IN THE SUPERIOR COURT OF THE STATE OF ARIZONA

IN AND FOR THE COUNTY OF MARICOPA

IN RE THE GENERAL ADJUDICATION OF ALL RIGHTS TO USE WATER IN THE GILA RIVER SYSTEM AND SOURCE	W1-00-001234 Contested Case No. **W1-00-000106** **REPORT OF THE SPECIAL MASTER ON THE SUBFLOW ZONE DELINEATION FOR THE VERDE RIVER WATERSHED**

CONTESTED CASE NAME: *In re Subflow Technical Report, Verde River Watershed*

TECHNICAL REPORTS INVOLVED: Arizona Department of Water Resources, *Subflow Zone Delineation Report for Verde River Mainstem & Sycamore Canyon* (December 2021), *Subflow Zone Delineation Technical Report for the Remainder of the Verde River Watershed* (April 2023), and *Addendum to the Verde River Watershed Subflow Zone Delineation* (December 2025).

DESCRIPTIVE SUMMARY: The Special Master issues a report, pursuant to Rule 53 of the Arizona Rules of Civil Procedure, delineating the subflow zone for the Verde River Watershed. Parties shall file objections with the Clerk of Court for the Superior Court of Maricopa County by **June 1, 2026**, and responses to objections by **July 1, 2026**. The Arizona Department of Water Resources shall file a supplemental report regarding mapping cutoffs for Williamson Valley Wash, Ellison Creek, Sycamore Creek B, and Clover Creek no later than **May 1, 2026.** Objections to the May 1, 2026, report must be filed jointly with objections to the Special Master's Rule 53 report.

NUMBER OF PAGES: 23

This report contains a cumulative review and final recommendations regarding Arizona Department of Water Resources' (ADWR") Subflow Zone Delineation Report for Sycamore Canyon and the Mainstem of the Verde River Watershed ("Mainstem Report"), Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("Remainder Report"), and Addendum to the Verde River Watershed Subflow

Zone Delineation ("Addendum"). Except for the downstream portion of Williamson Valley Wash, the "north fork" of Sycamore Creek B, the "east fork" of Ellison Creek, and a tributary to Clover Creek, the Special Master recommends approving ADWR's delineation of the subflow zone for the Verde River Watershed.

I. BACKGROUND

A. Procedural Background

On November 27, 2017, Special Master Harris issued an order directing ADWR to "develop a map of and a technical report regarding the subflow zone of the perennial and intermittent streams in the Verde River Watershed."[1] In response, ADWR prepared the Mainstem and Remainder Reports.[2]

Substantive objections to the Mainstem Report focused primarily on ADWR's mapping of Bartlett and Horseshoe reservoirs.[3] Special Master Zendri resolved these objections by summary judgment entered on October 24, 2023 ("Mainstem Order").[4]

Substantive objections to the Remainder Report concerned classification of Big Chino Wash, Partridge Creek, and Williamson Valley Wash;[5] the termination of

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[1] *See* Wl-106, Order for Production of a Subflow Zone Delineation Technical Report for the Verde River Watershed at 2 (Nov. 27, 2017).

[2] Subflow Zone Delineation Report for Sycamore Canyon and the Mainstem of the Verde River Watershed (Dec. 2021); Subflow Zone Delineation Report for the Remainder of the Verde River Watershed (Apr. 2023).

[3] *See* Arizona State Land Department's Objection to the Subflow Zone Delineation Report for the Verde River Mainstem and Sycamore Canyon Subwatershed ("ASLD Mainstem Objections") (May 2, 2022); Freeport Minerals' Objection to the Subflow Zone Delineation Report for the Verde River Mainstem and Sycamore Canyon Subwatershed ("Freeport Mainstem Objections") (May 2, 2022); SRP's Objection to the Subflow Zone Delineation Report for the Verde River Mainstem and Sycamore Canyon Subwatershed ("SRP Mainstem Objections"") (May 2, 2022).

[4] W1-106, Order Granting Partial Summary Judgment re Objections (October 24, 2023).

[5] *See* City of Phoenix's Objections to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("Phoenix Remainder Objections") (Oct. 27, 2023); Salt River Project's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed ("SRP Remainder Objections")(Oct. 27, 2023); Yavapai-Apache Nation's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde Watershed ("Yavapai-Apache Remainder Objections") (Oct. 27, 2023).

mapping for two dozen tributaries;[6] and mapping of multiple instream reservoirs.[7] First, Special Master Zendri resolved objections regarding the reservoirs via a January 22, 2024 minute entry.[8] Second, objections regarding Williamson Valley Wash were partially resolved when ADWR filed a notice of errata on July 3, 2024, stating that Williamson Valley Wash was inadvertently left off the list of stream reaches to be mapped by the Arizona Geological Survey ("AZGS").[9] Finally, Special Master Zendri conducted an evidentiary hearing in August 2024 to resolve the remaining objections. By summary judgment entered on March 5, 2025 ("Remainder Order"), Special Master Zendri declared Partridge Creek and Big Chino Wash ephemeral under predevelopment conditions and ordered ADWR to issue an addendum re-evaluating termination points for mapping of the subflow zone for tributaries to the Verde River.[10]

In response to the Mainstem Order, the January 2024 minute entry, and the Remainder Order, ADWR filed the Addendum on December 15, 2025. The Remainder Order specified that parties may object to conclusions in the Addendum only by filing objections to the Special Master's Rule 53 report reviewing the Addendum.

B. Legal Background

Arizona law recognizes two categories of underground water: percolating groundwater and subflow. While subflow is subject to appropriation, percolating

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[6] SRP Remainder Objections; Yavapai-Apache Nation Remainder Objections.

[7] *See* Arizona State Land Department's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed (Oct. 25, 2023); Arizona Water Company's Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed (Oct. 25, 2023); Freeport Minerals' Objection to the Subflow Zone Delineation Report for the Remainder of the Verde River Watershed (Oct. 27, 2023); SRP Remainder Objections; Yavapai-Apache Nation Remainder Objections.

[8] W1-106, Minute Entry (Jan. 22, 2024).

[9] In August 2024, SRP argued that the issue regarding Williamson Valley Wash is not fully resolved until ADWR maps the full extent of Williamson Valley Wash. *See* W1-106, Joint Pretrial Statement at 6–7 (Aug. 5, 2024).

[10] W1-106, Order Granting Admission of Additional Exhibits into Evidence and Order for ADWR to Revise Subflow Zone Delineation for Portions of the Verde River Mainstem and Tributaries ("Remainder Order") (Mar. 5, 2025).

groundwater is not. *Bristor v. Cheatham*, 75 Ariz. 227, 233 (1953). Subflow is defined as "those waters which slowly find their way through the sand and gravel constituting the bed of the stream, or the lands under or immediately adjacent to the stream." *Maricopa Cty. Mun. Water Conservation Dist. v. Southwest Cotton Co.*, 39 Ariz. 65, 96 (1931).

The presumption is that "underground waters are percolating in their nature," and one who asserts that groundwater is subflow "must prove his assertion affirmatively by clear and convincing evidence." *Id.* at 85. The existence of a well within a subflow zone "provides clear and convincing evidence of that fact." *In re General Adjudication of All Rights to Use Water in the Gila River System and Source* (*Gila IV*), 198 Ariz. 330, 343 (2000). The well owner then bears the burden "to show that [the] well . . . is not pumping subflow." *Id*. In accordance with these principles, those who assert that the subflow zone extends to a given area bear the burden of proof.

The Arizona Supreme Court has recognized that the "use of an inaccurate test to determine whether a well is pumping subflow would improperly shift the burden to the groundwater user to show that its well is not pumping subflow." *Id.* at 335. Because well owners "could effectively lose their right to pump percolating groundwater[] simply because their wells were improperly presumed to be pumping appropriable subflow," the Court cautioned against using "flawed or inaccurate" information for subflow zone determinations. *Id.* at 335. Therefore, when delineating a subflow zone, ADWR must use the most reliable data and science available.

Delineating the subflow zone for a watershed requires two steps: stream classification and subflow mapping. First, ADWR must identify all streams that are currently perennial or intermittent or that were perennial or intermittent under predevelopment conditions.[11] Second, if and only if a stream reach is so classified,

[11] W1-103, Order at 23–24, 35 (June 30, 1994); W1-103, Order re Report of the Special Master on the Arizona Department of Water Resources' Subflow Technical Report, San Pedro River Watershed and Motion for Approval of the Report at 21 ("2005 Order") (Sept. 28, 2005).

ADWR must delineate the subflow zone adjacent to the stream.[12]

In classifying streams and reaches of streams, ADWR must abide by the following definitions:

1) Perennial streams "discharge water continuously through the year," and "[t]heir source of supply is normally comprised of . . . direct runoff . . .and baseflow";[13]
2) Intermittent streams "discharge water for long periods of time, but seasonally," and "[d]uring seasons when baseflow is maintained, groundwater is contributing to the stream,"[14] and
3) Ephemeral streams discharge "only in response to precipitation events or snowmelt, and do not have a baseflow component at any time of the year."[15]

Moreover, ADWR must make its classifications according to the conditions existing in the earliest year or during "a range of years immediately prior to regular, discernable diversion or depletion of stream flows resulting from human activity."[16]

In *Gila IV*, the Arizona Supreme Court established guidelines for delineating the lateral extent of the subflow zone. Specifically, the Court held that the "entire saturated floodplain Holocene alluvium" bordering a watercourse "will define the subflow zone in any given area" *Gila IV*, 198 Ariz. at 342. The Adjudication Court subsequently declared that ADWR may assume that the entire lateral extent of the floodplain Holocene alluvium is saturated.[17]

As instructed by the Arizona Supreme Court, ADWR identifies the saturated floodplain Holocene alluvium using various criteria. Specifically, the Court has instructed ADWR to consider "such characteristics as elevation, gradient, . . . chemical

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[12] *Gila IV*, 198 Ariz. at 342.
[13] W1-103, Order at 23–24 (June 30, 1994).
[14] *Id.*
[15] *Id.*
[16] 2005 Order at 21.
[17] *Id.* at 17–18.

makeup . . . flow direction," and "riparian vegetation." *In re General Adjudication of All Rights to Use Water in the Gila River System and Source* (*Gila II*), 175 Ariz. 382, 392 (1993); *Gila IV*, 198 Ariz. 330, 338 (2000). Importantly, the Court emphasized a flexible approach, noting that "our various descriptions of subflow in *Gila River II* and *Southwest Cotton* should not serve as a straitjacket that restricts us from reaching in the direction of the facts." *Gila IV,* 198 Ariz. 330, 340 (2000).

II. MAINSTEM REPORT

A. Resolution of Objections to the Mainstem Report

Objections to the Mainstem Report were timely received by the following:

Arizona State Land Department ("ASLD")	Stan Bennett
Cottonwood Ditch Association	Larry Bullard
Henry D. & Barbara A. Cuomo	Maria Gibson
Desert Spice Tea, LLC	Irving John Goulette
Freeport Minerals Corporation ("Freeport")	Kathleen Henkel
Vito Greco & Colleen Corrigan Greco	Johnnie L. Martin
Kathy & Lawrence Jaeckel	Maryland S. McKinney
Owens Trust/David J. Owens	Kamille Mulcaire
Marcus & Twyla Petropoulos	William Sasser
The 7's Ranch, LLC	Nancy Shiew
Salt River Project ("SRP")	Robert G. Sumner
Terrence Sullivan & Sheila Victorino	Watercrest, Inc

Section 45-256(B) of the Arizona Revised Statutes requires that objections must specifically address a recommendation in ADWR's report.[18] The majority of the objections received by the Special Master did not provide any specific objection to ADWR's technical report. All such objections were dismissed with prejudice as required by statute in case management orders filed by Special Master Zendri on January 31,

[18] "An objection shall specifically address the director's recommendations regarding the particular water right claim or use investigated. The court or master shall summarily dismiss with prejudice objections that do not comply with this subsection." Ariz. Rev. Stat. § 45-256(B).

2024, and June 12, 2024.[19] Remaining objections were filed by ASLD, Freeport, and SRP.

SRP, Freeport, and ASLD ("the moving parties") objected to ADWR's proposed delineation of the subflow zone in the vicinity of Horseshoe Lake and Bartlett Lake.[20] In the Mainstem Report, ADWR indicated that the subflow zone delineation was completed using imagery taken after the construction of the reservoirs, i.e. imagery reflecting post-development conditions. The moving parties objected to that "post-development" delineation.[21] Further, the moving parties objected that the delineation of the two reservoirs extended beyond the saturated floodplain Holocene alluvium of the Verde River. ADWR responded that the predevelopment conditions standard is relevant only to stream classification and not for delineating the lateral extent of the subflow zone.[22]

Special Master Zendri ultimately ruled that the "predevelopment conditions" standard applies to both stream classification and delineation of the lateral extent of the subflow zone. Accordingly, in the Mainstem Order, Special Master Zendri ordered ADWR to re-evaluate Bartlett and Horseshoe reservoirs using pre-development conditions.[23]

Conclusion of Law No. 1: The "predevelopment conditions" standard applies to the delineation of the lateral extent of the subflow zone, even within reservoirs.

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[19] W1-106, Case Management Order and Order Amending the Court Approved Mailing List and Instructions for Individual Well Owner Objections at 5 (January 31, 2024); W1-106, Order Granting Joint Motion for Summary Judgment Regarding Remaining Objections (June 12, 2024).

[20] *See* ASLD Mainstem Objections (May 2, 2022); Freeport Mainstem Objections (May 2, 2022); SRP Mainstem Objections (May 2, 2022). Cottonwood Ditch Association remains on the Court-approved mailing list but did not file a substantive objection in this matter.

[21] Acknowledging the inherent difficulty in delineating predevelopment conditions for those reservoirs, SRP alternatively requested merely that ADWR correct "inaccurate and internally inconsistent" water elevations.

[22] W1-106, ADWR's Comments on SRP, Freeport, and ASLD's Motion for Summary Judgment re Objections to Subflow Zone Delineation Report for Verde Mainstem and Sycamore Canyon Subwatershed at 6–9 (July 24, 2023).

[23] W1-106, Order Granting Partial Summary Judgment re Objections (Oct. 24, 2023).

Conclusion of Law No. 2: In the Mainstem Report, ADWR improperly relied on post-development conditions to map the subflow zone for Bartlett and Horseshoe reservoirs.

B. Re-Mapping of Bartlett and Horseshoe Reservoirs in the Addendum

In response to the Mainstem Order, SRP provided ADWR with aerial imagery taken in 1934 by Fairchild Aerial Survey, Inc., before either dam was constructed. Despite some spatial uncertainty, AZGS was able to map the floodplain Holocene alluvium beneath the Bartlett and Horseshoe Reservoirs based on the imagery.[24] For each reservoir, the revised mapping depicted a predevelopment riverbed and floodplain narrower than the original subflow zone.

Both AZGS and ADWR note some uncertainties resulting from challenges in georeferencing the Fairchild imagery. First, ADWR notes internal distortion within each aerial photo that would require numerous control points to address. Second, control points could not be added for most areas of floodplain Holocene alluvium, as the distinct features necessary to assign control points are submerged in modern imagery.[25]

As described in the Mainstem Order, "the exercise of drawing a line at which groundwater and surface water are no longer interconnected is a technical and legal challenge."[26] These challenges are compounded when the subflow zone is obscured by large water impoundments. Given these inherent uncertainties, the revised delineations of Bartlett and Horseshoe reservoirs demonstrate a thorough and conscientious evaluation of pre-development conditions.

Conclusion of Law No. 3: The Special Master recommends approving ADWR's proposed re-delineation of the subflow zone associated with Bartlett and Horseshoe reservoirs.

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[24] *See* Appendix E to the Addendum.

[25] *Id*.

[26] W1-106, Order Granting Partial Summary Judgment re Objections at 11 (Oct. 24, 2023).

Conclusion of Law No. 4: The Special Master recommends approving ADWR's subflow zone delineation for Sycamore Canyon and the Verde River Mainstem, as described by the Mainstem Report and the Addendum.

III. REMAINDER REPORT

A. Resolution of Objections to the Remainder Report

Objections to the Remainder Report were timely filed by the following individuals and entities:

ASLD	Freeport
Arizona Water Company ("AWC")	Sandy DuBois
Chino Grande, LLC	SRP
City of Phoenix	Yavapai-Apache Nation

Objections received by Chino Grande, LLC and Sandy DuBois were dismissed by Special Master Zendri in a December 1, 2023, order as neither party specifically objected to the ADWR recommendations in the Remainder Report.[27]

Valid objections to the Remainder Report can be divided into four categories. First, SRP, the Yavapai-Apache Nation, Freeport, ASLD, and AWC argued that ADWR improperly delineated the subflow zone in the vicinity of Watson Lake, Sullivan Lake, Granite Basin Lake, and Willow Creek Reservoir using the "high-water mark" of those reservoirs as opposed to predevelopment conditions. Second, SRP, the Yavapai-Apache Nation, and the City of Phoenix objected to ADWR's decision to designate all of Big Chino Wash and Partridge Creek ephemeral under predevelopment conditions. Third, SRP objected to ADWR's decision to delineate a subflow zone for only a portion of Williamson Valley Wash. Finally, the Yavapai-Apache Nation and SRP objected to ADWR's alleged decision to "arbitrarily stop[]" subflow zone delineation along various tributaries.

[27] W1-106, Order Scheduling Oral Argument Regarding ADWR's Subflow Zone Delineation for the Remainder of the Verde River Watershed at 4 (December 1, 2023).

1. Reservoirs

Special Master Zendri summarily addressed objections regarding the pertinent reservoirs. Specifically, in a January 2024 minute entry, Special Master Zendri ruled that "ADWR must revise the subflow mapping to consider predevelopment conditions for . . . Watson Lake, Granite Basin Lake, [and] Sullivan Lake."[28] Special Master Zendri ruled that the subflow zone delineation for those reservoirs presented issues identical to the delineation of Horseshoe and Bartlett reservoirs.

In contrast to the previously mentioned reservoirs, the Special Master ruled that "ADWR should not map a subflow zone [for] Willow Creek Reservoir."[29] Willow Creek Reservoir is a man-made lake that occupies a reach of Willow Creek. Though the lake is apparently intermittent or perennial, all of Willow Creek is nonetheless a currently ephemeral stream. A currently ephemeral stream is excluded from subflow zone delineation unless the stream was at least intermittent under predevelopment conditions.[30] ADWR classified Willow Creek "as ephemeral under predevelopment conditions," and no party objected to that classification.[31] Accordingly, ADWR properly excluded Willow Creek Reservoir from its subflow zone delineation.

Conclusion of Law No. 5: Willow Creek is an ephemeral stream under current and predevelopment conditions.

Conclusion of Law No. 6: ADWR properly excluded Willow Creek Reservoir from its subflow zone delineation.

2. Williamson Valley Wash

Special Master Zendri summarily resolved SRP's objection that ADWR delineated a subflow zone for only a portion of Williamson Valley Wash. In response to a "notice of errata" filed by ADWR acknowledging that it mistakenly excluded parts of Williamson

[28] W1-106, Minute Entry (Jan. 22, 2024).
[29] W1-106, Order Directing ADWR to Map Reservoirs (Aug. 9, 2024).
[30] W1-103, 2005 Order at 23 (Sept. 28, 2005).
[31] W1-106, ADWR's Request for Direction (July 10, 2024).

Valley Wash from its subflow zone delineation, Special Master Zendri held that "no further analysis of Williamson Valley Wash is needed at this time."[32] In the Remainder Order, Special Master Zendri ruled that "ADWR will reevaluate the mapping termination for Williamson Valley Wash and extend the subflow zone for that stream where mapping was improperly terminated."[33]

Conclusion of Law No. 7: Per its notice of errata, ADWR improperly excluded certain reaches of Williamson Valley Wash from the subflow zone delineation described in the Remainder Report.

3. Big Chino Wash and Partridge Creek

In its objection to the Remainder Report, SRP argued that "the portion of the Big Chino below Partridge Creek and the lowermost portion of Partridge Creek" were intermittent under predevelopment conditions. After conducting a hearing in August 2024, Special Master Zendri ruled that no additional mapping is required for "Big Chino Wash downstream of its confluence with Partridge Creek" or the "lower portion of Partridge Creek."[34] Special Master Zendri's findings of fact are summarized below.

Finding of Fact No. 1: The hydrologic record does not support classifying any part of Big Chino Wash as historically intermittent.

Finding of Fact No. 2: Accounts of historical water users support ADWR's classification of Big Chino Wash as historically ephemeral.

Finding Fact No. 3: Topographic maps, surveyors' notes, and evidence of vegetation provide limited information regarding streamflow permanence along Big Chino Wash and Partridge Creek.

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[32] W1-106, Order Denying Motion for Partial Summary Judgment (July 17, 2024). It should be noted that, while ADWR's notice of errata acknowledged that the subflow zone for Williamson Valley Wash should be extended, the notice did not concede that a subflow zone should be delineated for *all* of Williamson Valley Wash. Therefore, the notice only partially resolved SRP's objection regarding Williamson Valley Wash.

[33] W1-106, Remainder Order at 21 (March 5, 2025).

[34] Remainder Order at 17–18.

Conclusion of Law No. 8: ADWR properly excluded the entirety of Big Chino Wash and Partridge Creek from its subflow zone delineation.

4. Mapping Termination

At trial, SRP compared more than twenty maps from ADWR's "Floodplain Holocene Alluvium Delineation Map Series" with drainage maps depicting currently perennial, currently intermittent, and historically perennial or intermittent streams. Those comparisons revealed that, for many streams, ADWR appeared to have terminated subflow mapping despite the existence of intermittent or perennial reaches and Holocene alluvium beyond the termination point. Accordingly, Special Master Zendri ordered "reevaluation of the mapping cutoffs for all tributaries analyzed in the Remainder Report" and "[e]xtensions of any portions of the subflow zone in the Remainder Report improperly terminated."

Conclusion of Law No. 9: For multiple tributary streams, ADWR terminated mapping without sufficient explanation.

B. ADWR's Addendum

As described above, Special Master Zendri ordered ADWR to complete three tasks with respect to the subflow zone for the remainder of the Verde Watershed:

1. Revision of the subflow zone for Watson Lake, Granite Basin Lake, and Sullivan Lake.
2. Extension of the subflow zone for Williamson Valley Wash in accordance with ADWR's notice of errata.
3. Re-evaluation of termination points for all other tributaries analyzed in the Remainder Report.

The following evaluates ADWR's compliance with each order in turn.

1. Reservoirs

In the Addendum, ADWR explained that, even "after comprehensive research and

review of all predevelopment documentation," ADWR could not reliably map the floodplain Holocene alluvium beneath Watson Lake, Granite Basin Lake, and Sullivan Lake. Specifically, ADWR reviewed the documents provided by the parties in response to Special Master Zendri's January 22, 2024, order to "provide documentation or aerial imagery regarding predevelopment conditions [of] Upper Verde instream reservoirs."[35]

These documents included topographic maps from 1892 and 1905; geologic mapping prepared by the Arizona Bureau of Mines, the General Land Office, and the USGS; and aerial images from the 1940s. ADWR ultimately concluded that, given the ambiguity[36] of the available data and the unavailability of "pre-dam" aerial imagery, mapping the floodplain Holocene alluvium beneath the reservoirs would require an unacceptable "amount of assumptions."[37]

Accordingly, ADWR did not revise the subflow zone in the vicinity of Watson Lake, Granite Basin Lake, and Sullivan Lake. Given the impracticability of determining the contours of floodplain Holocene alluvium beneath the pertinent reservoirs, it is recommended to approve ADWR's current delineation of the subflow zone for those reservoirs.

First, as discussed above, it is no small feat to trace geologic structures hidden beneath large reservoirs and dams. Here, the absence of reliable data identifying the underlying geology renders this task nearly impossible. Accordingly, it is concluded that ADWR has reasonably surveyed the historical record for reliable evidence of predevelopment conditions and need not continue what is likely to be a fruitless search.

Second, although the subflow zones for the pertinent reservoirs exceed the floodplain Holocene alluvium, inclusion of the reservoirs within the subflow zone is

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[35] W1-106, Minute Entry (Jan. 22, 2024).

[36] ADWR specifically cites "unclear locations of survey lines, georeferencing discrepancies, coarse topographic lines, vague geologic labels, and small-scale of map sizes." Addendum at 30 (Dec. 2025).

[37] *Id* at 30–32.

imperative and the harm from this overbreadth is remote. Without a subflow zone assigned to each of the relevant reservoirs, the depletive effects of wells on the reservoirs might not be actionable. Further, the harm of a subflow zone based on a reservoir's "high-water mark" is largely theoretical. Obviously, while a channel is dammed, no well can be placed within the boundaries of the reservoir. While dam removal could cause new wells located beyond the FHA to be deemed within the subflow zone, dam removal is unlikely. Hence, the importance of including Watson Lake, Granite Basin Lake, and Sullivan Lake within the subflow zone outweighs any potential harm of a possibly imprecise subflow zone delineation.

Conclusion of Law No. 10: Given the absence of reliable historical data indicating the extent of FHA beneath Watson Lake, Granite Basin Lake, and Sullivan Lake, ADWR properly retained its original subflow zone delineation for those reservoirs.

2. Williamson Valley Wash Errata

In its notice of errata, ADWR identified river miles 11.5–16.5 of Williamson Valley Wash as inadvertently excluded from its subflow zone delineation.[38] By extending the subflow zone between river miles 10–30, ADWR satisfied Special Master Zendri's order to "delineate a subflow zone for the reaches indicated on Attachment A to its July 3, 2024, Notice of Errata."[39]

Conclusion of Law No. 11: ADWR's revised subflow zone delineation reflects the correction of errors noted by ADWR in its July 3, 2024, notice of errata.

C. Re-Evaluation of Tributary Cutoffs

At the August 2024 evidentiary hearing, SRP presented more than twenty tributaries for which the delineation of the subflow zone was cut off "at the limit of geological mapping, which was not extended without explanation."[40] In Special Master Zendri's

[38] W1-106, Attachment A to Notice of Errata (July 3, 2024).

[39] *Id.* at 21.

[40] *See* SRP Exhibit 2, presented at the August 2024 hearing in contested case W1-106.

Remainder Order, she found that "ADWR appears to have improperly terminated subflow mapping despite the existence of intermittent or perennial reaches and Holocene alluvium beyond the termination point."[41] Accordingly, Special Master Zendri instructed ADWR to "reevaluate the mapping termination for all tributaries . . . in the Remainder Report," "extend portions of the subflow zone improperly terminated," and "provide explanations for . . . cutoffs of subflow mapping."[42]

In response to that order, ADWR explained mapping cutoffs for most tributaries in the Remainder Report and mapped an additional 43 river miles: 20 miles for Williamson Valley Wash and an additional 23 miles for other tributaries. Table 1 is a summary of ADWR's re-evaluation of tributaries described in the Remainder Report. More details regarding the re-evaluation can be found in the Addendum itself.

Except as illustrated in the figures below,[43] ADWR provided much needed explanations for and adjustments to its mapping of tributaries. Therefore, the Special Master generally recommends approving ADWR's tributary mapping, as revised in the Addendum.

Conclusion of Law No. 12: Except for the mapping cutoffs illustrated below, the Special Master recommends approving ADWR's mapping of all tributaries in the Remainder Report, as amended by the Addendum.

IT IS ORDERED that by **May 1, 2026,** ADWR shall file a supplemental report explaining the mapping cutoffs illustrated in Figures 1–4.

[41] Remainder Order at 19 (Mar. 5, 2025).

[42] *Id.* at 20.

[43] Maps created using data published by ADWR: "Verde_Addendum_2025," December 16, 2025, https://www.arcgis.com/home/item.html?id=e66c355a575d4b47b14f2f2b85992e1d; "Proposed_Verde_River_Subflow_Zone," October 19, 2023, https://www.arcgis.com/home/item.html?id=7441fdeadf704de89fd222d2aa250ecb.

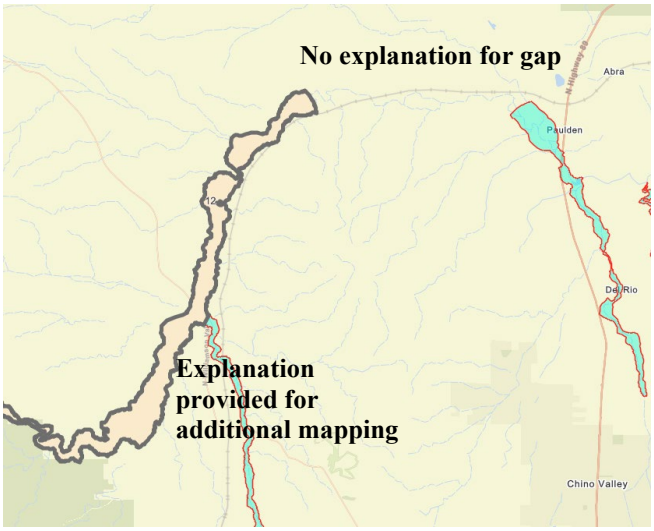

Figure 1 – Gap in lower Williamson Valley Wash (approx. river mile 2 to river mile 10)

ADWR extended the delineation for Williamson Valley Wash from river mile 10 to 30 (pink); did not explain the termination at river mile 2.

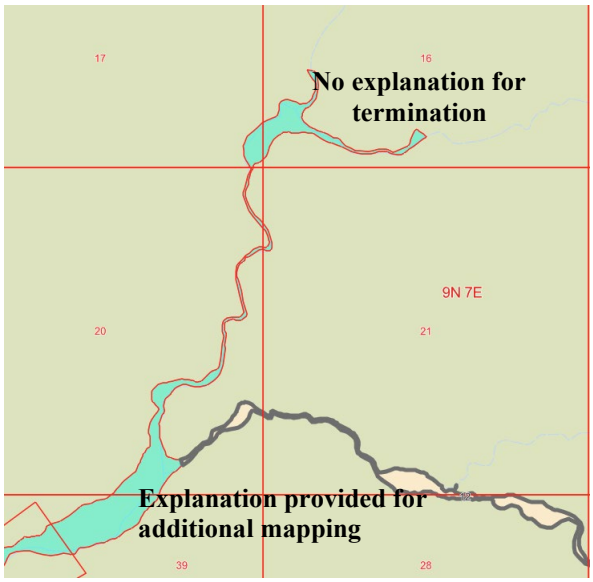

Figure 2 – North Fork Sycamore Creek B (approx. river mile 5)

ADWR extended the proposed subflow zone for South Fork Sycamore Creek B (pink); did not explain the termination for North Fork.

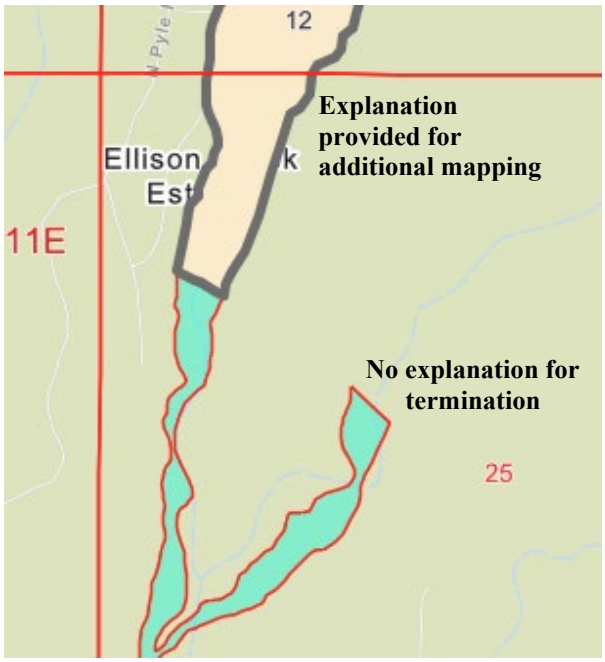

Figure 3 - East Fork Ellison Creek (approx. river mile 7.5)

ADWR extended delineation for West Fork Ellison Creek (pink); did not explain termination for East Fork.

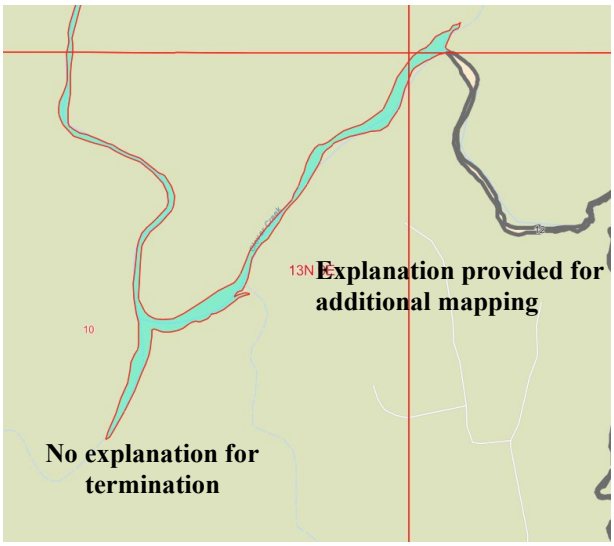

Figure 4 - Tributary to Clover Creek (approx. river mile 2.5)

ADWR extended delineation for Clover Creek (pink); did not explain termination for the pictured tributary to Clover Creek.

IV. MOTION FOR ADOPTION OF SPECIAL MASTER'S REPORT

Under Rule 53(f) of the Arizona Rules of Civil Procedure, the Special Master moves the Court to adopt the findings of fact, conclusions of law, and recommendations made in this report

V. OBJECTION PROCEDURE

Any comments regarding ADWR's supplemental report must be filed jointly with objections to this Rule 53 report. Objections to this Report and ADWR's supplemental report must be filed on or before **June 1, 2026**, with the Clerk of the Maricopa County Superior Court. Written responses must be filed by **July 1, 2026**. No replies will be permitted. Unless referred to the Special Master, objections regarding the Addendum and the Supplemental Report will be heard by the Water Judge.

Signed this 2nd day of April 2026.

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Sherri L. Zendri
Special Water Master

The original of the foregoing was delivered to the Clerk of the Maricopa County Superior Court on April 2, 2026, for filing and distributing a copy to all persons listed on the Court Approved Mailing List for this case as well as the Court Approved Mailing List for the Gila River basin.

Emily Natale

TABLE 1 – SUMMARY OF TRIBUTARY MAPPING CHANGES

Tributary Name	Source for Streamflow Categorization[A] (river miles[B])	AZGS Geologic Mapping (river miles)		2025 Addendum Subflow Delineation
		2022 Tributaries Report	2025 Addendum	
Adler Creek	2.2–5 on Brown; F&A	0–8.5	None	No change – geology changed to bedrock with no additional mappable alluvium.
Apache Creek	2–3 and 5–6 on Brown	0–5.5	None	No change – geology changed to bedrock with no additional mappable alluvium.
Camp Creek	14–18 on Brown; F&A	12–18.5	None	No change – no additional mappable alluvium beyond the stopping point and the perennial stream classification did not continue beyond the stopping point.
Clover Creek	0–7.5 on Brown; F&A; TNCAZ	0–3.5	+ 3.5–7	Extended the proposed subflow zone to approximately river mile 7 where the perennial stream classification ends. ADWR did not explain the termination at the southern tributary to Clover Creek.

[A] **Brown** = Brown, D. E., Carmony, N. B., & Turner, R. M. (1981). *Drainage Map of Arizona Showing Perennial Streams and Some Important Wetlands* [Map]. AZGF Federal Aid Project W-53-R.

F & A = Freethey, G. W., & Anderson, T. W. (1986). *Predevelopment Hydrologic Conditions in the Alluvial Basins of Arizona and Adjacent Parts of California and New Mexico* [Map]. U.S. Geological Survey.

TNCAZ = Turner, D. S. (2007). Turner List Perennial Flow and Fish Species Present [Geologic Map]. The Nature Conservancy.

[B] A river mile is a measure of distance in miles along a river from its mouth. For Verde tributaries "0" starts at the confluence of the tributary with the Verde mainstem. River mile numbers begin at zero and increase further upstream.

TABLE 1 – SUMMARY OF TRIBUTARY MAPPING CHANGES

Tributary Name	Source for Streamflow Categorization[A] (river miles[B])	AZGS Geologic Mapping (river miles)		2025 Addendum Subflow Delineation
		2022 Tributaries Report	2025 Addendum	
Deadman Creek	2.5–16.5 on Brown; F&A; TNCAZ	0–15	None	No objections filed–any additional alluvium beyond the stopping point would be thin atop bedrock and confined to the active stream channel.
Dry Beaver Creek	7.5–10.5 on Brown; TNCAZ	The entire length of Dry Beaver Creek was mapped from its headwaters at the confluence of Woods and Rattlesnake Canyons.	None	No change–perennial stream classification did not continue beyond the stopping point.
Ellison Creek	8–9.5 on Brown; TNCAZ	0–7.5	+ 7.5–9.5	Extended the proposed subflow zone of the "west fork" to approximately river mile 9.5 where the perennial stream classification ends. ADWR did not extend or explain the termination of the "east fork."
Granite Creek	0–1.5 and 26–30.5 on Brown; TNCAZ	0–29.5	None	No change–perennial stream classification did not continue beyond the stopping point. (Brown labels 28 to 30.5 only as "municipal, industrial, or agriculture wastewater").
Houston Creek	None on any of the maps; ADWR selected due to the presence of riparian vegetation	0–6	None	No change–streambed appeared dry and unvegetated further upstream and any additional alluvium would be thin atop bedrock and confined to the active stream channel.

TABLE 1 – SUMMARY OF TRIBUTARY MAPPING CHANGES

Tributary Name	Source for Streamflow Categorization[A] (river miles[B])	AZGS Geologic Mapping (river miles)		2025 Addendum Subflow Delineation
		2022 Tributaries Report	2025 Addendum	
Lime Creek	2–11.5 on Brown; F&A; TNCA	0–8	+3.5–11.5	Extended the proposed subflow zone to approximately River Mile 11.5 at the confluence of Ash Spring Creek where the perennial and intermittent stream classifications end.
Little Chino Wash	0–4 on Brown; F&A	0–6.5	None	No change - perennial stream classification did not continue beyond the stopping point.
Mint Wash	18–20 on TNCAZ	0–20	None	No objections - tributary was mapped in its entirety and the perennial stream classification did not continue
Pine Creek	10–11.5 and 15–19 on Brown; TNCAZ	0–20	None	No change - perennial stream classification did not continue beyond the stopping point.
Unnamed Tributary to Pine Creek	0–1.5 on Brown	None - should have been mapped based on its perennial stream classification	+ 1.5–1.5	Added the Unnamed Tributary to the proposed subflow zone to approximately River Mile 1.5 where the perennial stream classifications end.
Pumphouse Wash	0–3 on Brown; F&A; TNCAZ	0–12	None	No objections - perennial and intermittent stream classifications did not continue beyond the stopping point.
Red Creek	1–3.5 and 6–7.5 on Brown; TNCAZ	0–9	None	No change - perennial stream classification did not continue beyond the stopping point.

TABLE 1 – SUMMARY OF TRIBUTARY MAPPING CHANGES

Tributary Name	Source for Streamflow Categorization[A] (river miles[B])	AZGS Geologic Mapping (river miles)		2025 Addendum Subflow Delineation
		2022 Tributaries Report	2025 Addendum	
Red Tank Draw	Not on any of the maps; selected on basis of riparian vegetation and streamgage measurements.	0–4	None	No change – Upper reaches of Red Tank Draw flow within a confined bedrock canyon with steep vertical walls and additional alluvium would be thin atop bedrock and confined to the active stream channel
Snake Draw	0–1.5 on Brown	None	+ 1.5–1.5	Added based on perennial stream classification. Mapping terminated at approximately River Mile 1.5, where perennial stream classifications end.
Spring Creek	0–3 on Brown; TNCAZ	0–5	None	No change - geology predominantly changed to bedrock units and the continuous riparian vegetation ended; perennial stream classification did not continue beyond the stopping point.
Sycamore Creek (B)	1.5–6 on Brown; F&A; TNCAZ	0–5	+5–6	Extended the proposed delineation from a southern fork to Sycamore Creek B located at approximately river mile 3.5 to where the perennial stream classification ends. ADWR did not explain the terminations at approximately river mile 5 of the northern fork.
Sycamore Creek (C)	10–34 on Brown; F&A; TNCAZ	0–34	None	No objections - geology changed to bedrock with no additional mappable alluvium beyond the stopping point.

TABLE 1 – SUMMARY OF TRIBUTARY MAPPING CHANGES

Tributary Name	Source for Streamflow Categorization[A] (river miles[B])	AZGS Geologic Mapping (river miles)		2025 Addendum Subflow Delineation
		2022 Tributaries Report	2025 Addendum	
Tangle Creek	4–6.5 and 8–10.5 on Brown; TNCAZ	0–12.5	None	No objections - the tributary was mapped in its entirety; geology changed to bedrock and the perennial stream classification did not continue beyond the stopping point.
Walker Creek	None on any of the maps; ADWR selected due to the presence of riparian vegetation and Certificate of Water Right for Instream Flow Purposes No. 33-90108.	Mile 0–5	None	No change - geology changed to bedrock; any additional alluvium would be thin and confined to the active stream channel.
Walnut Creek and North Fork of Walnut Creek	None on any of the maps; ADWR selected due to the presence of riparian vegetation and an active ISF Application No. 33-96800	9.5–24	+ 1.5–9.5	Added the North Fork of Walnut Creek to river mile 1. where the perennial stream classification ends. -
Webber Creek	10–11.5 on Brown; TNCAZ	0–11	+ 11–11.5	Extended the proposed subflow zone to approximately river mile 11.5 where the perennial stream classification ends.
West Webber Creek	0–3 on Brown	None	+ 0–1.5	Added West Webber Creek to river mile 1.5 where the geology changes to bedrock units.

TABLE 1 – SUMMARY OF TRIBUTARY MAPPING CHANGES

Tributary Name	Source for Streamflow Categorization[A] (river miles[B])	AZGS Geologic Mapping (river miles)		2025 Addendum Subflow Delineation
		2022 Tributaries Report	2025 Addendum	
West Fork of Oak Creek	0–9 on Brown; F&A; TNCAZ	0–9.5	None	No change - perennial and intermittent stream classifications did not continue and any additional alluvium beyond the stopping point would be thin atop bedrock and confined to the active stream channel.
Wet Bottom Creek	1–5.5 on Brown; F&A; TNCAZ	0–5.5	None	No change - perennial and intermittent stream classifications did not continue and there was no additional mappable alluvium beyond the stopping point.
West Clear Creek	0–38 on Brown; F&A; TNCAZ	0–38	None	No objections - the tributary was mapped in its entirety.
Willow Valley	Willow Valley did not appear on Brown or F&A but was selected due to riparian vegetation.	0–6	None	No change - any additional alluvium would be thin atop bedrock and confined to the active stream channel.
Williamson Valley Wash	11.5–16.5 on Brown; F&A; TNCAZ	0–2 and 17–18	+ 10–30	Additional subflow zone was mapped from river mile 10 to 30 where there was FHA and continuous riparian vegetation. No explanation provided for the gap in mapping from 2–10.