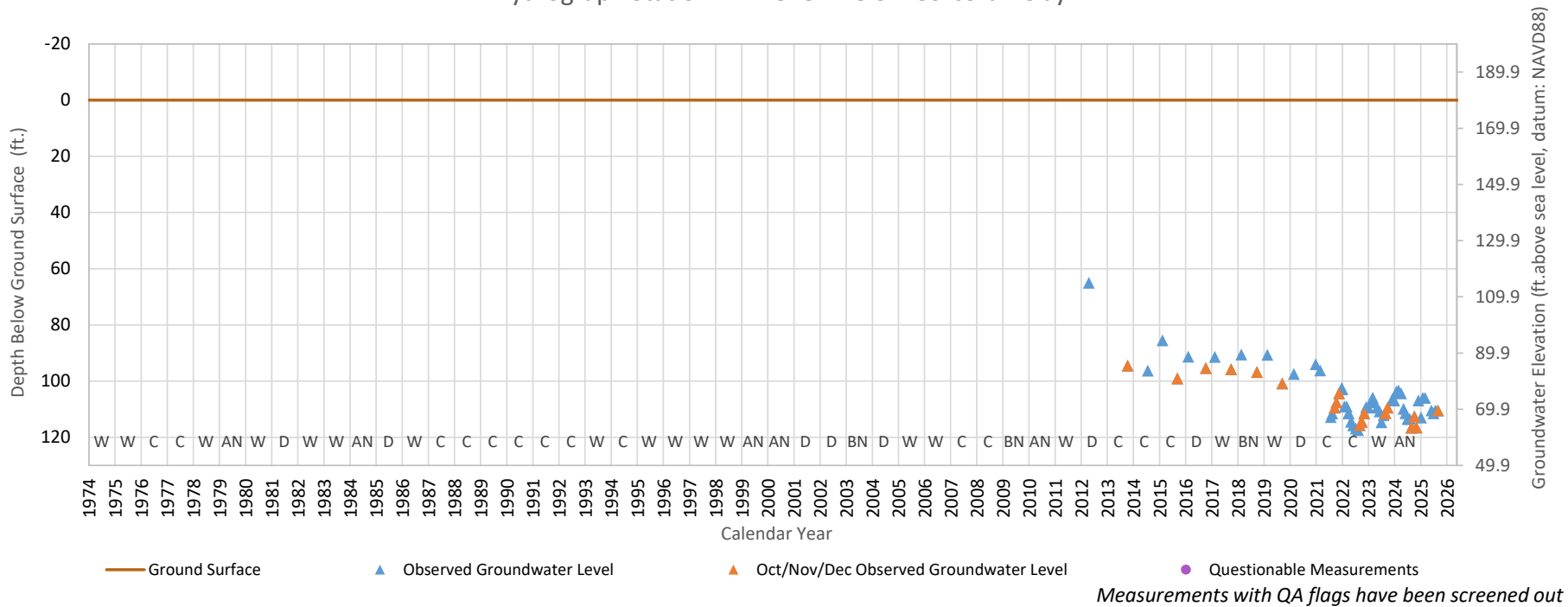
Ground Surface Elevation: 221.4 ft.

Hydrograph Station ID 8673 - Outside Corcoran Clay



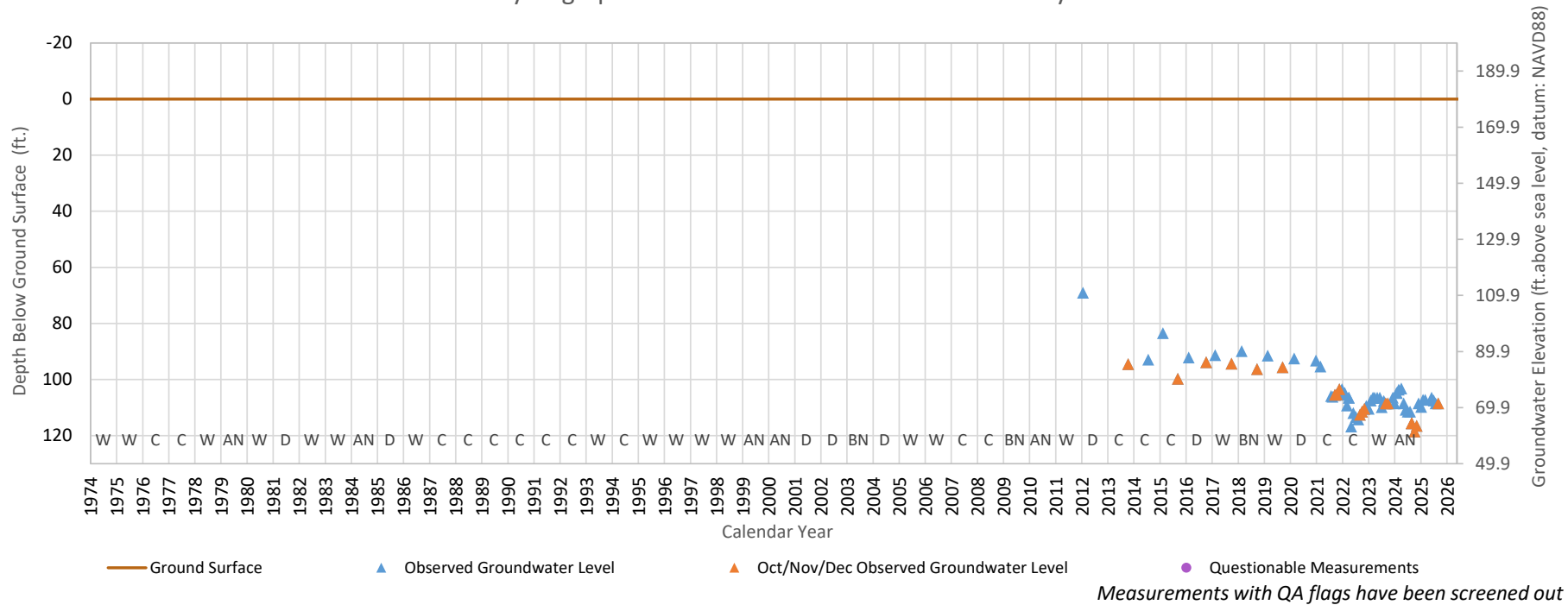
Ground Surface Elevation: 179.9 ft.

Hydrograph Station ID 47543 - Below Corcoran Clay



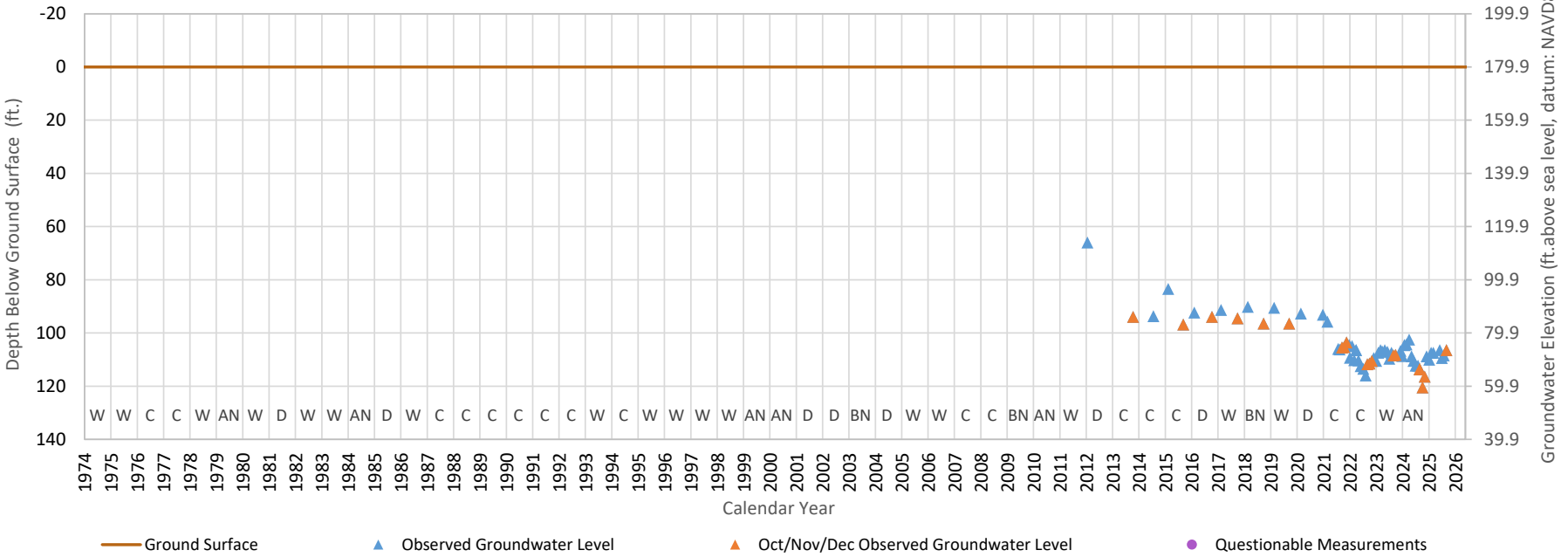
Ground Surface Elevation: 179.9 ft.

Hydrograph Station ID 47544 - Below Corcoran Clay



Ground Surface Elevation: 179.9 ft.

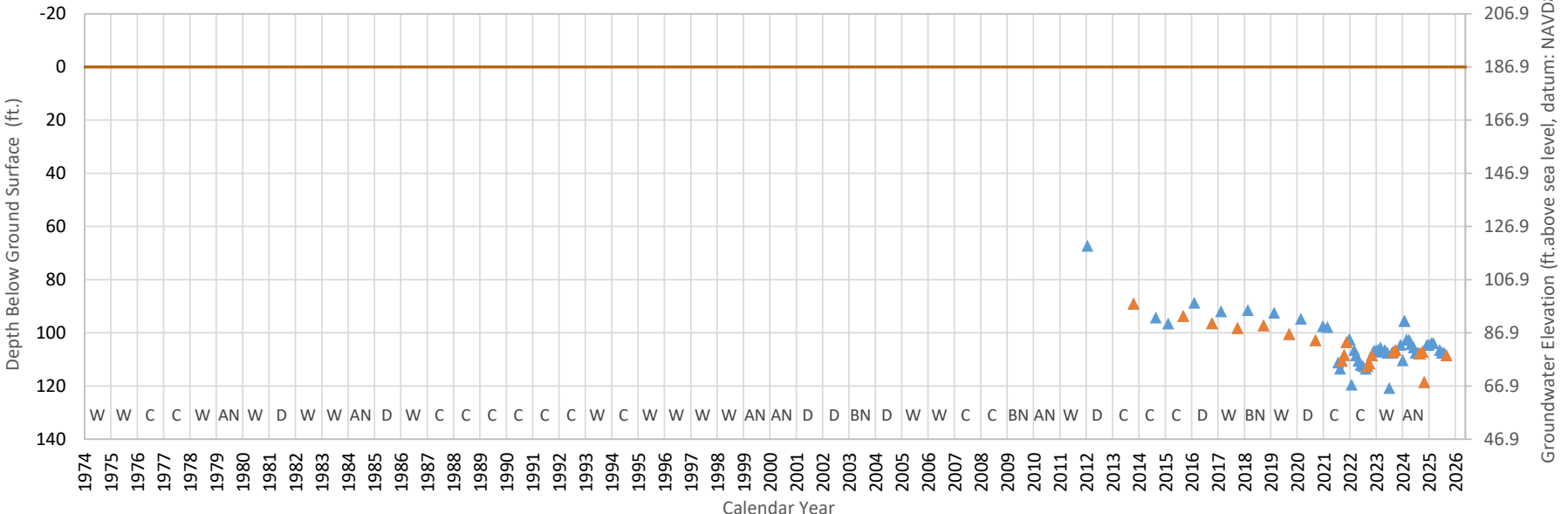
Hydrograph Station ID 47545 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 186.9 ft.

Hydrograph Station ID 47550 - Outside Corcoran Clay



Ground Surface

Observed Groundwater Level

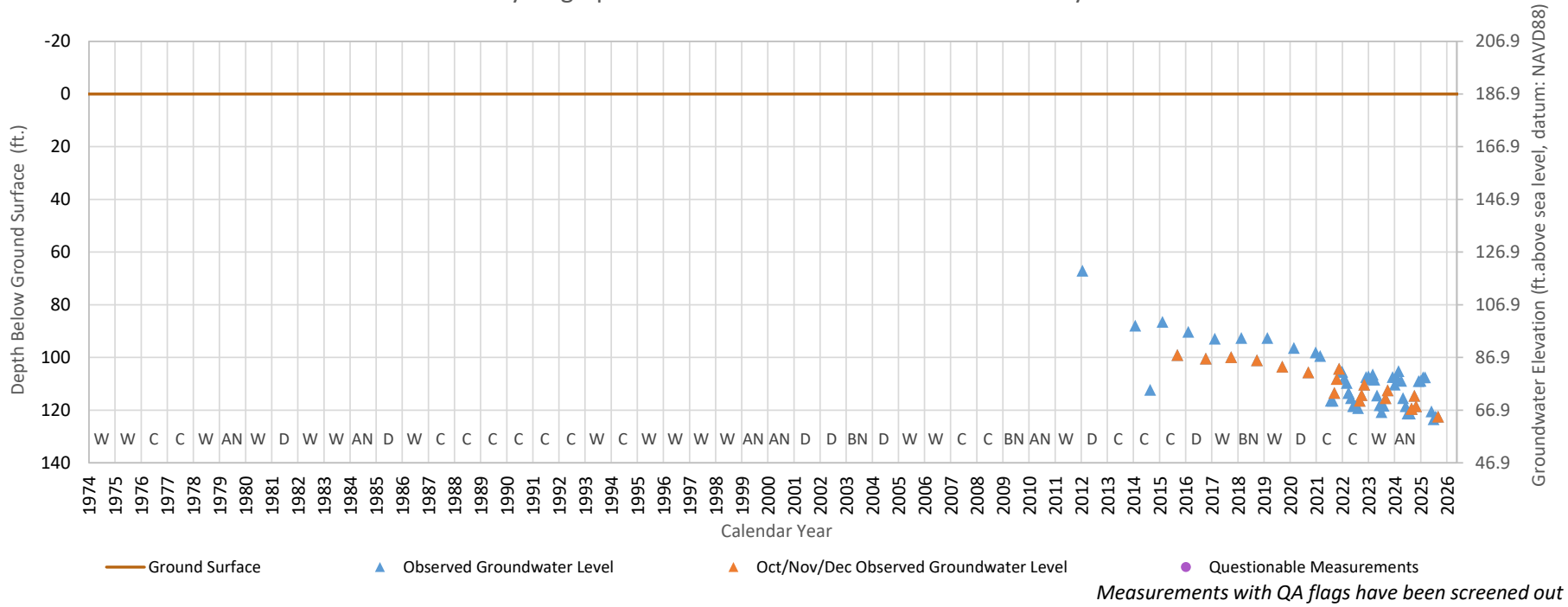
Oct/Nov/Dec Observed Groundwater Level

Questionable Measurements

Measurements with QA flags have been screened out

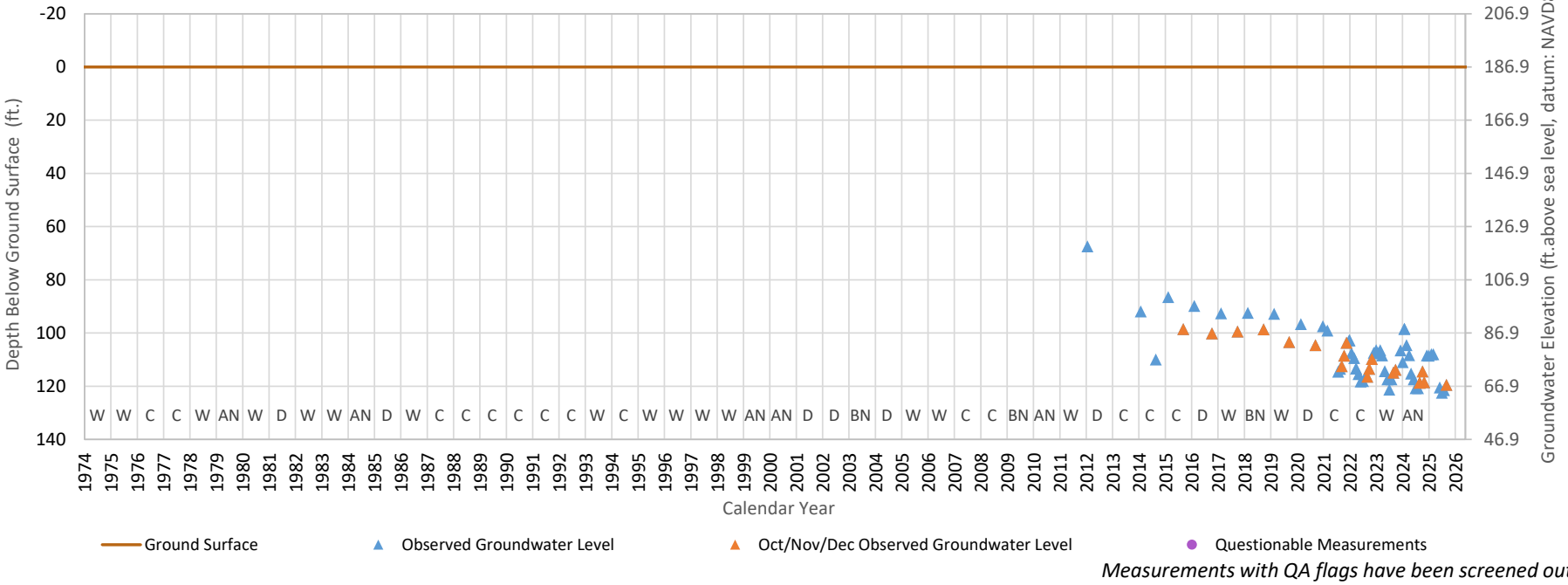
Ground Surface Elevation: 186.9 ft.

Hydrograph Station ID 47551 - Outside Corcoran Clay



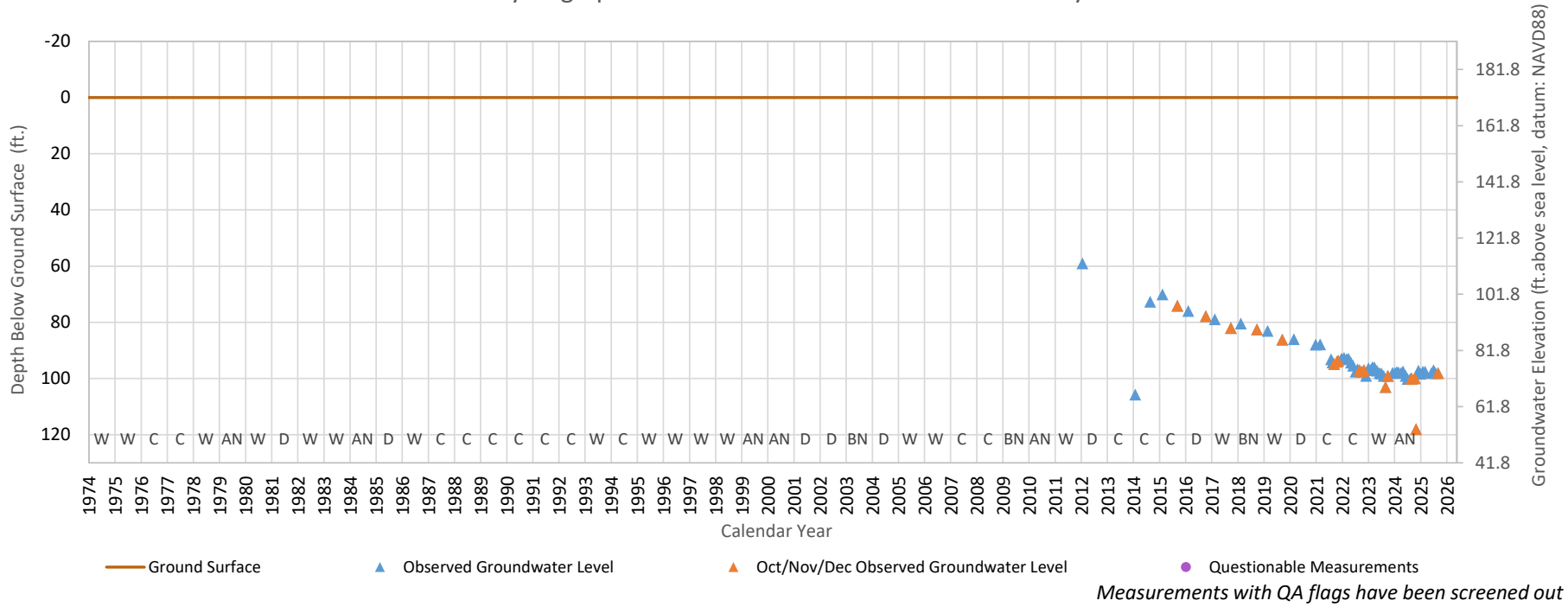
Ground Surface Elevation: 186.9 ft.

Hydrograph Station ID 47552 - Outside Corcoran Clay



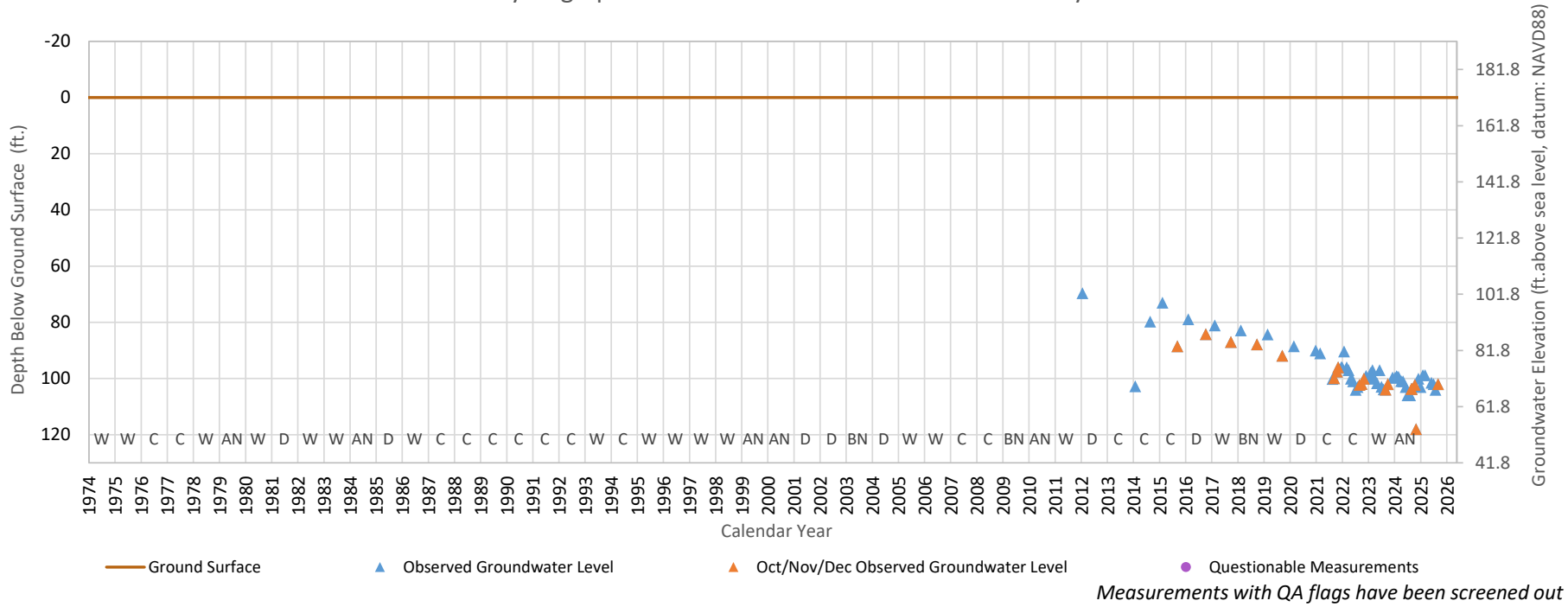
Ground Surface Elevation: 171.8 ft.

Hydrograph Station ID 47554 - Outside Corcoran Clay



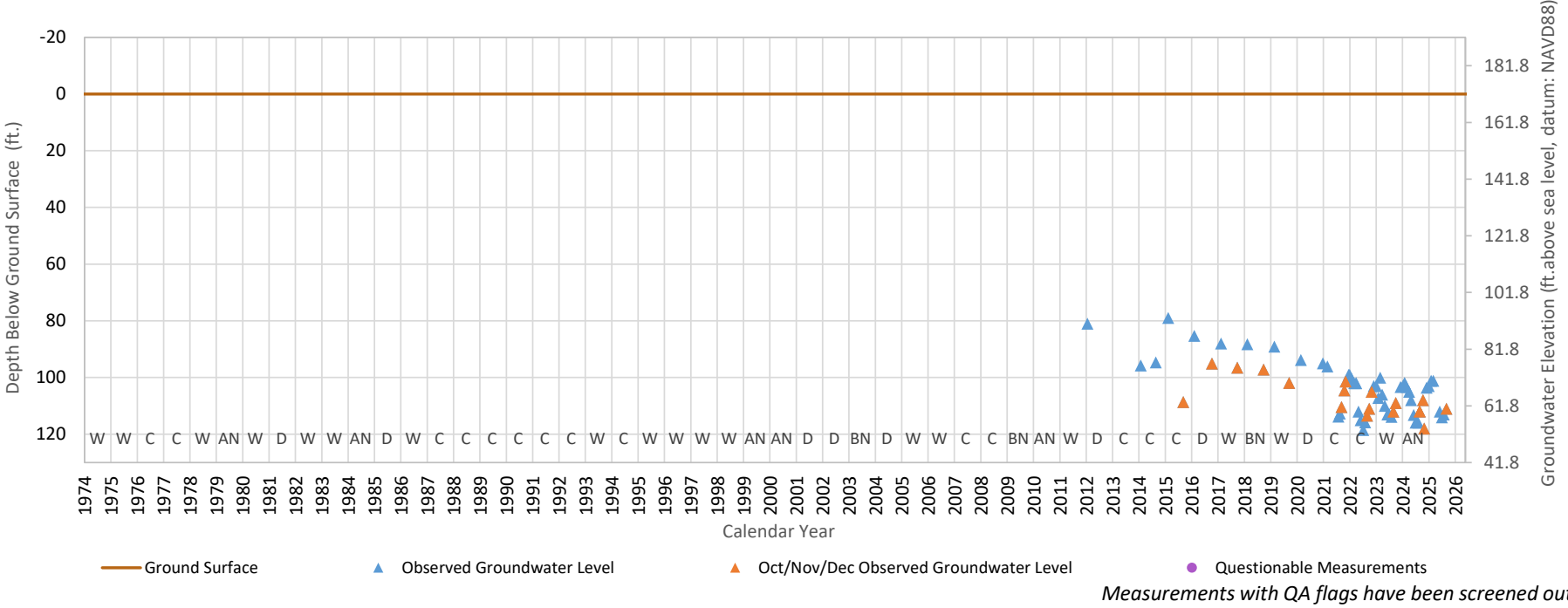
Ground Surface Elevation: 171.8 ft.

Hydrograph Station ID 47555 - Outside Corcoran Clay



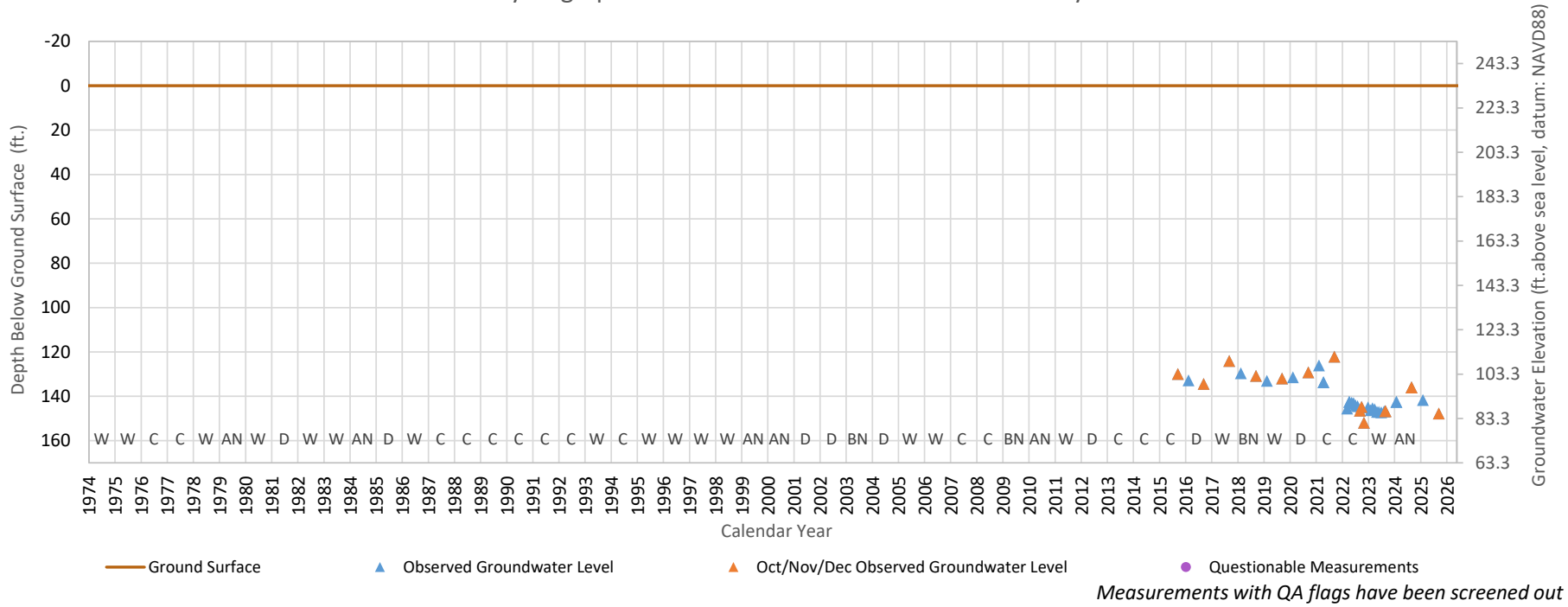
Ground Surface Elevation: 171.8 ft.

Hydrograph Station ID 47556 - Outside Corcoran Clay



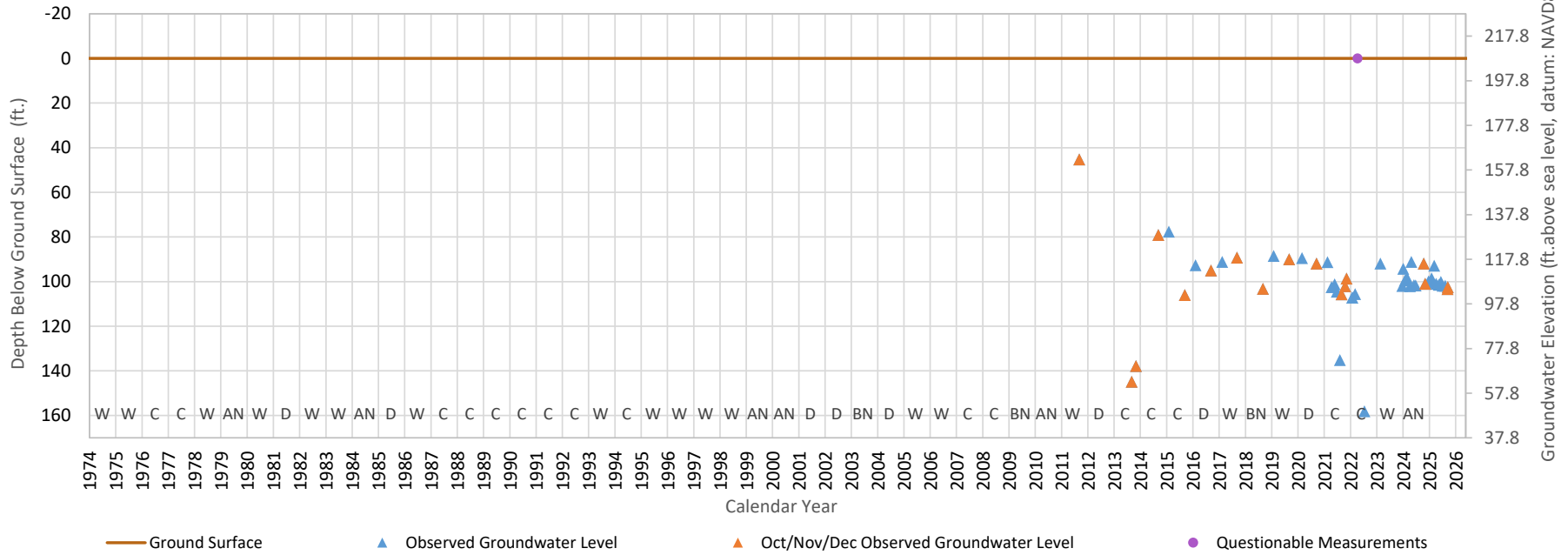
Ground Surface Elevation: 233.3 ft.

Hydrograph Station ID 47559 - Outside Corcoran Clay



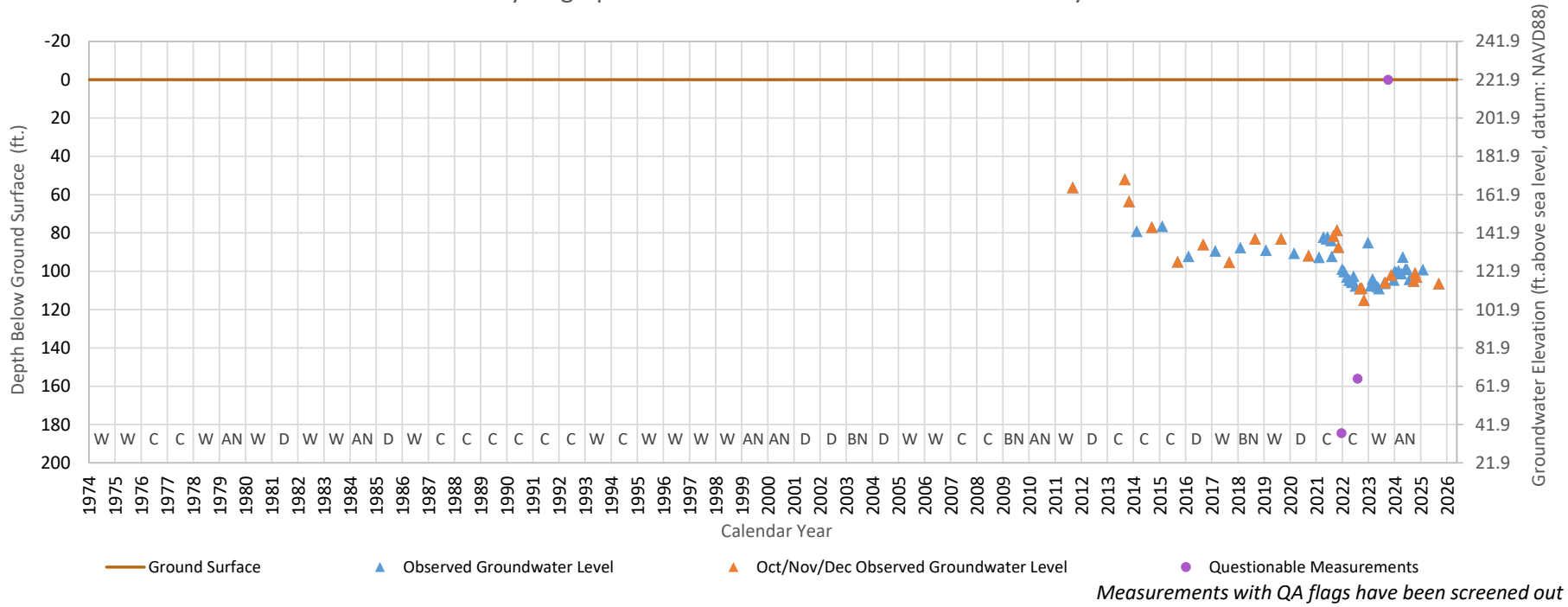
Ground Surface Elevation: 207.8 ft.

Hydrograph Station ID 47560 - Outside Corcoran Clay



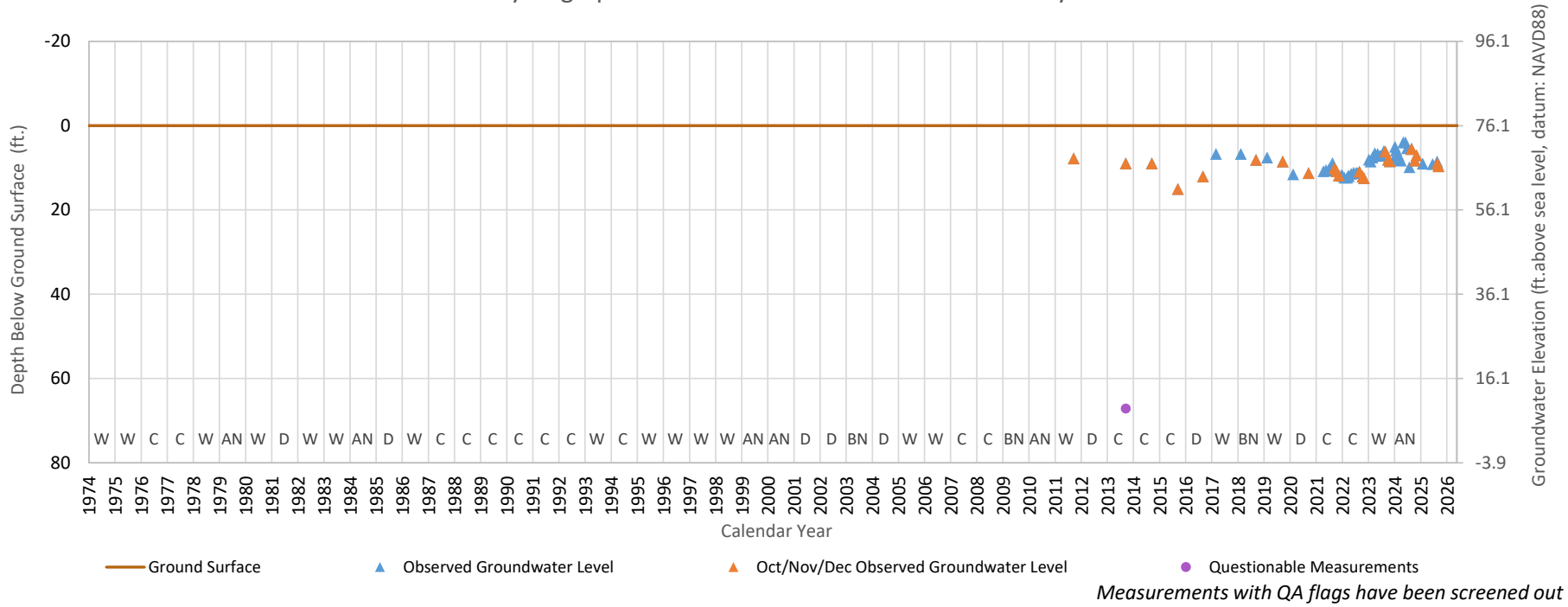
Ground Surface Elevation: 221.9 ft.

Hydrograph Station ID 47561 - Outside Corcoran Clay



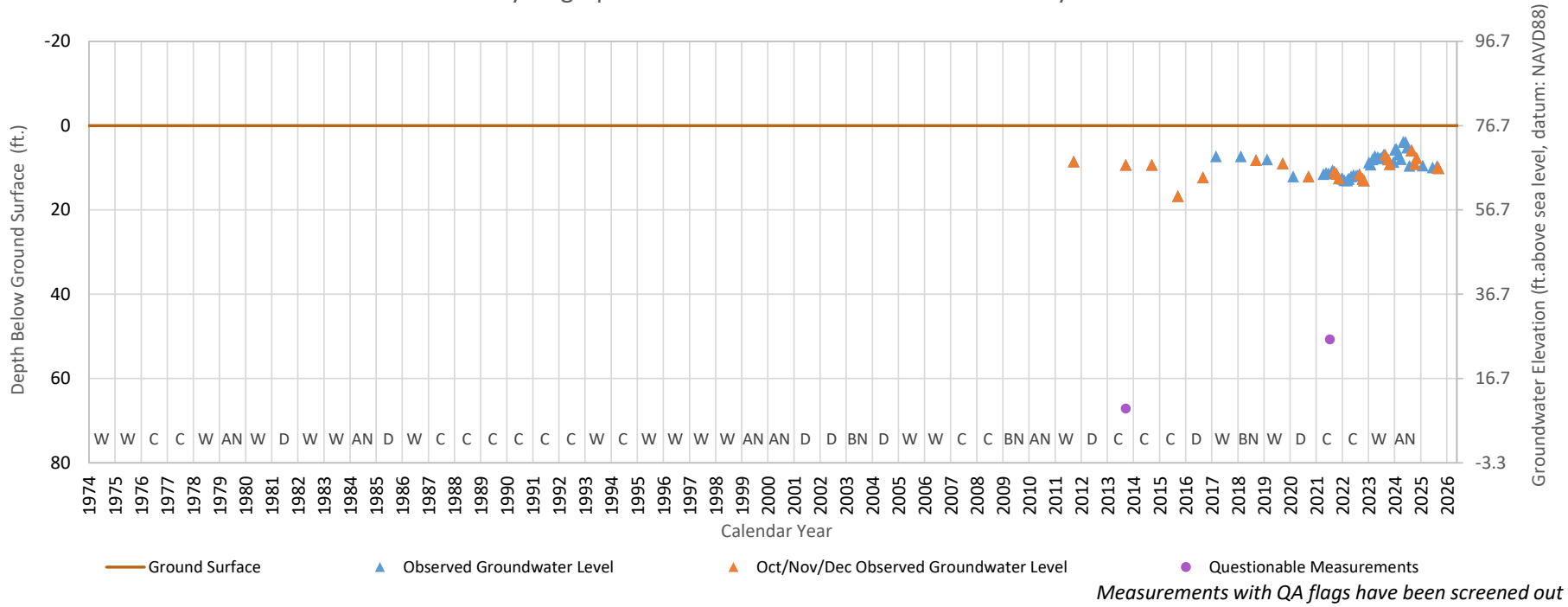
Ground Surface Elevation: 76.1 ft.

Hydrograph Station ID 47567 - Above Corcoran Clay



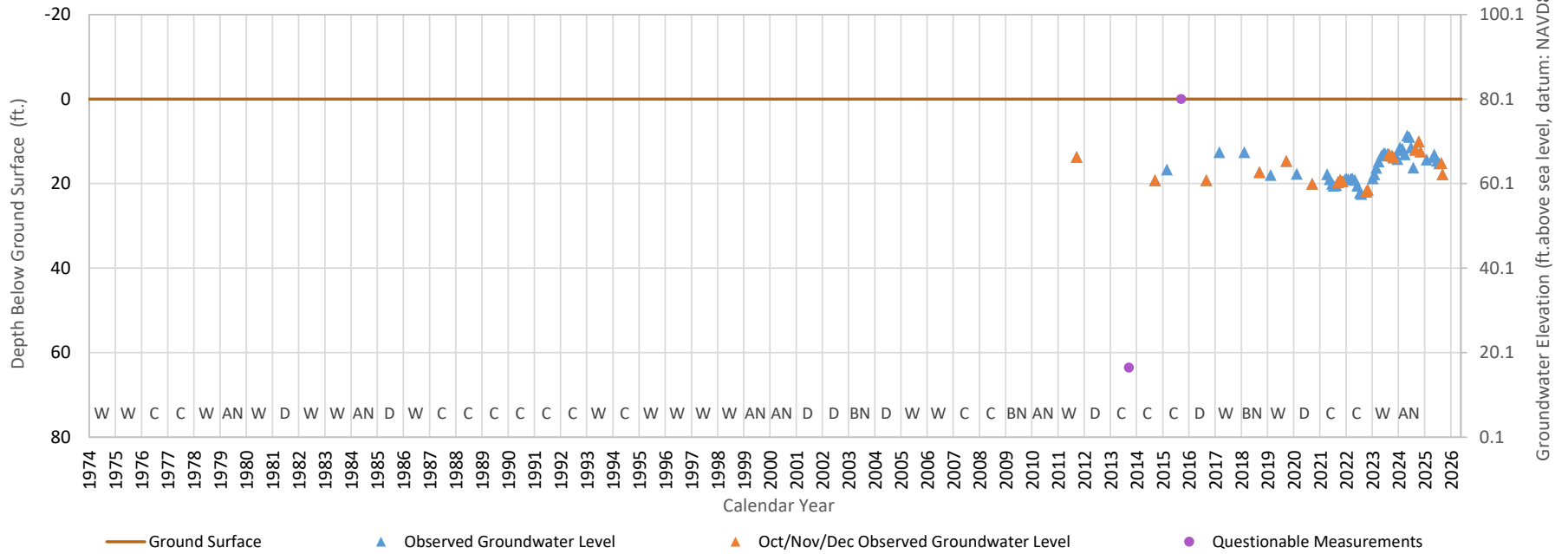
Ground Surface Elevation: 76.7 ft.

Hydrograph Station ID 47568 - Above Corcoran Clay



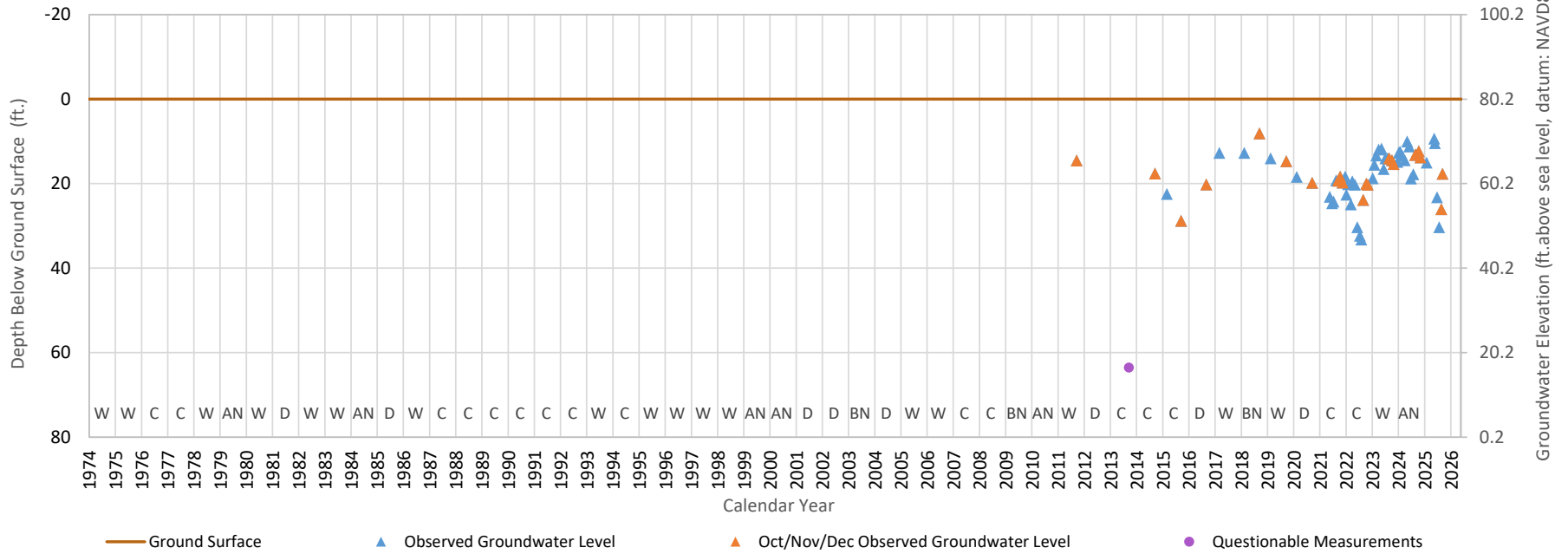
Ground Surface Elevation: 80.1 ft.

Hydrograph Station ID 47570 - Above Corcoran Clay



Ground Surface Elevation: 80.2 ft.

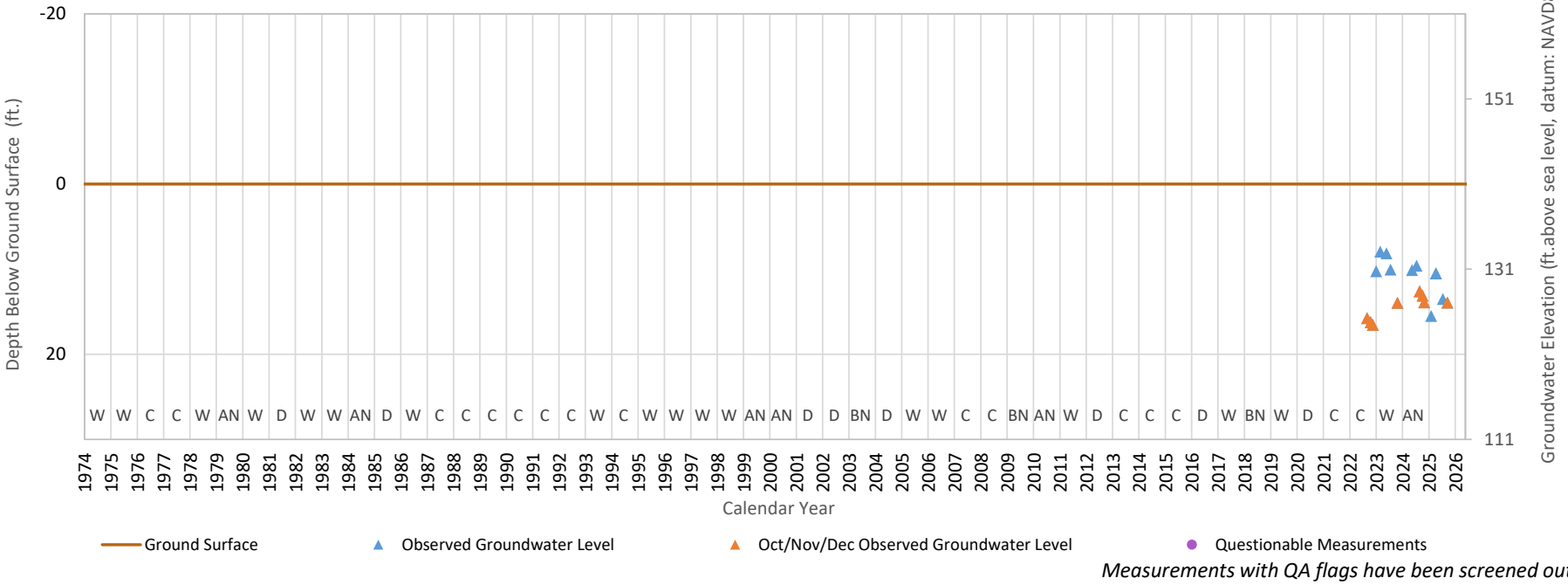
Hydrograph Station ID 47572 - Above Corcoran Clay



Measurements with QA flags have been screened out

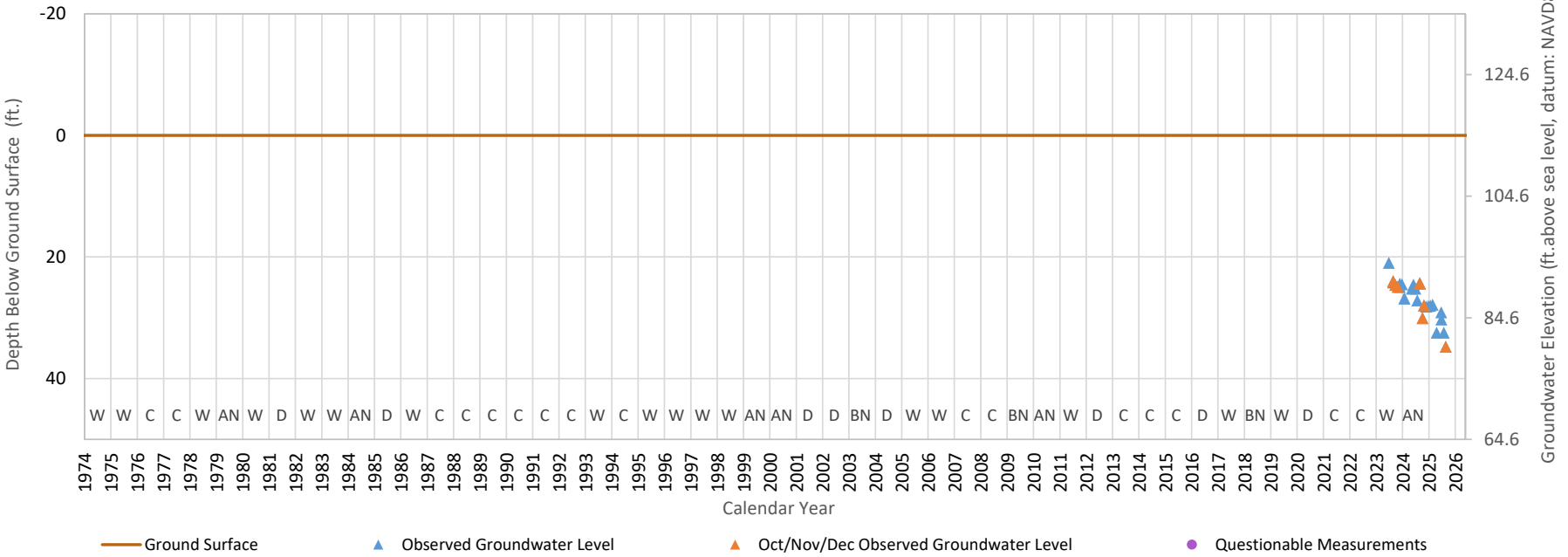
Ground Surface Elevation: 141.0 ft.

Hydrograph Station ID 60571 - Above Corcoran Clay



Ground Surface Elevation: 114.6 ft.

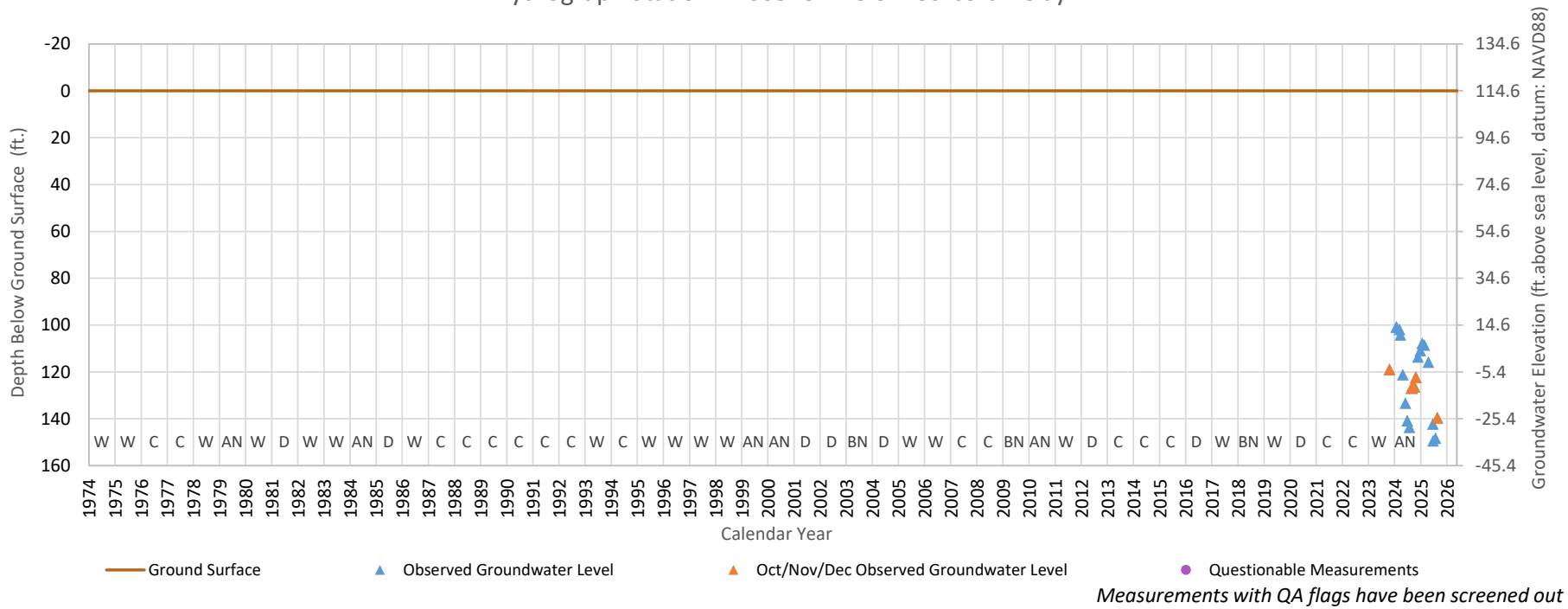
Hydrograph Station ID 60572 - Above Corcoran Clay



Measurements with QA flags have been screened out

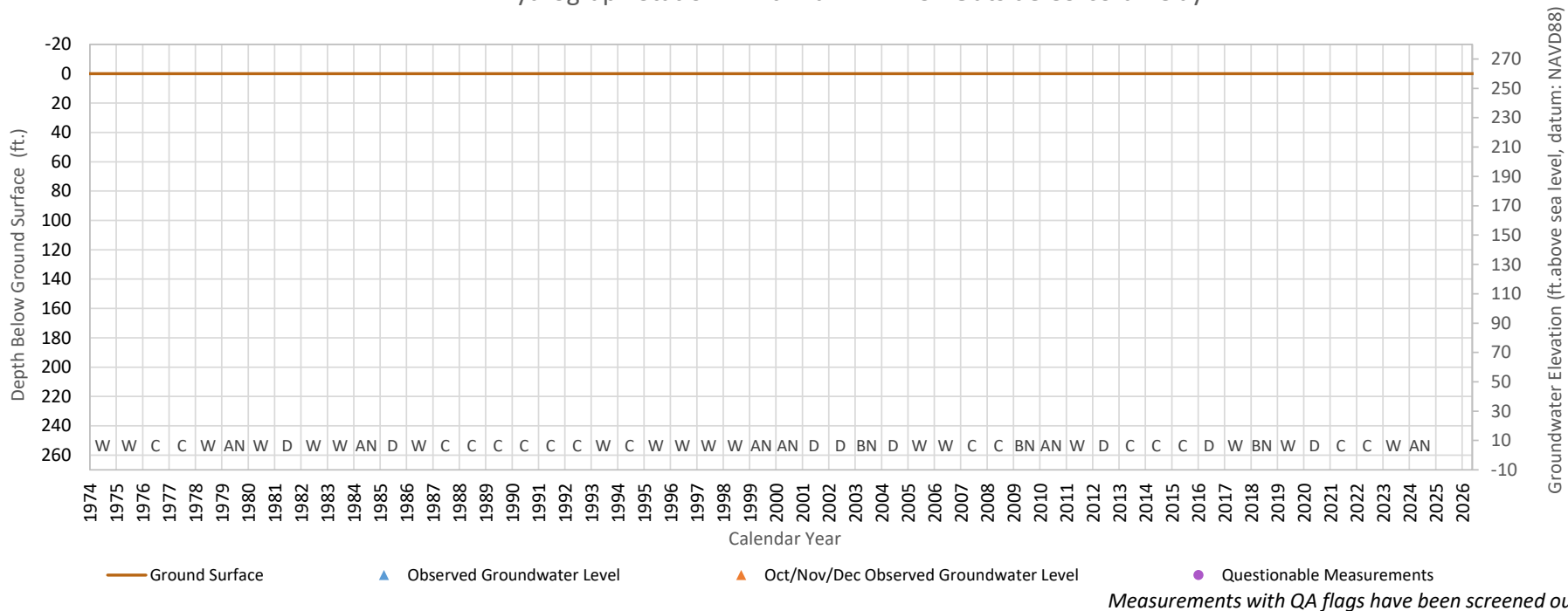
Ground Surface Elevation: 114.6 ft.

Hydrograph Station ID 60573 - Below Corcoran Clay



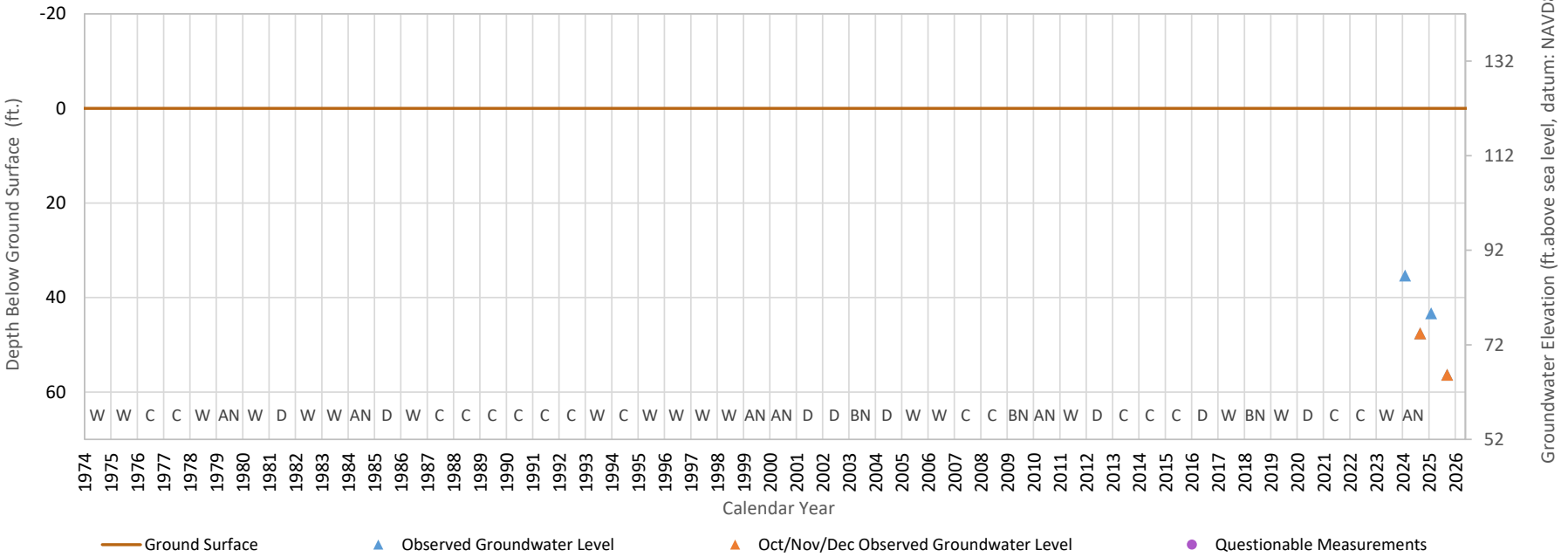
Ground Surface Elevation: 260.0 ft.

Hydrograph Station ID Athwal MW MS - Outside Corcoran Clay



Ground Surface Elevation: 122.0 ft.

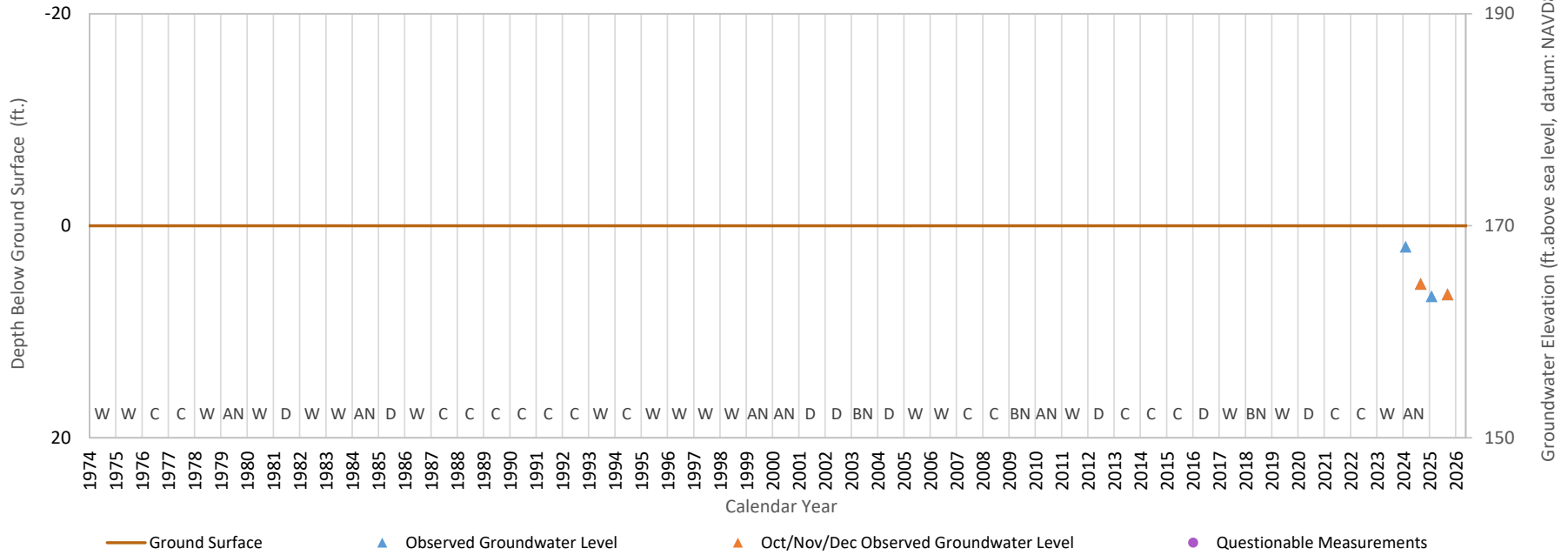
Hydrograph Station ID Baker 3 - Above Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 170.0 ft.

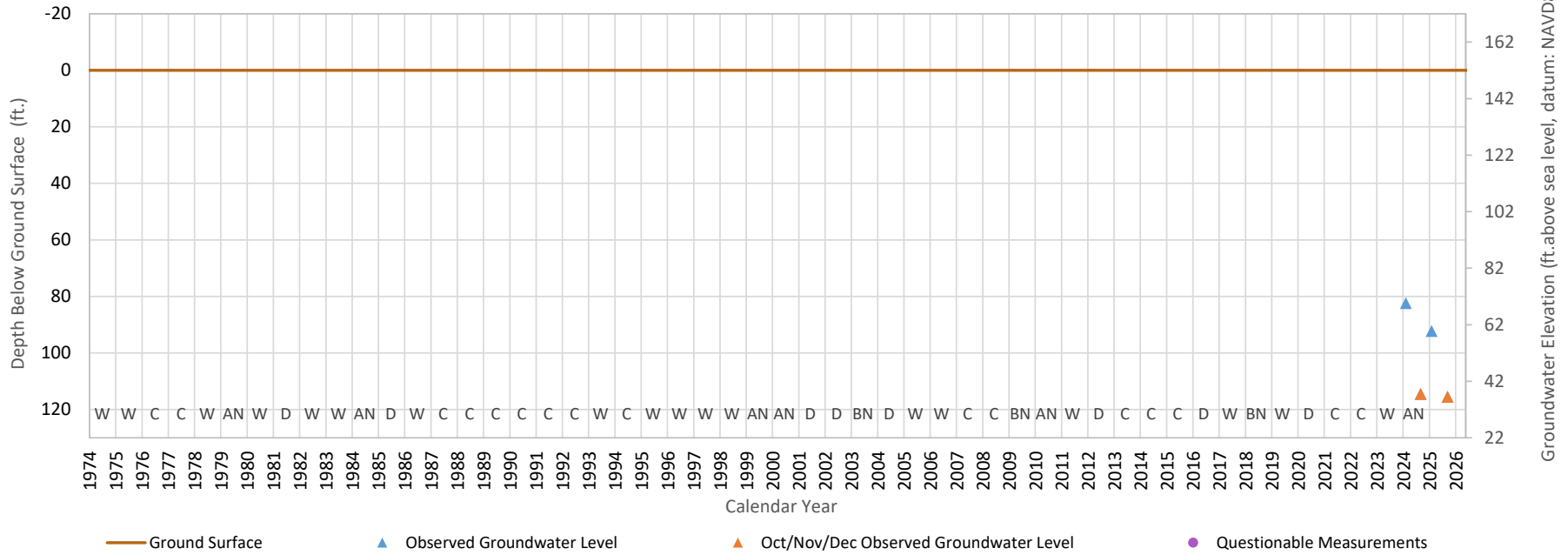
Hydrograph Station ID Candidate Well ID C - Above Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 152.0 ft.

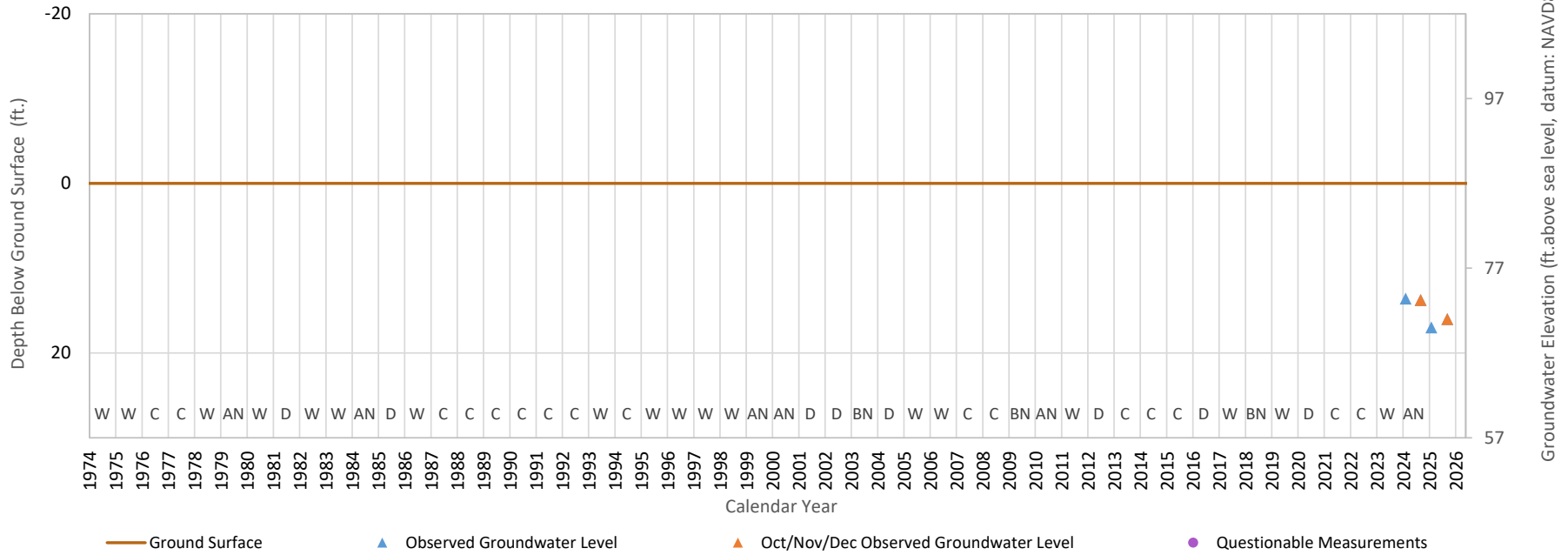
Hydrograph Station ID Dejager #3 - Below Corcoran Clay



Measurements with QA flags have been screened out

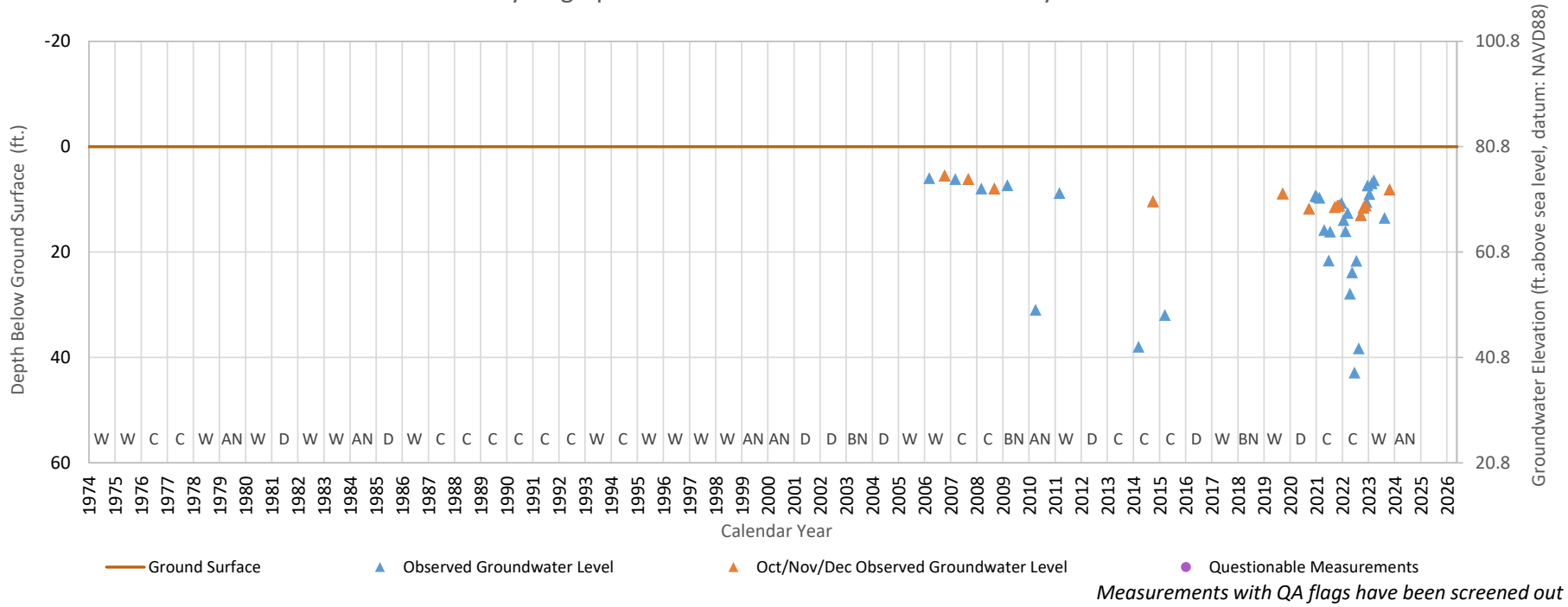
Ground Surface Elevation: 87.0 ft.

Hydrograph Station ID DW7 - Above Corcoran Clay



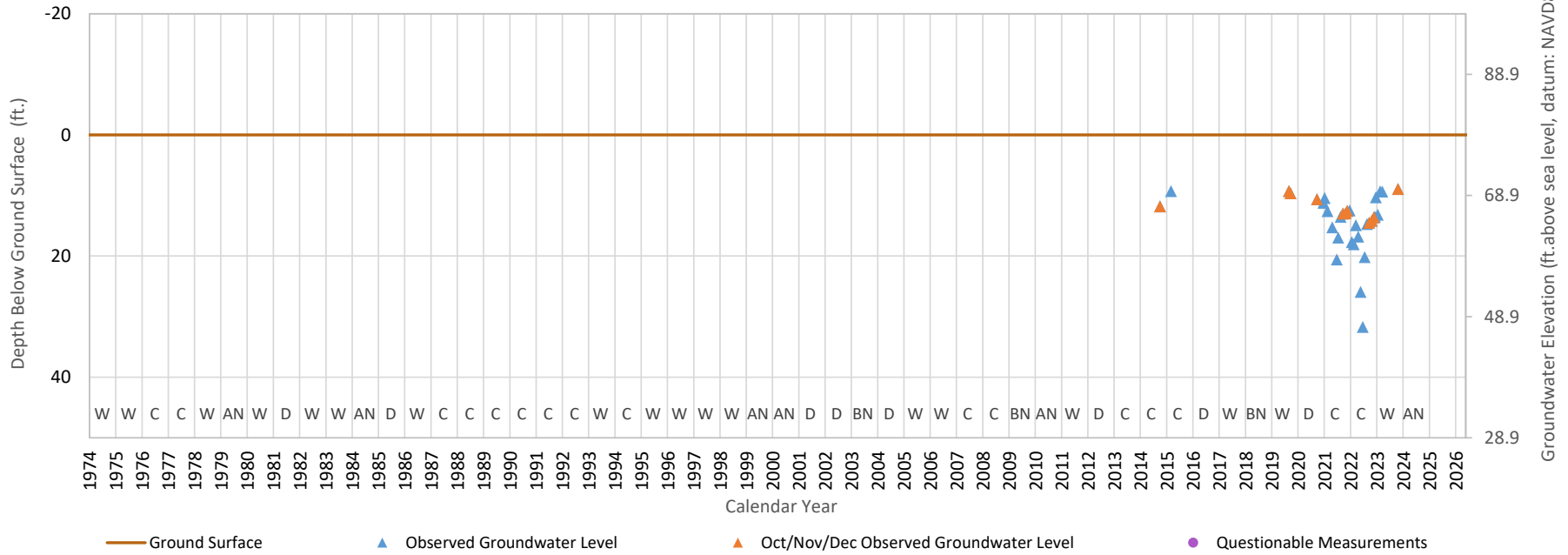
Ground Surface Elevation: 80.8 ft.

Hydrograph Station ID DW9 - Above Corcoran Clay



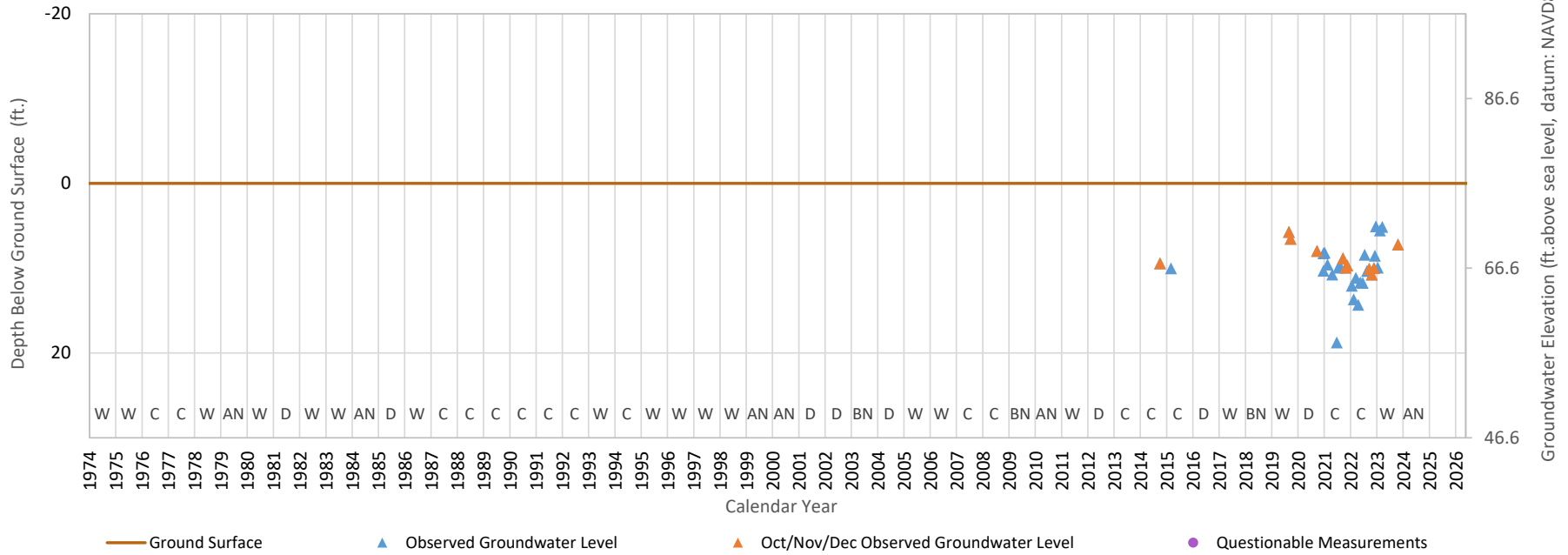
Ground Surface Elevation: 78.9 ft.

Hydrograph Station ID DW16 - Above Corcoran Clay



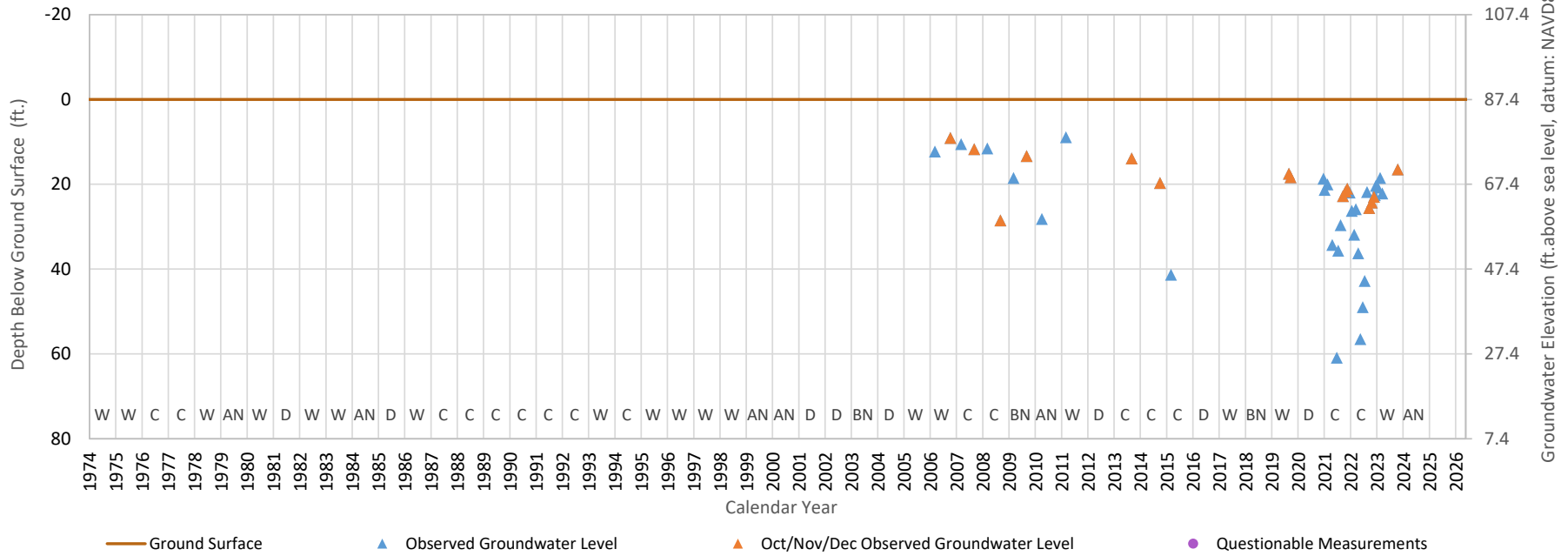
Ground Surface Elevation: 76.6 ft.

Hydrograph Station ID DW17 - Above Corcoran Clay



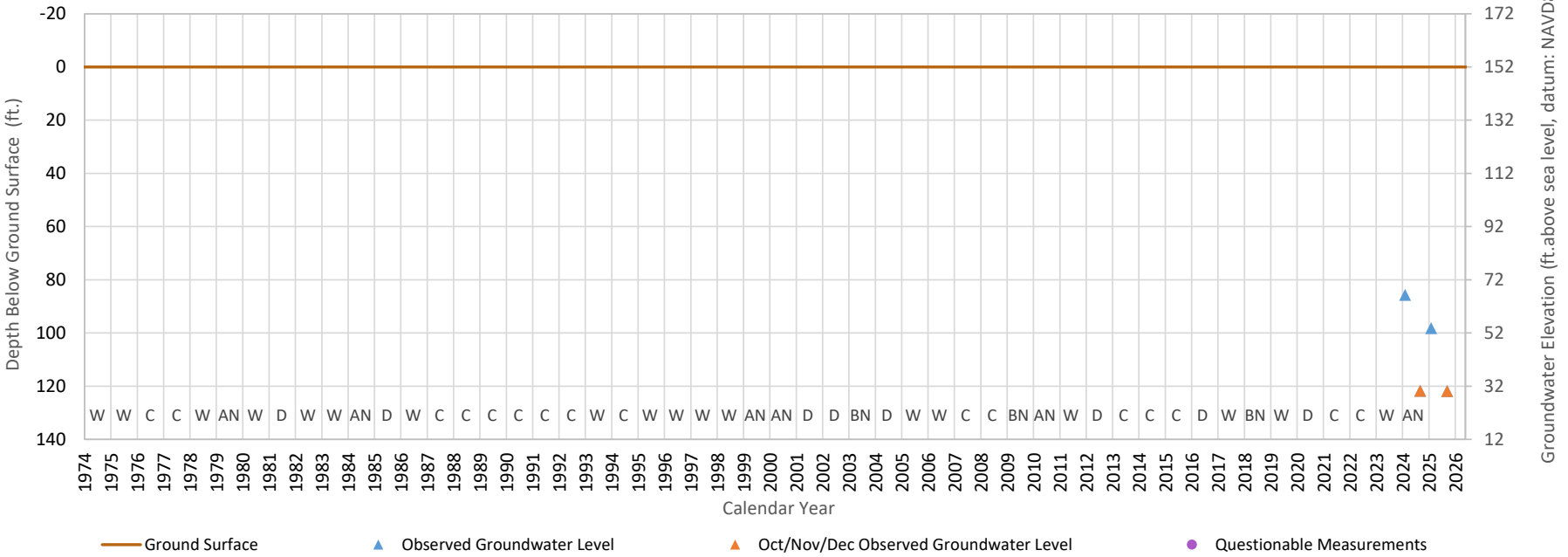
Ground Surface Elevation: 87.4 ft.

Hydrograph Station ID DW18 - Above Corcoran Clay



Ground Surface Elevation: 152.0 ft.

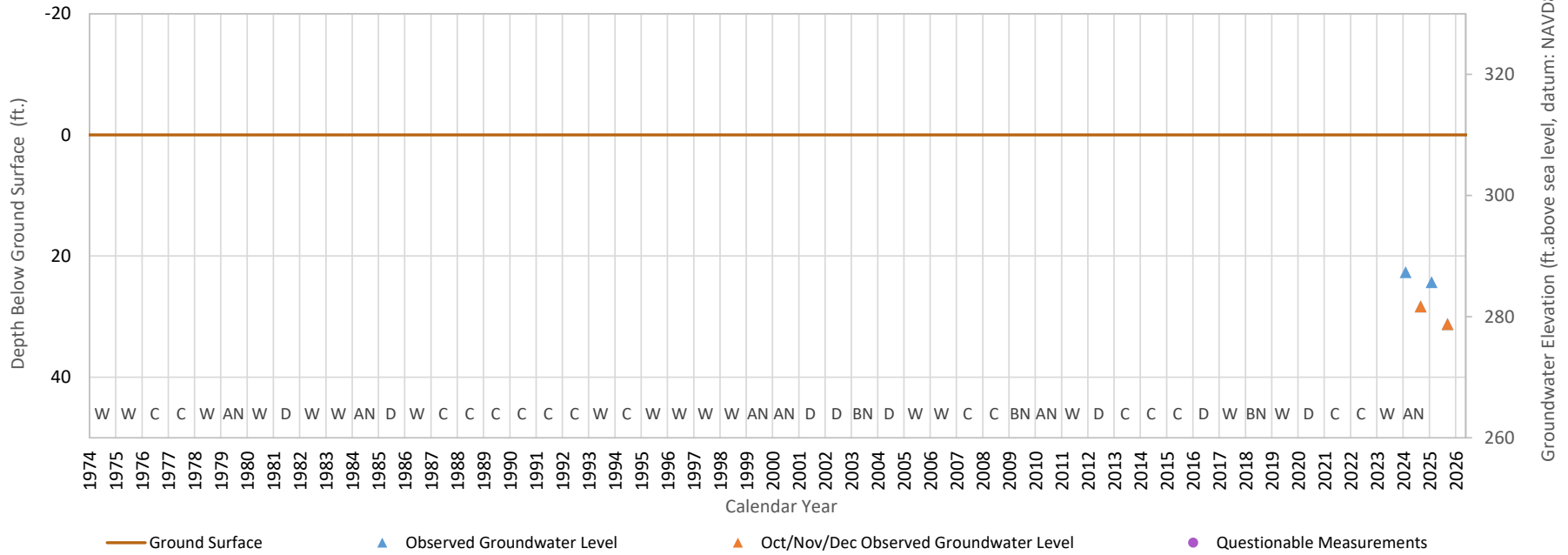
Hydrograph Station ID Old DW 1 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 310.0 ft.

Hydrograph Station ID Upper Bear Well 3 - Outside Corcoran Clay

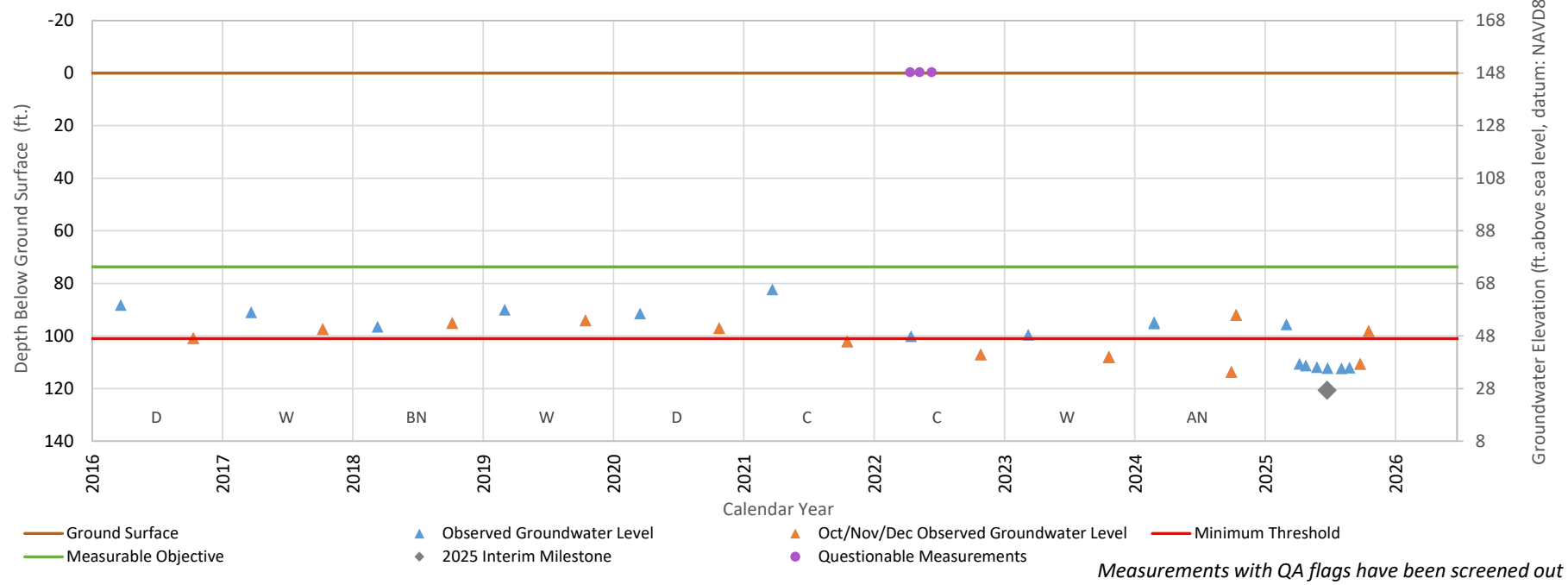


Measurements with QA flags have been screened out

Section 2 - Time period 2016-2026

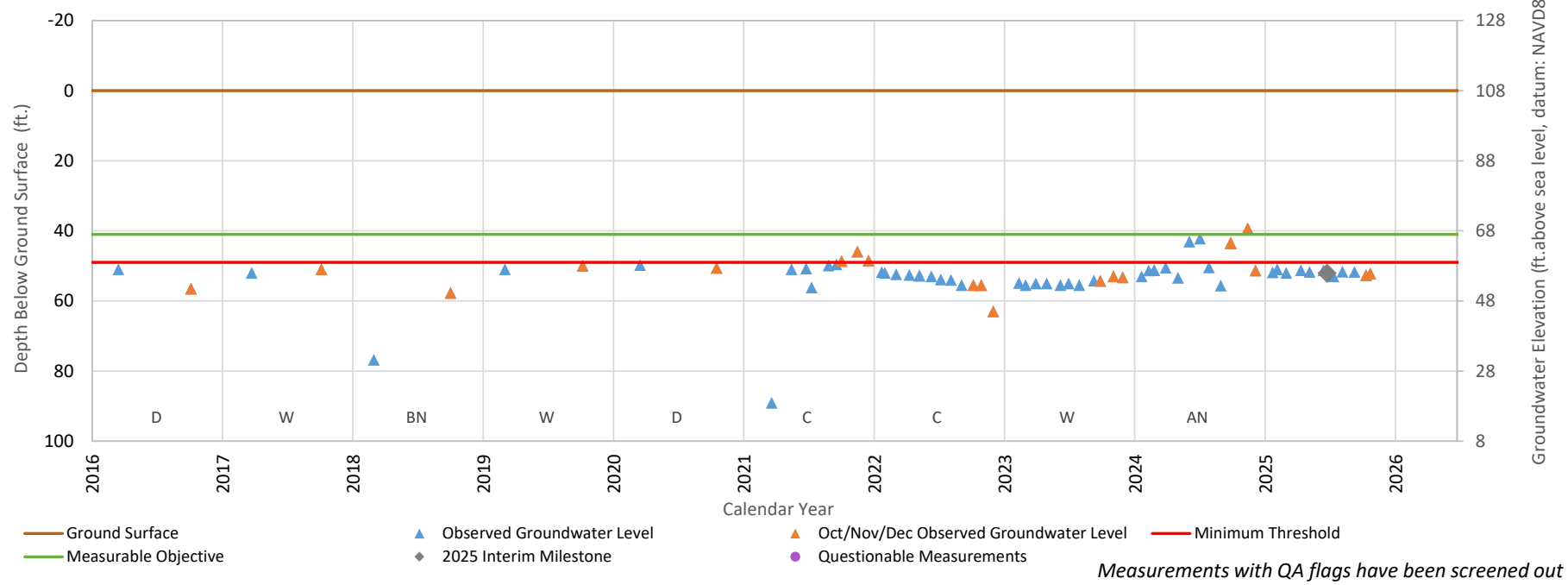
Ground Surface Elevation: 147.5 ft.
 Minimum Threshold Elevation: 46.5 ft.
 Measurable Objective Elevation: 73.8 ft.

Hydrograph Station ID 5773 - Above Corcoran Clay



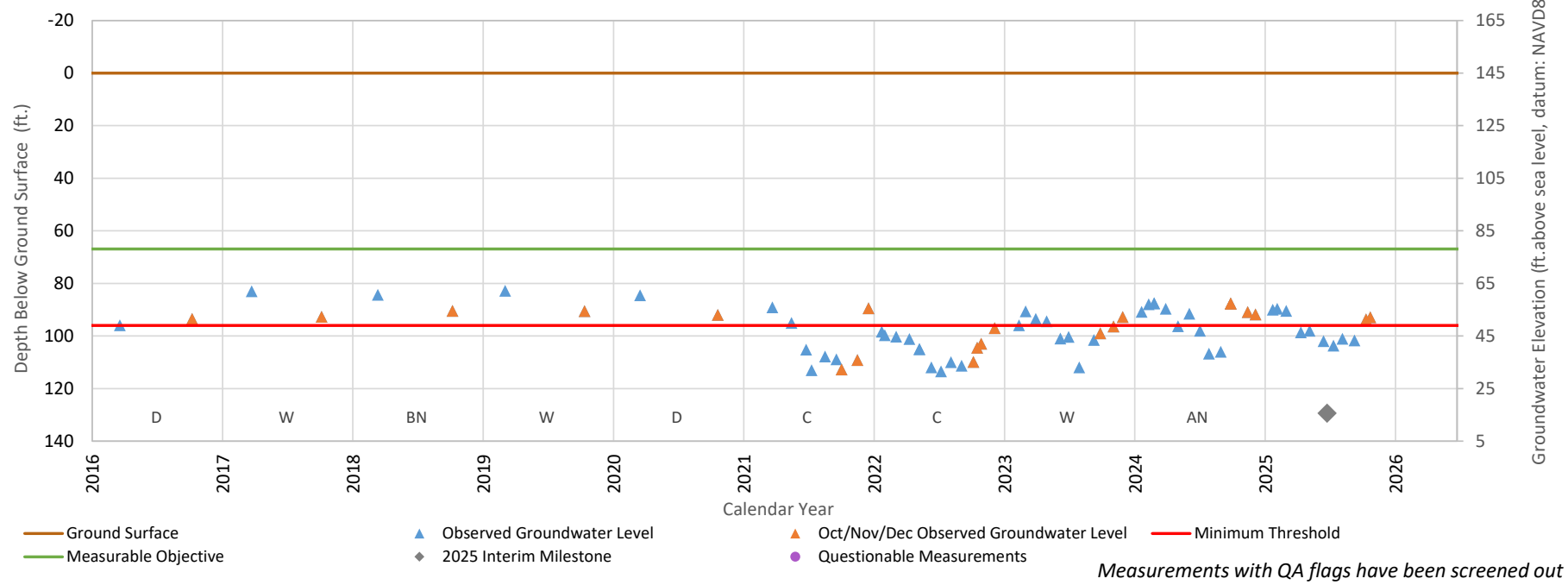
Ground Surface Elevation: 108.0 ft.
 Minimum Threshold Elevation: 59.0 ft.
 Measurable Objective Elevation: 67.0 ft.

Hydrograph Station ID 8604 - Above Corcoran Clay



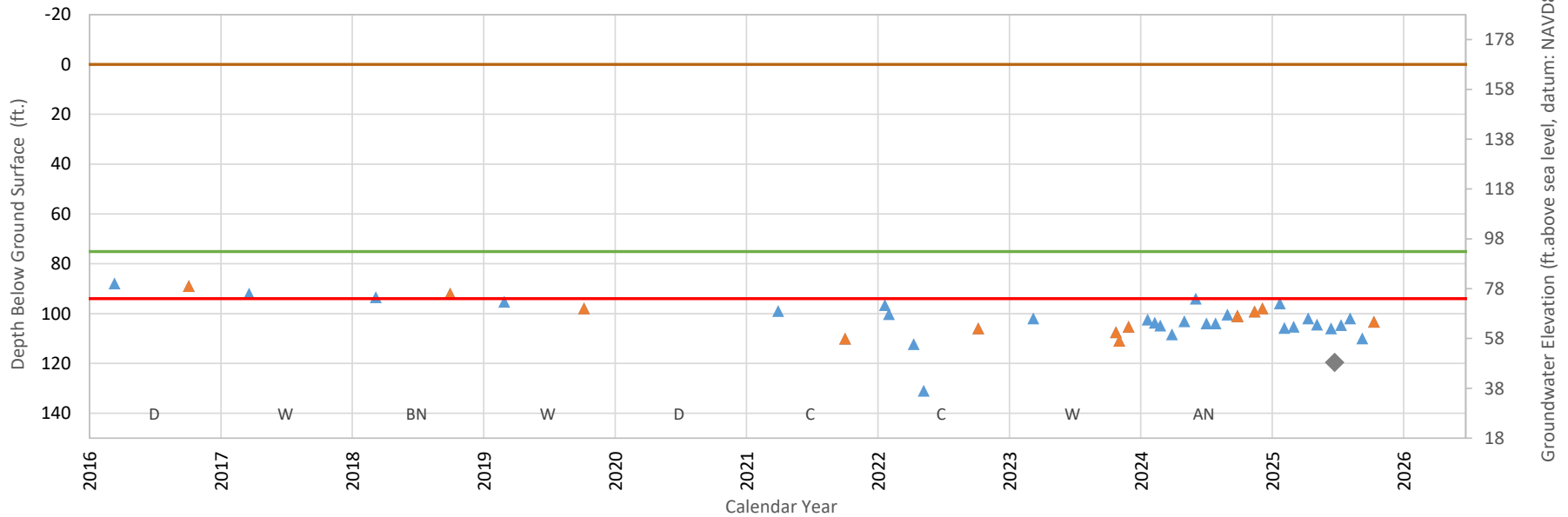
Ground Surface Elevation: 144.9 ft.
 Minimum Threshold Elevation: 48.9 ft.
 Measurable Objective Elevation: 78.0 ft.

Hydrograph Station ID 8626 - Above Corcoran Clay



Ground Surface Elevation: 167.7 ft.
 Minimum Threshold Elevation: 73.7 ft.
 Measurable Objective Elevation: 92.6 ft.

Hydrograph Station ID 10051 - Outside Corcoran Clay

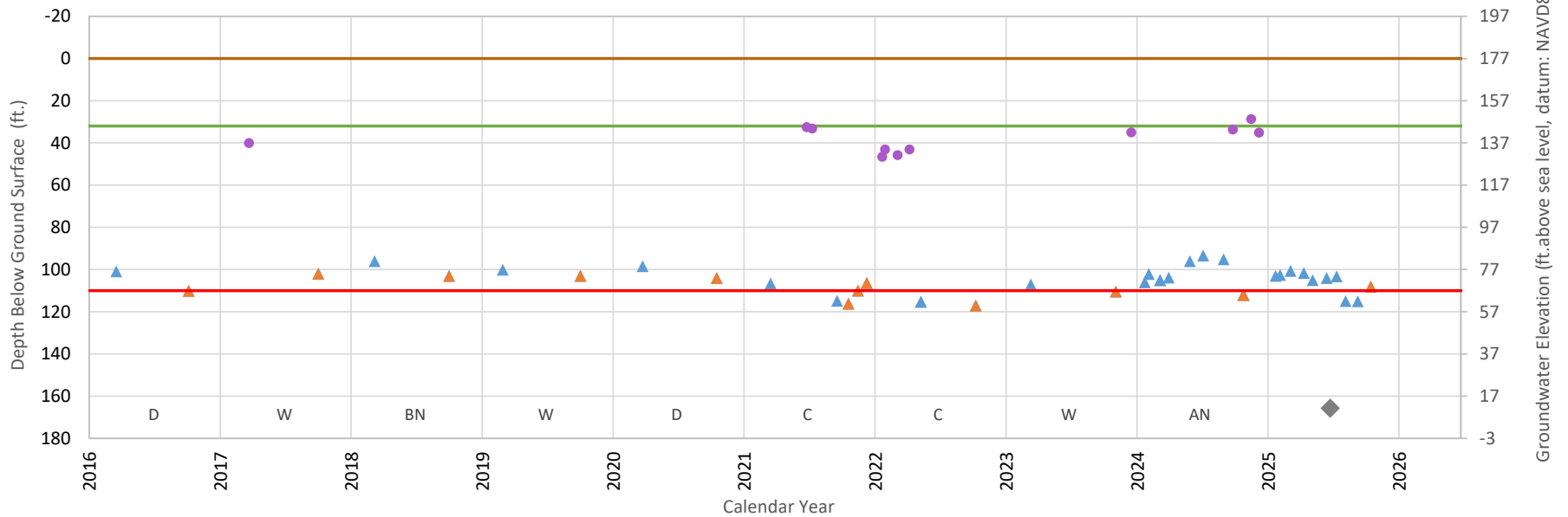


- Ground Surface
- Measurable Objective
- ▲ Observed Groundwater Level
- ▲ Oct/Nov/Dec Observed Groundwater Level
- ◆ 2025 Interim Milestone
- Questionable Measurements
- Minimum Threshold

Measurements with QA flags have been screened out

Ground Surface Elevation: 177.2 ft.
 Minimum Threshold Elevation: 67.2 ft.
 Measurable Objective Elevation: 145.2 ft.

Hydrograph Station ID 10200 - Below Corcoran Clay

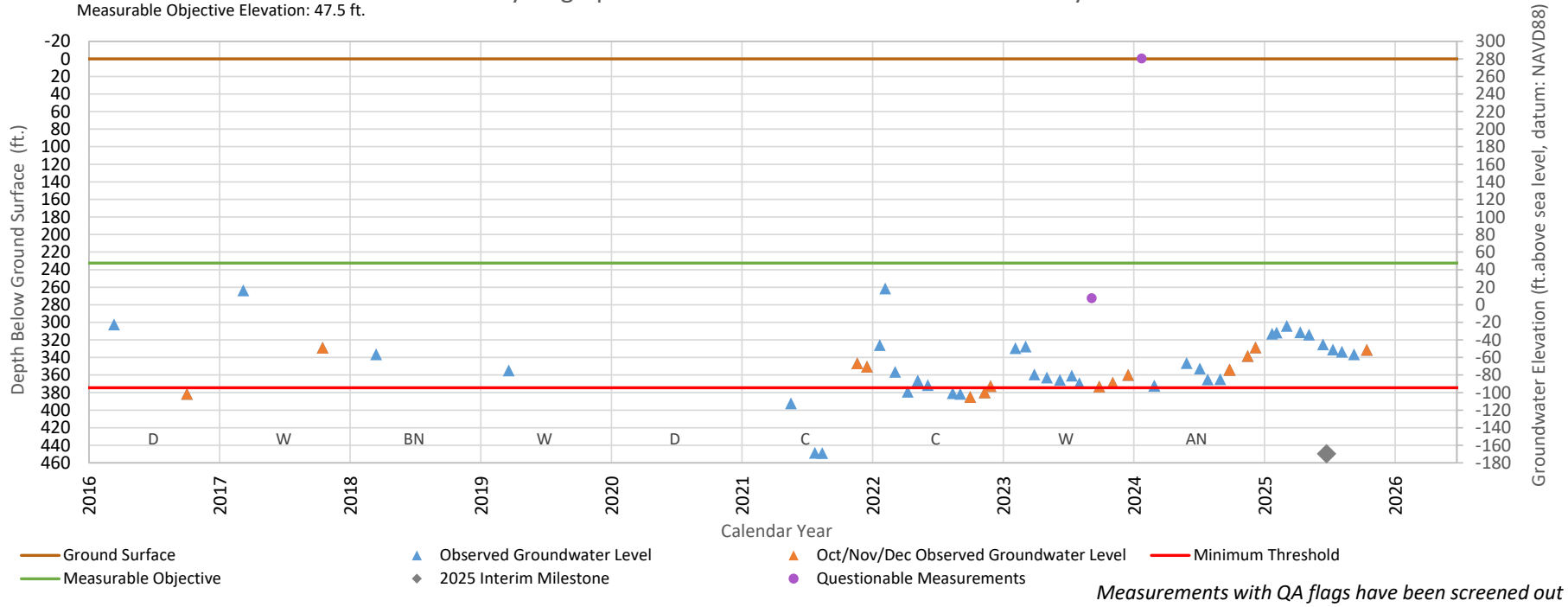


- Ground Surface
- Measurable Objective
- ▲ Observed Groundwater Level
- ▲ Oct/Nov/Dec Observed Groundwater Level
- ◆ 2025 Interim Milestone
- Questionable Measurements
- Minimum Threshold

Measurements with QA flags have been screened out

Ground Surface Elevation: 280.0 ft.
 Minimum Threshold Elevation: -94.5 ft.
 Measurable Objective Elevation: 47.5 ft.

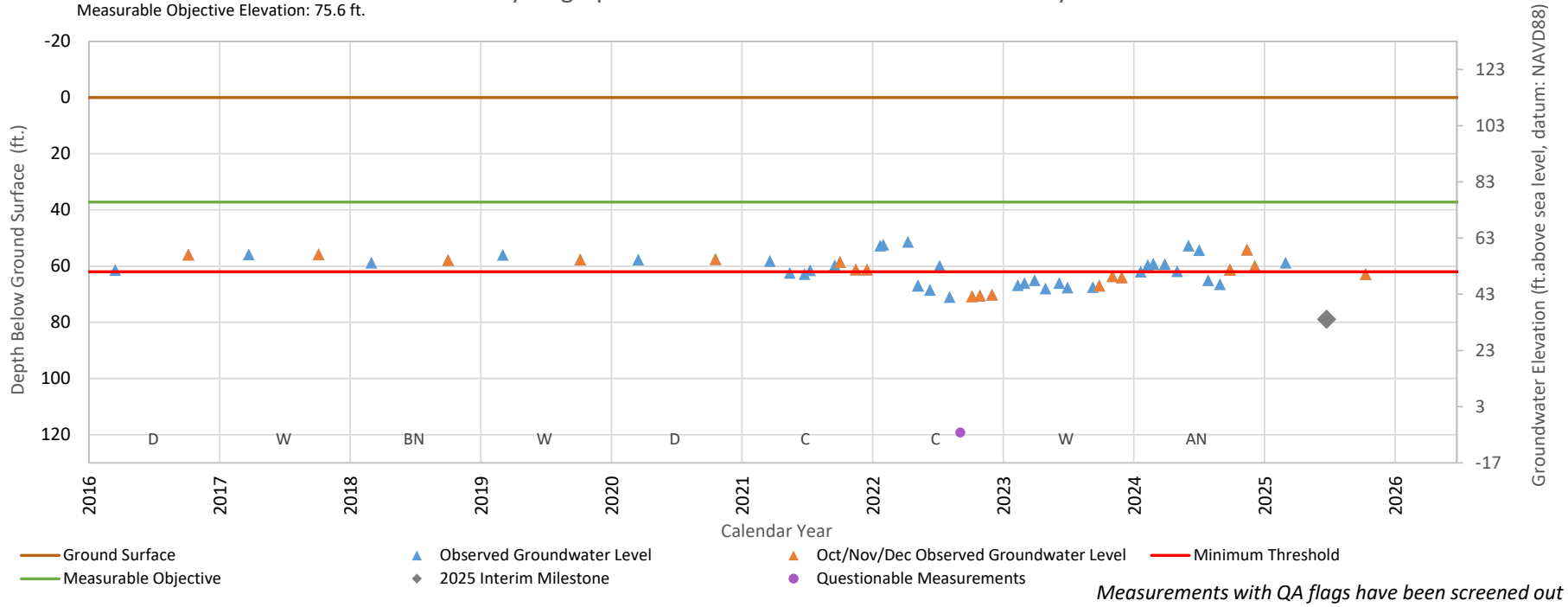
Hydrograph Station ID 28392 - Outside Corcoran Clay



Measurements with QA flags have been screened out

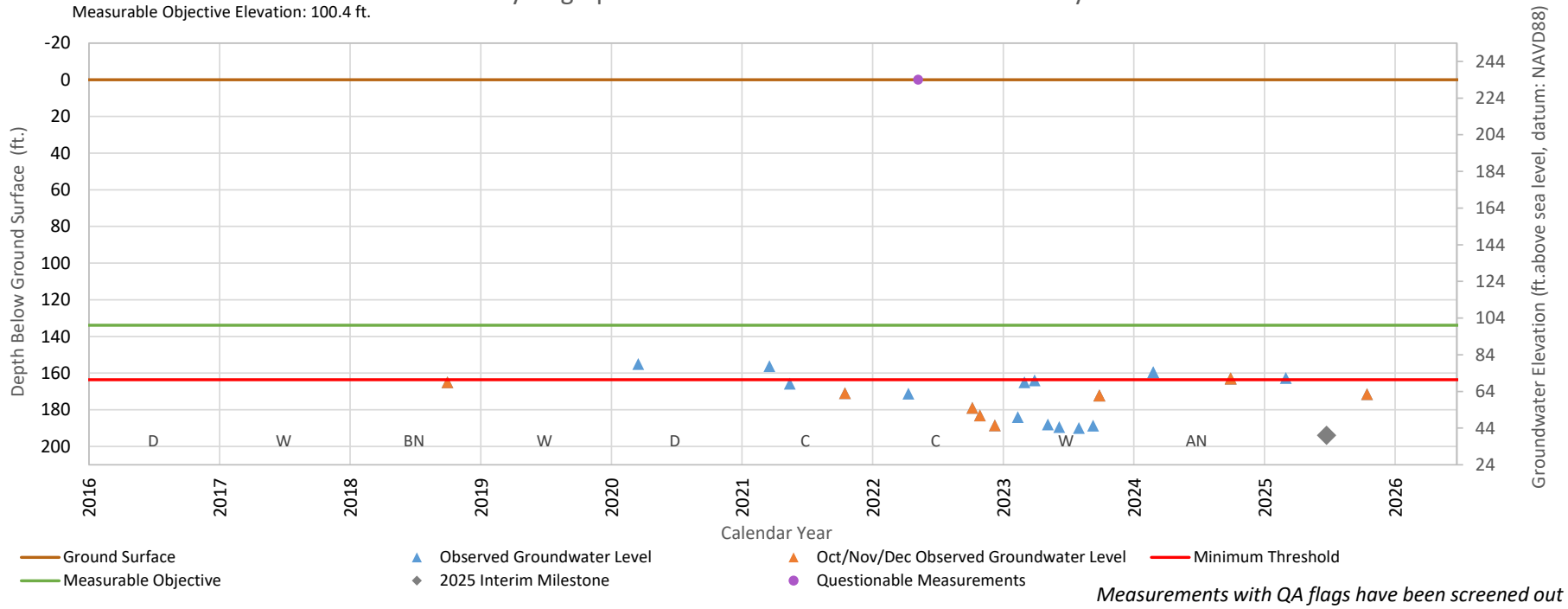
Ground Surface Elevation: 112.8 ft.
 Minimum Threshold Elevation: 50.8 ft.
 Measurable Objective Elevation: 75.6 ft.

Hydrograph Station ID 31372 - Above Corcoran Clay



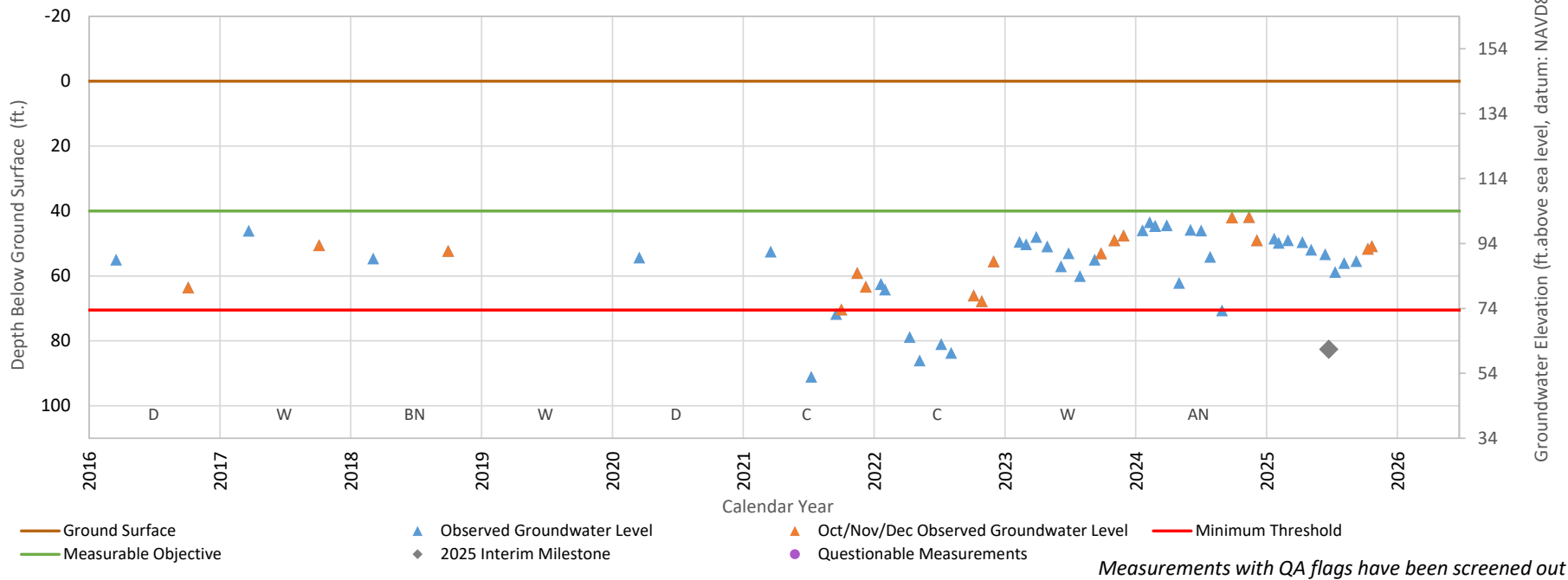
Ground Surface Elevation: 234.3 ft.
 Minimum Threshold Elevation: 70.7 ft.
 Measurable Objective Elevation: 100.4 ft.

Hydrograph Station ID 38884 - Outside Corcoran Clay



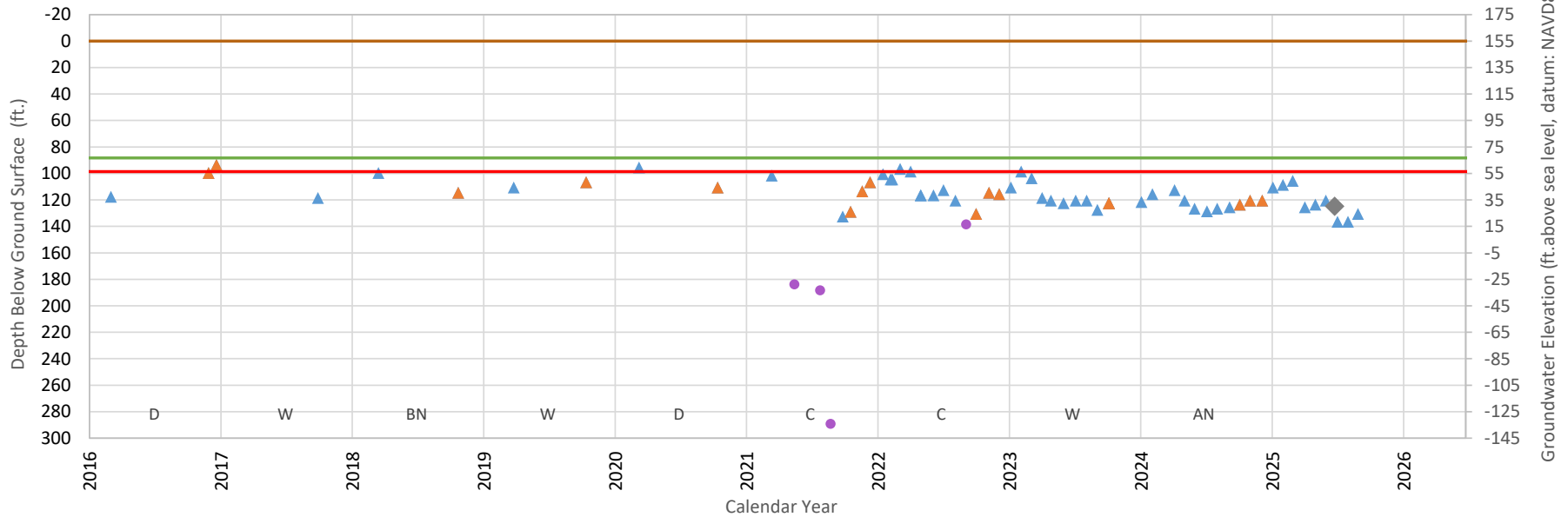
Ground Surface Elevation: 144.4 ft.
 Minimum Threshold Elevation: 73.9 ft.
 Measurable Objective Elevation: 104.4 ft.

Hydrograph Station ID 38974 - Below Corcoran Clay



Ground Surface Elevation: 154.7 ft.
 Minimum Threshold Elevation: 56.1 ft.
 Measurable Objective Elevation: 66.4 ft.

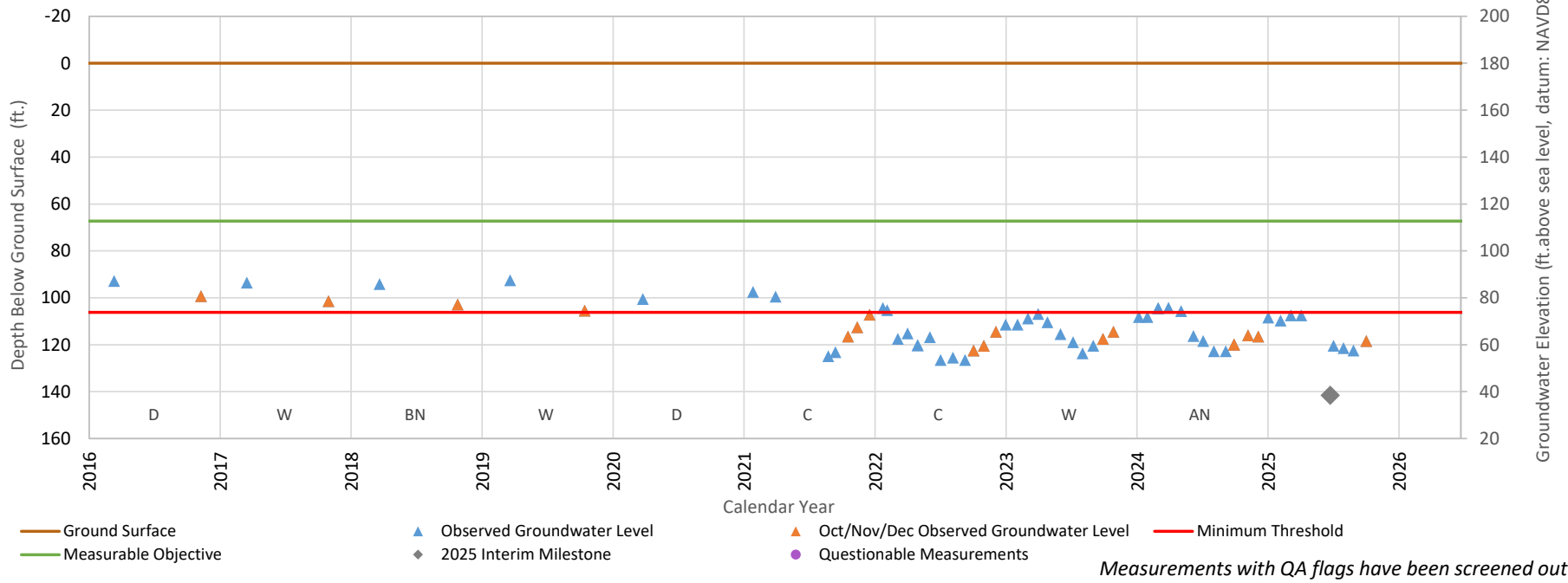
Hydrograph Station ID 47541 - Outside Corcoran Clay



- Ground Surface
 - Measurable Objective
 - ▲ Observed Groundwater Level
 - ▲ Oct/Nov/Dec Observed Groundwater Level
 - ◆ 2025 Interim Milestone
 - Questionable Measurements
 - Minimum Threshold
- Measurements with QA flags have been screened out*

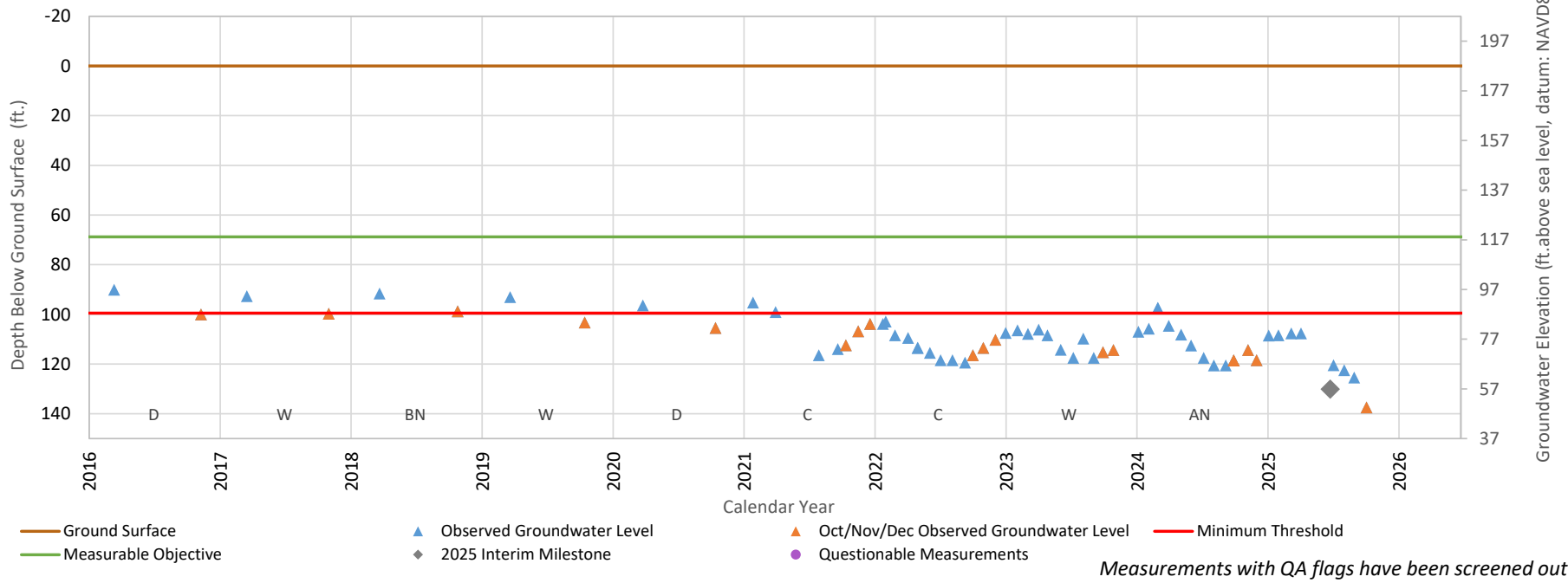
Ground Surface Elevation: 179.9 ft.
 Minimum Threshold Elevation: 73.7 ft.
 Measurable Objective Elevation: 112.6 ft.

Hydrograph Station ID 47542 - Below Corcoran Clay



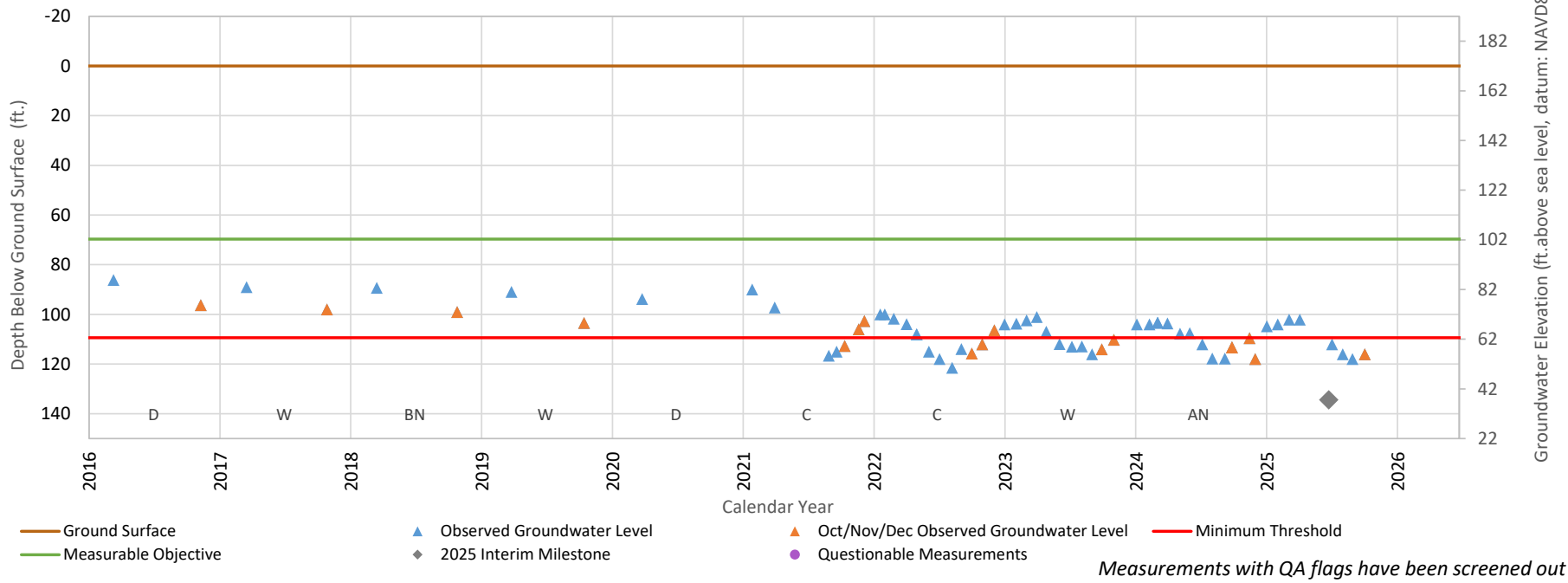
Ground Surface Elevation: 186.9 ft.
Minimum Threshold Elevation: 87.4 ft.
Measurable Objective Elevation: 118.1 ft.

Hydrograph Station ID 47553 - Outside Corcoran Clay



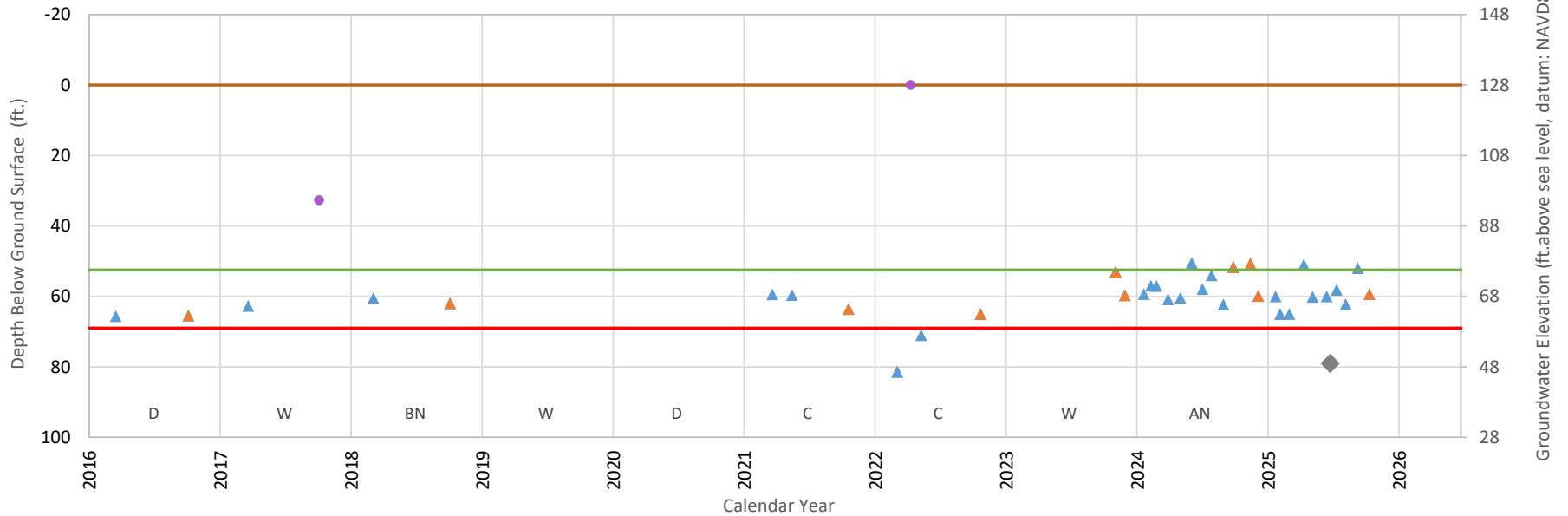
Ground Surface Elevation: 171.8 ft.
Minimum Threshold Elevation: 62.4 ft.
Measurable Objective Elevation: 102.1 ft.

Hydrograph Station ID 47557 - Outside Corcoran Clay



Ground Surface Elevation: 127.8 ft.
 Minimum Threshold Elevation: 58.8 ft.
 Measurable Objective Elevation: 75.3 ft.

Hydrograph Station ID 47562 - Below Corcoran Clay

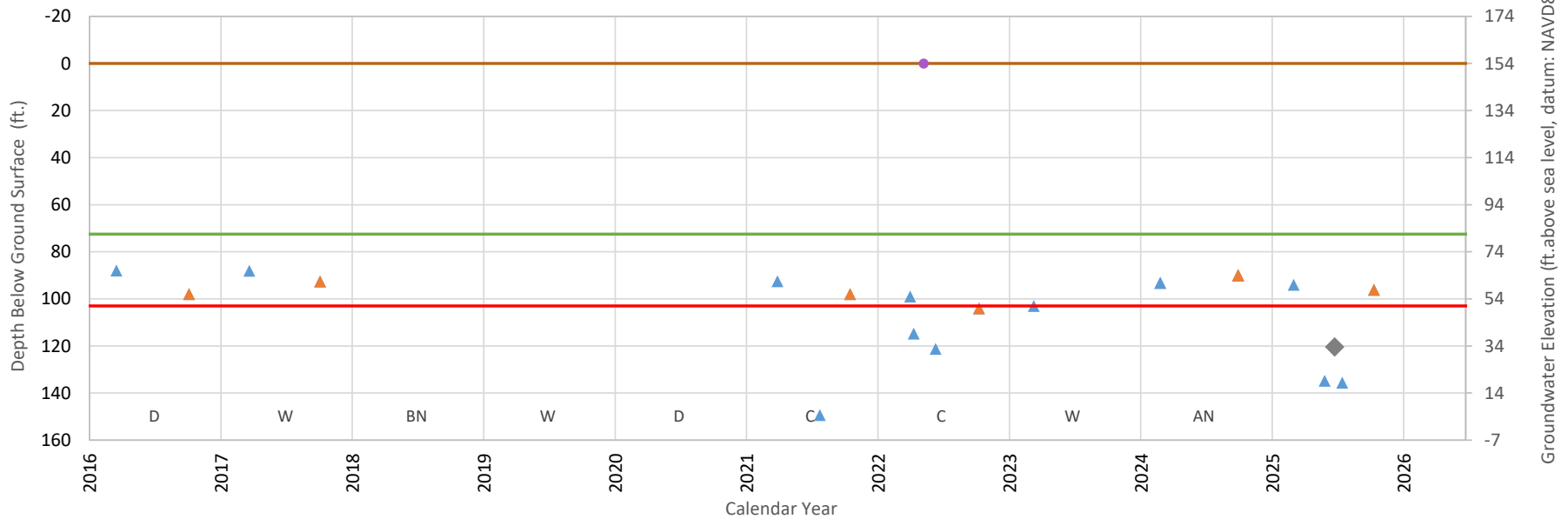


- Ground Surface
- Measurable Objective
- ▲ Observed Groundwater Level
- ▲ Oct/Nov/Dec Observed Groundwater Level
- ◆ 2025 Interim Milestone
- Questionable Measurements
- Minimum Threshold

Measurements with QA flags have been screened out

Ground Surface Elevation: 153.5 ft.
 Minimum Threshold Elevation: 50.5 ft.
 Measurable Objective Elevation: 81.0 ft.

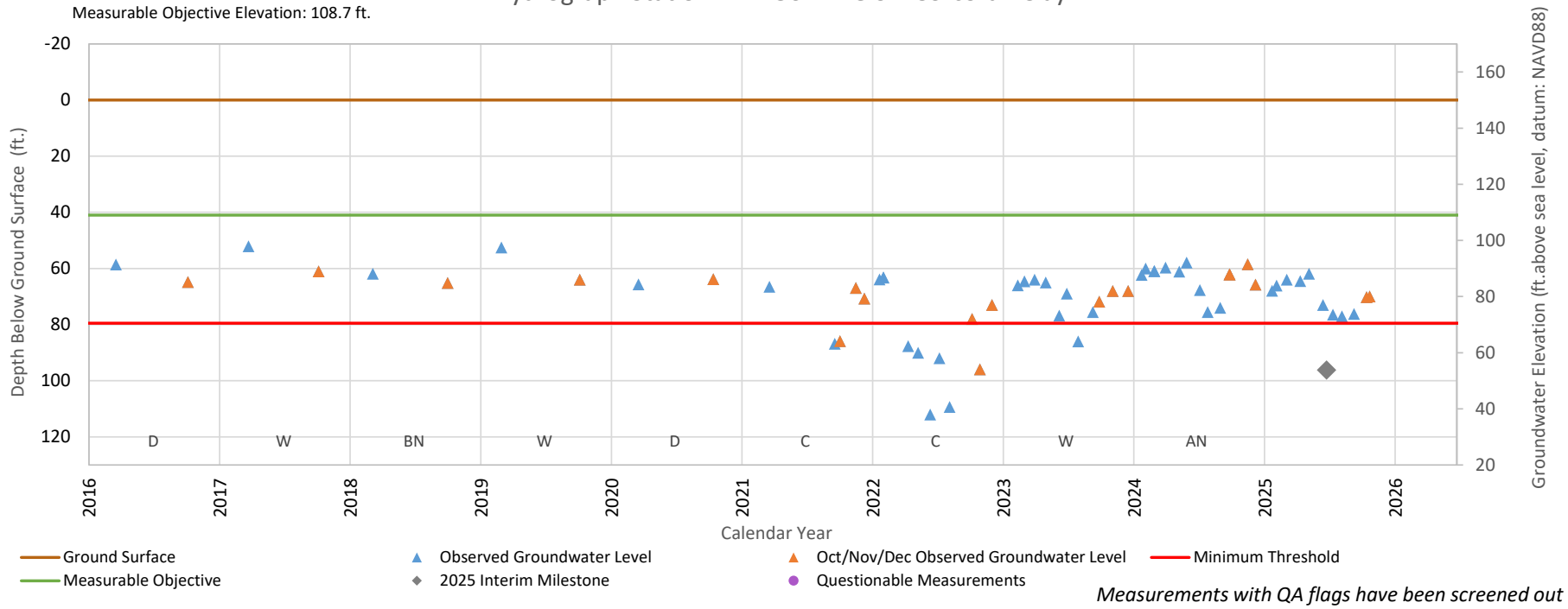
Hydrograph Station ID 47563 - Outside Corcoran Clay



- Ground Surface
 - Measurable Objective
 - ▲ Observed Groundwater Level
 - ◆ 2025 Interim Milestone
 - ▲ Oct/Nov/Dec Observed Groundwater Level
 - Questionable Measurements
 - Minimum Threshold
- Measurements with QA flags have been screened out*

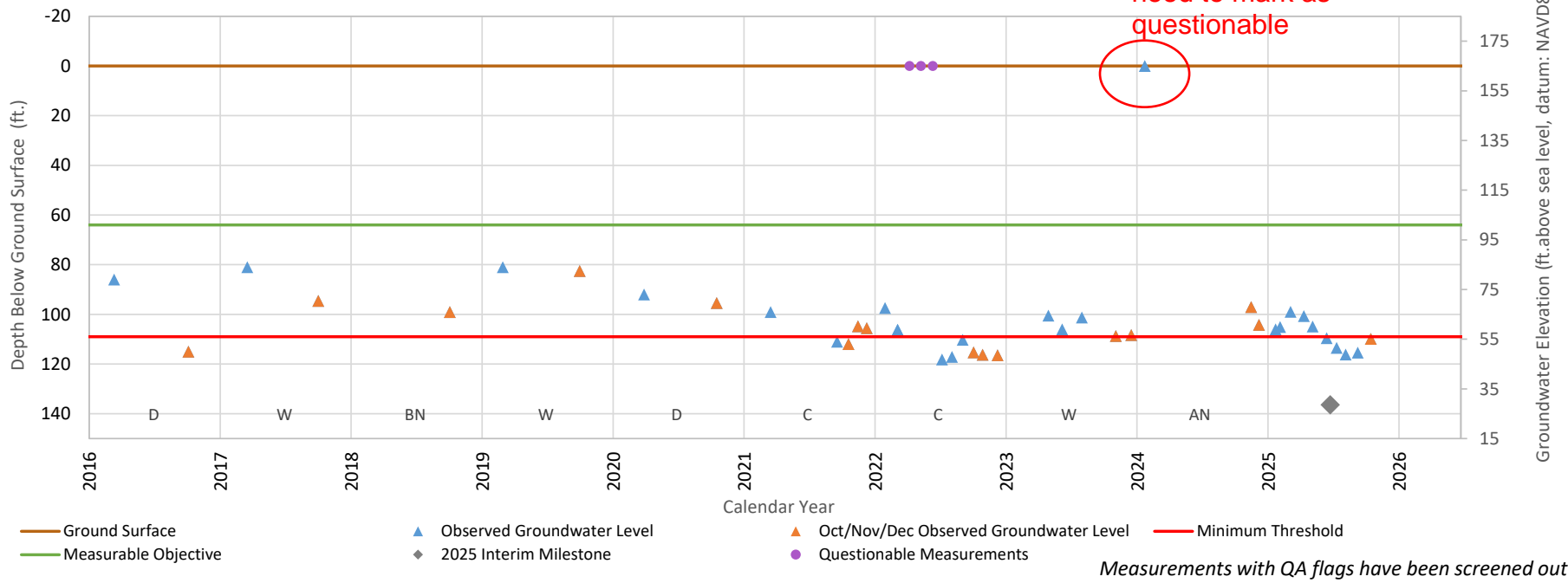
Ground Surface Elevation: 149.7 ft.
 Minimum Threshold Elevation: 70.2 ft.
 Measurable Objective Elevation: 108.7 ft.

Hydrograph Station ID 47564 - Below Corcoran Clay



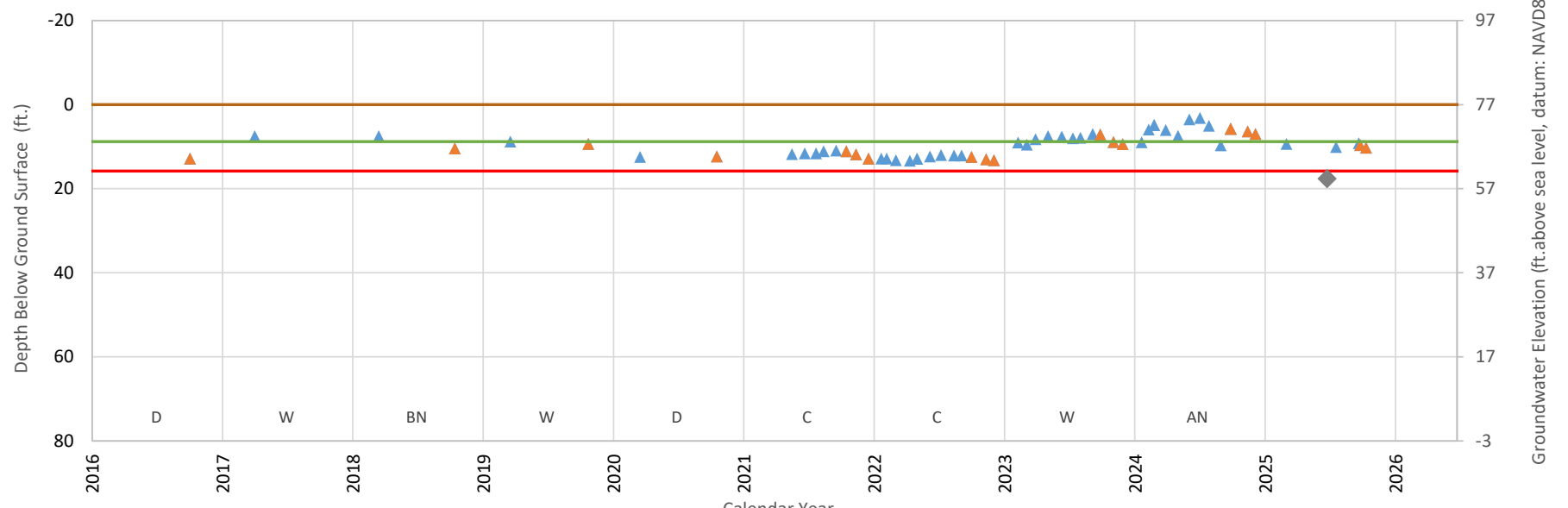
Ground Surface Elevation: 164.9 ft.
 Minimum Threshold Elevation: 55.9 ft.
 Measurable Objective Elevation: 100.9 ft.

Hydrograph Station ID 47565 - Below Corcoran Clay



Ground Surface Elevation: 77.0 ft.
 Minimum Threshold Elevation: 61.2 ft.
 Measurable Objective Elevation: 68.2 ft.

Hydrograph Station ID 47569 - Above Corcoran Clay

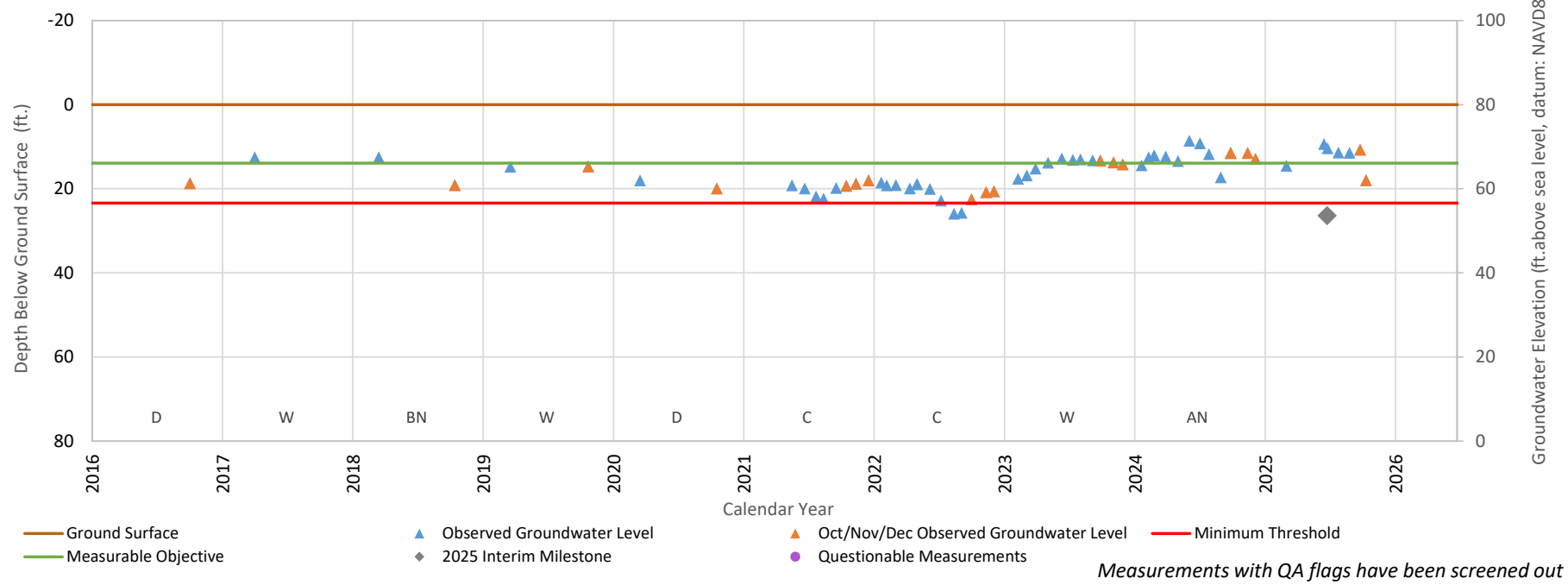


— Ground Surface ▲ Observed Groundwater Level ▲ Oct/Nov/Dec Observed Groundwater Level — Minimum Threshold
— Measurable Objective ◆ 2025 Interim Milestone ● Questionable Measurements

Measurements with QA flags have been screened out

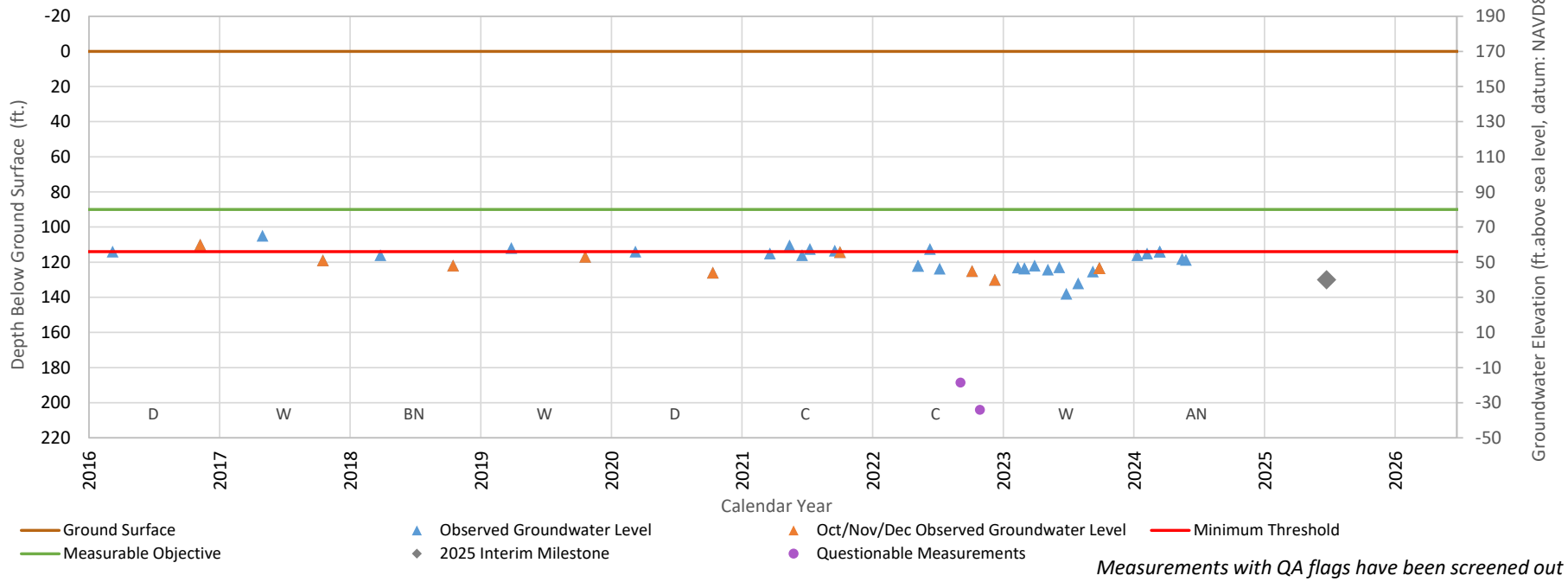
Ground Surface Elevation: 80.2 ft.
 Minimum Threshold Elevation: 56.8 ft.
 Measurable Objective Elevation: 66.3 ft.

Hydrograph Station ID 47571 - Above Corcoran Clay



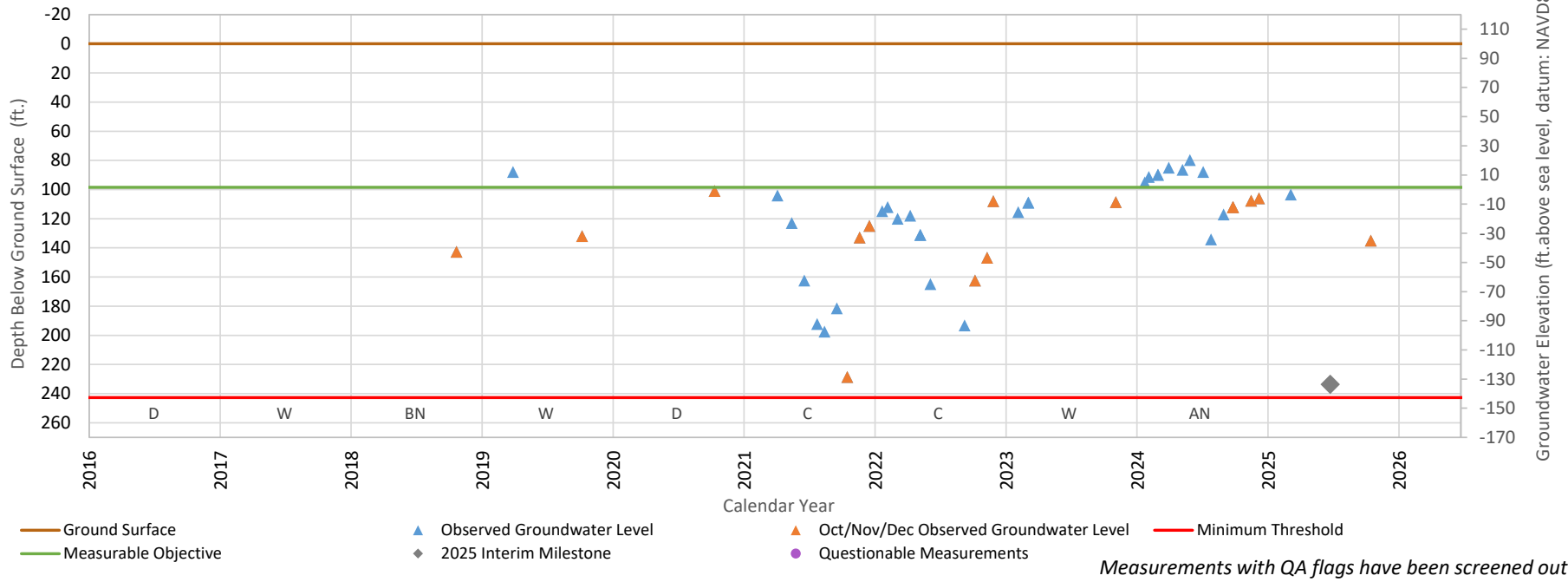
Ground Surface Elevation: 170.0 ft.
Minimum Threshold Elevation: 56.0 ft.
Measurable Objective Elevation: 80.0 ft.

Hydrograph Station ID 47574 - Outside Corcoran Clay



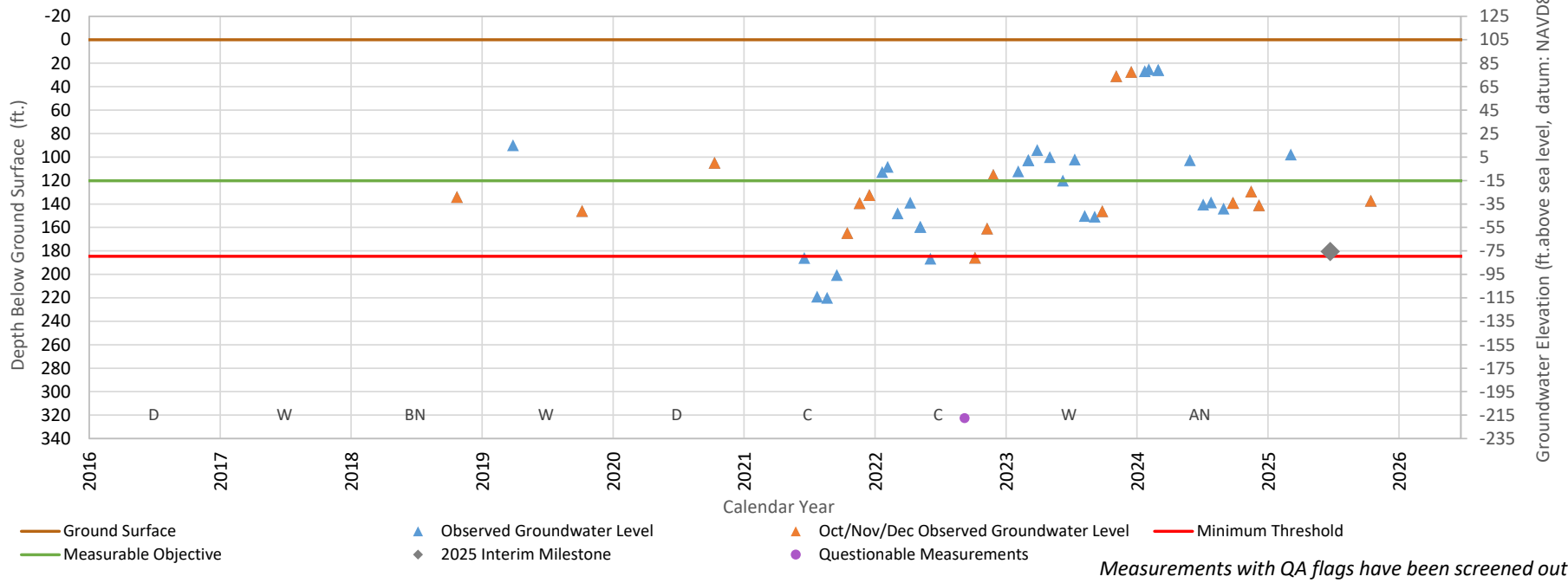
Ground Surface Elevation: 100.0 ft.
 Minimum Threshold Elevation: -142.7 ft.
 Measurable Objective Elevation: 1.5 ft.

Hydrograph Station ID 52715 - Below Corcoran Clay



Ground Surface Elevation: 105.0 ft.
 Minimum Threshold Elevation: -79.6 ft.
 Measurable Objective Elevation: -15.2 ft.

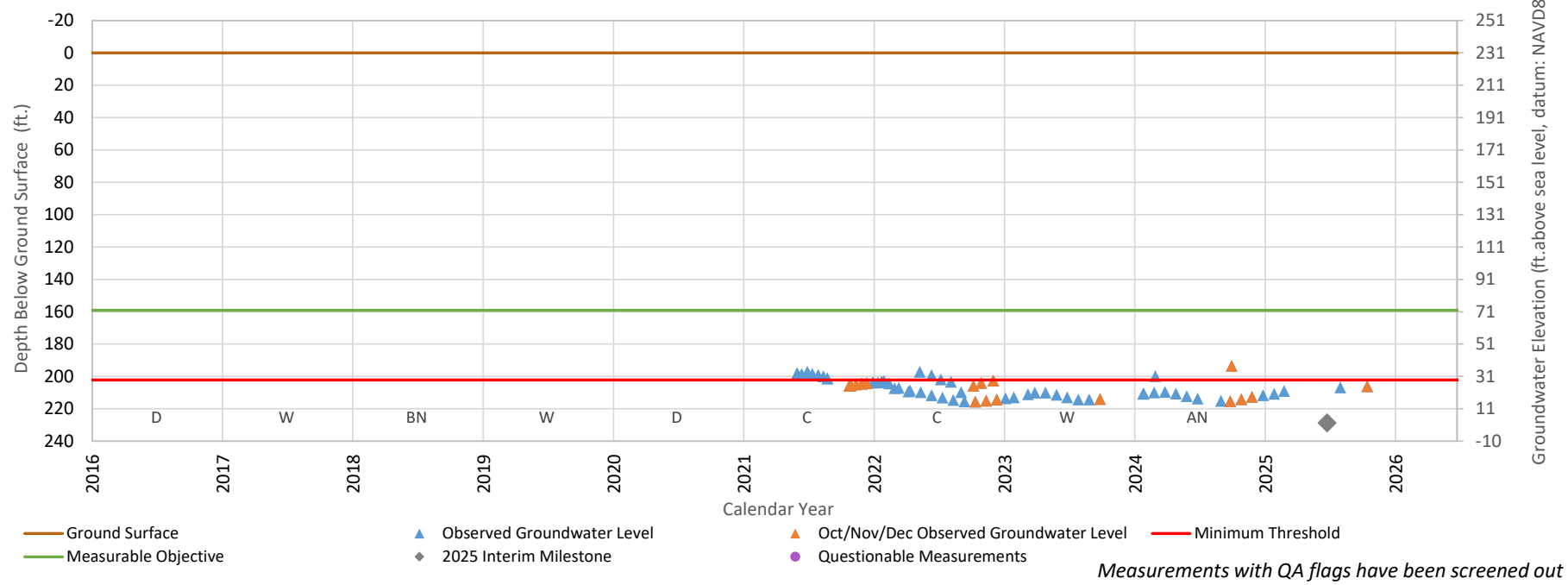
Hydrograph Station ID 52716 - Below Corcoran Clay



Measurements with QA flags have been screened out

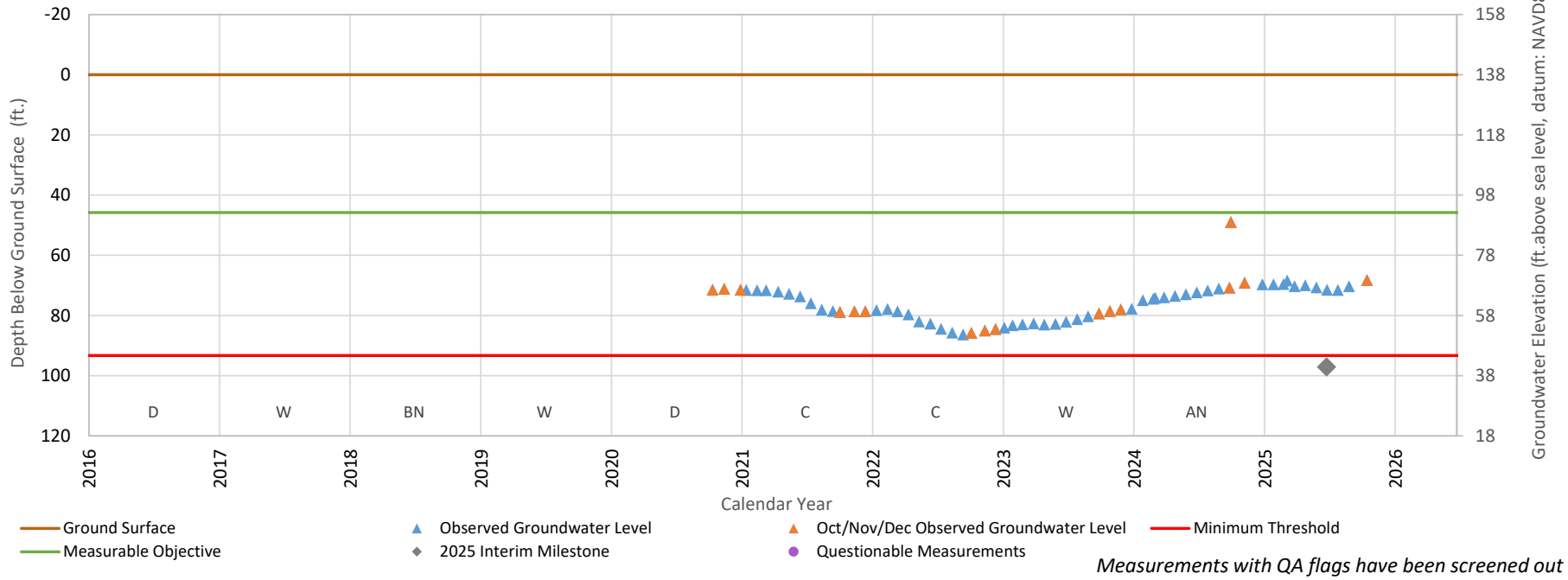
Ground Surface Elevation: 230.5 ft.
Minimum Threshold Elevation: 28.3 ft.
Measurable Objective Elevation: 71.4 ft.

Hydrograph Station ID 60562 - Below Corcoran Clay



Ground Surface Elevation: 138.1 ft.
Minimum Threshold Elevation: 44.8 ft.
Measurable Objective Elevation: 92.3 ft.

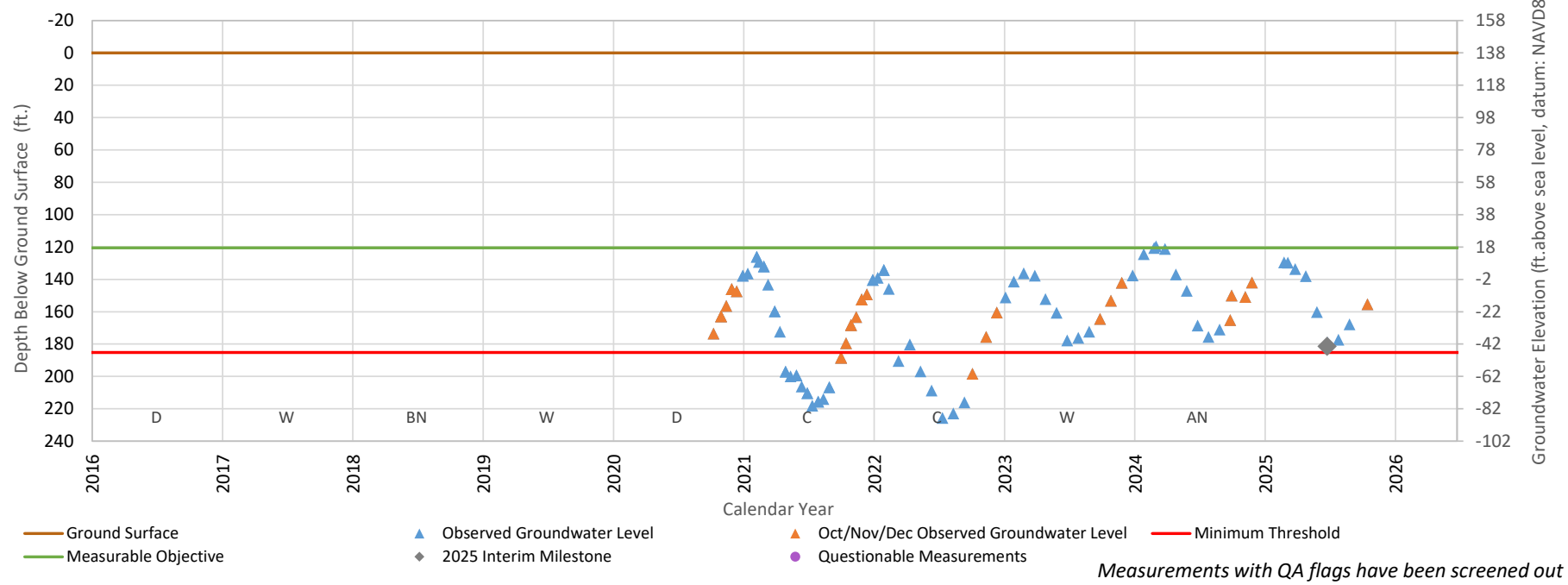
Hydrograph Station ID 60565 - Above Corcoran Clay



Measurements with QA flags have been screened out

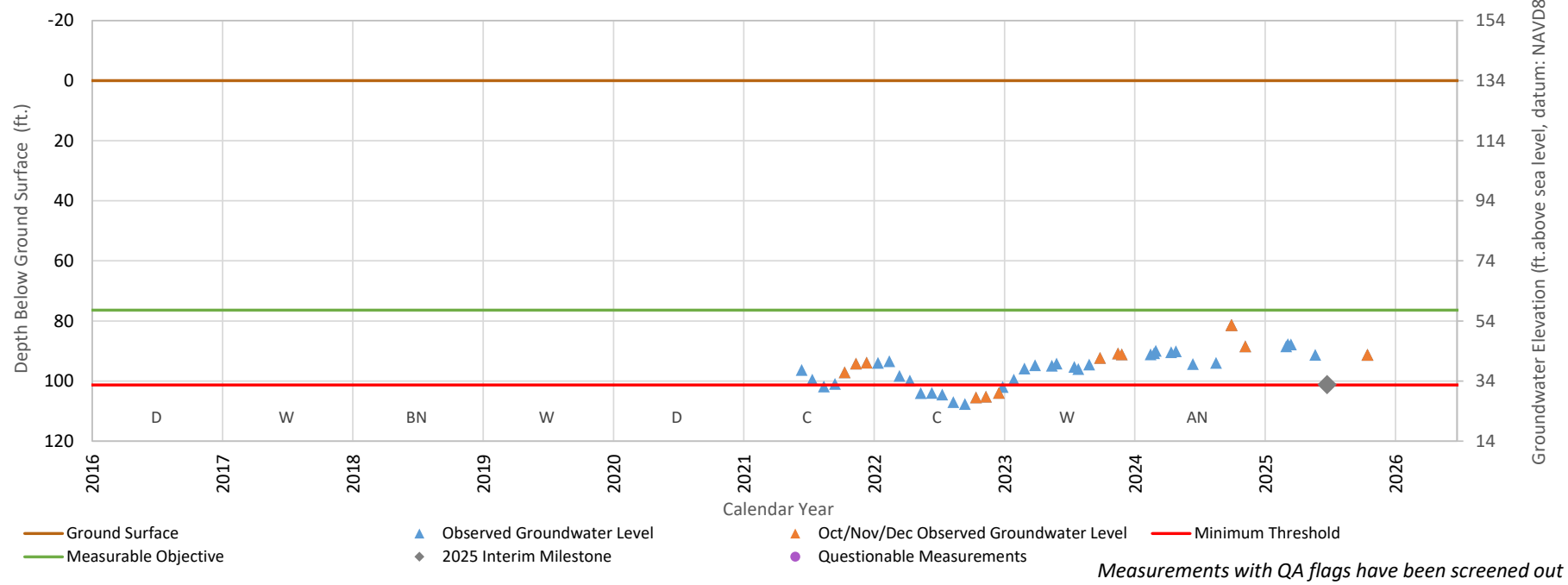
Ground Surface Elevation: 138.2 ft.
 Minimum Threshold Elevation: -47.0 ft.
 Measurable Objective Elevation: 17.7 ft.

Hydrograph Station ID 60567 - Below Corcoran Clay



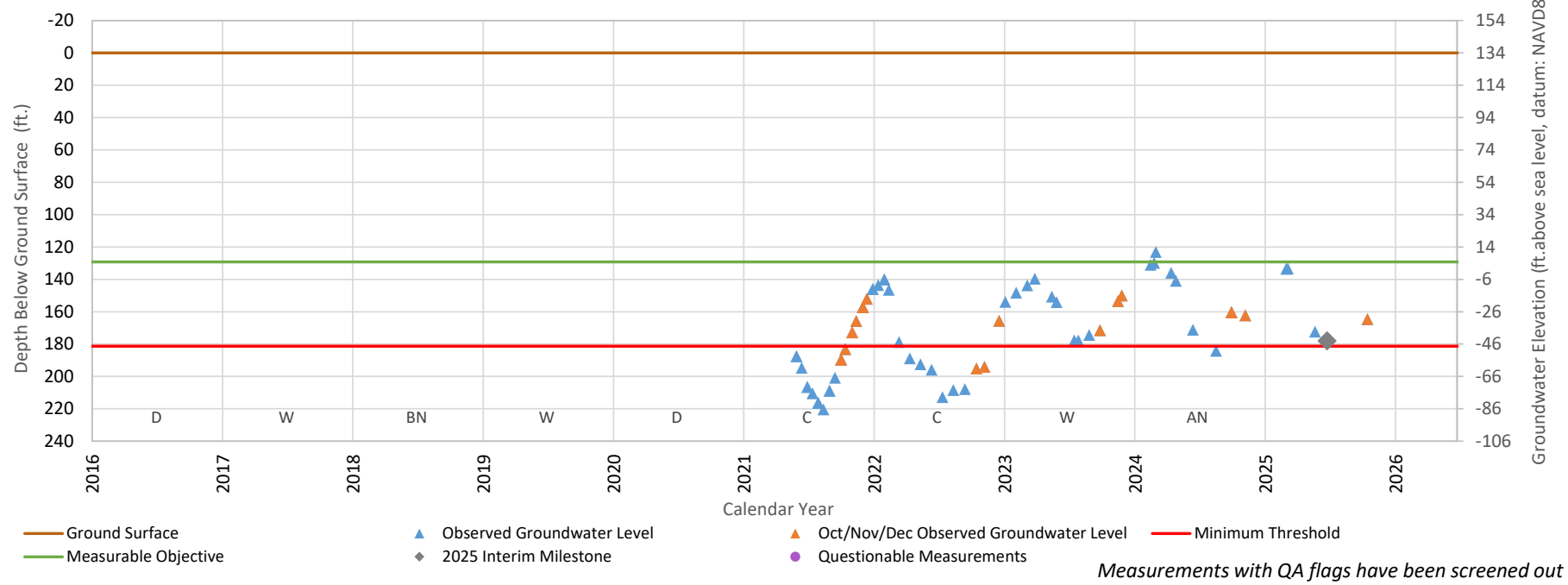
Ground Surface Elevation: 134.0 ft.
Minimum Threshold Elevation: 32.7 ft.
Measurable Objective Elevation: 57.6 ft.

Hydrograph Station ID 60568 - Above Corcoran Clay



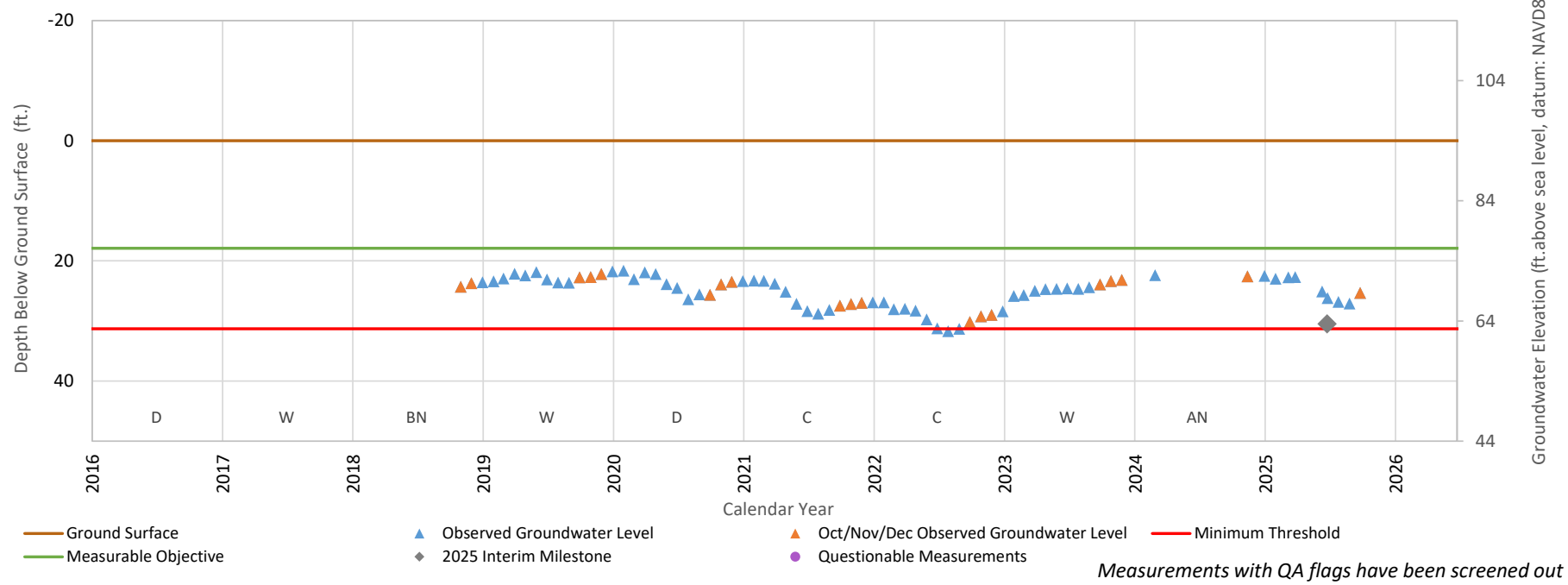
Ground Surface Elevation: 133.7 ft.
 Minimum Threshold Elevation: -47.6 ft.
 Measurable Objective Elevation: 4.5 ft.

Hydrograph Station ID 60570 - Below Corcoran Clay



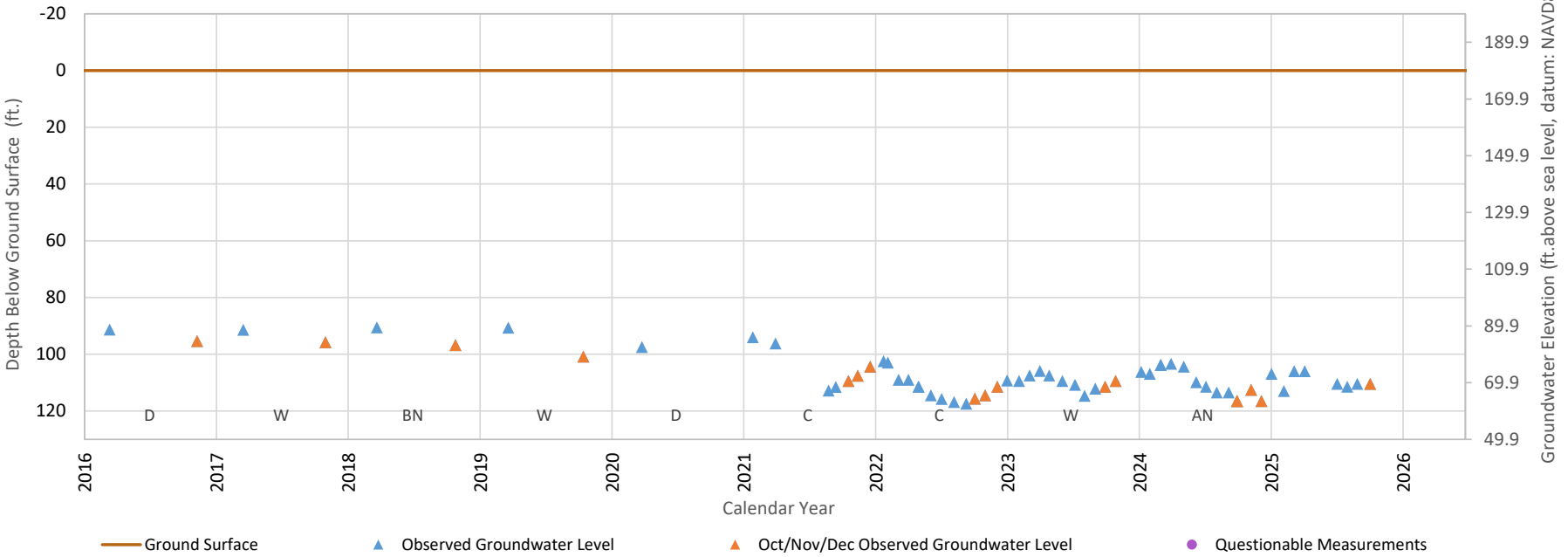
Ground Surface Elevation: 94.0 ft.
 Minimum Threshold Elevation: 62.7 ft.
 Measurable Objective Elevation: 76.1 ft.

Hydrograph Station ID MW-OA-3 - Above Corcoran Clay



Ground Surface Elevation: 179.9 ft.

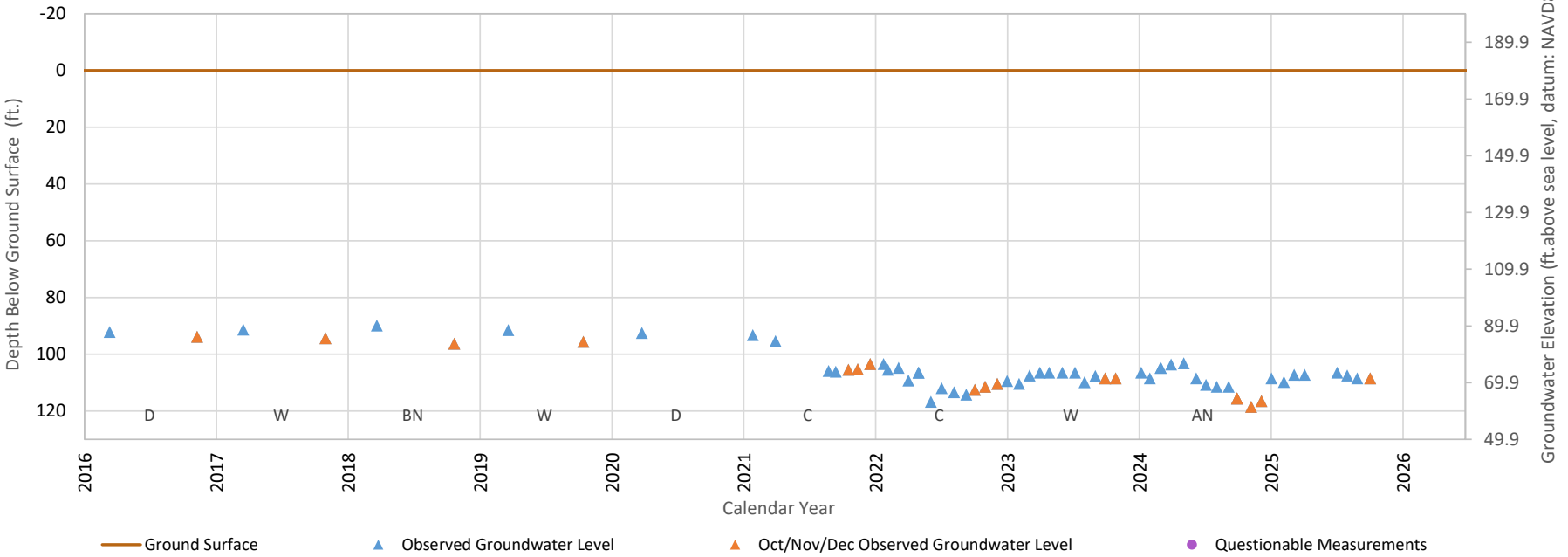
Hydrograph Station ID 47543 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 179.9 ft.

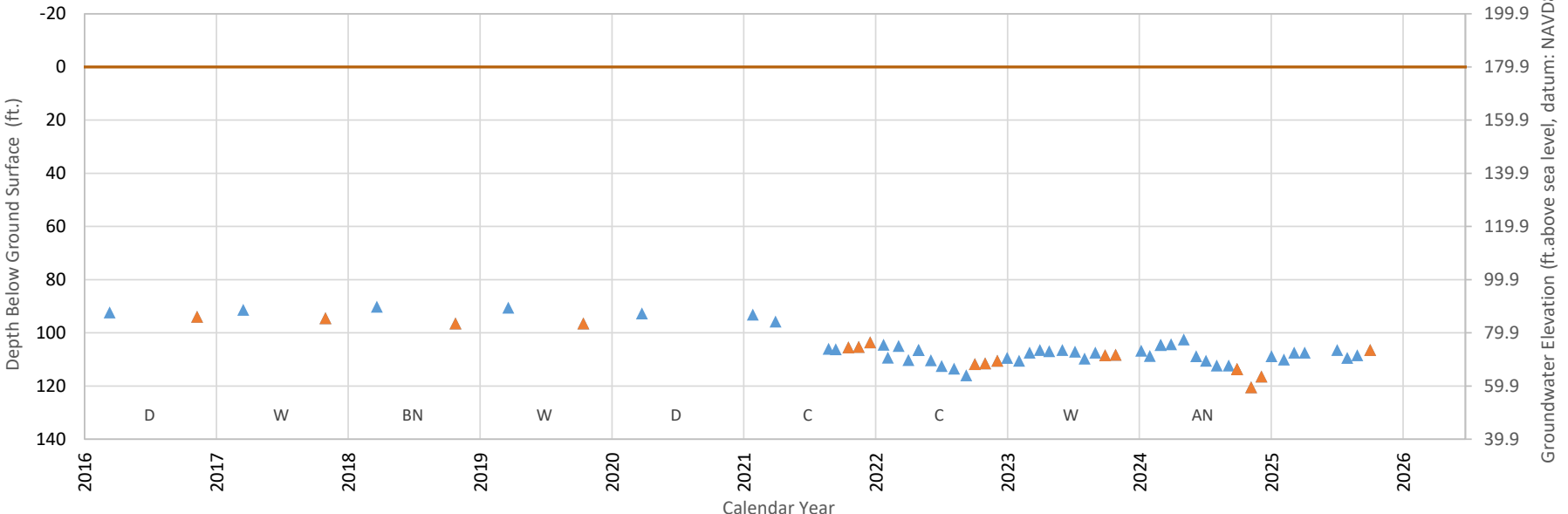
Hydrograph Station ID 47544 - Below Corcoran Clay



Measurements with QA flags have been screened out

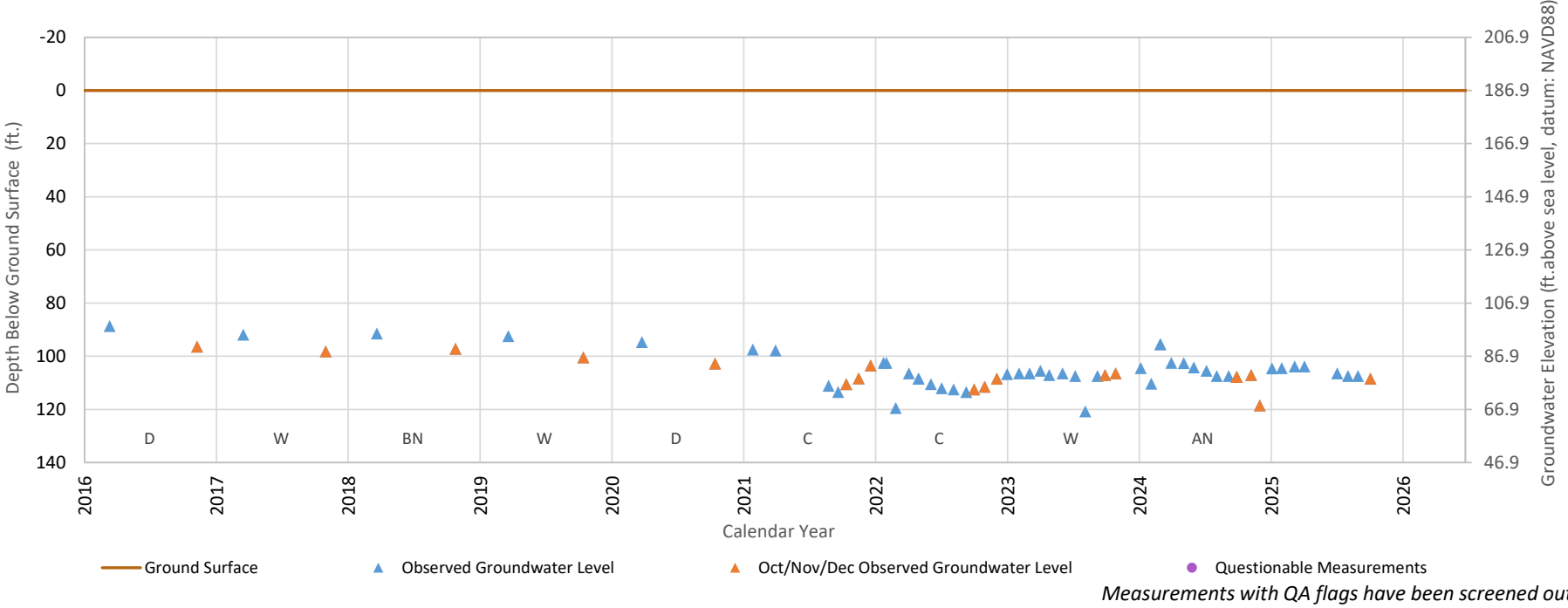
Ground Surface Elevation: 179.9 ft.

Hydrograph Station ID 47545 - Below Corcoran Clay



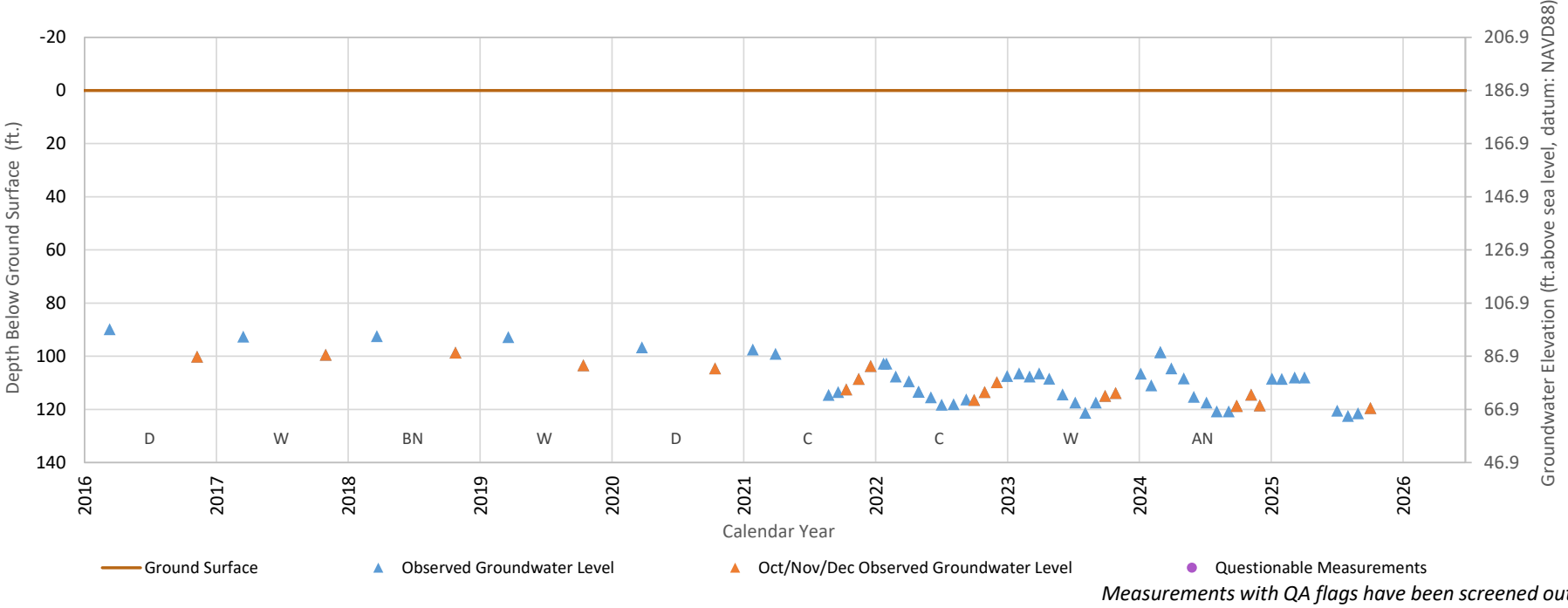
Ground Surface Elevation: 186.9 ft.

Hydrograph Station ID 47550 - Outside Corcoran Clay



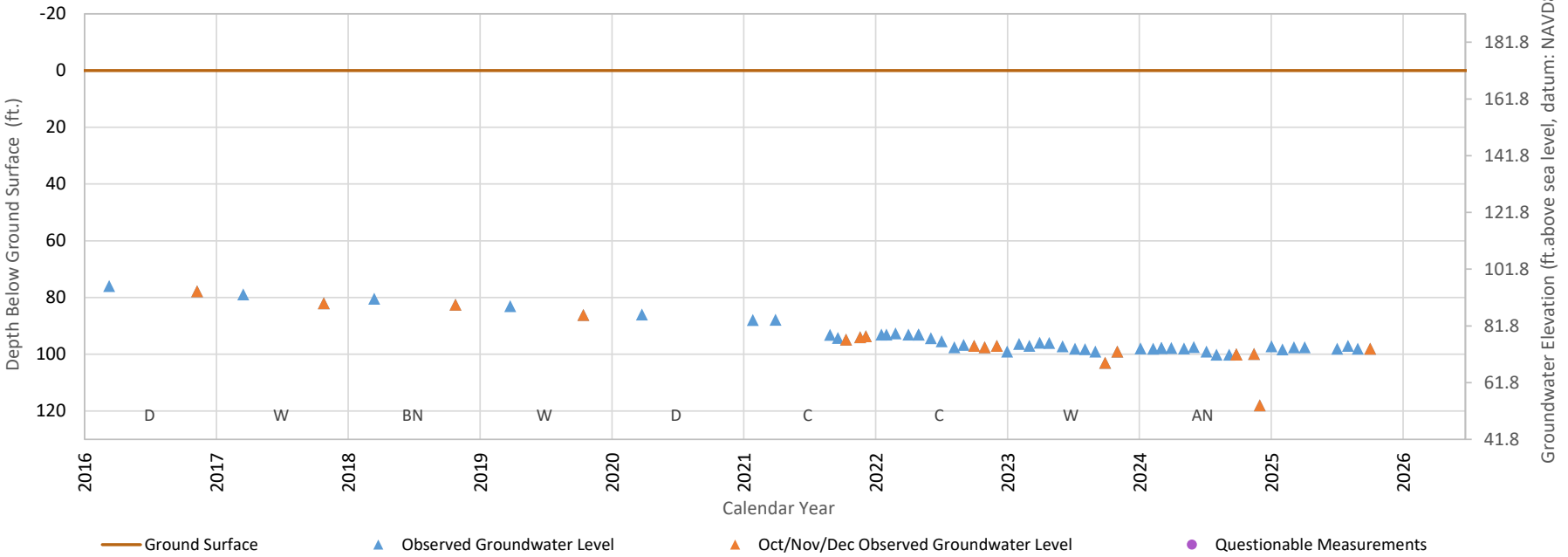
Ground Surface Elevation: 186.9 ft.

Hydrograph Station ID 47552 - Outside Corcoran Clay



Ground Surface Elevation: 171.8 ft.

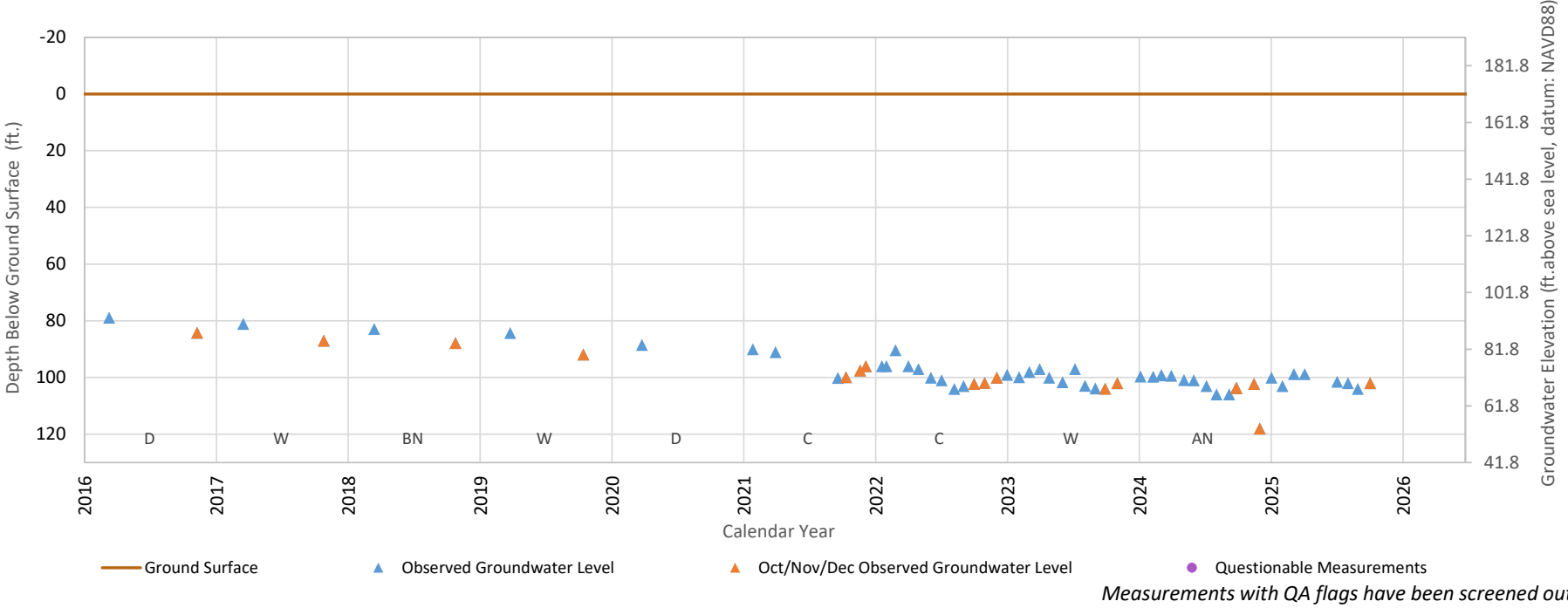
Hydrograph Station ID 47554 - Outside Corcoran Clay



Measurements with QA flags have been screened out

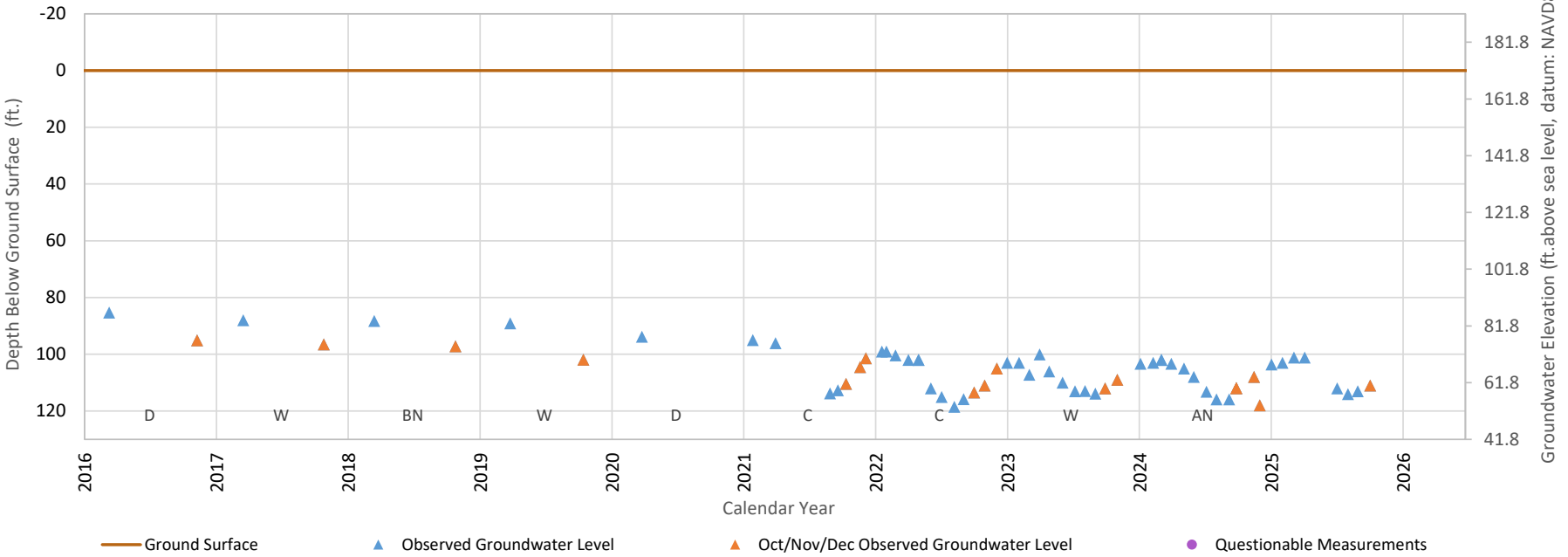
Ground Surface Elevation: 171.8 ft.

Hydrograph Station ID 47555 - Outside Corcoran Clay



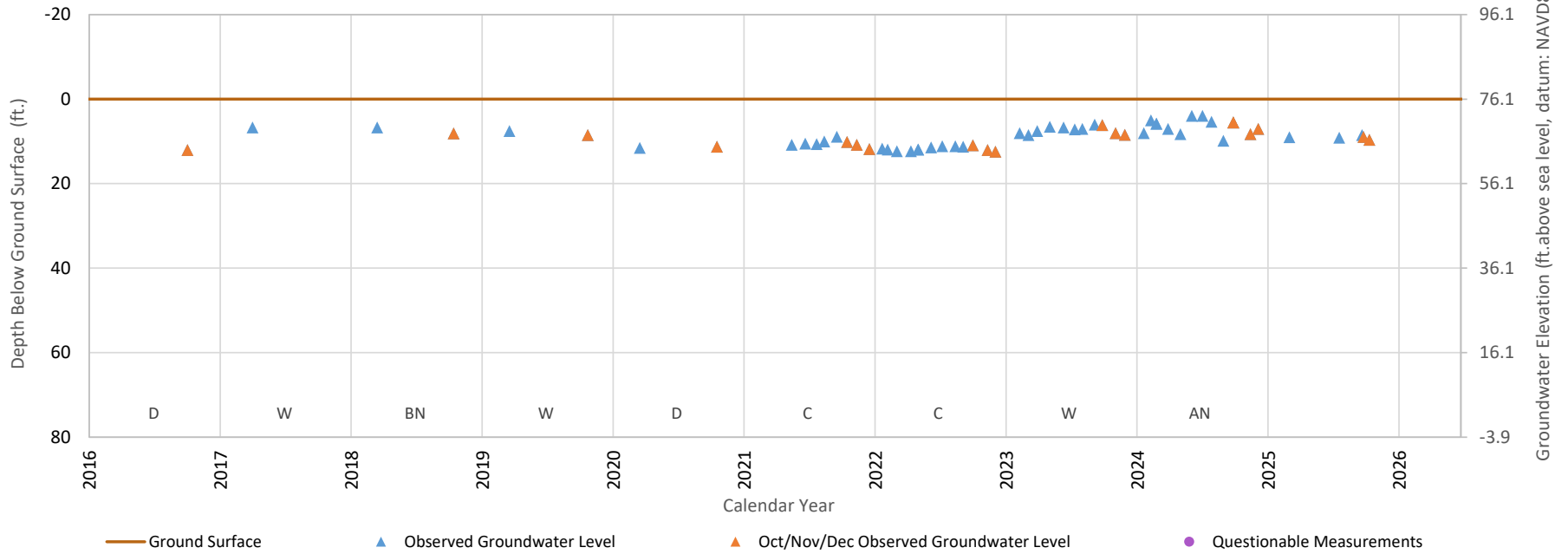
Ground Surface Elevation: 171.8 ft.

Hydrograph Station ID 47556 - Outside Corcoran Clay



Ground Surface Elevation: 76.1 ft.

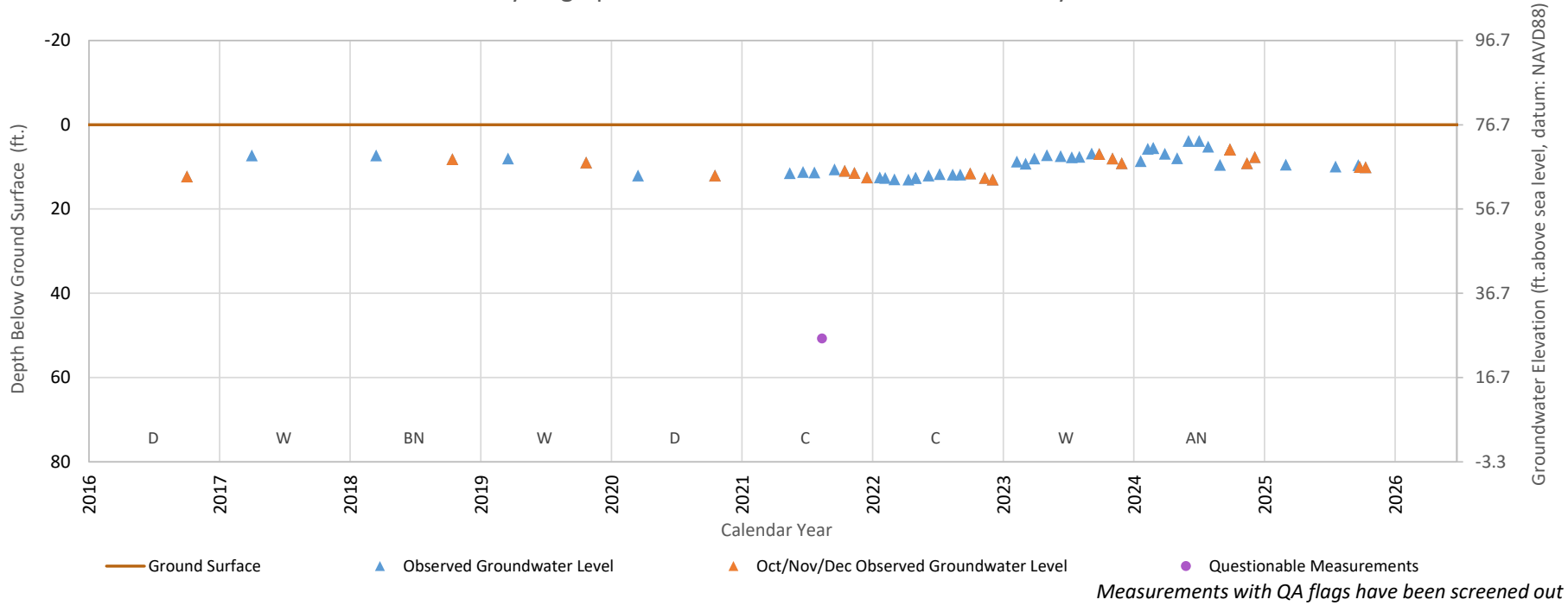
Hydrograph Station ID 47567 - Above Corcoran Clay



Measurements with QA flags have been screened out

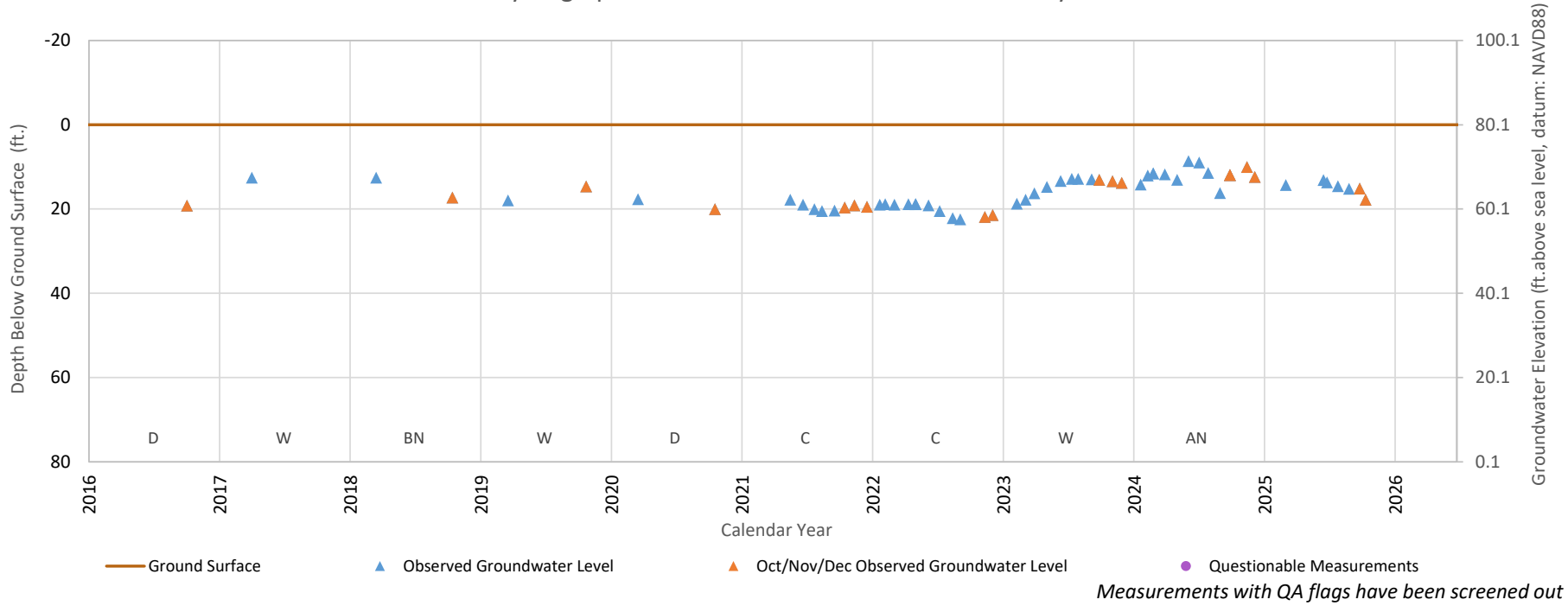
Ground Surface Elevation: 76.7 ft.

Hydrograph Station ID 47568 - Above Corcoran Clay



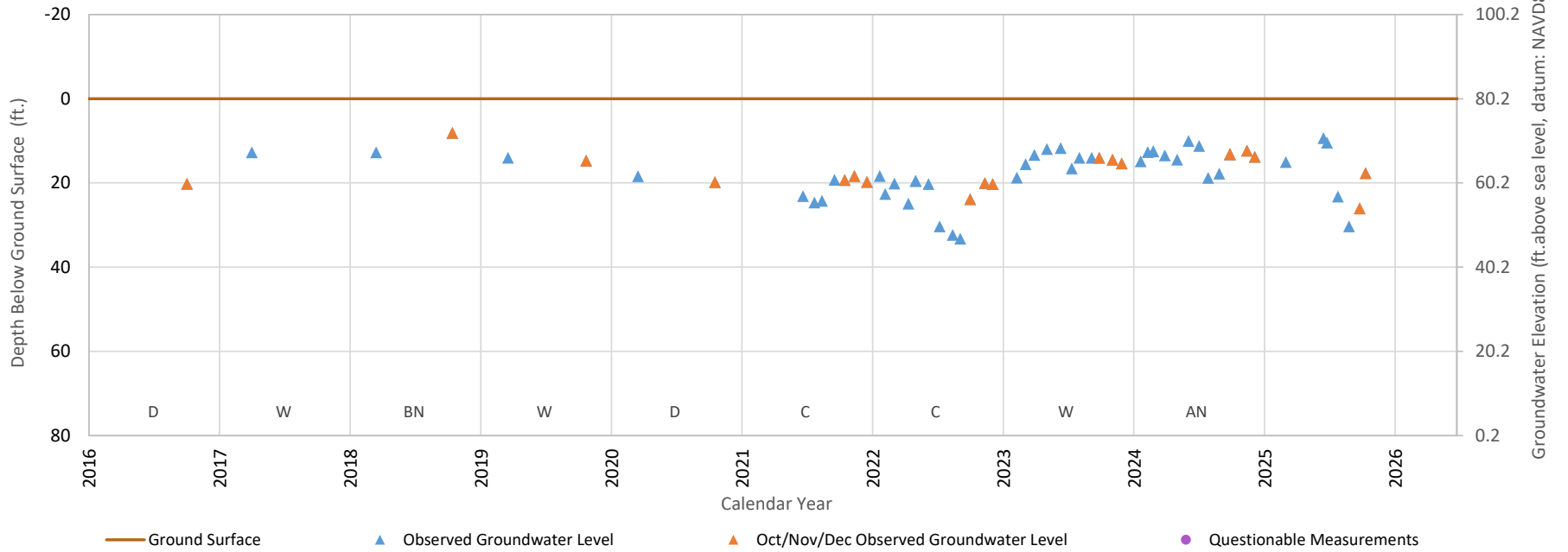
Ground Surface Elevation: 80.1 ft.

Hydrograph Station ID 47570 - Above Corcoran Clay



Ground Surface Elevation: 80.2 ft.

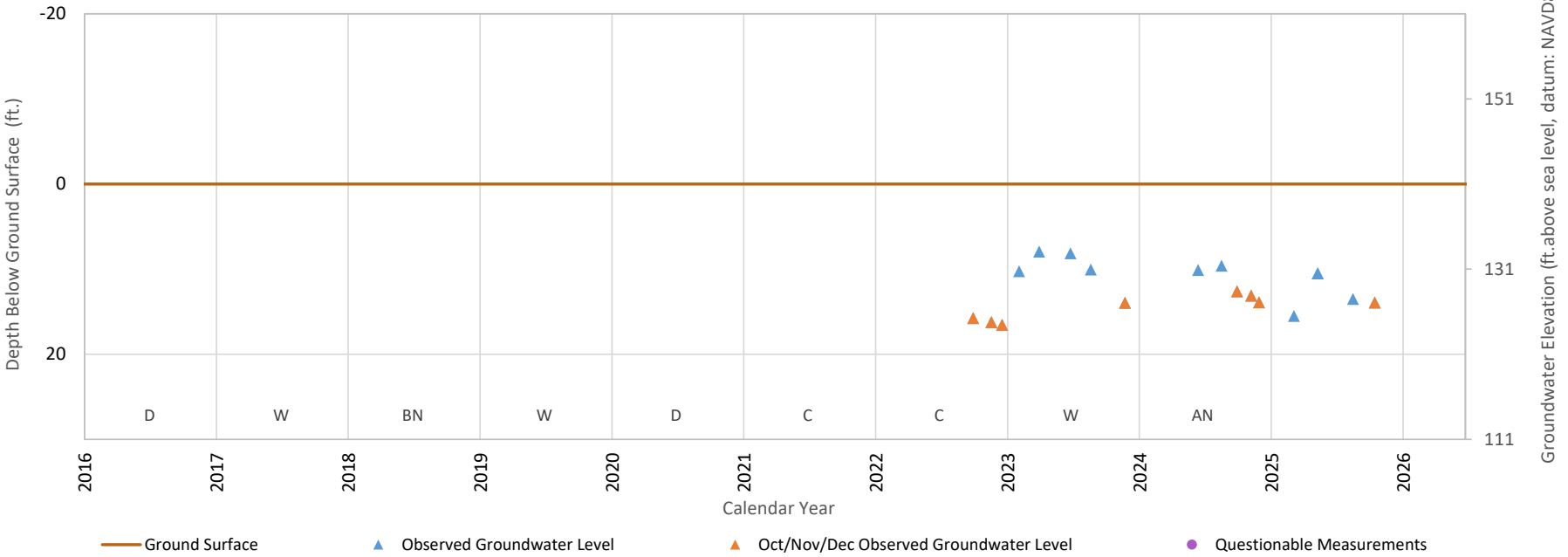
Hydrograph Station ID 47572 - Above Corcoran Clay



Measurements with QA flags have been screened out

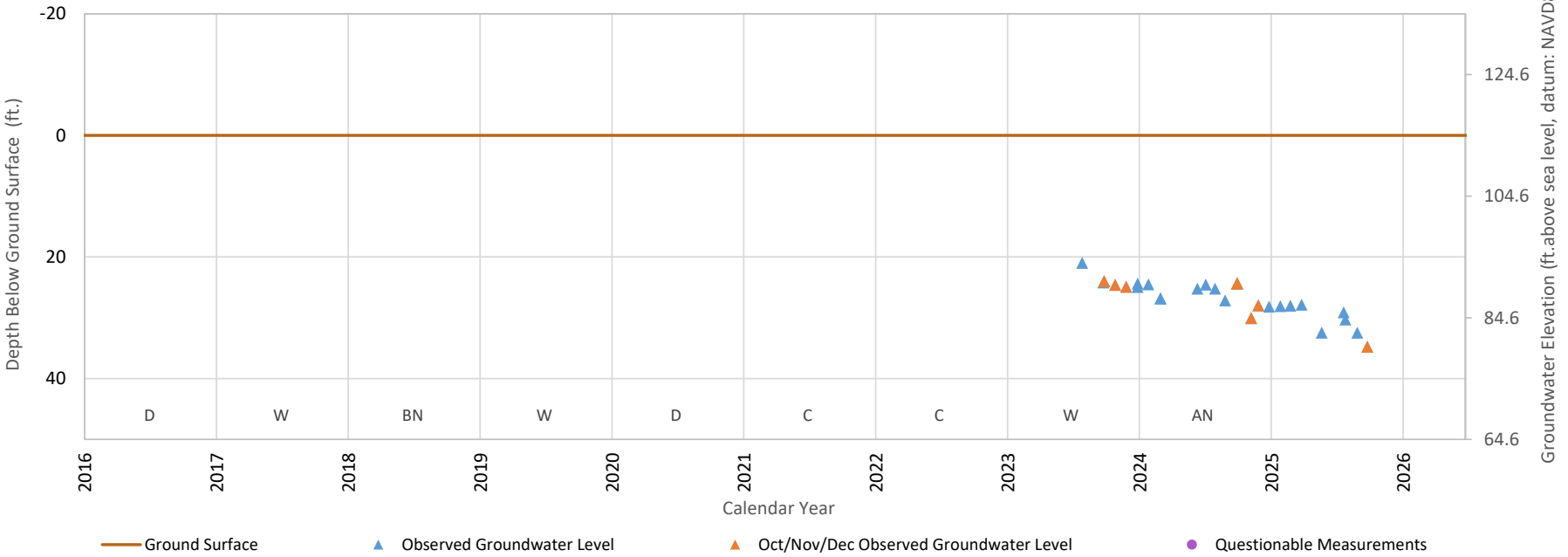
Ground Surface Elevation: 141.0 ft.

Hydrograph Station ID 60571 - Above Corcoran Clay



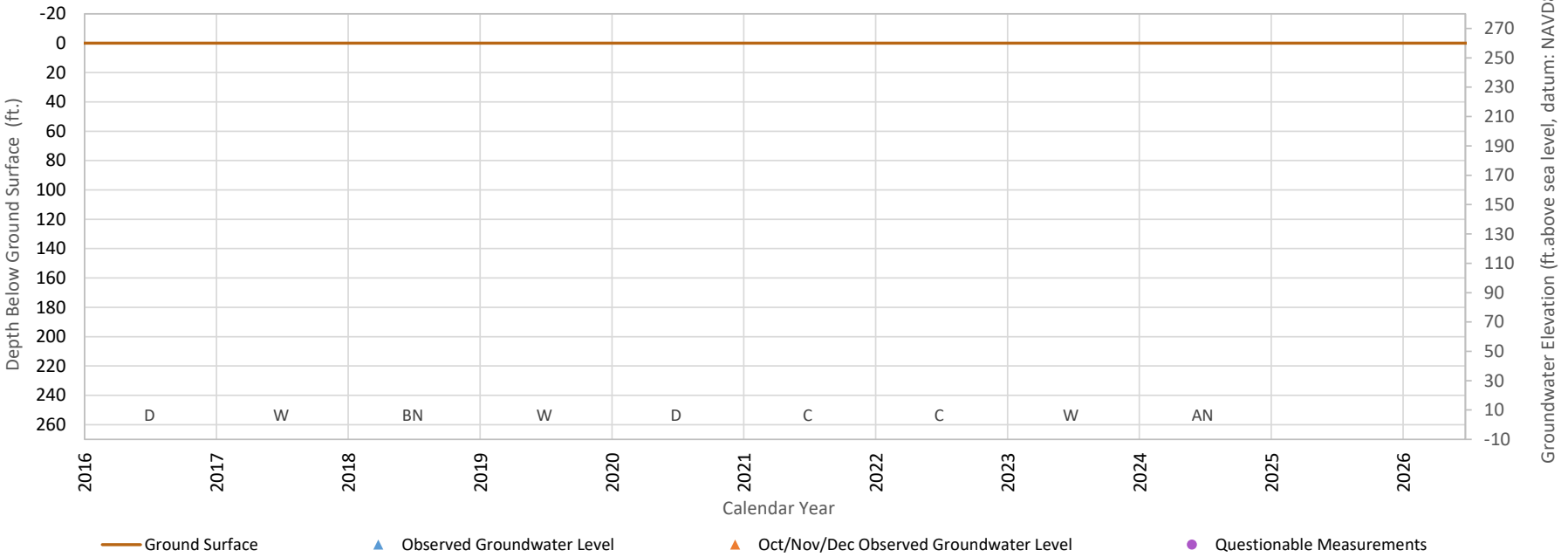
Ground Surface Elevation: 114.6 ft.

Hydrograph Station ID 60572 - Above Corcoran Clay



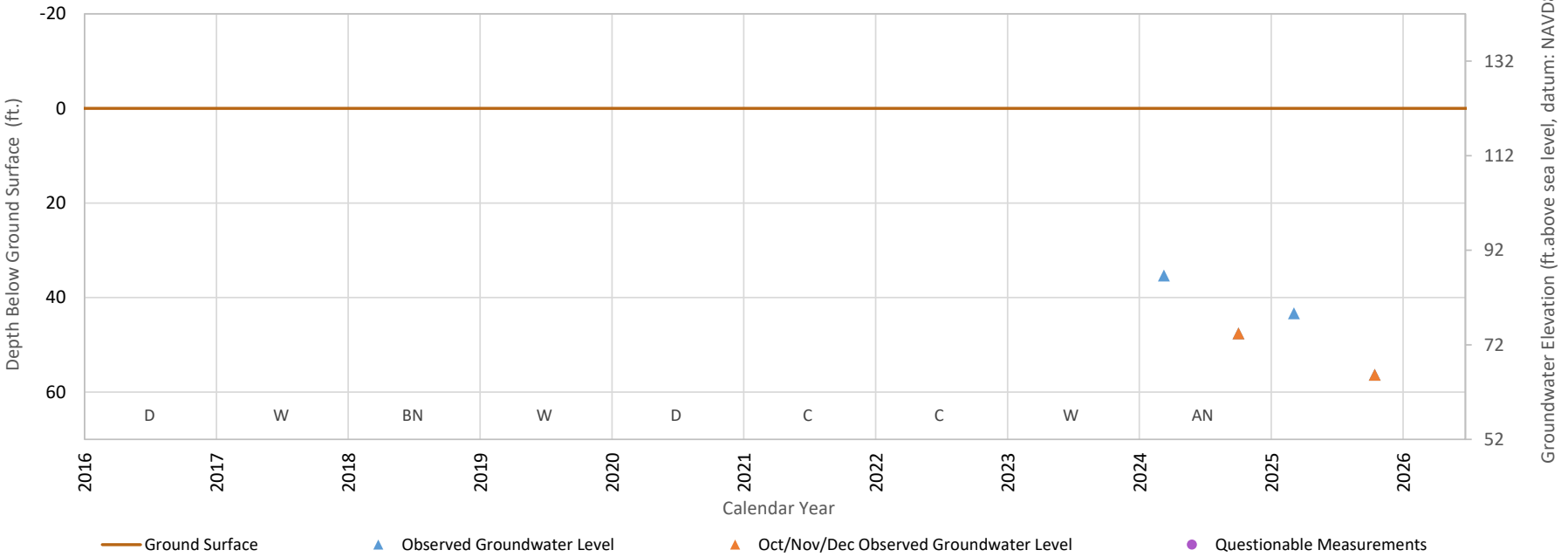
Ground Surface Elevation: 260.0 ft.

Hydrograph Station ID Athwal MW MS - Outside Corcoran Clay



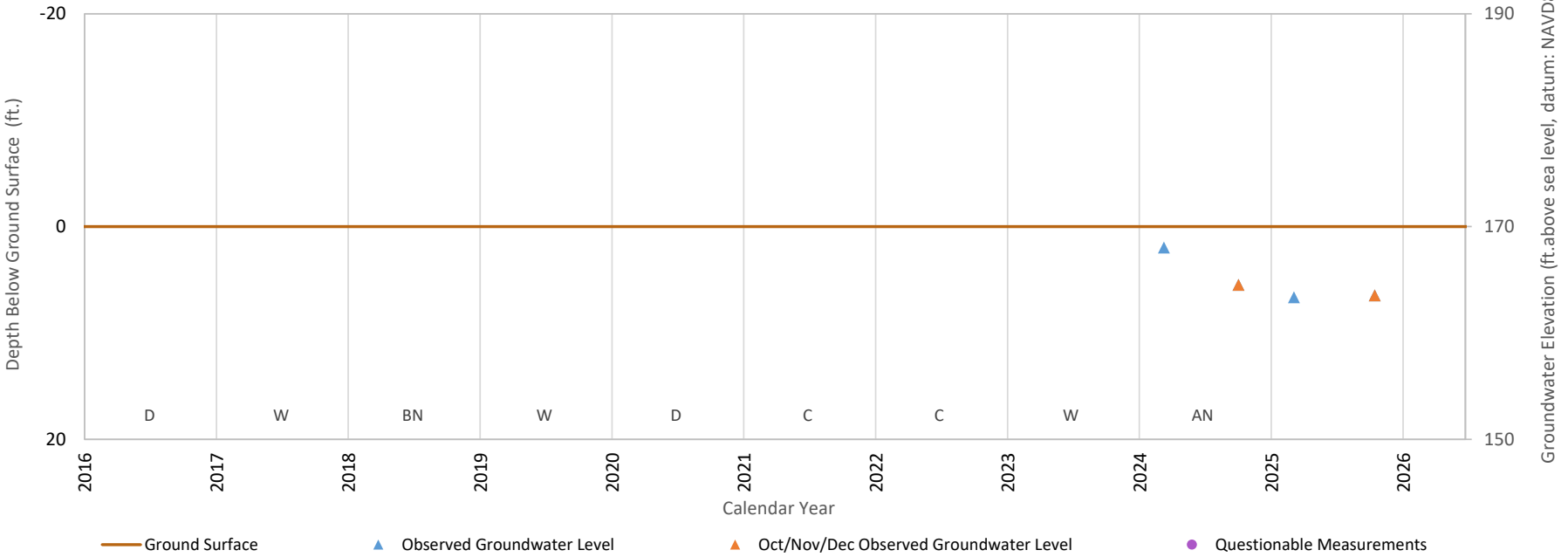
Ground Surface Elevation: 122.0 ft.

Hydrograph Station ID Baker 3 - Above Corcoran Clay



Ground Surface Elevation: 170.0 ft.

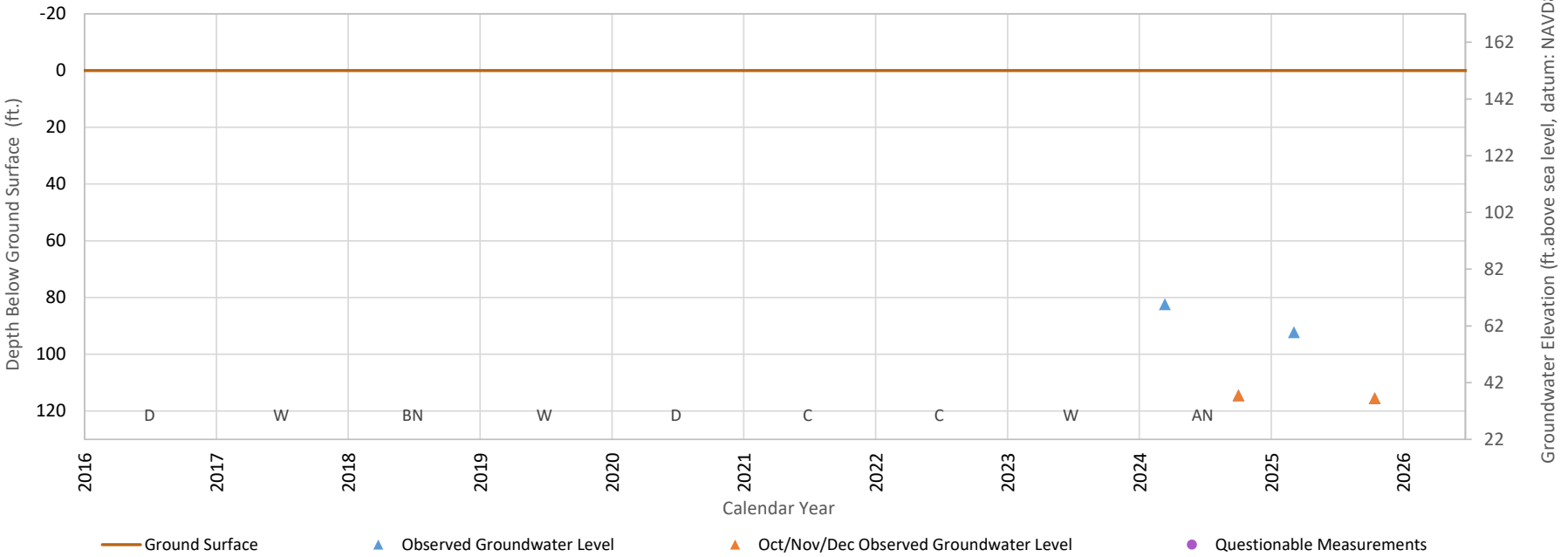
Hydrograph Station ID Candidate Well ID C - Above Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 152.0 ft.

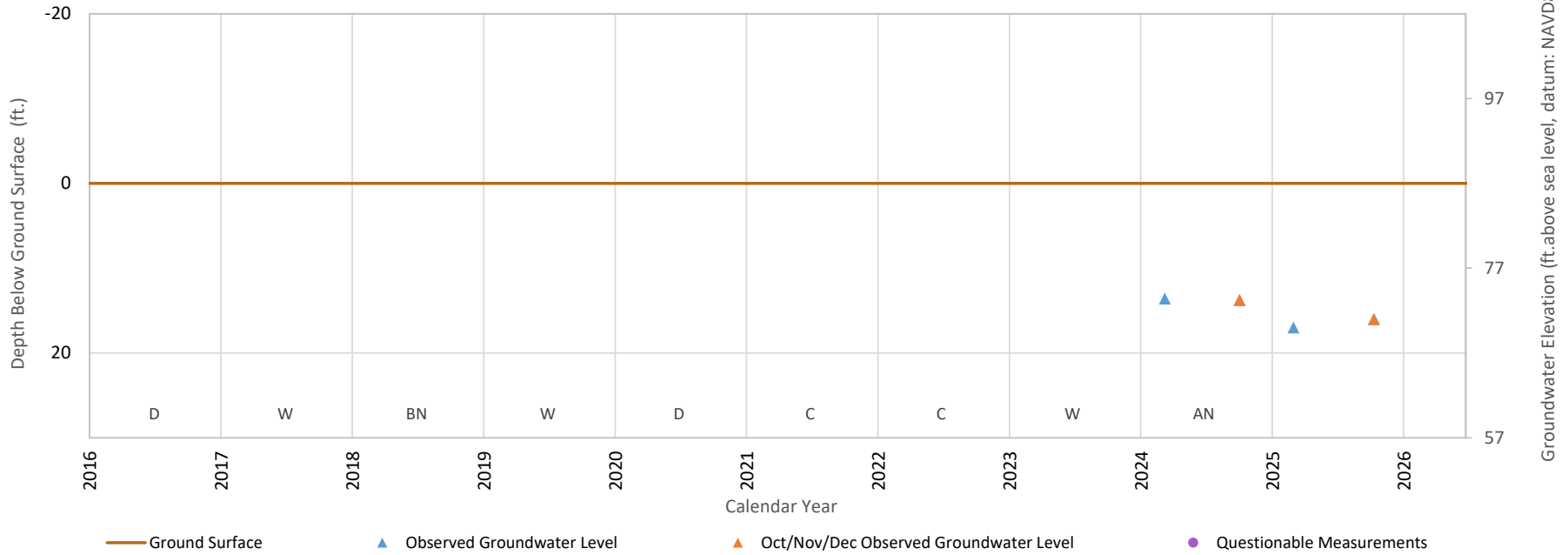
Hydrograph Station ID Dejager #3 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 87.0 ft.

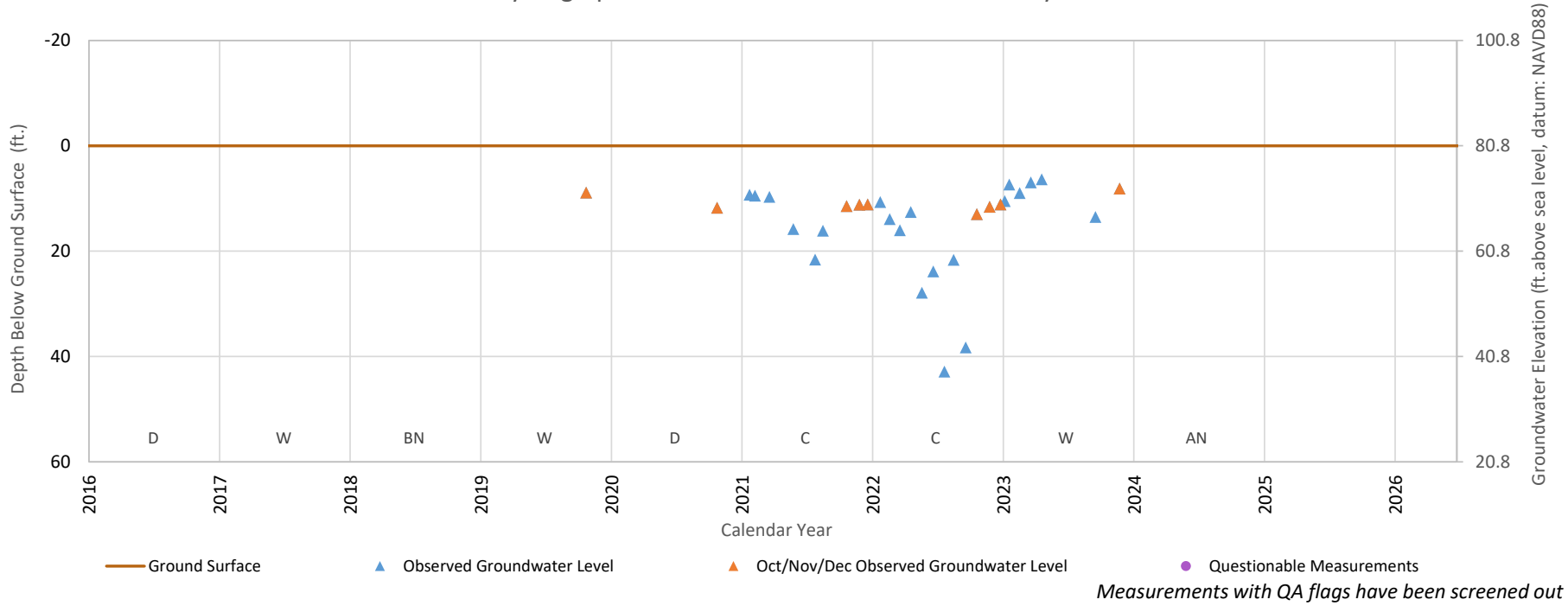
Hydrograph Station ID DW7 - Above Corcoran Clay



Measurements with QA flags have been screened out

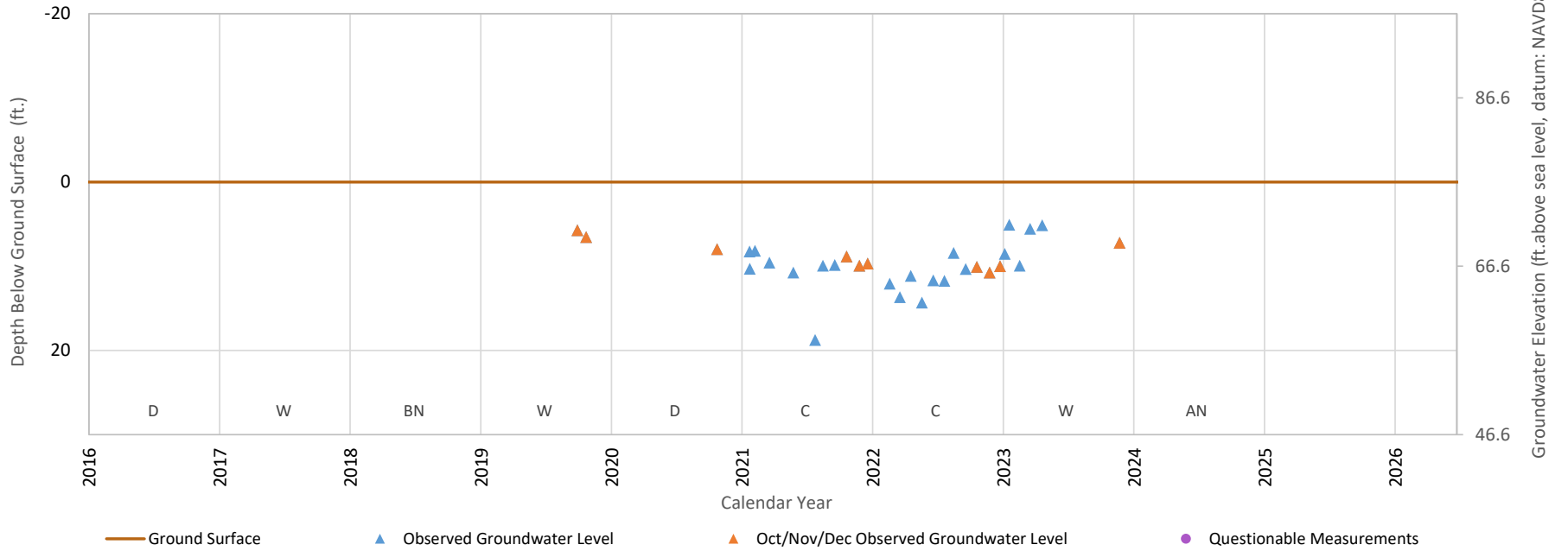
Ground Surface Elevation: 80.8 ft.

Hydrograph Station ID DW9 - Above Corcoran Clay



Ground Surface Elevation: 76.6 ft.

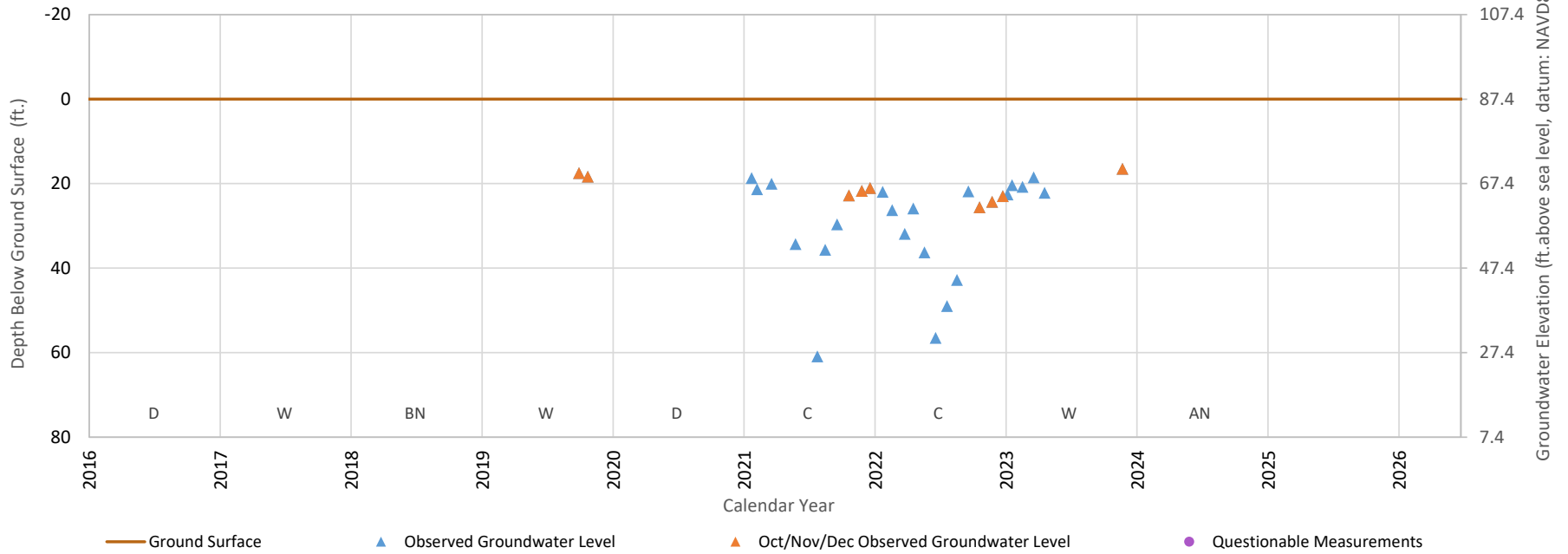
Hydrograph Station ID DW17 - Above Corcoran Clay



Groundwater Elevation (ft. above sea level, datum: NAVD88)

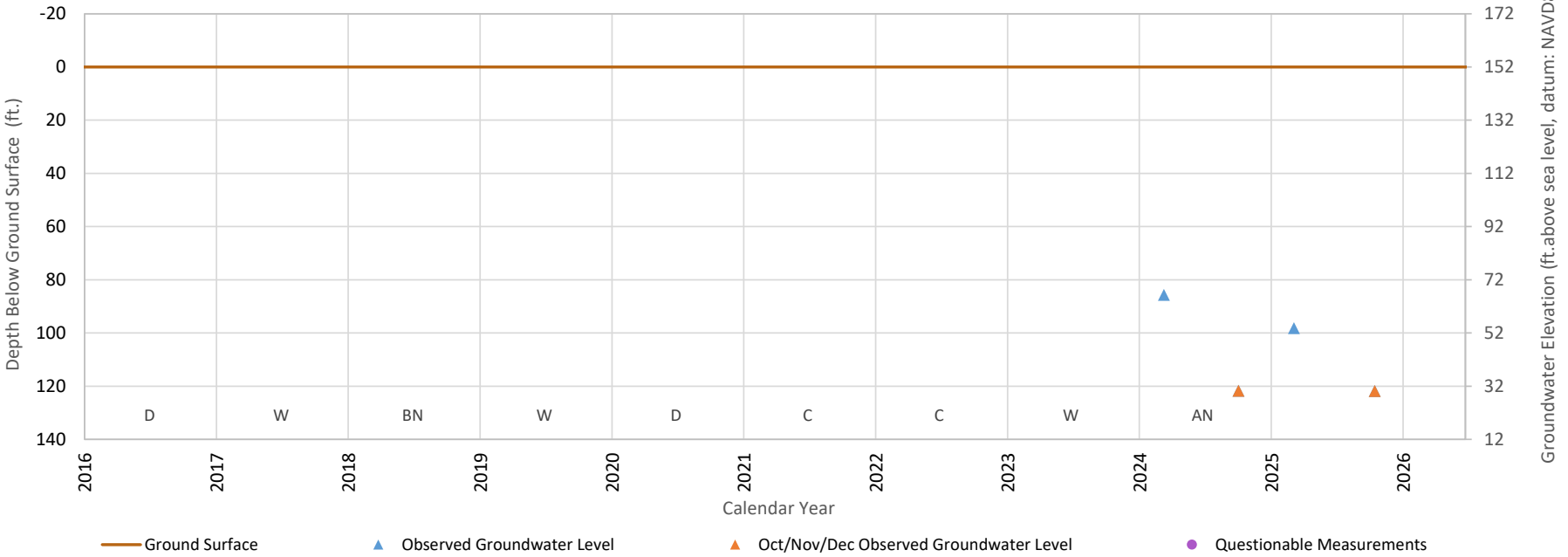
Ground Surface Elevation: 87.4 ft.

Hydrograph Station ID DW18 - Above Corcoran Clay



Ground Surface Elevation: 152.0 ft.

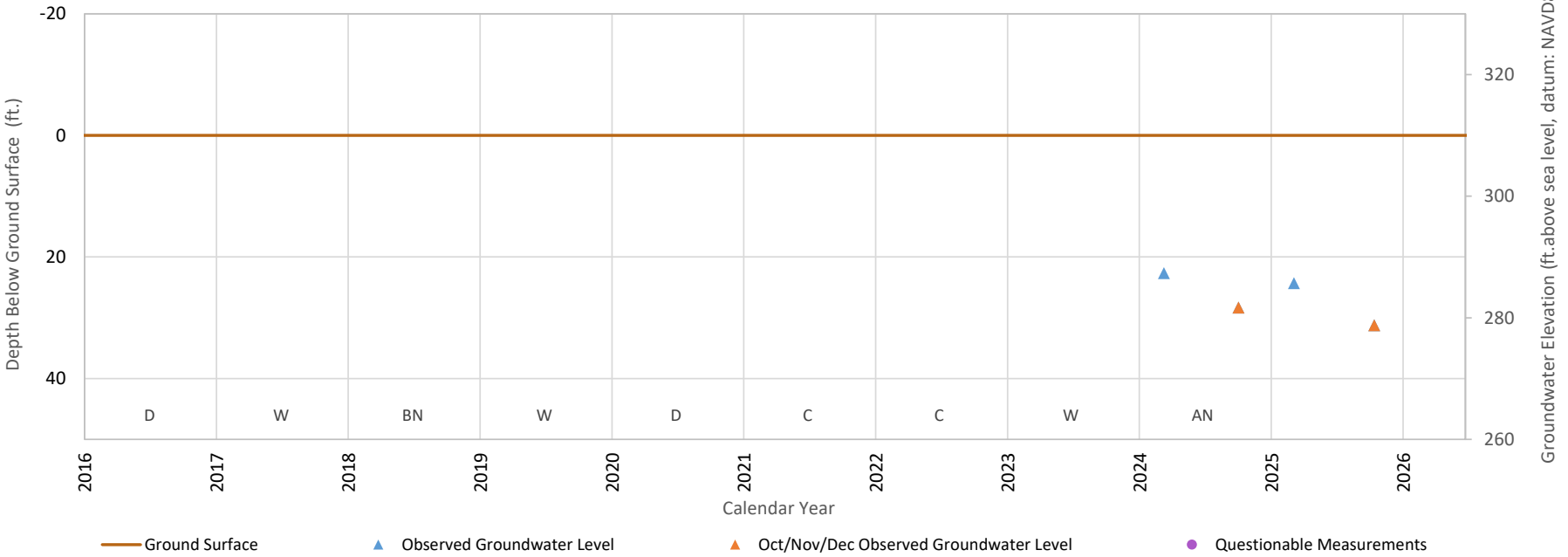
Hydrograph Station ID Old DW 1 - Below Corcoran Clay



Measurements with QA flags have been screened out

Ground Surface Elevation: 310.0 ft.

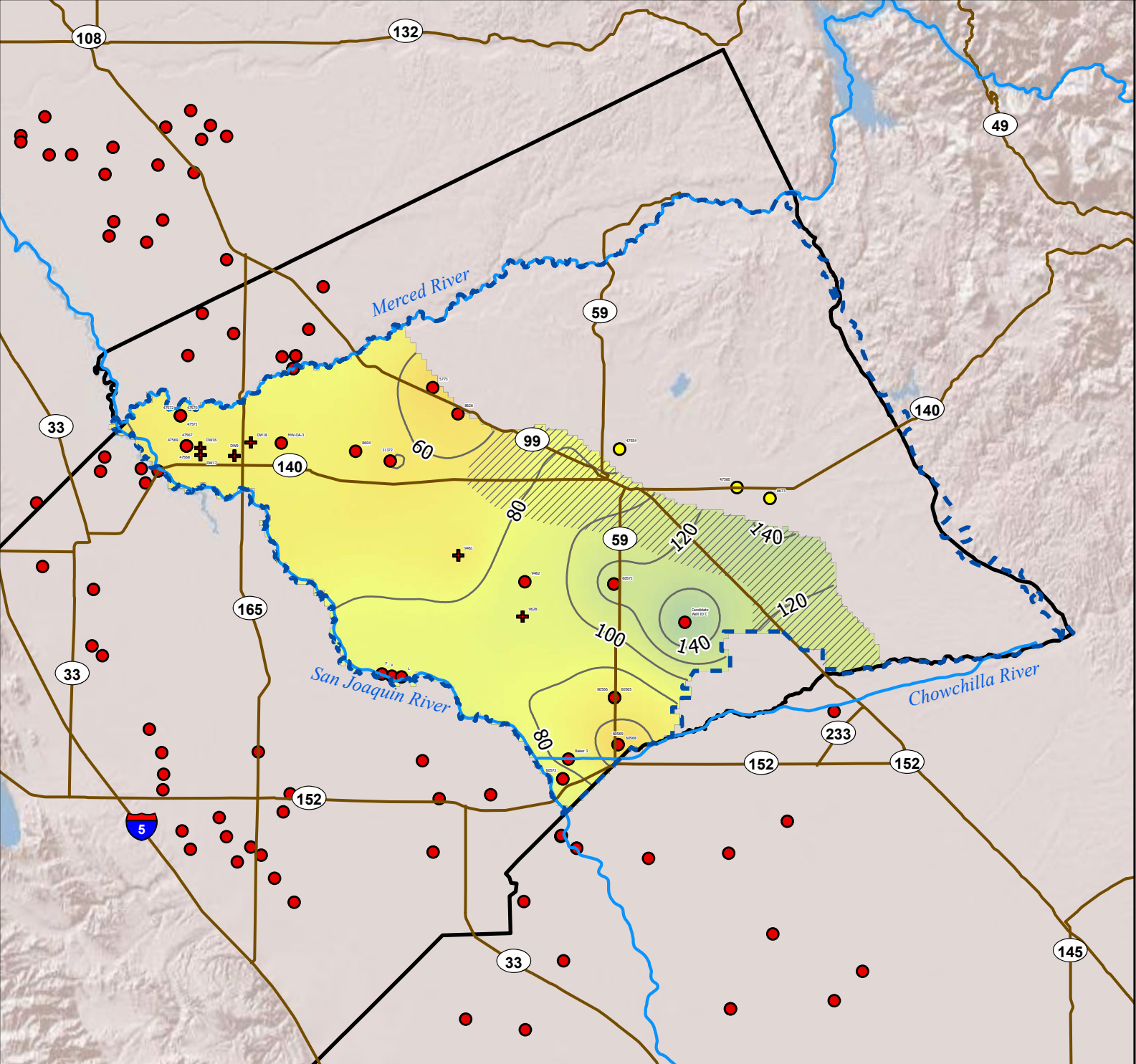
Hydrograph Station ID Upper Bear Well 3 - Outside Corcoran Clay



Measurements with QA flags have been screened out

APPENDIX B: GROUNDWATER LEVEL CONTOUR MAPS

Figure Exported: 2/24/2026 By: ACamille Using: \\woodlandcurran\ne\shared\Projects\CA_Merced\Irr_Dist\0011036.01_GSP\Map4_GIS12_Map\WY2025AnnualReport.aprx



Merced Subbasin GSP Fall 2024

Legend

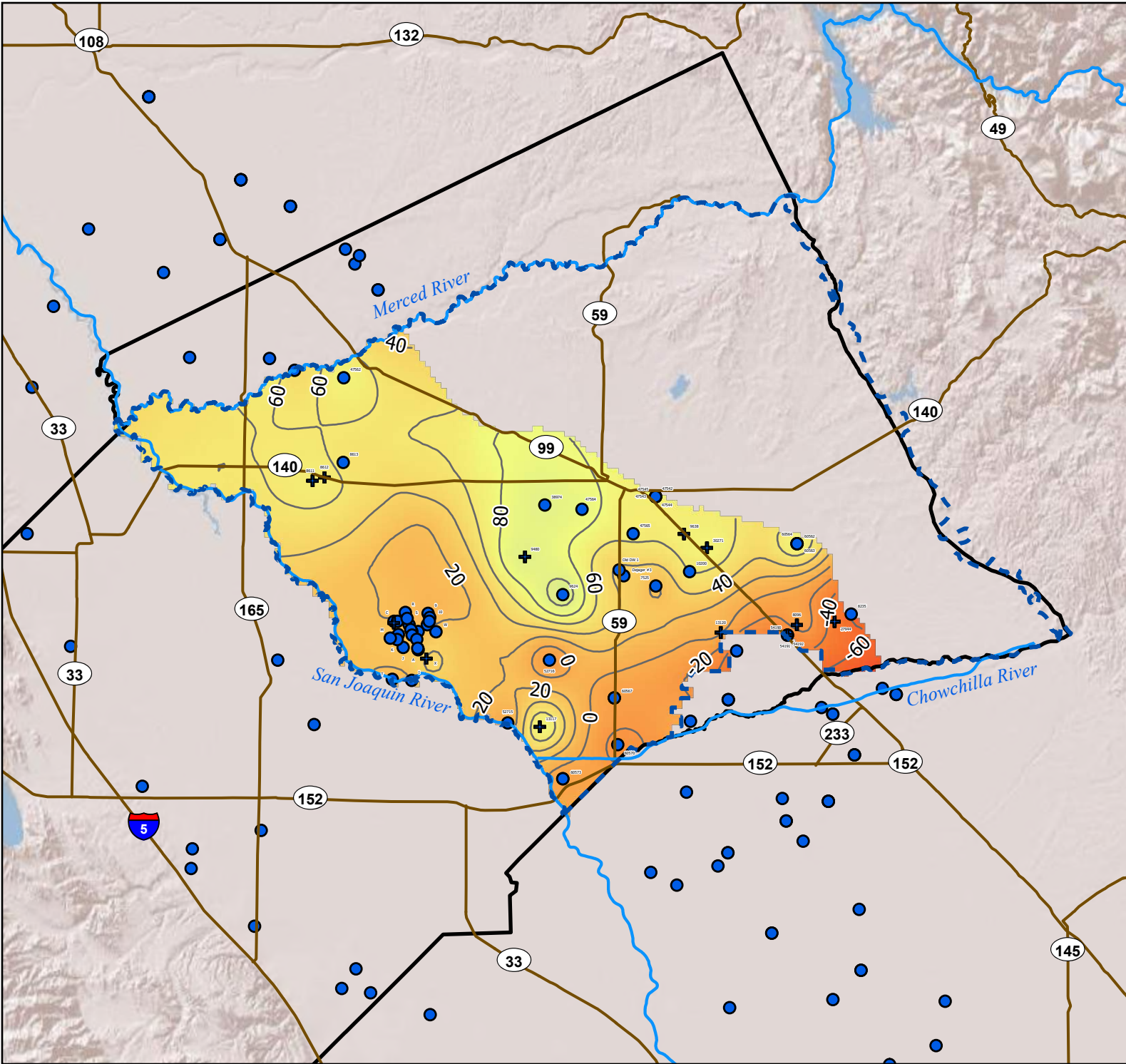
- Merced Subbasin Boundary
 - Major Rivers
 - Merced County Boundary
- Well Locations by Principal Aquifer
- Above CC
 - Above CC (estimated data)
 - Below CC
 - Below CC (estimated data)
 - Outside CC
 - Outside CC (estimated data)
- Groundwater Elevation Contour Lines (20 ft* interval)
 - Area of increased uncertainty due to data limitations
- Groundwater Elevation (ft*)
-

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

Figure Exported: 2/24/2026 By: ACamille Using: \\woodlandcurran\neel\share\Projects\CA\Merced\Irr\Ds\0011036\01_GSP\Map4_GIS2_Maps\WY2025\AnnualReport.aprx



Merced Subbasin GSP Fall 2024

Legend

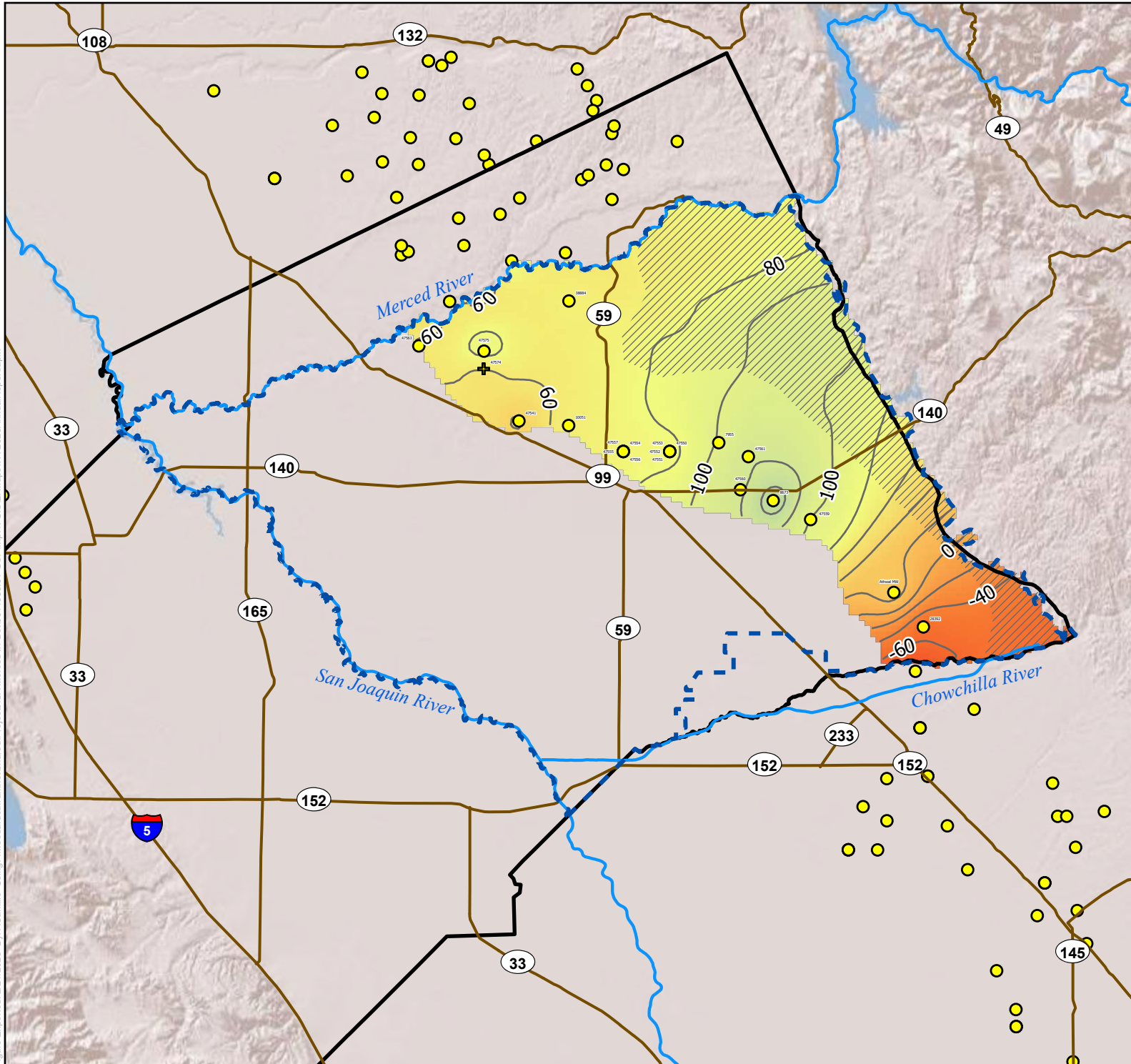
- Merced Subbasin Boundary
 - Major Rivers
 - Merced County Boundary
- Well Locations by Principal Aquifer
- Above CC
 - Above CC (estimated data)
 - Below CC
 - Below CC (estimated data)
 - Outside CC
 - Outside CC (estimated data)
- Groundwater Elevation Contour Lines (20 ft* interval)
 - Area of increased uncertainty due to data limitations
- Groundwater Elevation (ft*)
-

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

Figure Exported: 2/24/2026 By: ACamille Using: \\woodandcurran\ne\share\Projects\CA_Merced\Irr_Dist\0011036.01_GSP\Map\04_GIS\2_Maps\WY2025AnnualReport.aprx



Merced Subbasin GSP Fall 2024

Legend

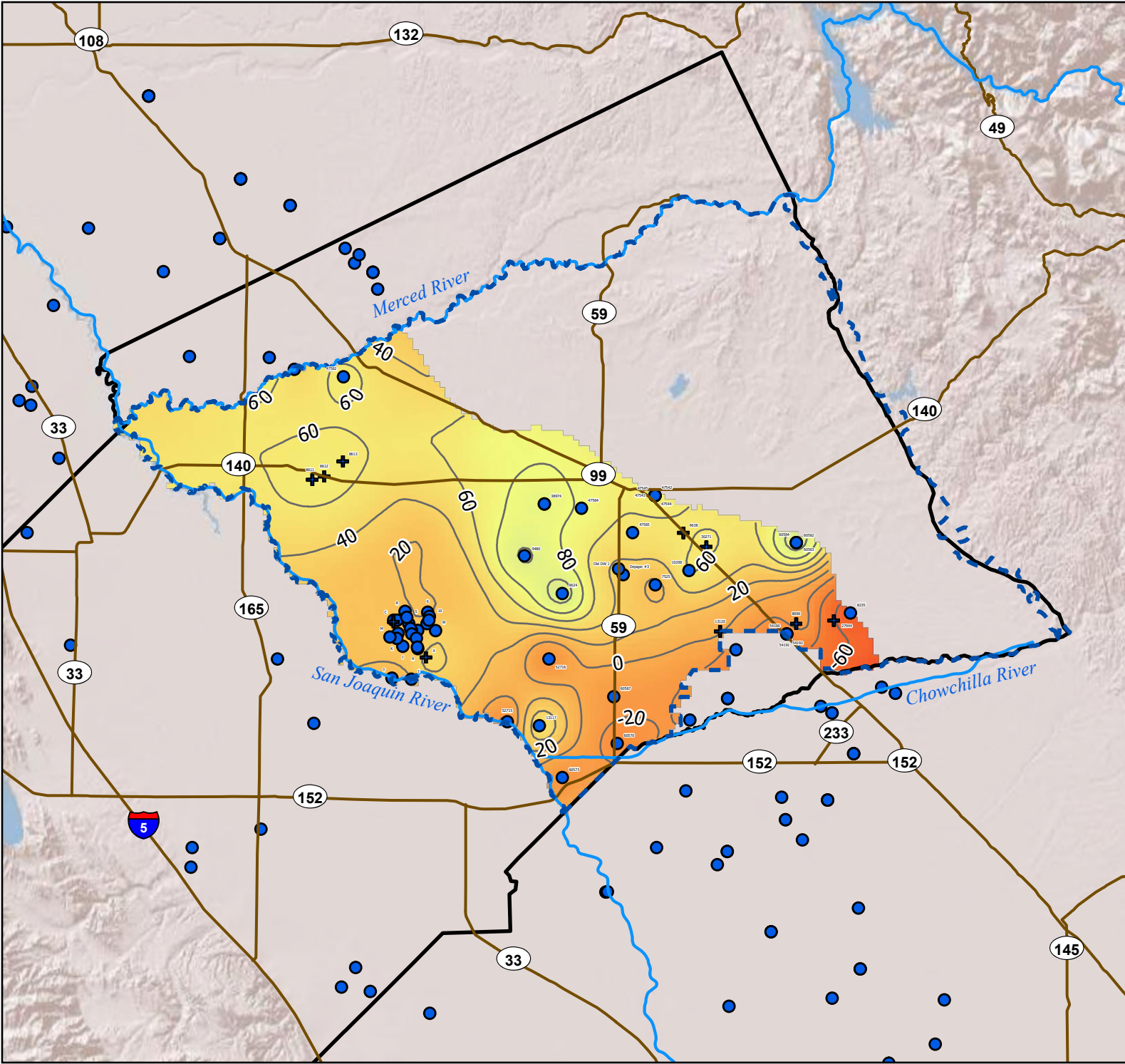
- Merced Subbasin Boundary
- Major Rivers
- ▭ Merced County Boundary
- Well Locations by Principal Aquifer**
- Above CC
- ⊕ Above CC (estimated data)
- Below CC
- ⊕ Below CC (estimated data)
- Outside CC
- ⊕ Outside CC (estimated data)
- Groundwater Elevation Contour Lines (20 ft* interval)
- ▨ Area of increased uncertainty due to data limitations
- Groundwater Elevation (ft*)**
- 260
- 100

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

Figure Exported: 2/20/2026 By: ACamille Using: \\woodandcurran\neel\share\Projects\CA\Merced\Tr\0011036\01_GSP\Map4_GIS2_Maps\WY2025\AnnualReport.aprx



Merced Subbasin GSP Fall 2025

Legend

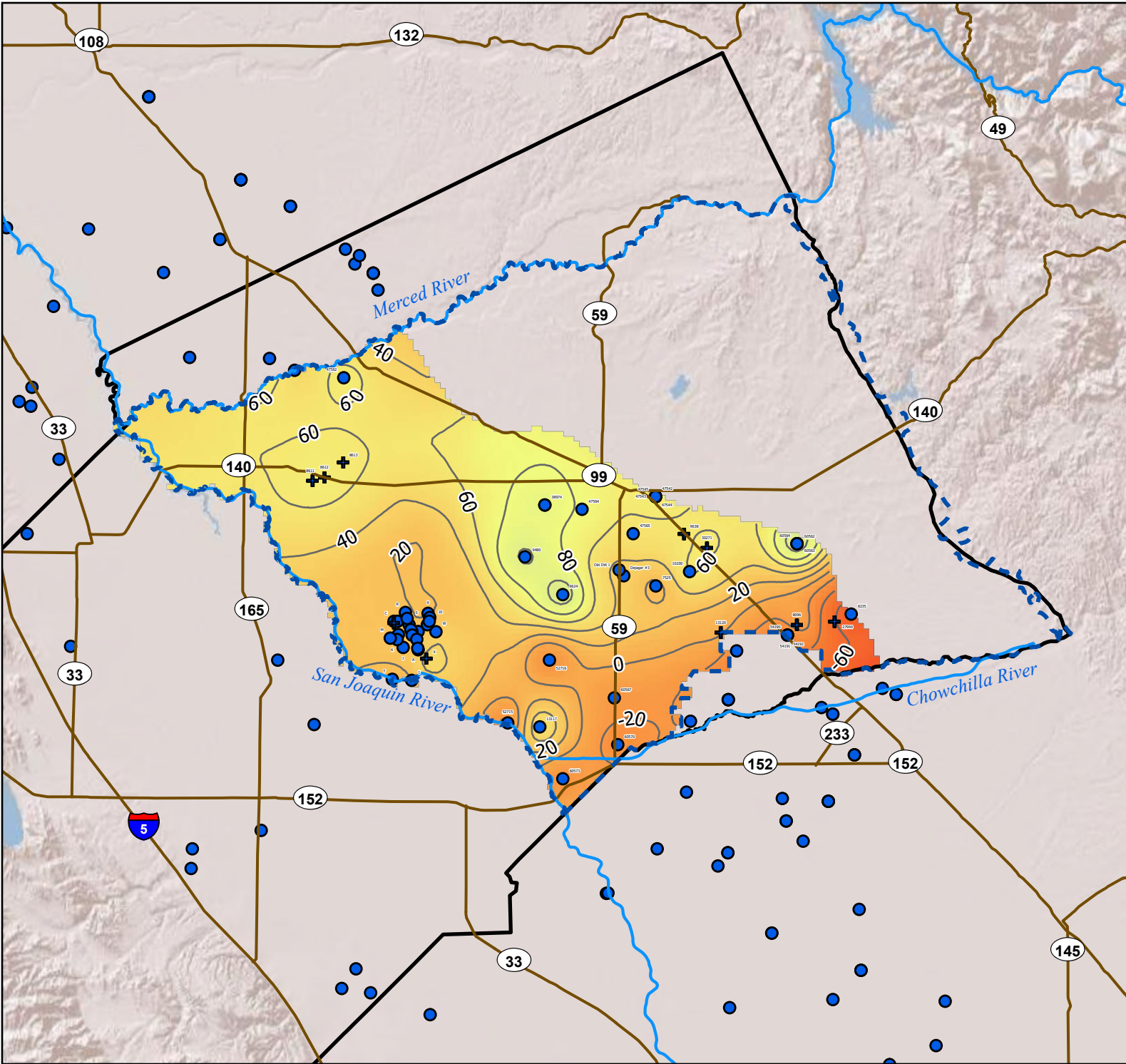
- Merced Subbasin Boundary
- Major Rivers
- Merced County Boundary
- Well Locations by Principal Aquifer**
- Above CC
- Above CC (estimated data)
- Below CC
- Below CC (estimated data)
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- Outside CC (estimated data)
- Groundwater Elevation Contour Lines (20 ft* interval)
- Area of increased uncertainty due to data limitations
- Groundwater Elevation (ft*)**
- 260
- 100

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

Figure Exported: 2/24/2026 By: ACamille Using: \\woodlandcurran\neel\share\Projects\CA\Merced\Trr\Ds\0011036\01_GSP\Map4_GIS2_Maps\WY2025\AnnualReport.aprx



Merced Subbasin GSP Fall 2025

Legend

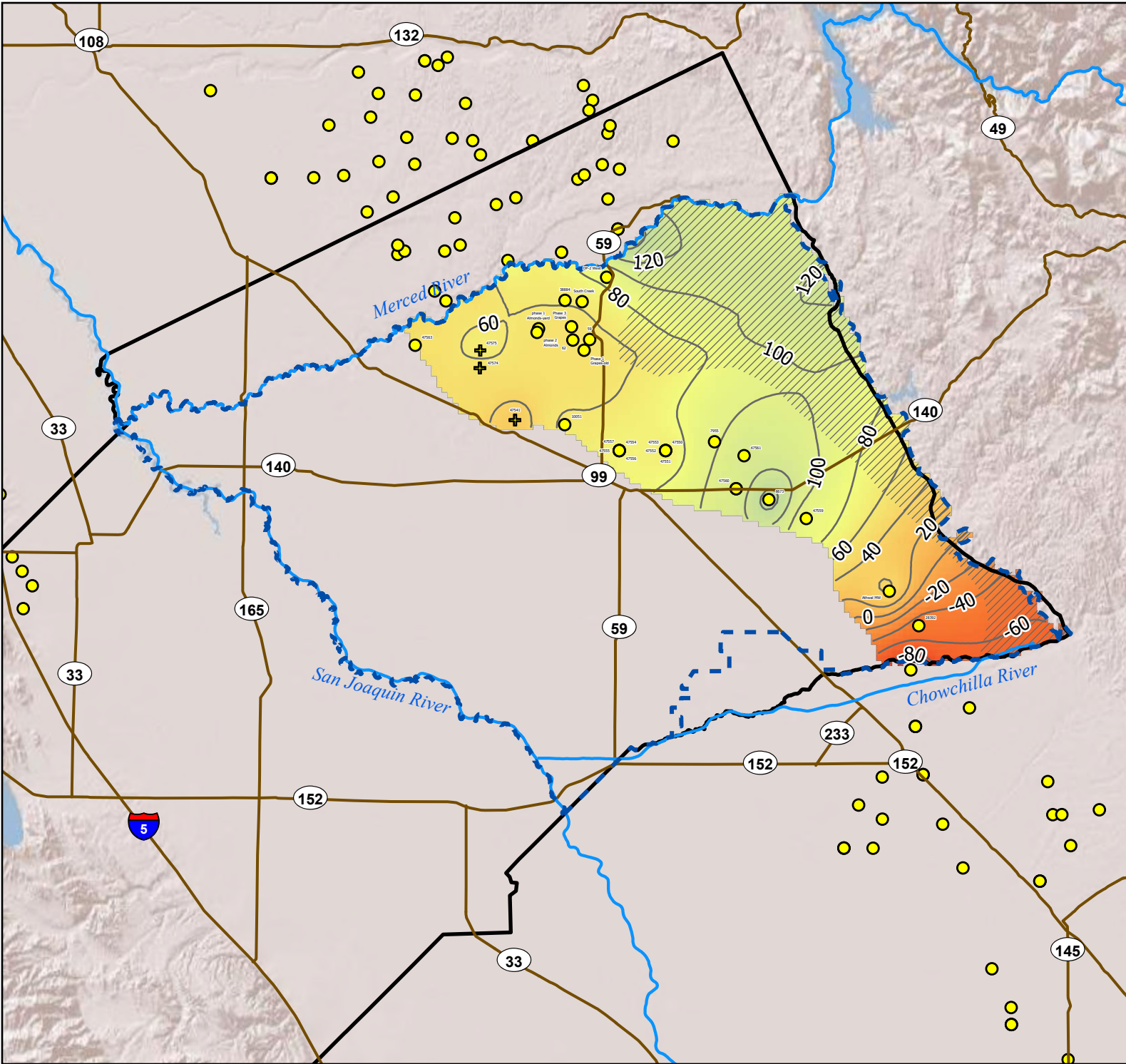
- Merced Subbasin Boundary
 - Major Rivers
 - Merced County Boundary
- Well Locations by Principal Aquifer
- Above CC
 - Above CC (estimated data)
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-

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

Figure Exported: 2/20/2026 By: ACamille Using: \\woodlandcurran\ne\share\Projects\CA\Merced Irr\0011036.01_GSP\Map4_GIS2_Maps\WY2025\AnnualReport.aprx



Merced Subbasin GSP Fall 2025

Legend

- Merced Subbasin Boundary
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 - Merced County Boundary
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-

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

Figure Exported: 2/24/2026 By: ACamille Using: \\woodlandcurran\neel\share\Projects\CA_Merced Irr_Dist\0011036.01_GSP\wp4_GIS2_Maps\WY2025AnnualReport.aprx

Merced Subbasin GSP Spring 2025

Legend

- Merced Subbasin Boundary
 - Major Rivers
 - Merced County Boundary
- Well Locations by Principal Aquifer
- Above CC
 - Above CC (estimated data)
 - Below CC
 - Below CC (estimated data)
 - Outside CC
 - Outside CC (estimated data)
- Groundwater Elevation Contour Lines (20 ft* interval)
 - Area of increased uncertainty due to data limitations
- Groundwater Elevation (ft*)
-

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
 Map Created: February 2026
 Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

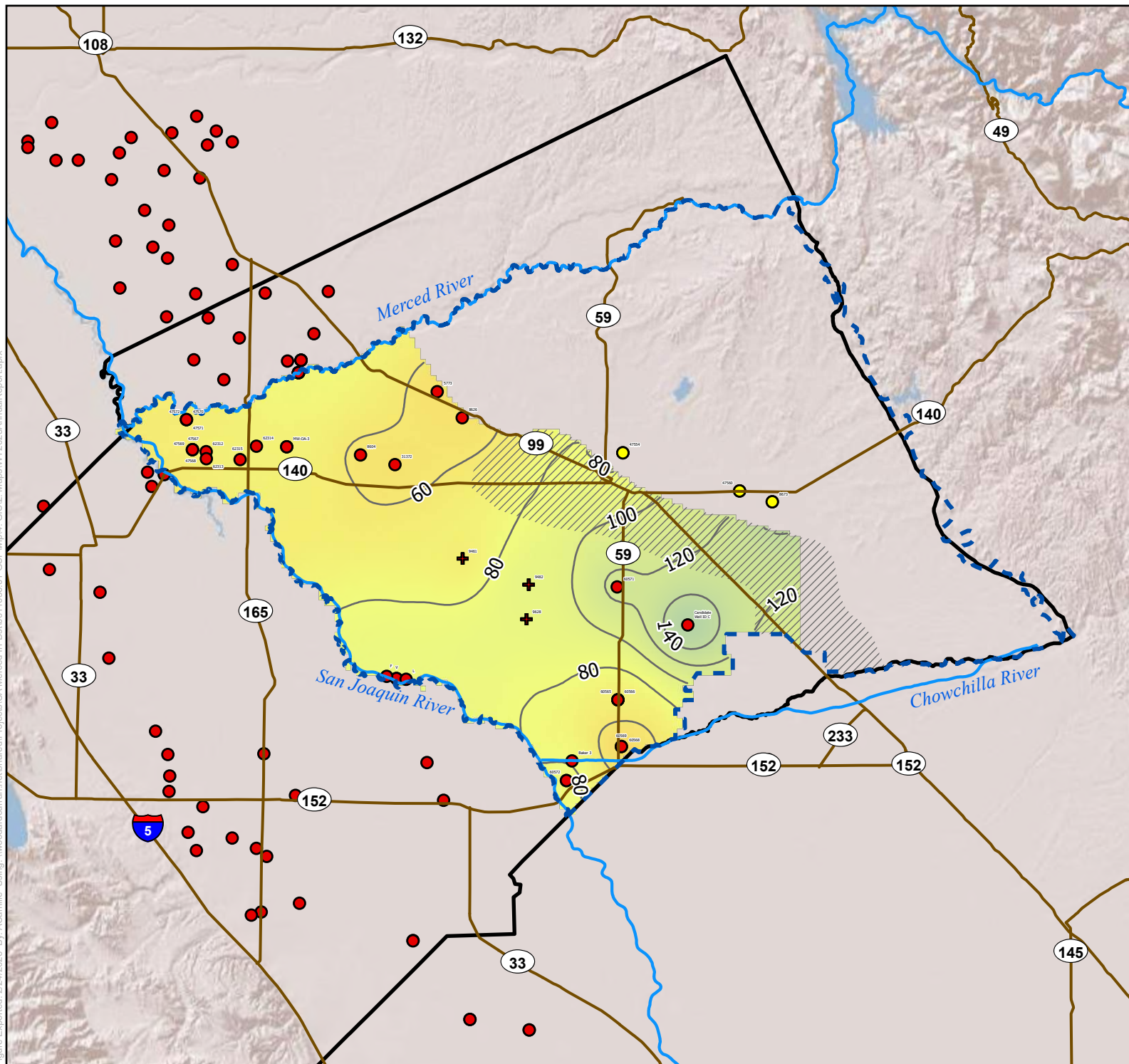


Figure Exported: 2/24/2026 By: ACamille Using: \\woodlandcurran\neel\share\Projects\CA\Merced\Irr\Ds\0011036\01_GSP\Map4_GIS2_Maps\WY2025\AnnualReport.aprx

Merced Subbasin GSP Spring 2025

Legend

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- Major Rivers
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- Well Locations by Principal Aquifer**
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- Below CC
- Below CC (estimated data)
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- Groundwater Elevation Contour Lines (20 ft* interval)
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- 260
- 100

*Feet above sea level
Datum: NAVD88



Project #: 0011036.01
Map Created: February 2026
Data Sources: DWR groundwater subbasins, wells from SGMA Data Viewer & monitoring network

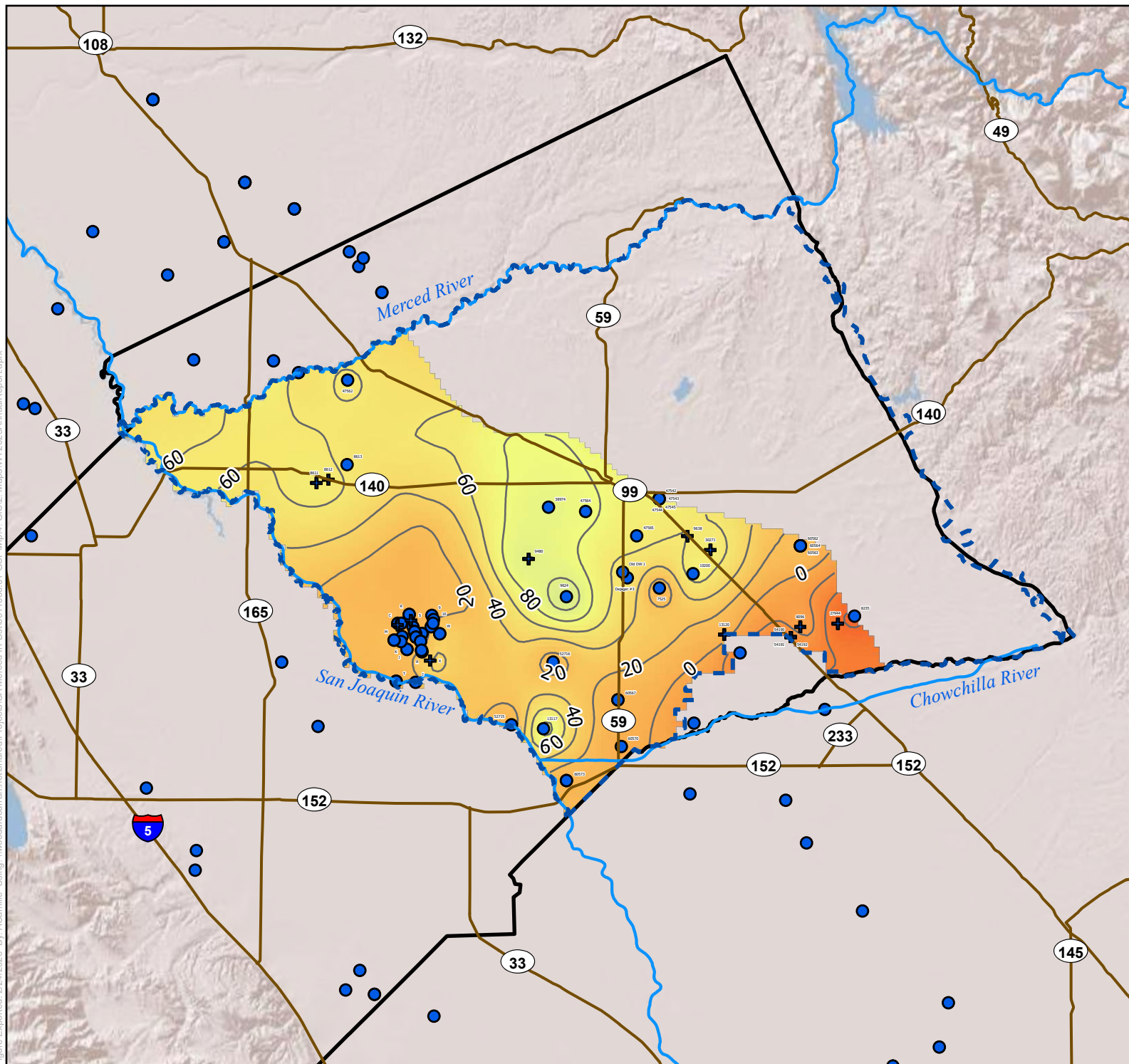
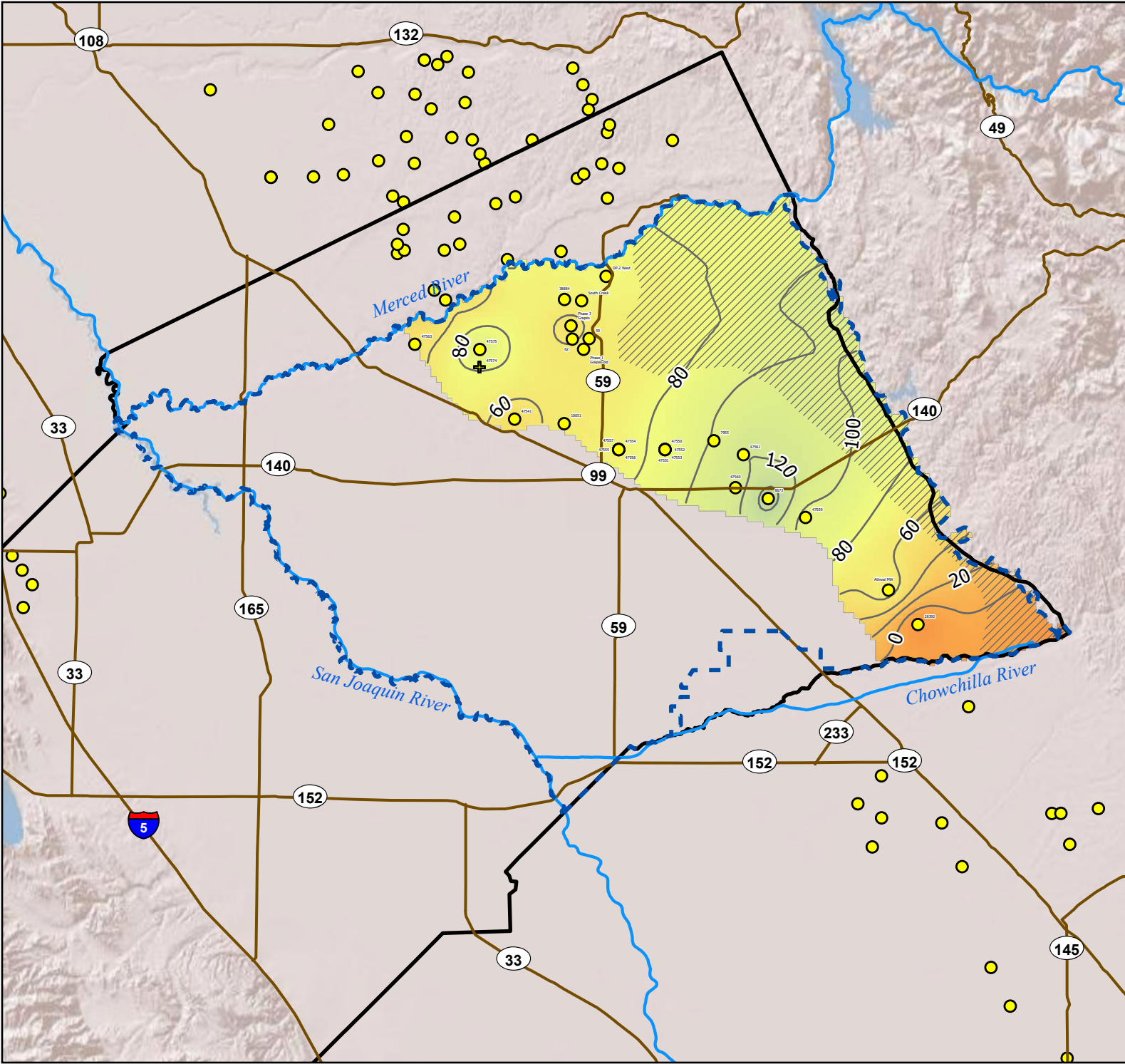


Figure Exported: 2/24/2026 By: ACamille Using: \\woodlandcurran\neel\share\Projects\CA\Merced Irr\Ds\0011036.01_GSP\Map\04_GIS\2_Maps\WY2025\AnnualReport.aprx



Merced Subbasin GSP Spring 2025

Legend

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**Woodard
& Curran**



woodardcurran.com



Prepared by:
Woodard & Curran
801 T Street
Sacramento, CA 95811
916.999.8700



Image courtesy: Veronica Adrover/UC Merced

