May 2024

First Quarter 2024 Monitoring Report Two-Mile Pond Complex Riparian Survey

City of Santa Fe, New Mexico

Photo by Dustin Schwartz
Two-Mile Pond, March 7, 2024

prepared by

JSAI

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WATER-RESOURCE AND ENVIRONMENTAL CONSULTANTS
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FIRST QUARTER 2024 MONITORING REPORT TWO-MILE POND COMPLEX RIPARIAN SURVEY, CITY OF SANTA FE, NEW MEXICO

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May 17, 2024

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CITY OF SANTA FE, NEW MEXICO

1.0 INTRODUCTION

John Shomaker & Associates, Inc. (JSAI) was contracted by City of Santa Fe Public Works Department to provide monthly monitoring of the Two-Mile Pond Complex riparian area from the Restoration Channel staff gage to decommissioned Two-Mile Dam (Figs. 1 through 3). The monitoring area is focused on the riparian area associated with the Restoration Channel and Two-Mile Pond Complex. Six monitoring transects have been identified for assessment of riparian conditions (Fig. 1). JSAI utilized standardized riparian monitoring and assessment methods described by New Mexico Rapid Assessment Method (NMRAM) Field Guide prepared by the New Mexico Environment Department Surface Water Quality Bureau (NMED SWQB) (Muldavin et al., 2022). The NMRAM field guide provides procedures for conducting a rapid ecological assessment of wetlands and riparian areas in the Montane Riverine Wetland Subclass, that occur along unconfined mountain streams and rivers at elevations between 6,000 and 8,500 feet above mean sea level (ft amsl).

1.1 Project Background

The Santa Fe River begins in the Sangre de Cristo Mountains and flows to the Rio Grande. The Two-Mile Pond Complex is in the upper reach of the Middle Santa Fe River hydrologic system (Fig. 1). Reservoirs were established in the Middle and Upper Santa Fe River hydrologic system as a result of securing and developing water supply for the City of Santa Fe (Fig 2). The City reservoirs include:

- Old Stone Dam constructed in 1880, but silted in by 1904
- Two-Mile Dam and Reservoir constructed in 1893 and decommissioned in 1994
- Granite Point (McClure) Dam and Reservoir constructed in 1926
- Nichols Dam and Reservoir constructed in 1943

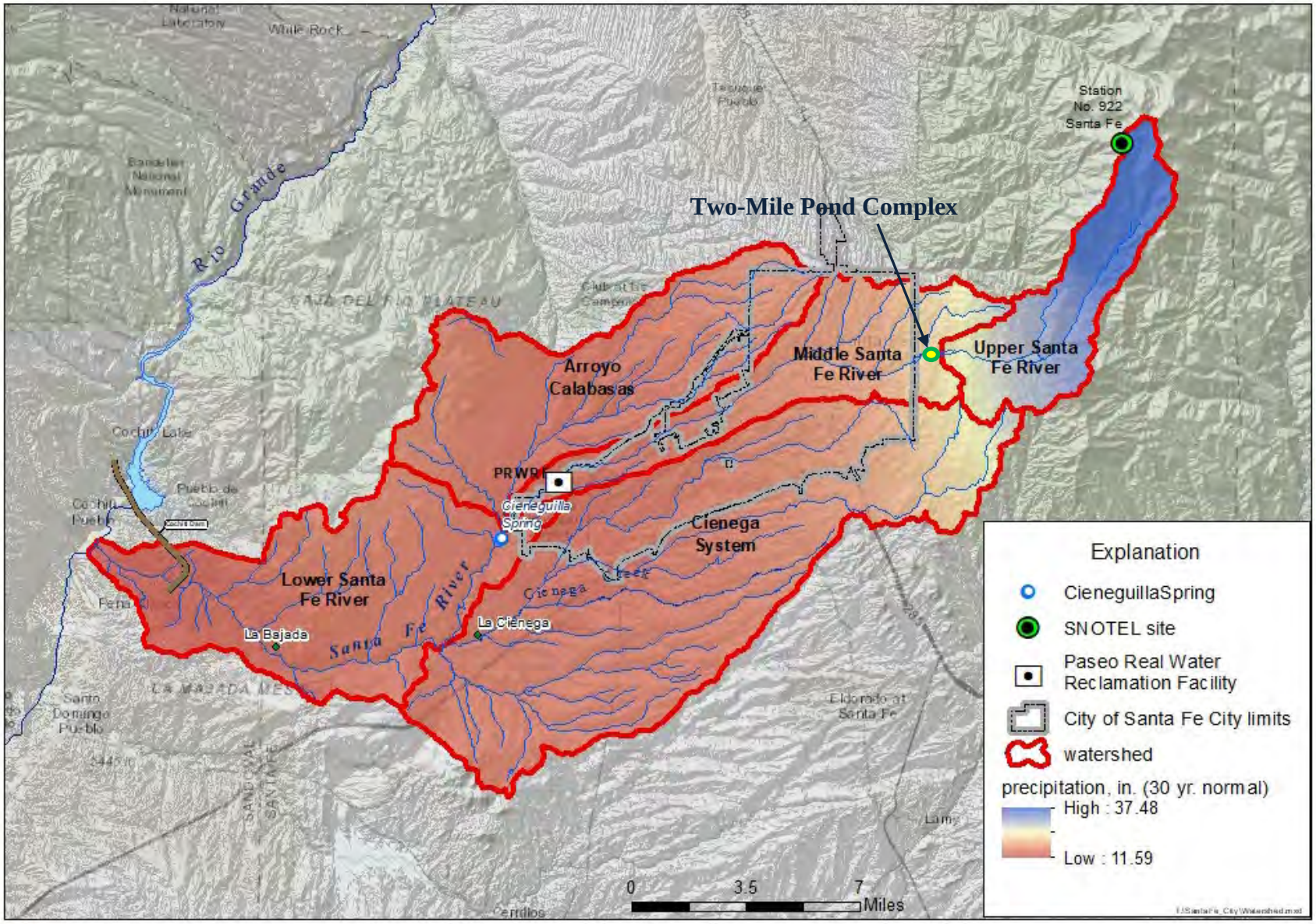


Figure 1. Map of Santa Fe watershed showing location of Two-Mile Pond Complex.

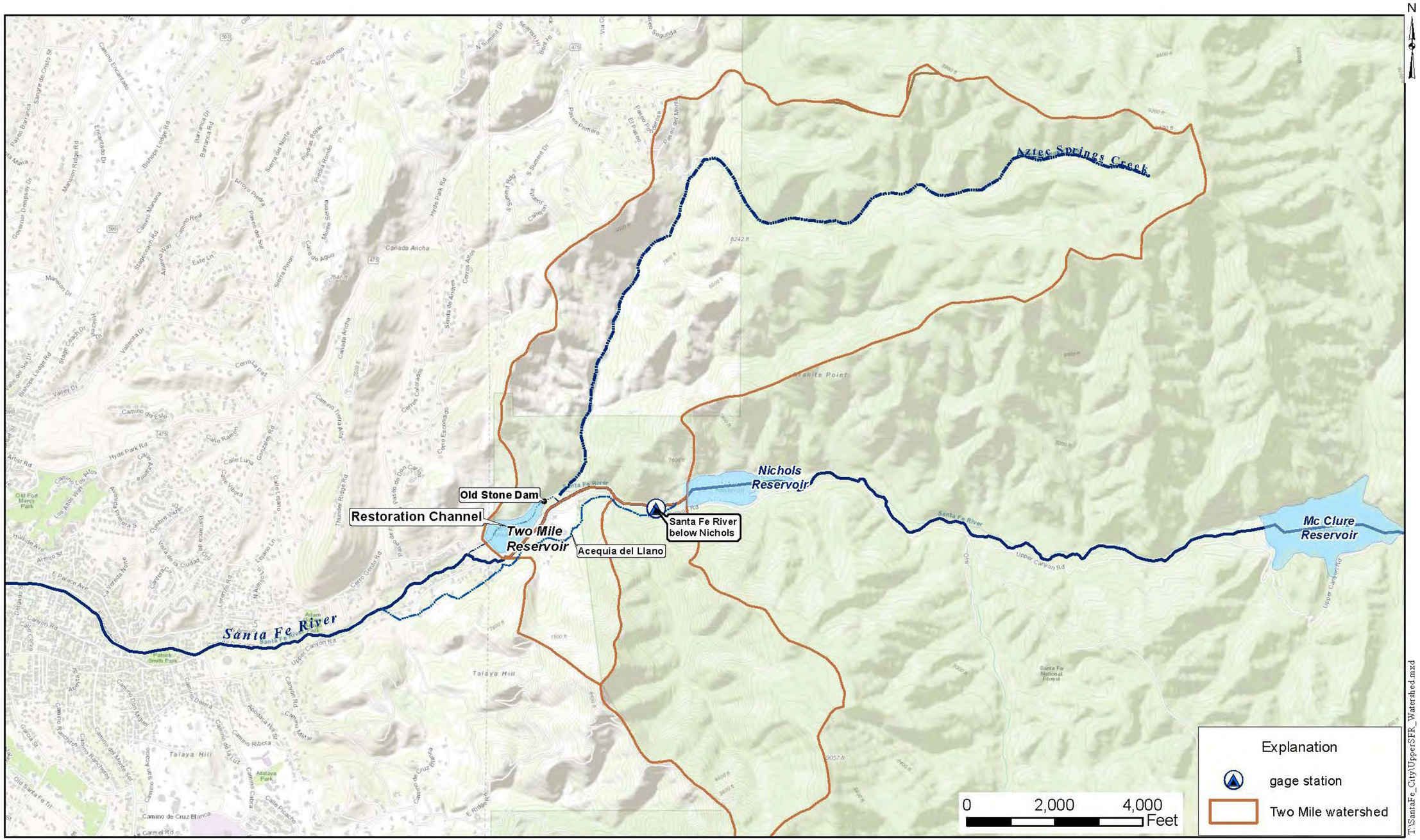


Figure 2. Map showing location City of Santa Fe Reservoirs, Santa Fe River, and Two-Mile Pond receiving watershed.

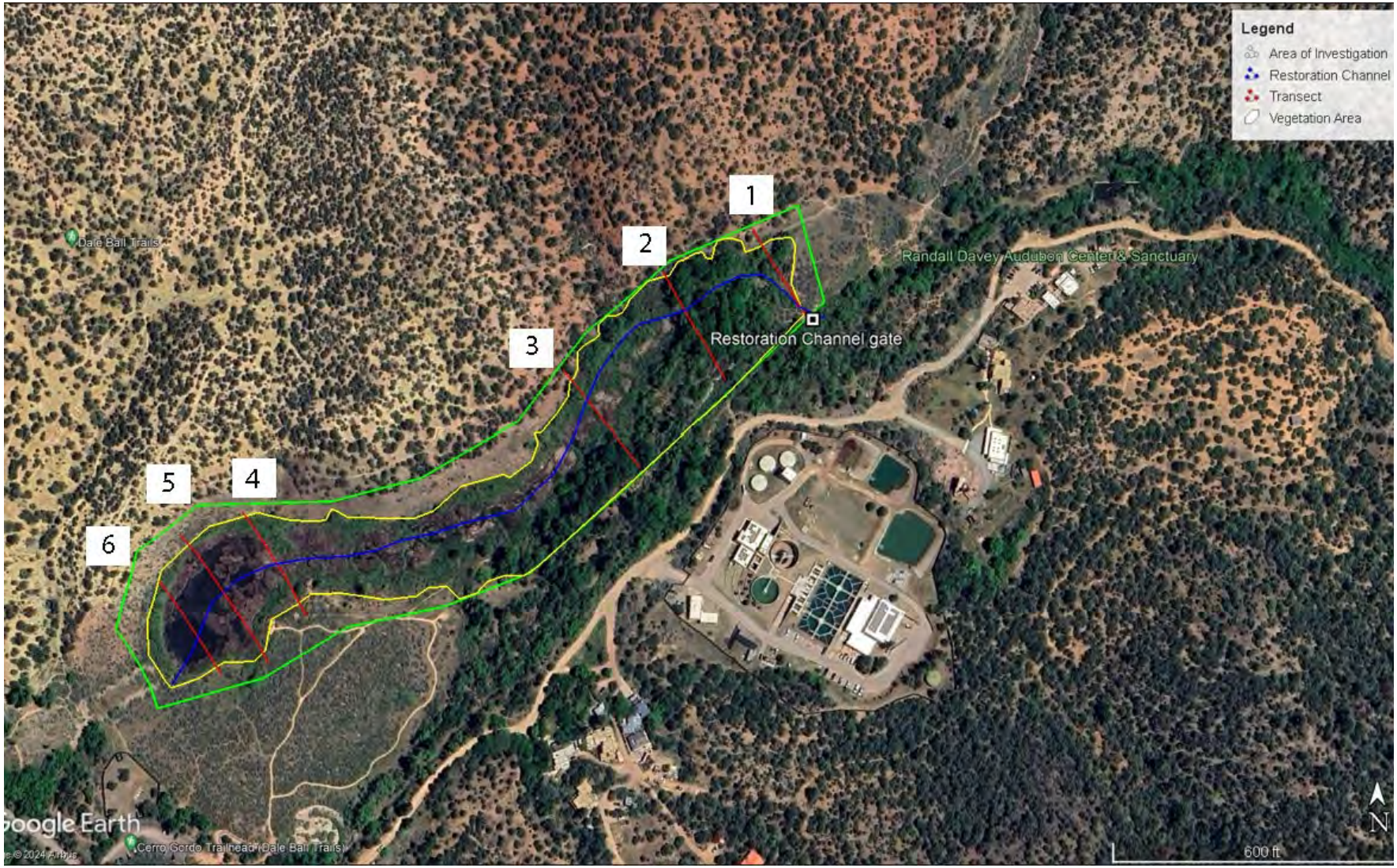


Figure 3. Landscape-scale map showing the Two-Mile Pond Complex and area of investigation on June 7, 2023 aerial photograph.

The Two-Mile Pond Complex is the result of restoration of the decommissioned Two-Mile Dam that was constructed in the Santa Fe River canyon. The Two-Mile Pond Complex was donated to The Nature Conservancy (TNC) in 2000, which converted it into the "Santa Fe Canyon Preserve." Features of the Two-Mile Pond Complex include:

- Restoration Channel
- Remnants of Old Stone Dam
- Remnants of decommissioned Two-Mile Dam
- Established riparian area along the Restoration Channel in the former footprint of Two-Mile Reservoir

The City of Santa Fe Ordinance 2012-10 established the Santa Fe River Target flows for a Living River Initiative. Target Flows are Santa Fe River flows originating from above McClure Reservoir that are bypassed (water that flows past a diversion or storage facility) and released to Santa Fe River at the base of Nichols Dam. Since 2012, target flows have run through Two-Mile Complex via the Santa Fe River and Restoration Channel. Other bypass flows include those for court ordered acequia deliveries downstream of the Two-Mile Complex.

Santa Fe River bypassed flows are waters of the State. In 2023, the New Mexico Office of the State Engineer (NMOSE) determined that Restoration Channel diversions from the Santa Fe River and storage in Two-Mile Pond had no supporting water right permit, and ordered a stop to these diversions and storage of water. There are concerns that these changes in streamflow conditions through the Two-Mile Pond Complex will alter the established riparian system. The primary objective of assessing the Two-Mile Pond Complex riparian area is to determine current conditions and health of the system, and affects due to changes to the hydrologic regime.

1.2 Scope of Work

The intentions of the quarterly monitoring reports are to provide a summary of the project, present data collected to date, to provide an assessment of the collected data, and to present observations and findings. The quarterly monitoring reports are to include:

- field datasheets (Appendix D)
- landscape map (Fig. 3)
- sampling rank and score and assessment summary (Table 2)
- stressor checklist (Appendix D)
- sampling area rank and score and assessment summaries (Table 6)
- water flows and budget from the streamflow monitoring network
- observed changes in surface water and soil moisture conditions

2.0 SUMMARY OF EXISTING DATA AND INFORMATION

Available existing data and information were compiled for the Two-Mile Pond Complex, which were limited to NMED riparian habitat mapping, historical imagery, and streamflow monitoring performed for Santa Fe Water Division.

2.1 NMED SWQB

The NMED SWQB has prepared a riparian habitat map of the Two-Mile Pond Complex portion of the Santa Fe River (Fig. 4). Each colored section represents a different habitat in the Two-Mile Pond area. These Habitats were used as a guideline in completing Worksheet 5 and B1 of the Montane Riverine Wetlands field worksheets. It should be noted that habitat IA1 in this model appears to be exaggerated and was not included in the field observations.

2.2 Google Earth Images

Google Earth historical aerial imagery for the Two-Mile Pond Complex were available for 1991 to 2023. Historical imagery can be referenced from Appendix A. The Restoration Channel and area of investigation were placed on each image for reference. A summary of the historical images reviewed is presented in Table 1. The Two-Mile Pond Complex riparian area begins around 1996, and significant tree canopies are observed by 2005. Since Two-Mile Dam and Reservoir were decommissioned, the riparian area was established and ponded water has been observed in Two-Mile Pond.

Table 1. Summary of the historical images for Two-Mile Pond Complex

Google Earth image date	approximate combined area of riparian and surface water (acres)	observations
May 25,1991	na	Two-Mile Reservoir operational
October 8, 1996	8.86	4 years after Two-Mile decommissioned
December 6, 2002	9.52	significant drought period
May 10, 2004	8.32	prior to SFR target flows
April 26, 2005	9.67	established tree canopies
May 8, 2009	9.39	water present in Two-Mile Pond
June 16, 2011	8.38	beaver ponds present
October 2, 2013	9.96	beaver ponds present
November 1, 2015	10.00	water present in Two-Mile Pond
June 10, 2017	9.64	water present in Two-Mile Pond
March 2, 2021	9.38	water present in Two-Mile Pond
June 7, 2023	10.40	water present in Two-Mile Pond

SFR – Santa Fe River

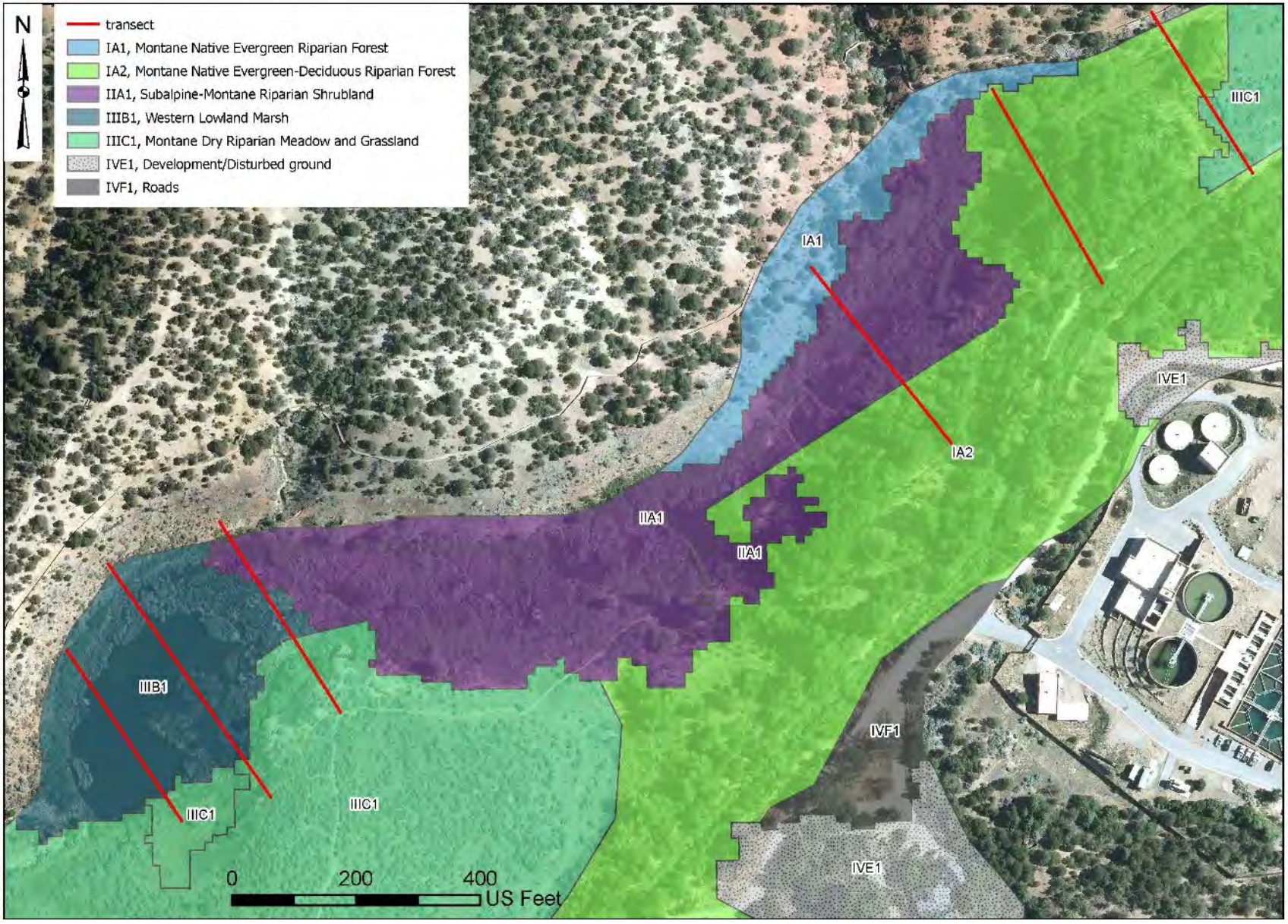


Figure 4. Map showing NMED SWQB defined riparian habitat zones for Two-Mile Pond Complex.

The combined riparian and surface-water area was estimated from each historical image after 1996. Over the last 28 years, the combined riparian and surface-water area has varied between 8.32 and 10.40 acres. For 2013 to current, the average area has been about 10 acres. The primary change in the riparian area has been the development of the tree canopy, particularly from 2005 to current.

2.3 NDMI Images

Normalized Difference Moisture Index (NDMI) from Modified Copernicus Sentinel Data is used to determine vegetation water content and monitor droughts. The values range from -1 to 1 with negative values representing barren soil, values around zero correspond to water stress, and positive values represent vegetative canopy without water stress. NDMI images for January 16, 2024, February 5, 2024, and March 3, 2024 can be referenced from Appendix B. The quality of the imagery depends on degree of cloud cover.

2.4 NDVI Images

Normalized Difference Vegetation Index (NDVI) from Modified Copernicus Sentinel Data are used to quantify green vegetation. It is a measure of the state of vegetation health based on how plants reflect light at certain wave lengths. The values range from -1 to 1 with negative values representing water, values around zero correspond to barren areas of rock, sand, or snow, low positive values represent shrub and grassland, and high positive values represent forested areas. NDVI images for January 16, February 5, 2024 and March 3, 2024 can be referenced from Appendix C.

2.5 Streamflow Monitoring

The City of Santa Fe Water Division has contracted JSAI to install and maintain several continuous streamflow monitoring points in the Two-Mile Pond Complex area (Fig. 5).

The gage *Santa Fe River below Nichols* monitors all bypass flows below Nichols Dam. The river channel at the gage *Santa Fe River below Nichols* was clogged with fallen trees during this last winter, which affected access and potentially validity of recorded streamflow data. Therefore, data from this monitoring point are currently not available until it is compared to measured flows from Santa Fe Water operations at Nichols Reservoir.

The Two-Mile return 6-inch Parshall flume monitors all streamflow exiting the Two-Mile Pond Complex. JSAI has been monitoring this flume for the past few years. There have been issues with maintaining the flume, such as suspended sediment and organic debris clogging the ports for the stilling well and flume entrance. Transducer data from the flume are currently under review, however field measurements are presented on Figure 6.

An existing 90° v-notch weir in the Santa Fe River next to Two-Mile Pond was modified by expanding the weir dimensions. At the beginning of March 2024, the v-notch weir was built up and equipped with a stilling well and transducer to accommodate flow measurements up to 6 cubic feet per second (cfs). The v-notch weir next to Two-Mile Pond measures Santa Fe River flows upstream of the Two-Mile Pond return (Fig. 5).

At the beginning of February 2024, a 90° v-notch weir was installed in the Santa Fe River below the confluence of Two-Mile Pond returns and Santa Fe River. The weir is equipped to provide continuous monitoring of flows up to 6 cfs in the Santa Fe River below Two-Mile Pond return.

Hydrographs were prepared for the time period January 1 to March 31, 2024 (Fig. 6). Santa Fe River flows next to Two Mile Pond had a base flow of 0.1 from Nichols Dam ranged from 0.1 to 0.5 cfs during the First Quarter of 2024. Streamflow measured at the Two-Mile return flume ranged from 0.16 to 0.40 cfs, and average 0.24 cfs during the First Quarter of 2024. Santa Fe River flows below the confluence with Two-Mile Pond returns ranged from 0.1 to 0.7 cfs. Water temperature is plotted with measured flows which ranged between 0 and 16 degrees Celsius.

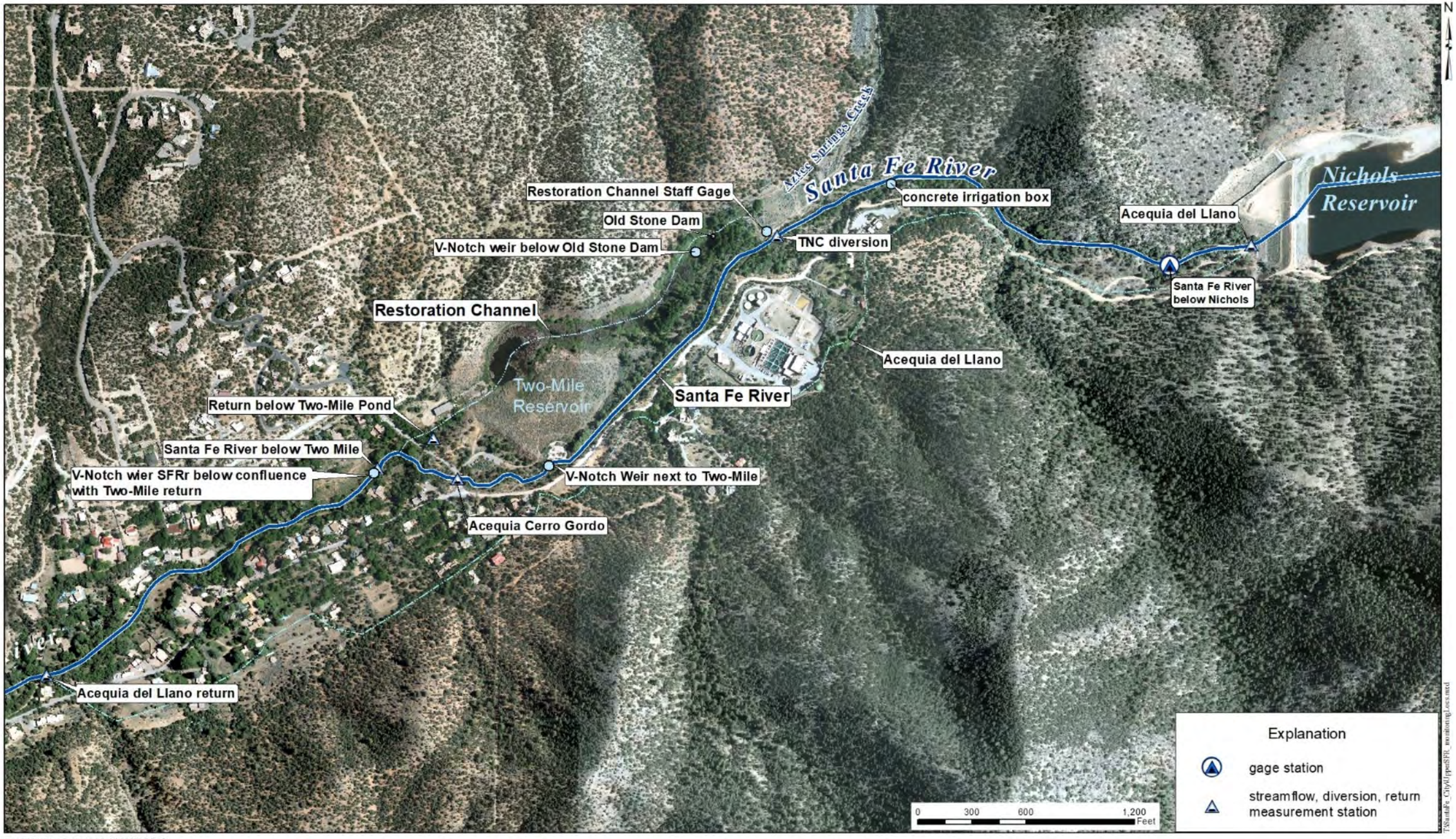
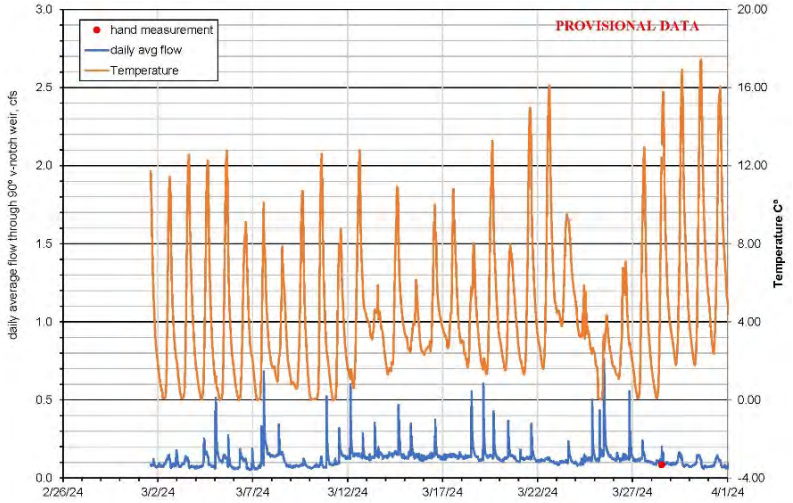
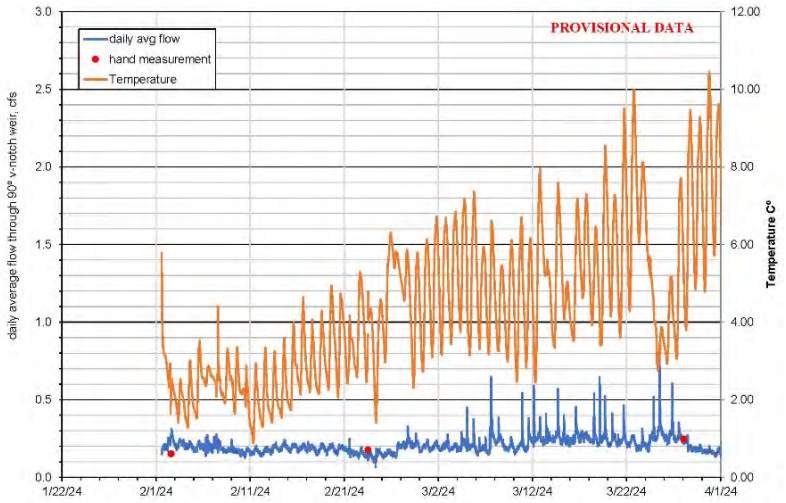


Figure 5. Map of Two-Mile Pond Complex showing streamflow monitoring stations:

(a) Santa Fe River next to Two Mile Pond and



(b) Santa Fe River below Two-Mile Pond returns



(c) Two Mile Pond Return

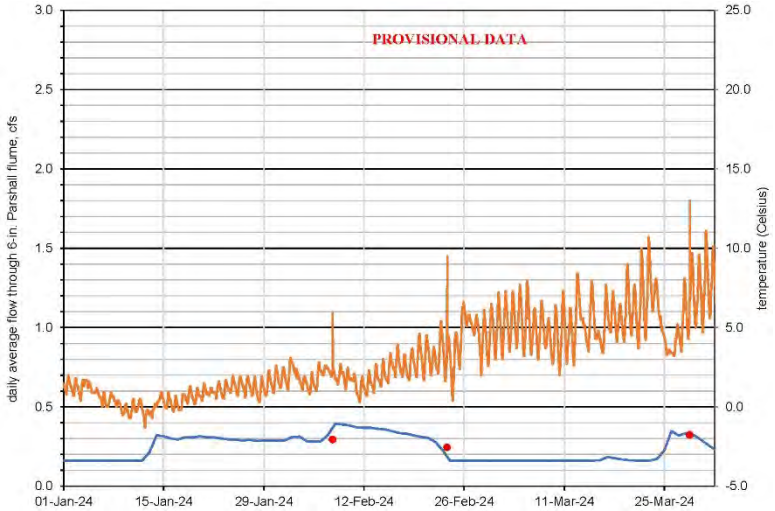


Figure 6. Hydrographs for First Quarter 2024 of (a) Santa Fe River next to Two Mile Pond, (b) Santa Fe River below Two Mile Pond returns, and (c) Two-Mile Pond returns (below Two-Mile).

3.0 RIPARIAN MONITORING

The monitoring period is January to December 2024. Field investigations are performed monthly during the growing season between March and November.

3.1 March 7, 2024 Field Investigation

The New Mexico Rapid Assessment Method (NMRAM) Montane Riverine Wetlands data sheets for assessment of Two-Mile Pond on March 7, 2024 can be referenced from Appendix D, including the stressor checklist. Field photographs are presented in Appendix E.

Category scores are graded on a scale from 1 to 4 (higher numbers are more desirable indicating better health and riparian condition). Table 2 is a summary of the scoring and ranking method. Each transect is graded independently and the resulting grades are multiplied against a weighted ratio and combined to give each transect a wetland condition score.

Table 2. NMRAM scoring and ranking description

rank	score	description
A	≥3.25 - 4.0	excellent condition
B	≥2.5 - <3.25	good condition
C	≥1.75 - <2.5	fair condition
D	1.0 - <1.75	poor condition

NMRAM - New Mexico Rapid Assessment Method

3.1.1 Landscape Context

Landscape maps (Figs. 3 and 4, Appendix A) and field observations were used to evaluate the Landscape Context metrics such as surrounding land use and riparian connectivity. A summary of the landscape context metric scoring is presented as Table 3.

Table 3. Average scores for landscape context metrics

landscape context metric	average score
buffer integrity index	3.00
riparian corridor connectivity	4.00
relative wetland size	4.00
surrounding land use	2.00
total	3.25

3.1.2 Biotic Metrics

Biotic metric scores were calculated using the Montane Riverine Wetlands Field Guide method of ranking a riparian area. Each category has a set of biotic measurements and observations that are recorded in the field and then combined to result in a final ranking for the riparian area. Table 4 shows the average of all six transects for the total biotic component of Two-Mile Pond reservoir. Results from all transects can be found in Appendix D.

Table 4. Average scores for biotic metrics

biotic metrics	average scores*
relative native plant community composition	2.83
vegetation horizontal patch structure	2.83
vegetation vertical structure	2.83
native riparian tree regeneration	3.00
invasive exotic plant species cover	2.83
total	2.87

* As plant life becomes more active and easier to identify, the biotic data and subsequent score will include species and riparian indicators

Along six different transects of the investigated area biotic factors were documented. Signs of birds, deer, and some insects were seen throughout the area below Old Stone Dam. New seedlings and sprouts of spring growth were popping up throughout the entire area but most of the flora was still dormant from winter. An area just north of Transect 3, which is located between Two-Mile Pond and the 'beaver dams,' was particularly populated with many birds. No birds were specifically identified but the noise coming from the area was distinct and notable. Gold fish were seen swimming in Two-Mile Pond, which was surrounded by dormant cattails and willows. Overall biotic life is recovering from the winter and more flora and fauna are expected to appear in the following months.

3.1.3 Abiotic Metrics

Scores were calculated using the Montane Riverine Wetlands Field Guide method of ranking a riparian area. Each category has a set of abiotic measurements and observations that are recorded in the field and then combined to result in a final ranking for the riparian area. There are four abiotic metrics that reflect the physical status of the riparian area:

1. Physical Patch Complexity, which is a measure of the physical structural complexity of a site that contributes to ecological richness.
2. Channel Equilibrium, which is the assessment of the degree of channel aggradation or degradation relative to reference equilibrium conditions.

3. Steam Bank Stability and Cover, which is a measure of stream bank soil/substrate stability and erosion potential that reflect overall stream bank stability.
4. Soil Surface Condition reflects anthropogenic soil disturbance impacts within the sampling area

Because of the circumstances of Two-Mile Pond "Floodplain Hydrologic Connectivity" was not accounted for since its results could be misleading and its importance is not relevant to this particular investigation. Table 5 shows the average of all six transects for the total abiotic component of Two-Mile Pond reservoir. Results from all transects can be found in Appendix D.

Table 5. Average scores for abiotic metrics

abiotic categories	average score
physical patch diversity	2.50
channel equilibrium	4.00
stream bank stability and cover	4.00
soil surface condition	3.67
total	3.54

Two-Mile Pond is covered in leaves and debris from winter especially in the high forest areas of the reservoir. The leaves have drifted down and in some areas of the stream, 'beaver dams' or stormflow dams have been created and can hold a significant amount of water, which creates micro-habitats across the area below Old Stone Dam. The channels and waterways themselves are surrounded by thick walls of willows and cattails that keep the banks from eroding. The streams themselves appear to be in a state of equilibrium and there are no signs of active degradation or aggradation that were noticeable at this time. The anthropogenic disturbance also appears low considering the popularity of the area's trails. Overall, the abiotic components of the riparian area appear to rank on the higher end of the scoring throughout Two-Mile Pond Complex.

3.1.4 Summary Riparian Metrics Ranking

The Landscape Context, Biotic, and Abiotic metrics for each transect are ranked and scored using NMRAM. The weighted average for each metric is calculated, tabulated, and ranked using the scoring method summarized in Table 2. The Two-Mile Pond Complex riparian area ranking is summarized in Table 6. For Landscape Context metrics, the surrounding land use has the lowest score because of urban encroachment. The weighted average scores for Biotic metrics were all similar. For Abiotic metrics, the Physical Patch Diversity had the lowest score. Transects 1, 2, and 6 have a riparian ranking of B, where Transects 3, 4, and 5 have a riparian ranking of A. The difference between A and B ranking is attributed to the dry portions of the transects on the margin of the riparian area.

Table 6. Summary of Two-Mile Pond Complex riparian area metrics ranking

NMRAM	weight	transects						
metric description	**wt**	**1**	**2**	**3**	**4**	**5**	**6**	**total**
landscape context								
buffer integrity index	0.25	3.0	3.0	3.0	3.0	3.0	3.0	3.0
riparian corridor connectivity	0.25	4.0	4.0	4.0	4.0	4.0	4.0	4.0
relative riparian size	0.25	4.0	4.0	4.0	4.0	4.0	4.0	4.0
surrounding land use	0.25	2.0	2.0	2.0	2.0	2.0	2.0	2.0
biotic								
relative native plant community composition	0.20	2.0	4.0	2.0	4.0	3.0	2.0	2.8
vegetation horizontal patch structure	0.20	2.0	2.0	4.0	3.0	3.0	3.0	2.8
vegetation vertical structure	0.20	3.0	3.0	3.0	3.0	3.0	2.0	2.8
native riparian tree regeneration	0.20	2.0	4.0	3.0	3.0	3.0	3.0	3.0
invasive exotic plant species cover	0.20	3.0	4.0	3.0	3.0	2.0	2.0	2.8
abiotic								
physical patch diversity	0.25	2.0	2.0	3.0	2.0	3.0	3.0	2.5
channel equilibrium	0.25	4.0	4.0	4.0	4.0	4.0	4.0	4.0
stream bank stability and cover	0.25	4.0	4.0	4.0	4.0	4.0	4.0	4.0
soil surface condition	0.25	4.0	2.0	4.0	4.0	4.0	4.0	3.7
major attribute								
landscape context	0.30	3.3	3.3	3.3	3.3	3.3	3.3	3.3
biotic	0.35	2.4	3.4	3.0	3.2	2.8	2.4	2.9
abiotic	0.35	3.5	3.0	3.8	3.5	3.8	3.8	3.5
RIPARIAN CONDITION SCORE	Σ	3.0	3.2	3.3	3.3	3.3	3.1	3.2
RIPARIAN RANK		B	B	A	A	A	B	B

3.1.5 Soil Moisture

Soil moisture was measured every 15 feet from the southeast end of a transect to the northwest end. Moisture was measured using a conductance-style moisture meter, which had a probe depth 6 inches. The moisture meter gives results from a scale of 1 to 10, which is a relative indicator of moisture based on conductivity of water in the soil. This device helps us get a general idea of where water might be concentrated in the ground and over time, we will be able to see how this parameter changes. The northwest side of these transects are not always accessible due to thick willows but readings are made until water is reached or until willows become too thick to enter. Willow thickets indicate high moisture areas. Field notes from the soil monitoring can be found in Appendix D.

The soil moisture data for March 7, 2024 were contoured, interpretations were made between data points using imagery (see Figs. 7 and 8).

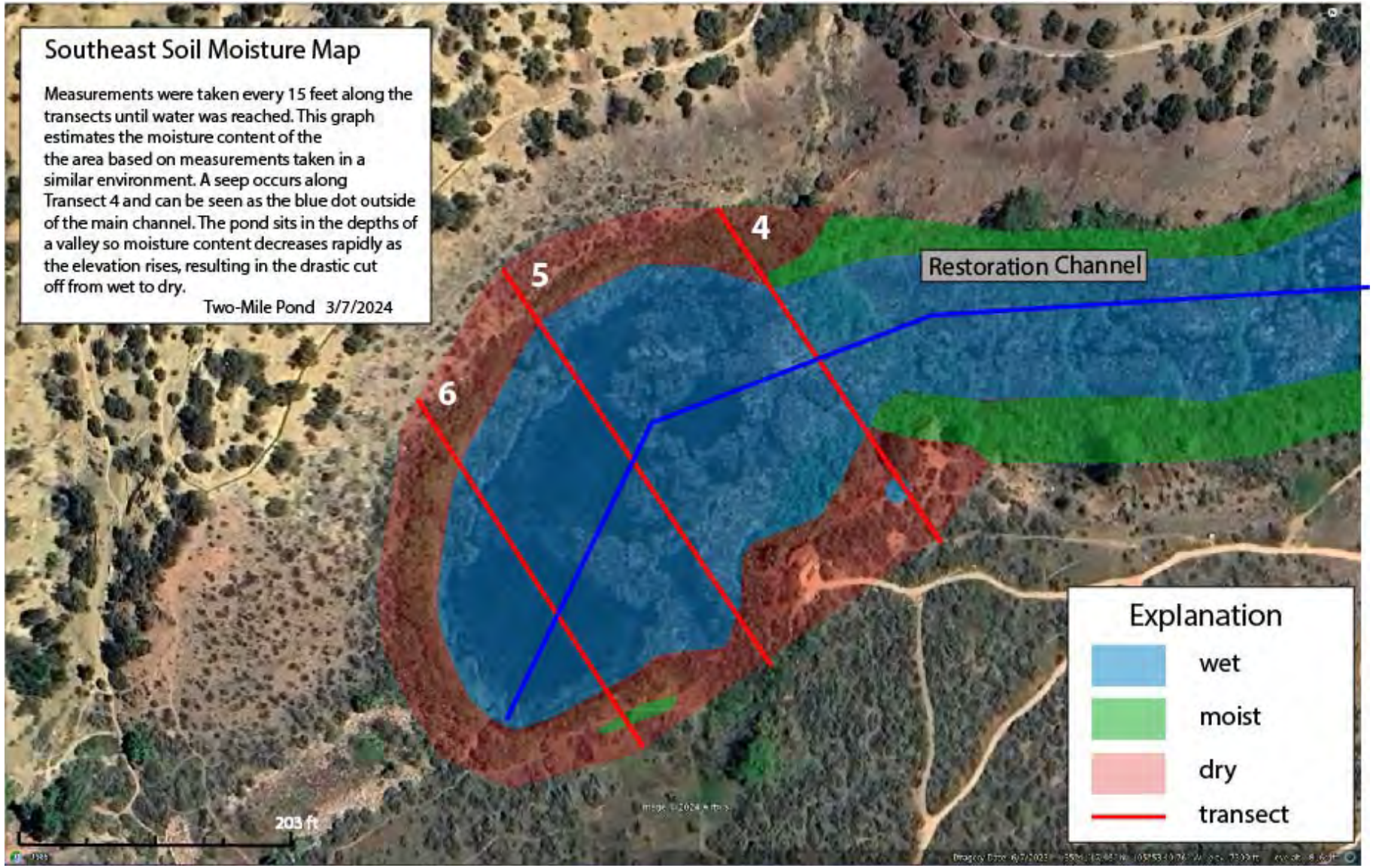


Figure 7. Map showing March 7, 2024 soil moisture distribution for the lower half of the Two-Mile Pond Complex.

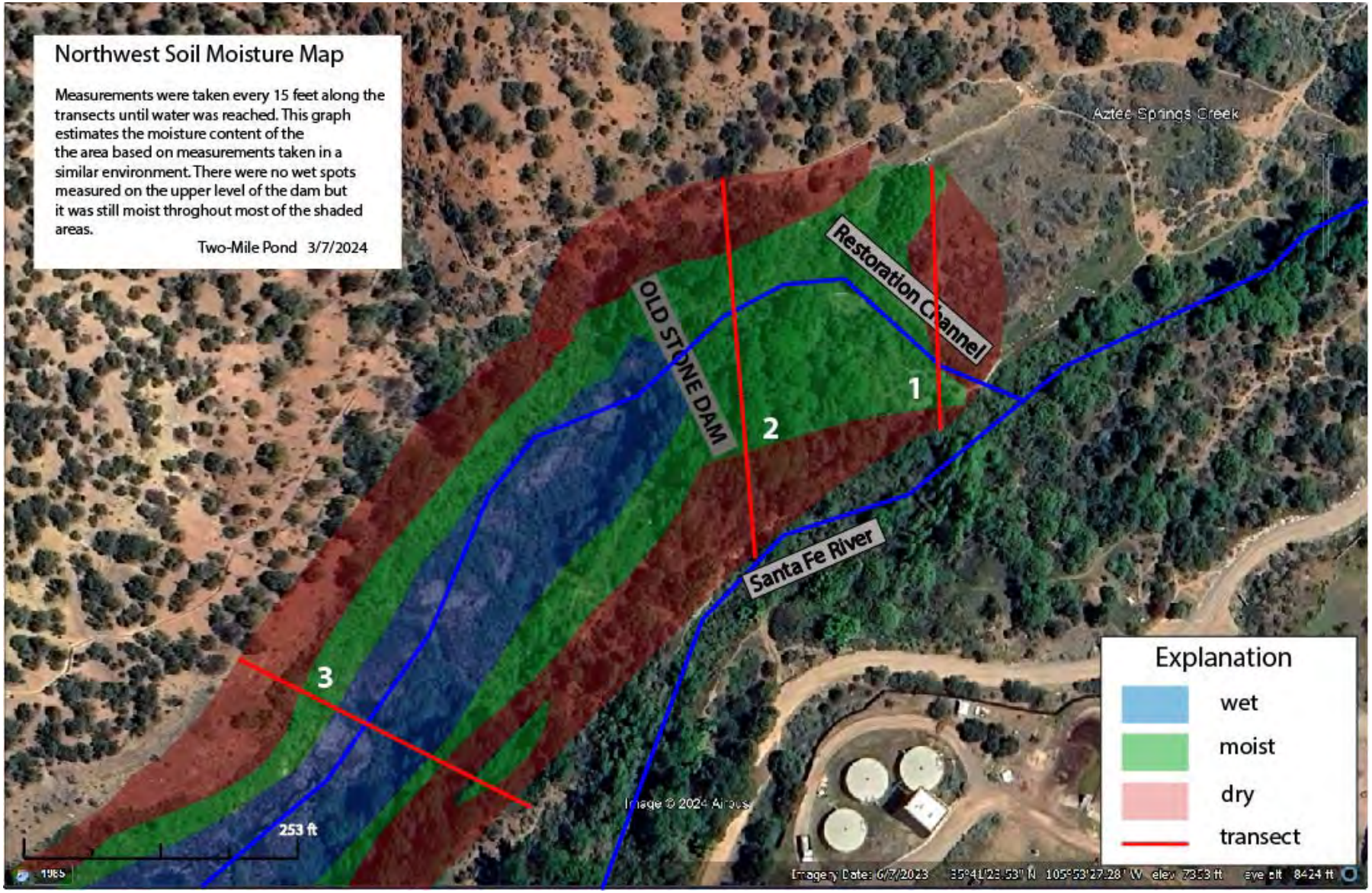


Figure 8. Map showing March 7, 2024 soil moisture distribution for the upper half of the Two-Mile Pond Complex.

4.0 SUMMARY OF FINDINGS

The Two-Mile Pond Complex riparian area started after the decommissioning of Two-Mile Dam and Reservoir in 1992, and has been about the same size for over the last 20 years. Large tree canopies above and below Old Stone Dam became evident around 2005. See historic imagery in Appendix A.

During the March 7, 2024 field investigation, most of the soils in the Two-Mile Pond riparian area are moist to wet, with the exception of the upstream end above Old Stone Dam and the southern margins of the upper half of the area of investigation (see Figs. 7 and 8).

Streamflow through Two-Mile Pond Complex during the First Quarter originated from groundwater discharge at the base of Old Stone Dam. The outflow from Two-Mile Pond ranged from 0.16 to 0.40 cfs, and averaged 0.24 cfs.

For March 7, 2024, the Two-Mile Pond Complex riparian ranking is between B (good condition) and A (excellent condition). An excellent condition (A) riparian system has intact functions and processes, diverse vegetative communities with almost no exotic weeds, is relatively large compared to its historical size, and has natural buffers. These riparian systems are largely undisturbed and provide an excellent habitat for native flora and fauna.

A good condition (B) is somewhat degraded in response to environmental stressors. Riparian areas with a B ranking have various combinations of relatively minor disturbances or factors negatively affecting condition (e.g. some alteration of the hydrological regimes; evidence of on-site anthropogenic disturbances; a reduction of vegetative community and structural diversity with the presence of some exotic weeds).

The current conditions of Two-Mile Pond Complex riparian area look promising to provide a good-excellent ecosystem for the coming year. Additional, monthly field investigations are needed to assess potential changes in biotic and abiotic metrics. Monthly field investigations will be conducted and with increased biotic life recovering from dormancy more species are expected to be identified and monitored to observe the changes in Biotic and Abiotic metrics throughout the duration of the investigation.

5.0 REFERENCES

Modified Copernicus Sentinel Data, https://www.sentinel-hub.com/ Modified Copernicus Sentinel data [2024]/Sentinel Hub

Muldavin, E.H., Bader, B., Milford, E.R., McGraw, M., Lightfoot, D., Nicholson, B., and Larson, G., 2011, New Mexico Rapid Assessment Method: Montane Riverine Wetlands, Version 1.1. Final report to the New Mexico Environment Department, Surface Water Quality Bureau, Santa Fe, New Mexico, 90 pp. and appendices.

Muldavin, E., Milford, E., Triepke, J., Gonzalez, C., Urbanovsky, A., McCartha, G., Kennedy, A., Chauvin, Y., Smith, J., Leonard, J., Elliot, L., Hanberry, P., Diamond, D., and Clark, A.E., 2022, New Mexico Riparian Habitat Map (NMRipMap): Version 2.0 Plus. New Mexico Natural Heritage, Museum of Southwestern Biology, University of New Mexico; USDA Forest Service, Southwest Region; Missouri Resource Assessment Partnership (MoRAP), University of Missouri, and USDA Forest Service, Geospatial Technology and Applications Center (GTAC), Salt Lake City, UT, Accessible at nhnm.unm.edu/riparian/nmripmap.

APPENDICES

Appendix A.

Historical Google Earth Images of Two-Mile Pond Complex

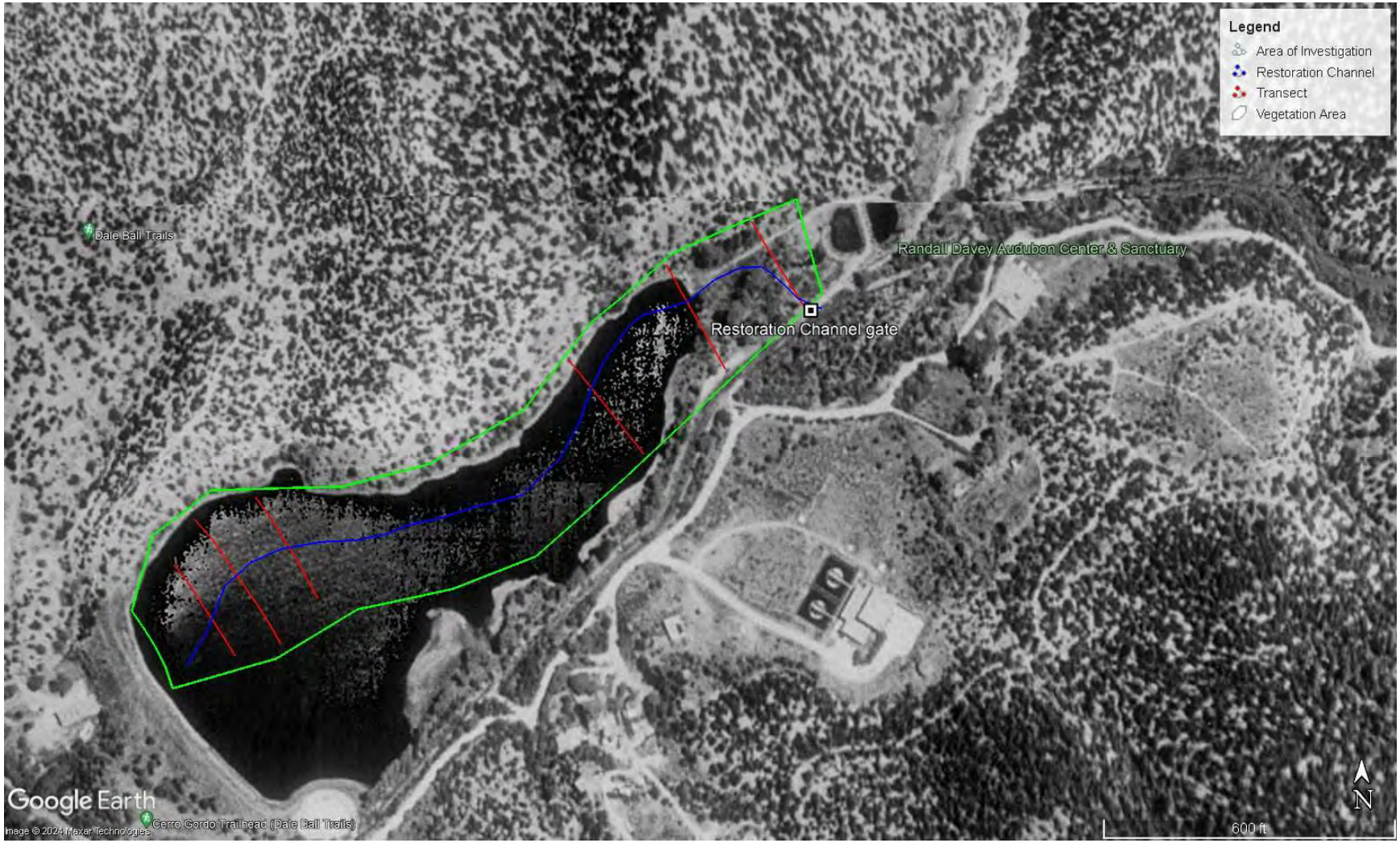


Figure A1. Historical image of Two-Mile Pond Complex dated May 25, 1991.

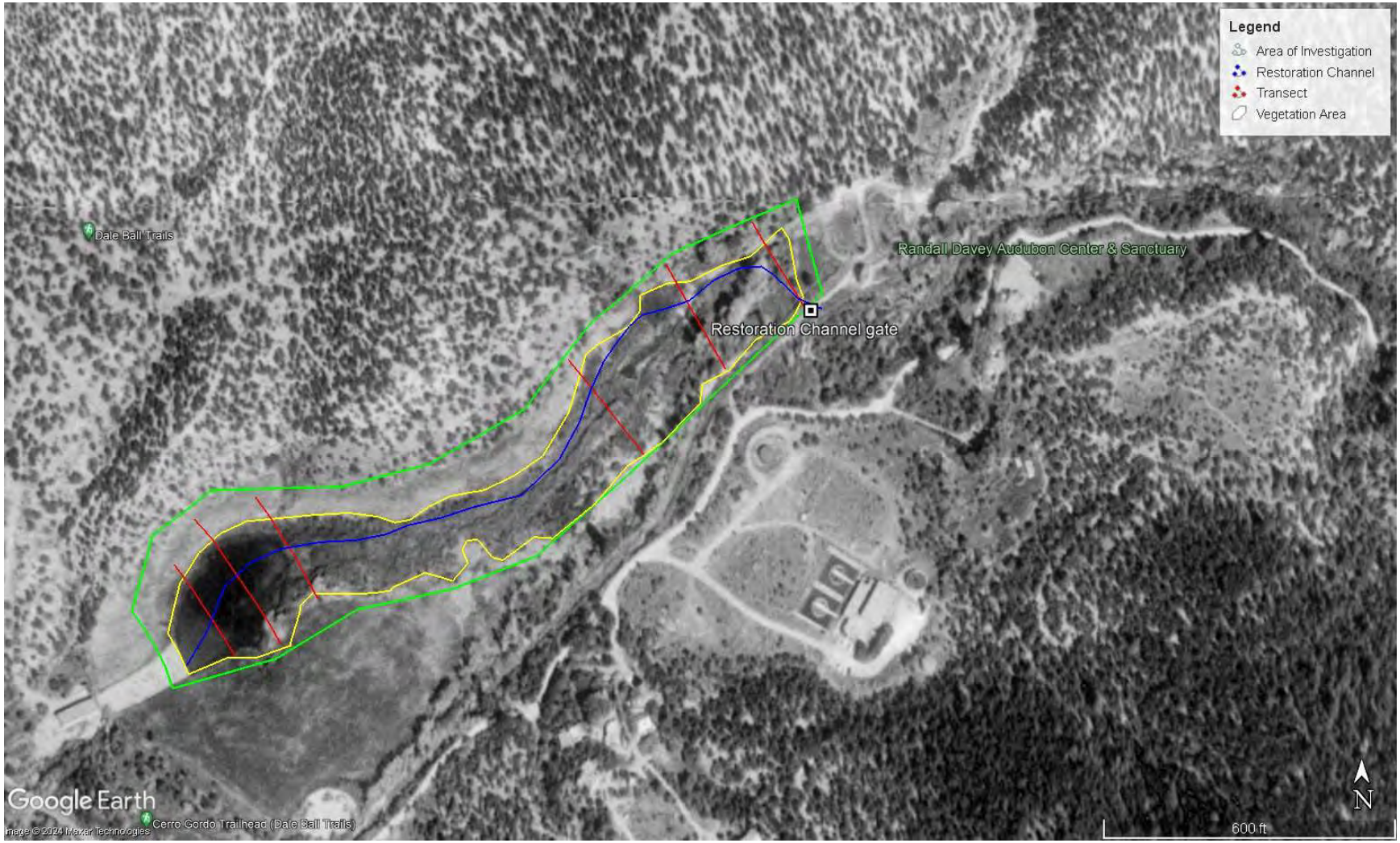


Figure A2. Historical image of Two-Mile Pond Complex dated August 10, 1996.

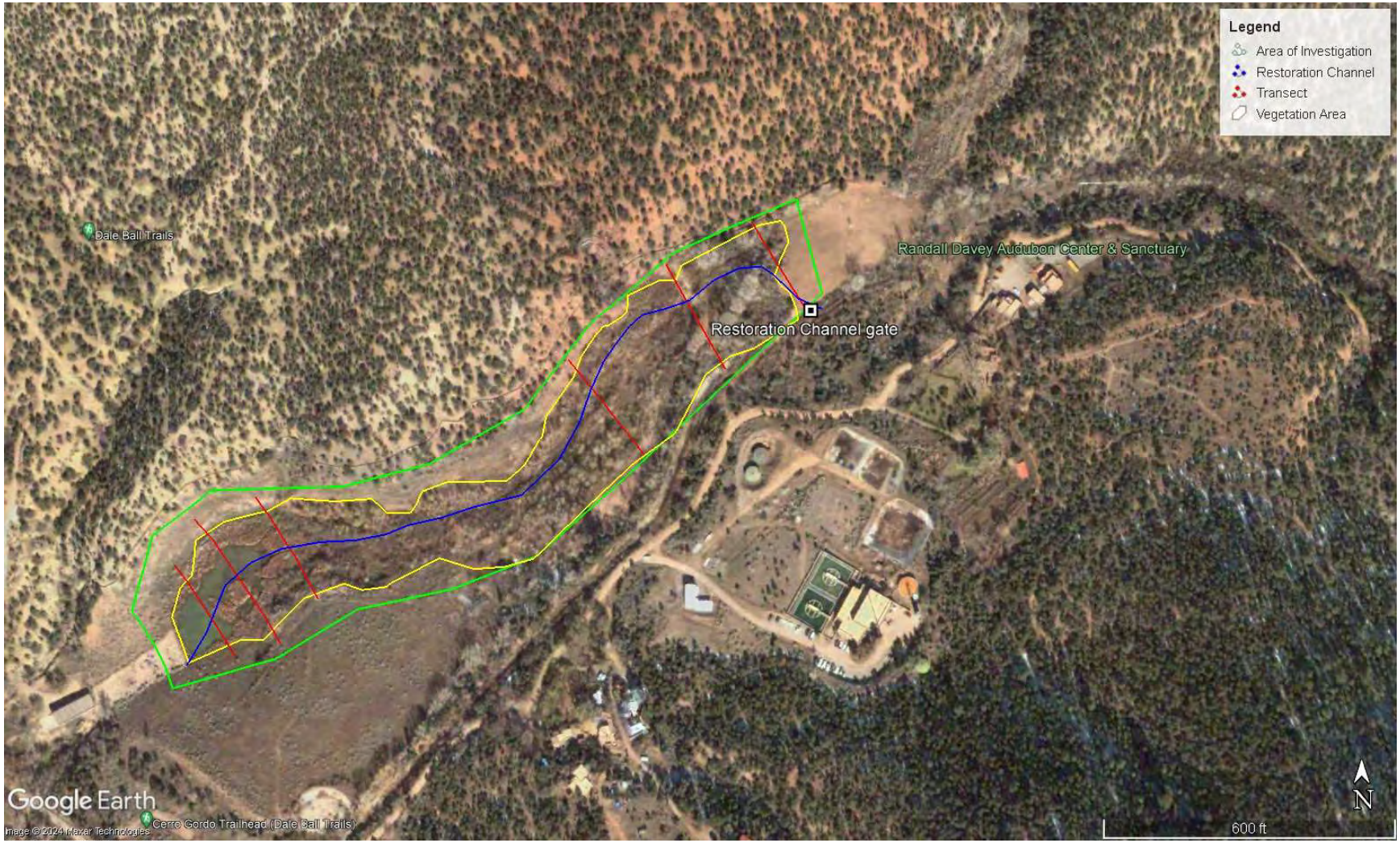


Figure A3. Historical image of Two-Mile Pond Complex dated December 6, 2002.

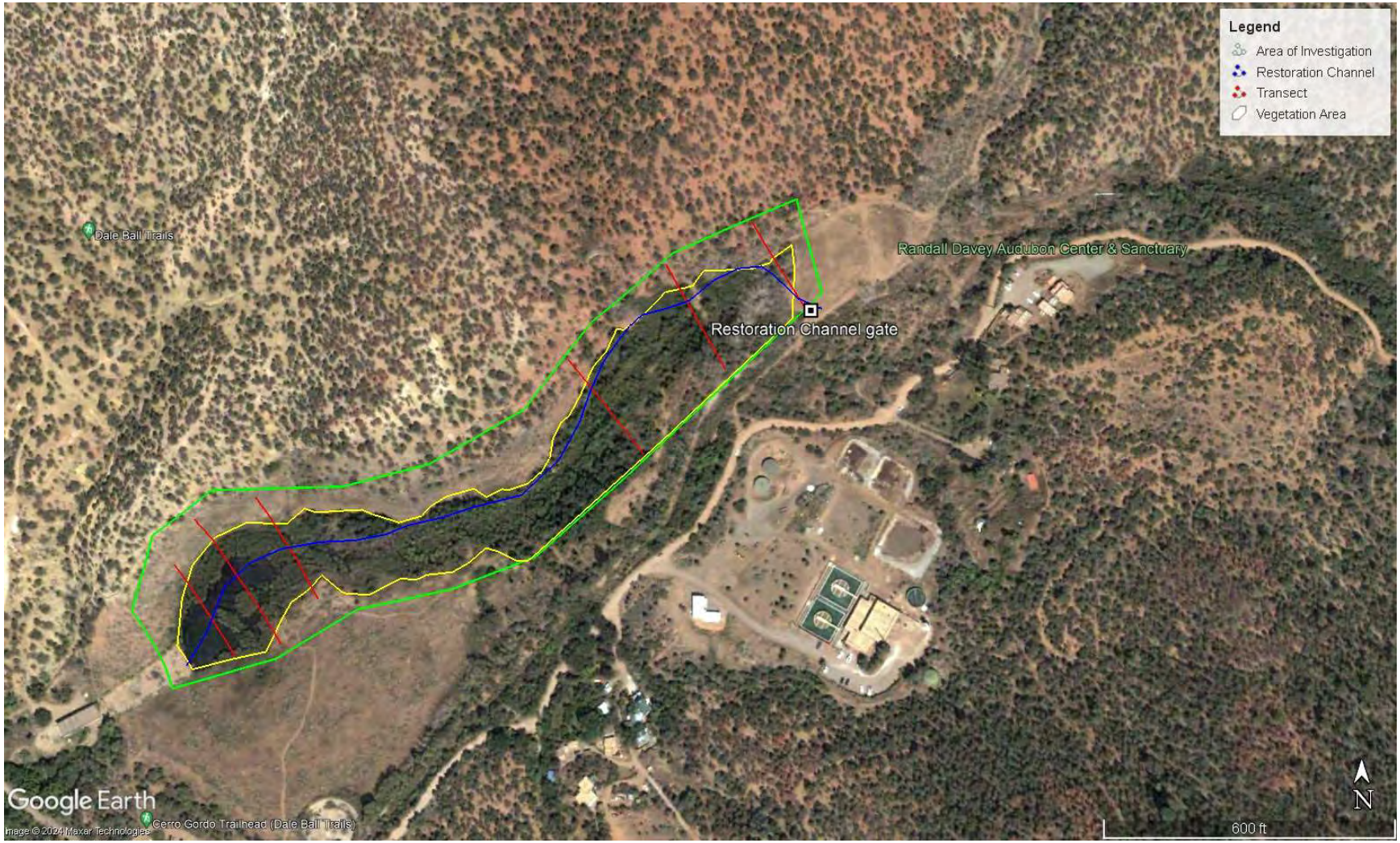


Figure A4. Historical image of Two-Mile Pond Complex dated May 10, 2004.

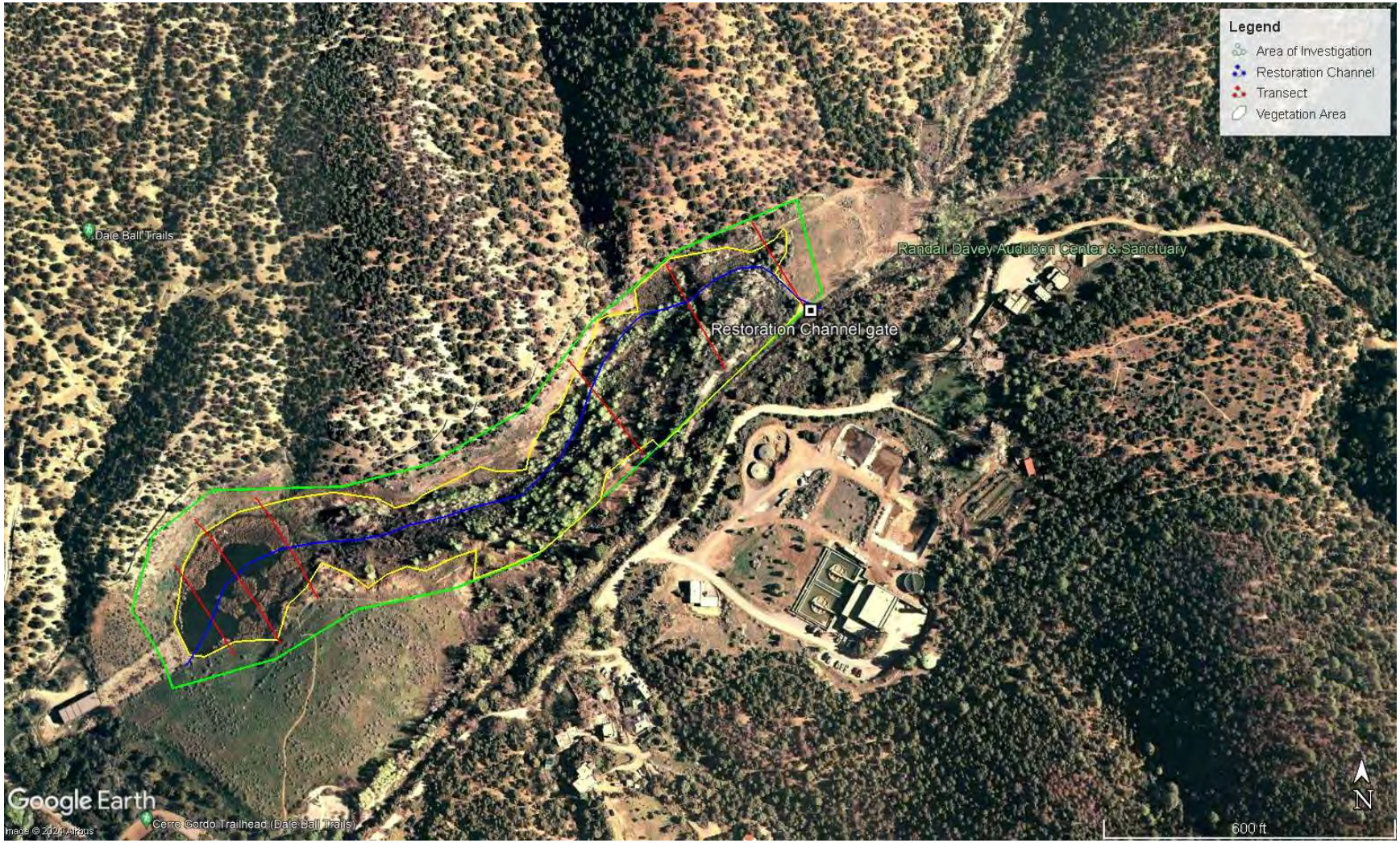


Figure A5. Historical image of Two-Mile Pond Complex dated April 26, 2005.

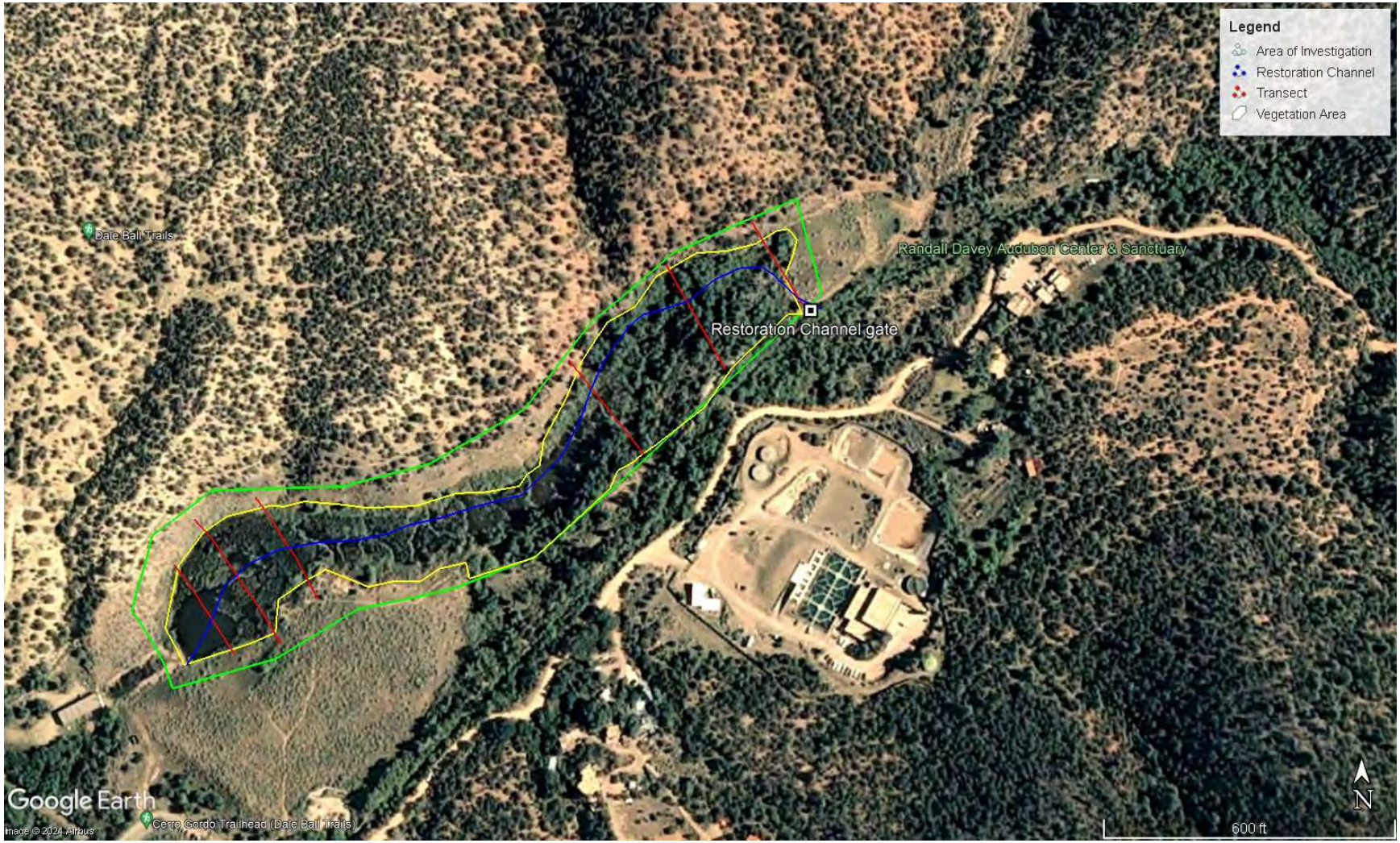


Figure A6. Historical image of Two-Mile Pond Complex dated May 8, 2009.

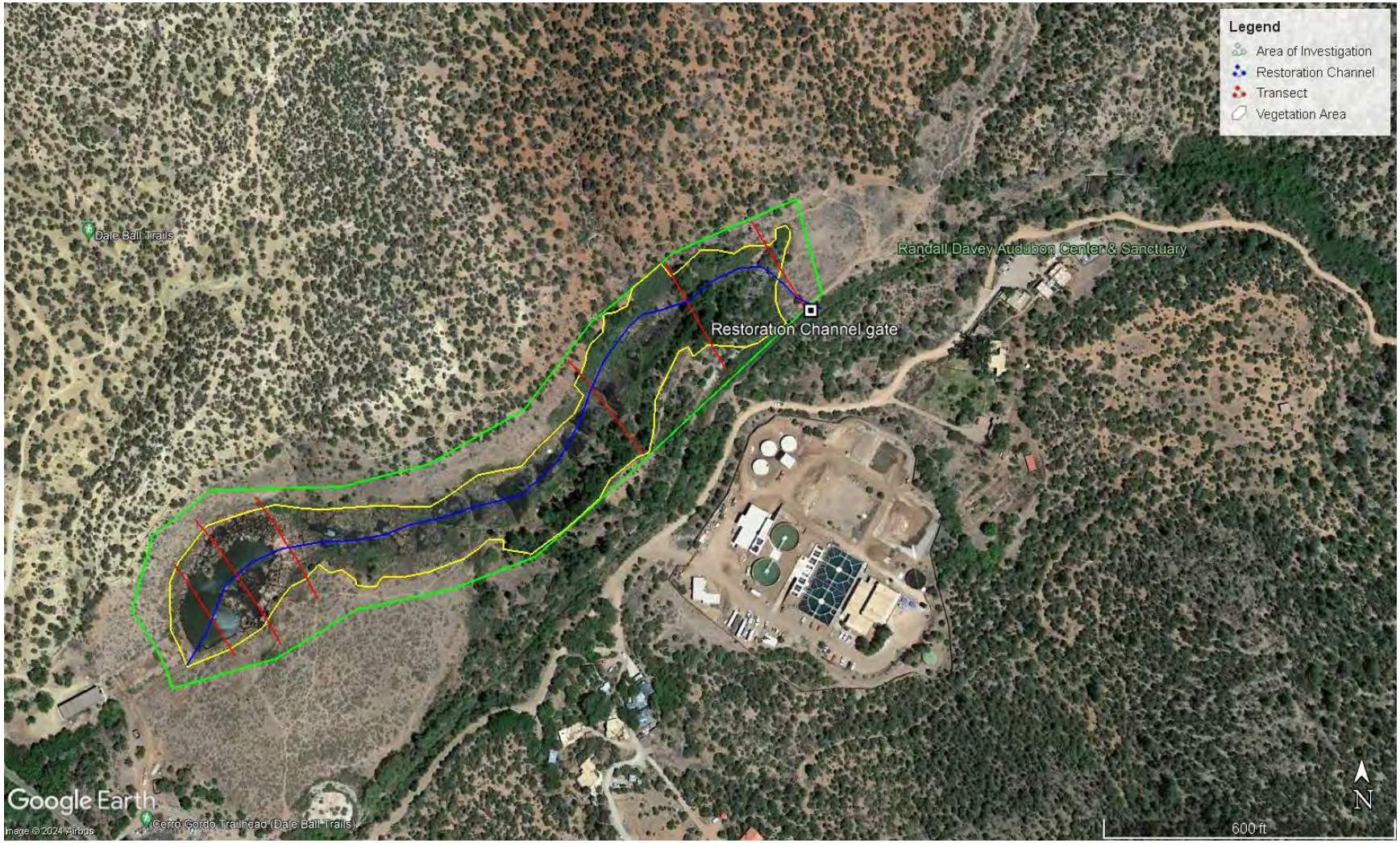


Figure A7. Historical image of Two-Mile Pond Complex dated June 16, 2011.

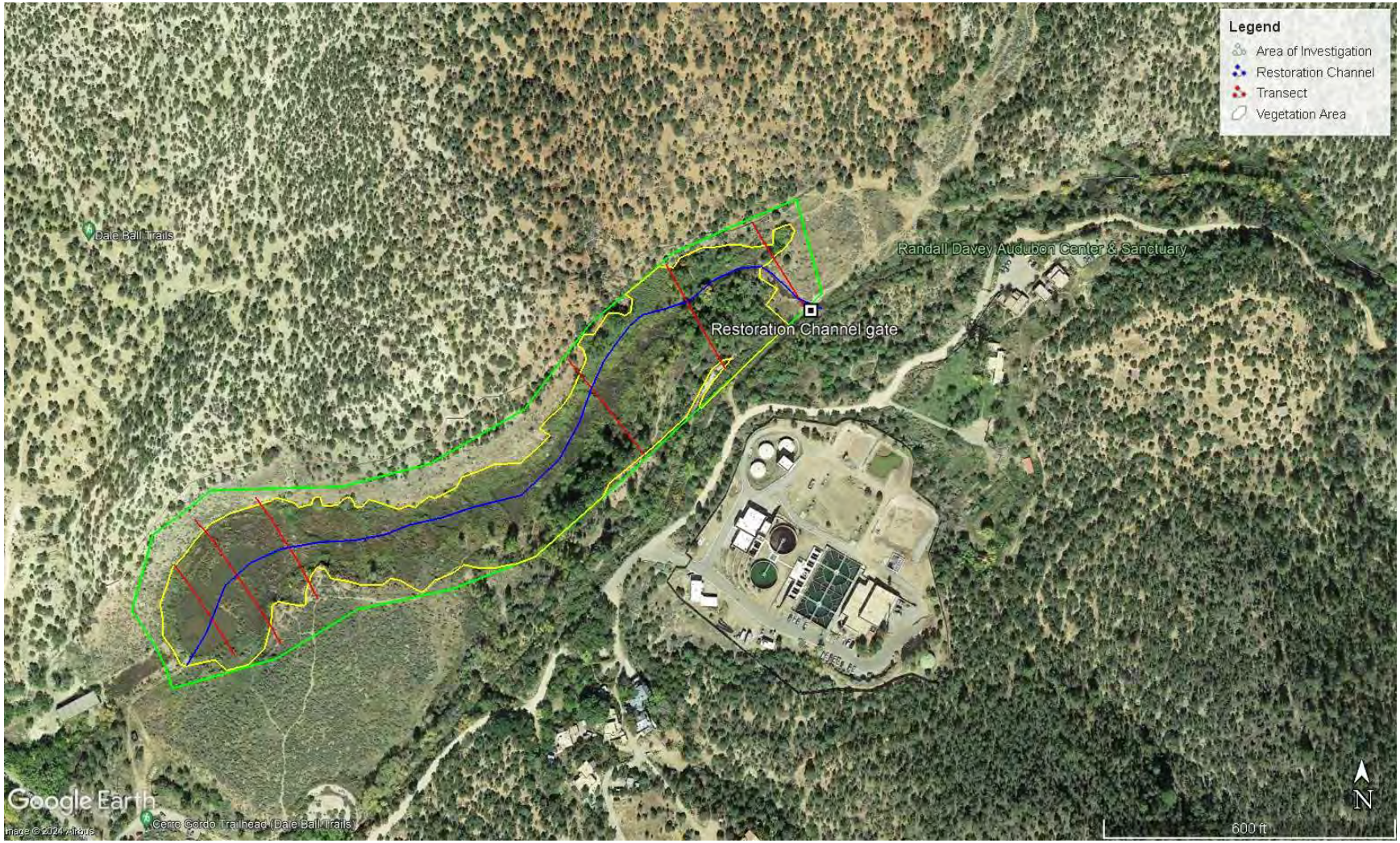


Figure A8. Historical image of Two-Mile Pond Complex dated October 2, 2013.

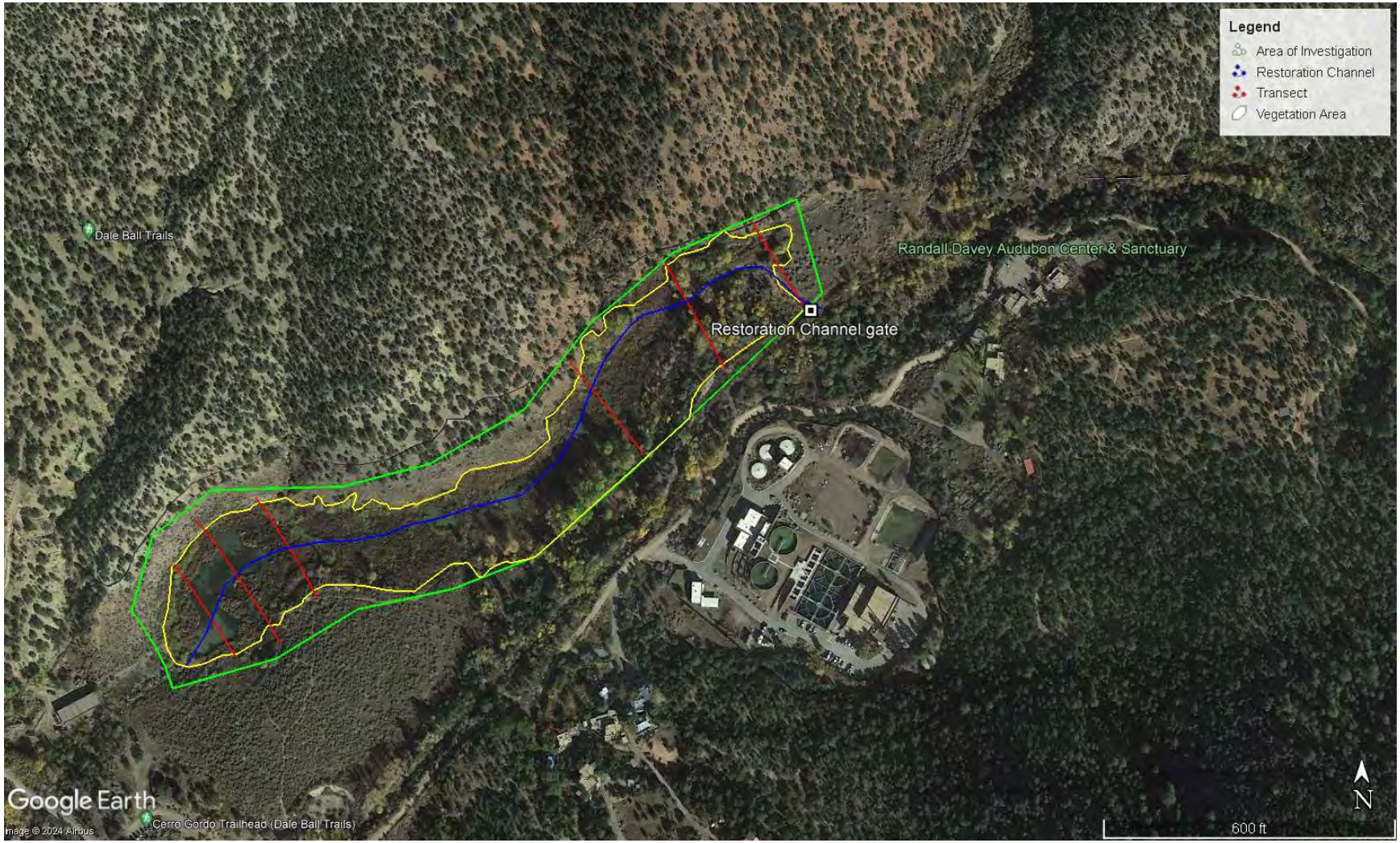


Figure A9. Historical image of Two-Mile Pond Complex dated November 1, 2015.

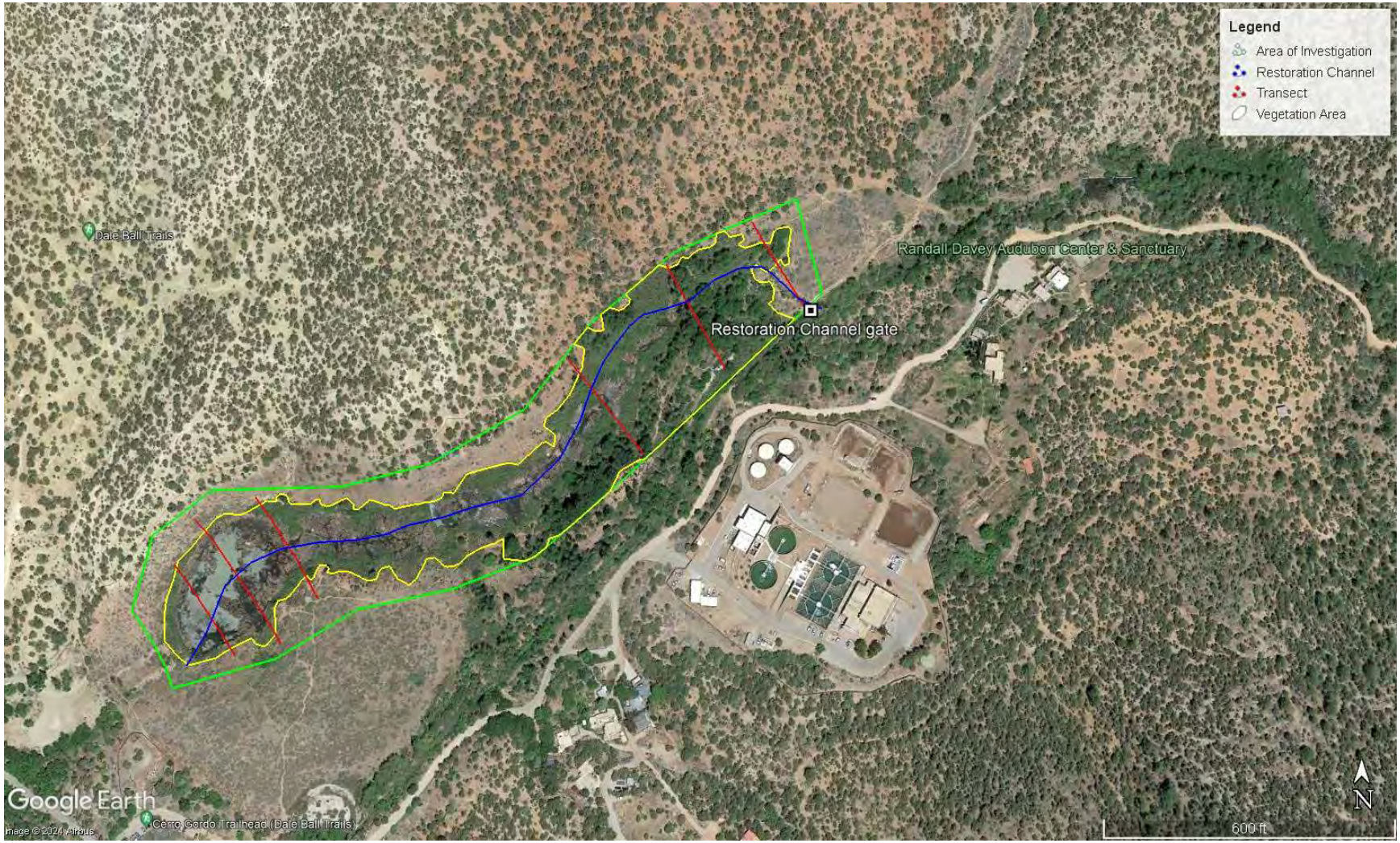


Figure A10. Historical image of Two-Mile Pond Complex dated June 10, 2017.

Figure A11. Historical image of Two-Mile Pond Complex dated March 2, 2021.

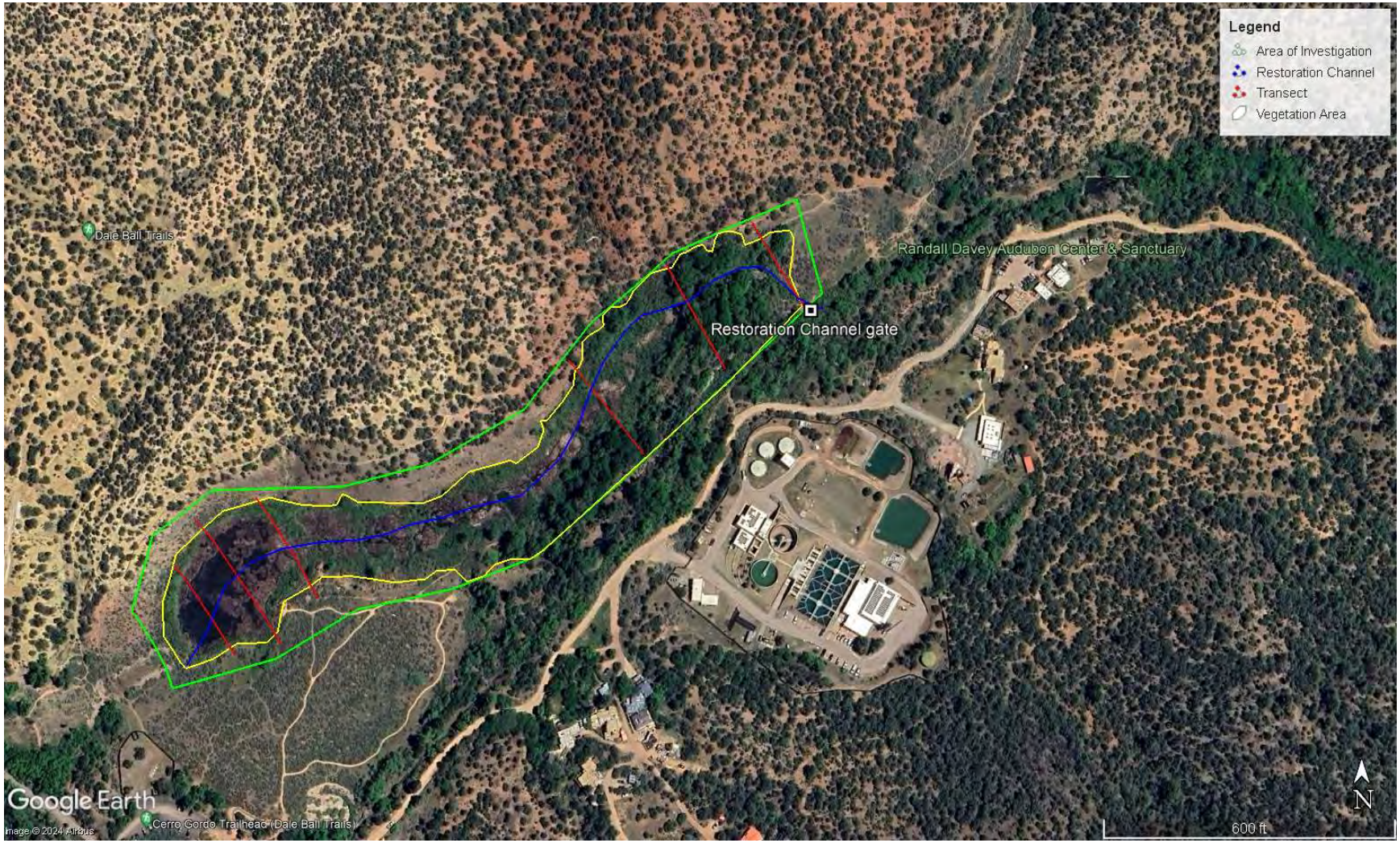
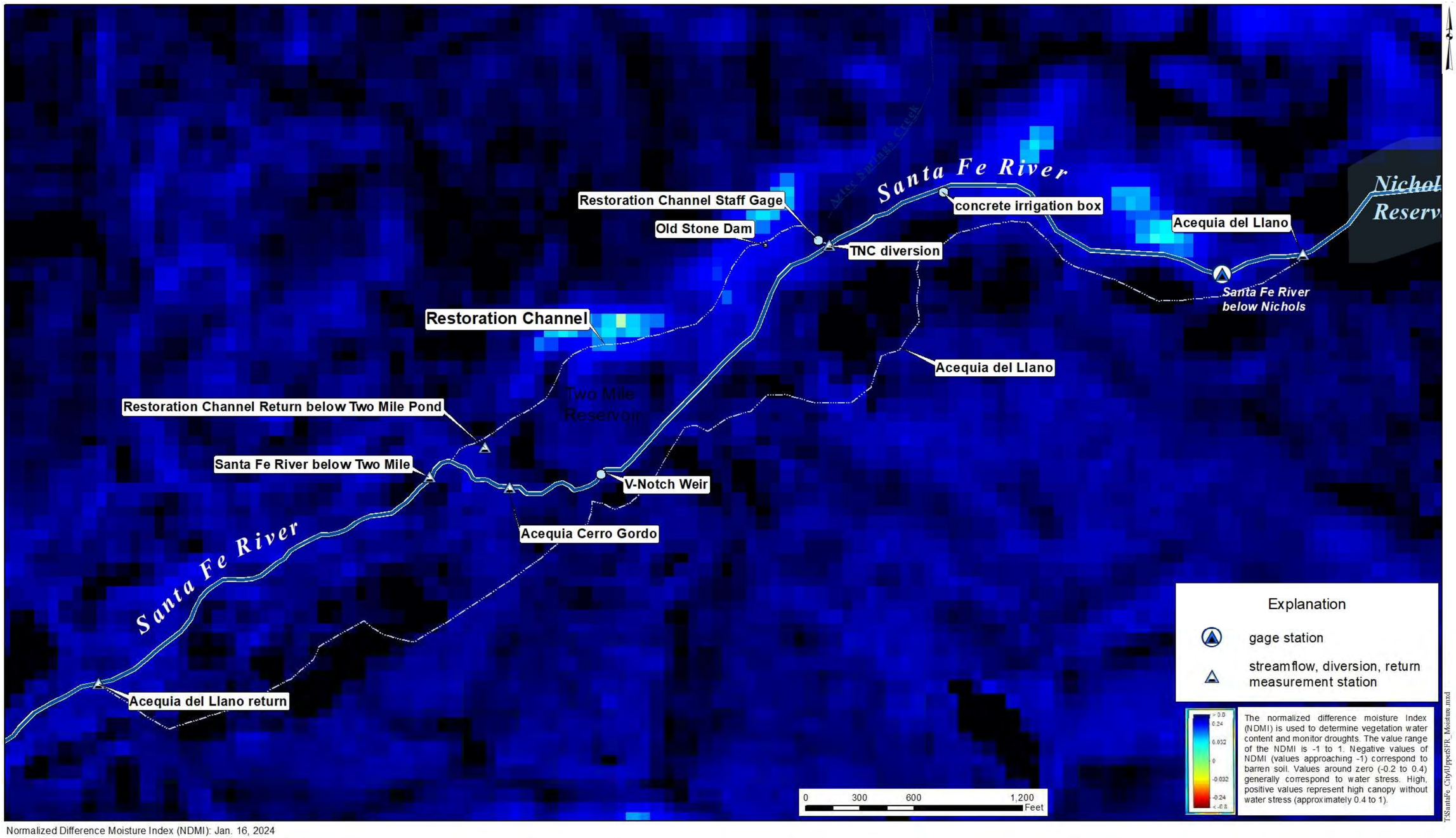


Figure A12. Historical image of Two-Mile Pond Complex dated July 6, 2023.

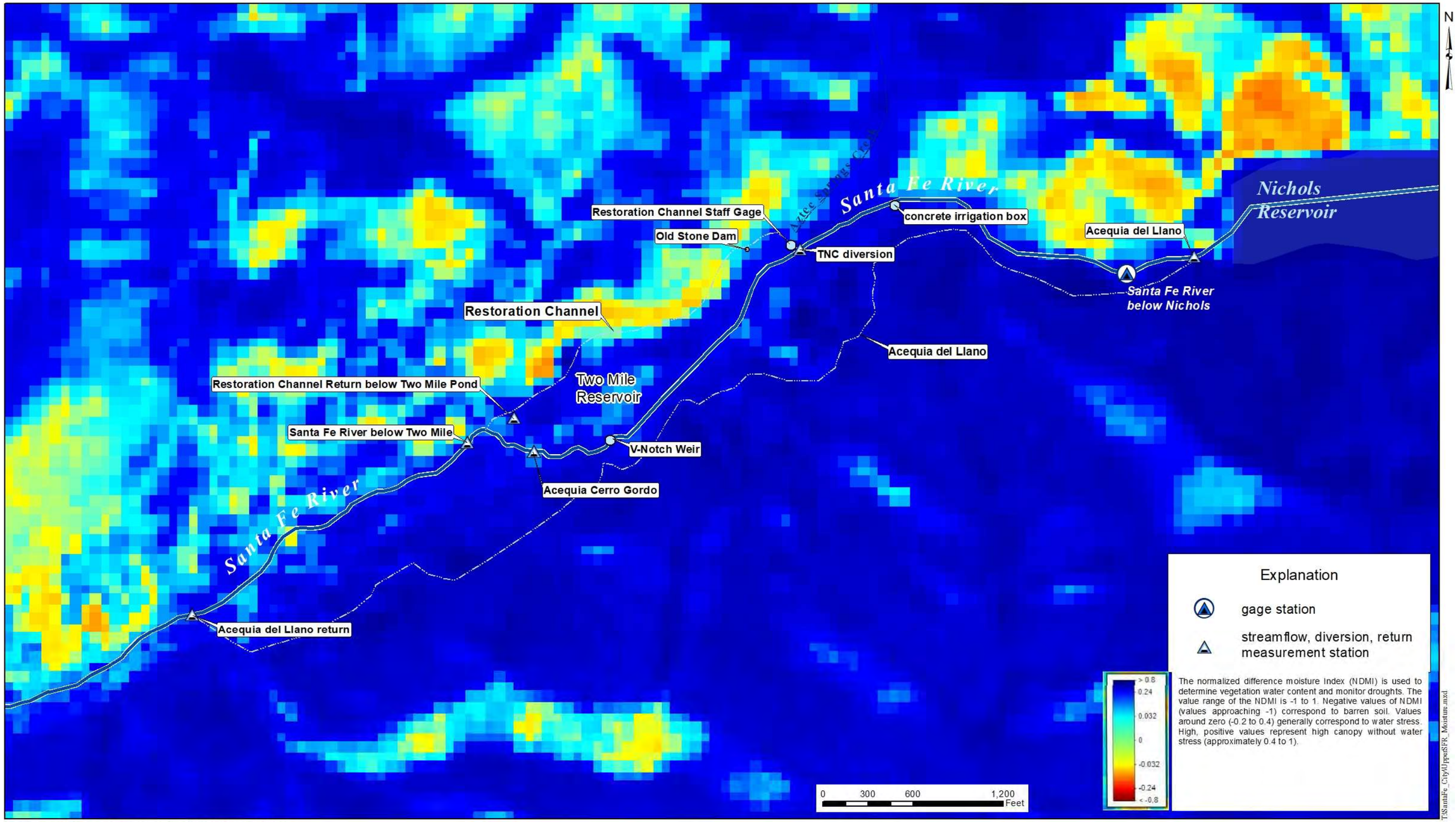
Appendix B.

NDMI Images for Two-Mile Pond Complex



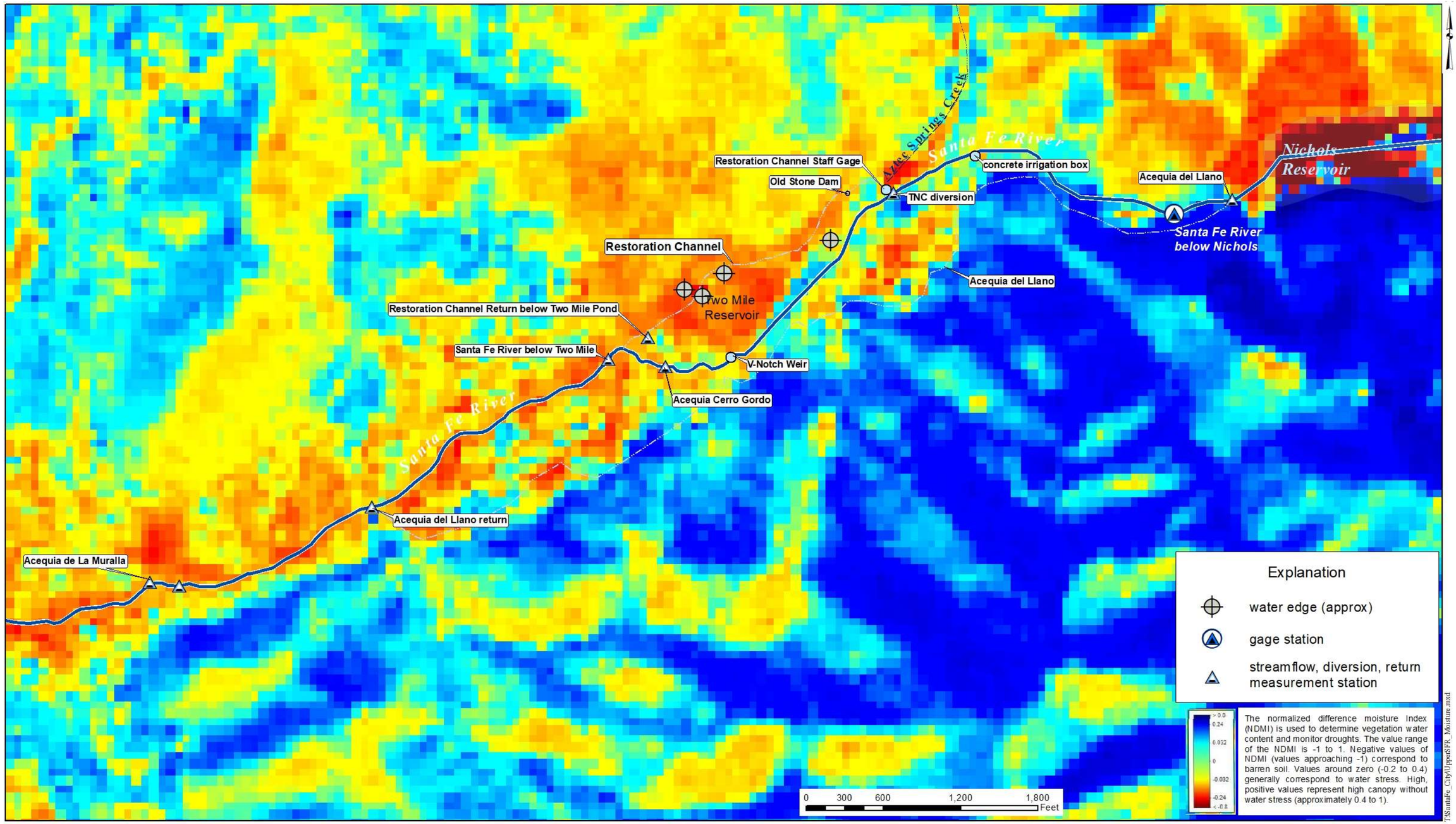
Normalized Difference Moisture Index (NDMI): Jan. 16, 2024

Figure B1. NDMI image of Two-Mile Pond Complex for January 16, 2024.



Normalized Difference Vegetation Index (NDVI): March 3, 2024

Figure B2. NDMI image of Two-Mile Pond Complex for February 5, 2024.

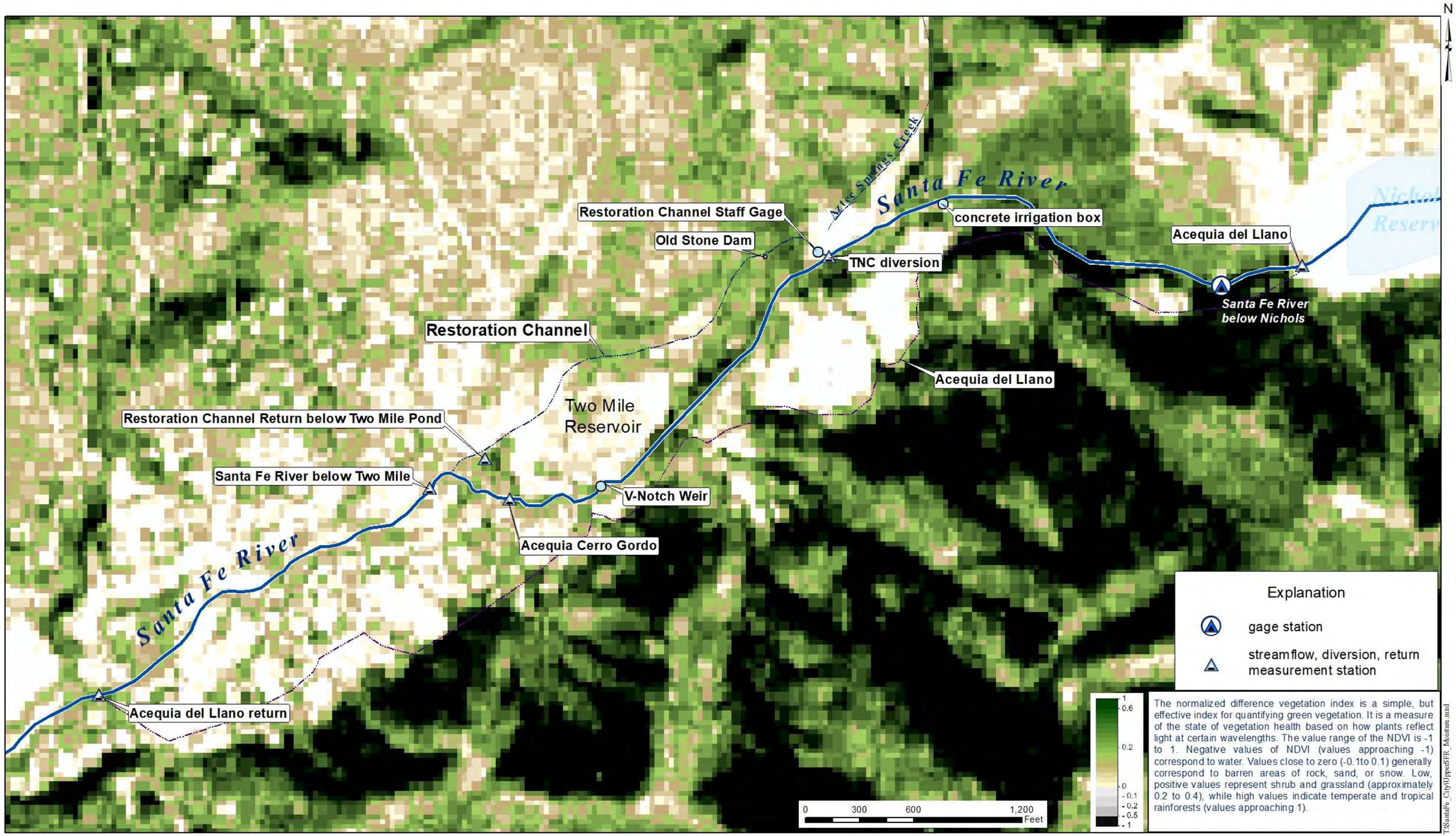


Normalized Difference Moisture Index (NDMI): March 3, 2024

Figure B3. NDMI image of Two-Mile Pond Complex for March 3, 2024.

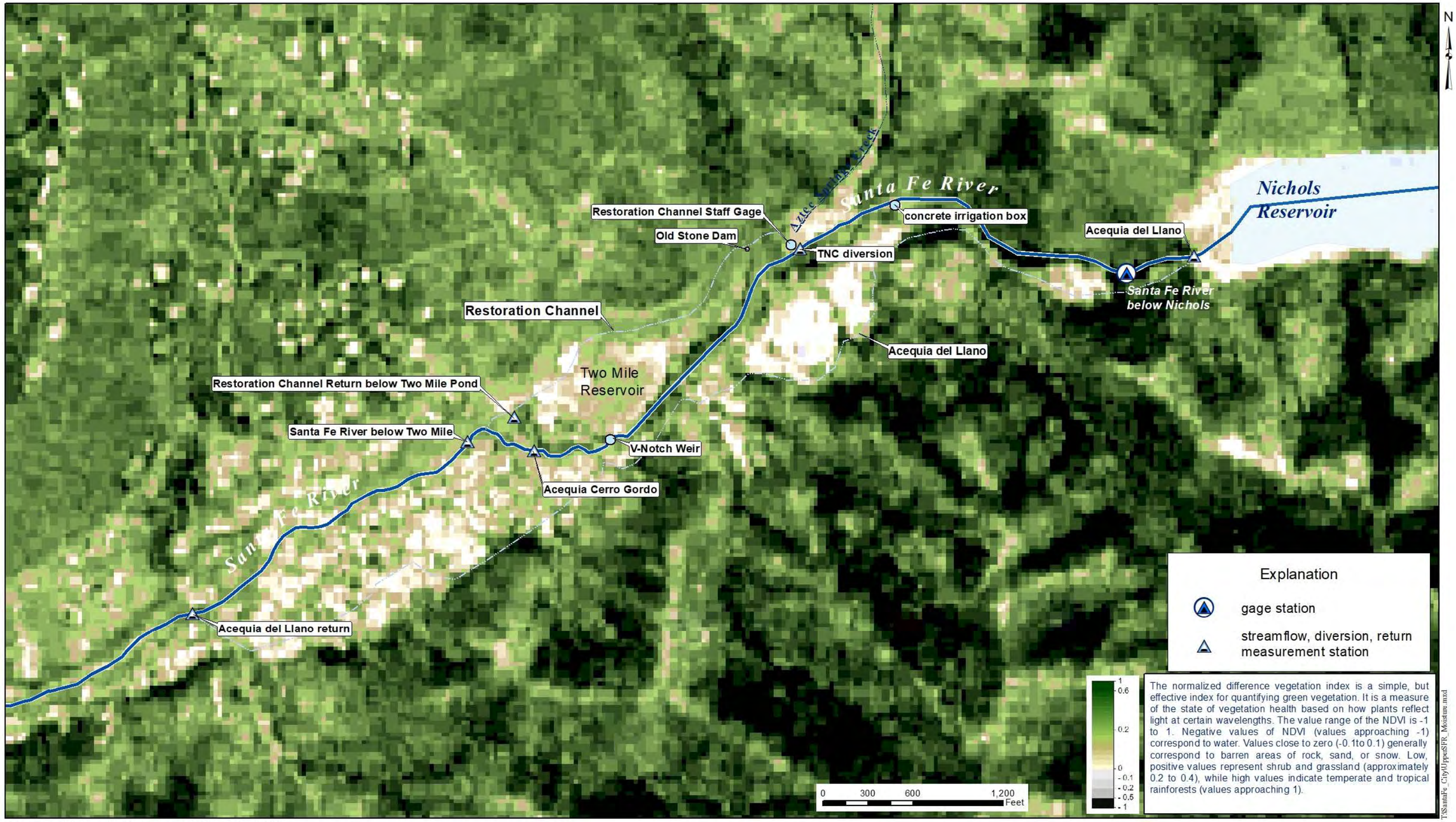
Appendix C.

NDVI Images for Two-Mile Pond Complex



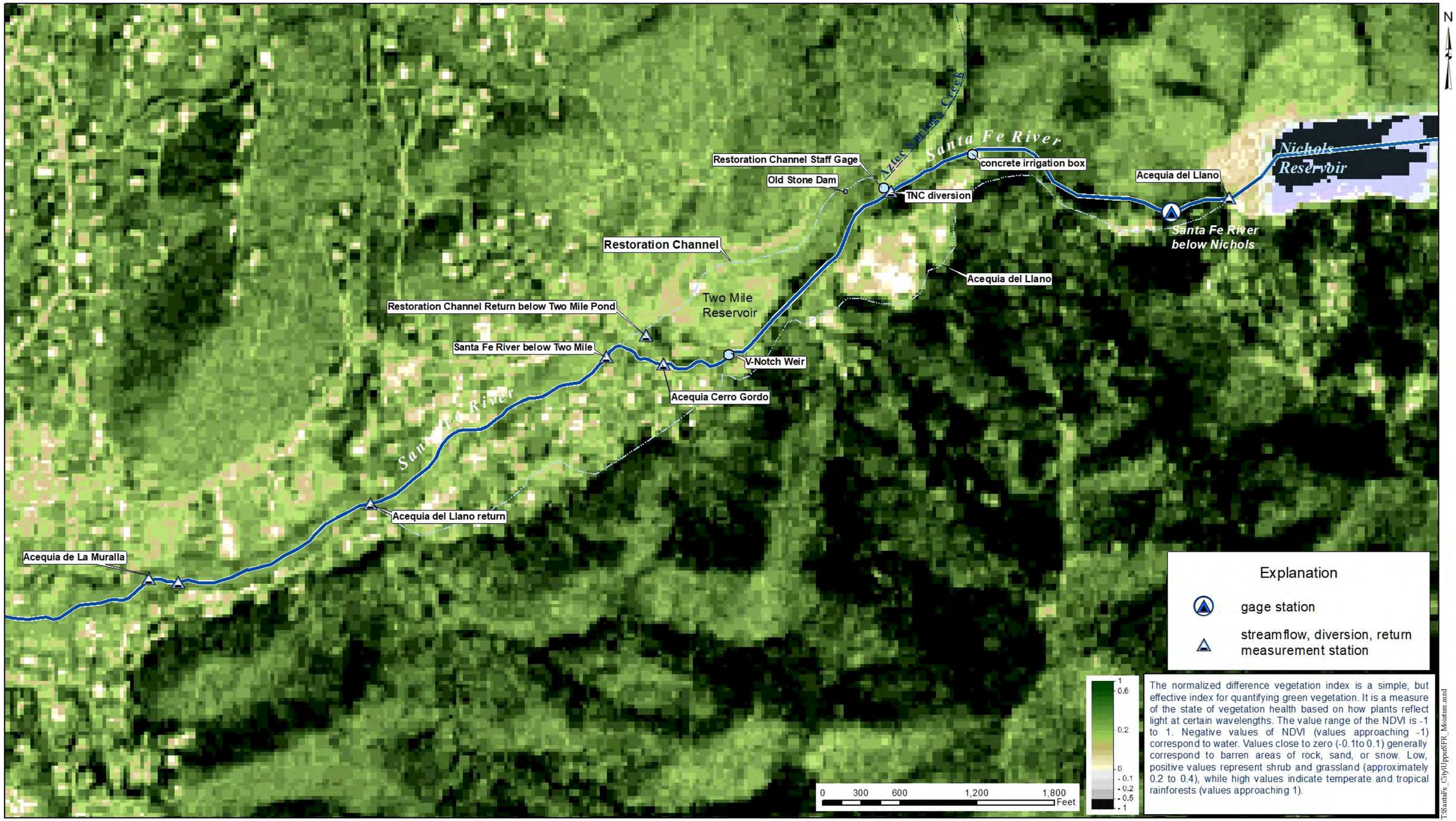
Normalized Difference Vegetation Index (NDVI): Jan 16, 2024

Figure C1. NDVI image of Two-Mile Pond Complex for January 16, 2024.



Normalized Difference Vegetation Index (NDVI): March 3, 2024

Figure C2. NDVI image of Two-Mile Pond Complex for February 5, 2024.



Normalized Difference Vegetation Index (NDVI): March 3, 2024

Figure C3. NDVI image of Two-Mile Pond Complex for March 3, 2024.

Appendix D.

March 7, 2024 Field Investigation Forms

JSAI

DAILY FIELD LOG

DATE: 3/7/24

ACTIVITY: March Monitoring

CLIENT: Santa Fe

GEOLOGIST: DCS AM

PROJECT: 2 Mile Pond Monitoring

08:55 DCS met with Annie in South east parking lot by transect 6

09:04 Arrived at transect 6

transect 6	Lat long WGS 84				
South	35°	41'	15.2" N	7370	
	105°	53'	41.2" W		
Transect 6 South Water Edge	35	41	15.6" N	7350	
	105	53	41.5" W		
10:16 Transect 5	35	41	15.9	7328	
South edge	105	53	39.9		
Water edge/ Cattail Start	45'	about	307° NW		
10:59 Transect 4	35	41	16.7	7325	
South end	105	53	38.6		
Transect 4		35	41	17.4	7302
Cattail edge S		105	53	39.2	

11:00 A seep in the hill comes out 30 feet south of the rock.

11:32 Arrived at Transect 3

Transect 3 SEnd	35	41	20.0	7315
	105	53	29.5	
12:00 Hiked Through T 3	35	41	20.3	
"Beaver Dam"	105	53	30.3	

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WATER-RESOURCE AND ENVIRONMENTAL CONSULTANTS

JSAI

DAILY FIELD LOG

DATE: 3/7/24

ACTIVITY: March Monitoring

CLIENT: Santa Fe

GEOLOGIST: DCS + AM

PROJECT: 2 mile Pond Monitoring

12:55	North side Transect 2	35	41	24.8	7370
		105	53	26.9	
	South side transect 2	35	41	23.8	7365
		105	53	26.8	
13:29	North side T1	35	41	25.6	7380
		105	53	24.6	
	South side T1	35	41	23.5	7376
		105	53	24.5	

We walked 343° North from "car turn in"

≈13:45 Annie left and DCS met up with SF and Findley and others

14:35 Finished Weir getting last measurements

Cat tail edge 35 41 16.1

105 53 43.2

15:02 took pictures all along cat walk

No visible spot to get pond depth or cat tail line due to 20ft thick wall of willows

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JSAI

DATE: 3/7/24

CLIENT: City Of Santa Fe

PROJECT: Two Mile Pond Riparian Assessment

North Side T2 Log start of debris	35	41	24.8	7370
	105	53	26.9	
South Side T2	35	41	23.8	7365
	105	53	26.8	
North Side T1	35	41	25.6	7380
	105	53	24.6	
South Side T1	35	41	23.5	7376
	105	53	24.5	

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2024 MOISTURE MEASUREMENT FORM

DATE: 3/7 -

CLIENT: Santa Fe

PROJECT: Riparian Assesment

SITE LOCATION: Transect 1

ACTIVITY: Moisture Measurement

GEOLOGISTS: DCS + AM

Moisture Meter Description: Standard Green 1-10 gage meter,

Distance from SE endpoint in feet	Date 3/7	Date	Date	Date	Date	Date	Date	Date	Date	Date	Average
6	3										
15	0										
30	2										
45	2										
60	3										
75	2										
90	2										
105	3										
120	1										
135	3										
150	3										
165	1										
180	3										
195	3										
210	2										
225	5										

Middle of Channel

NMRAM Montane Riverine Wetlands Version 2.5

SA Cover Worksheet				
SA Code SF2MI [1]	SA Name : Two Mile Pond Reservoir		Project : Riparian Assesement	
Code Tsct [1]	AU Name : Transect [1]		WOI : Two Mile Pond Reservoir	
County Santa Fe	HUC 12 Headwaters Santa Fe River	Elevation (ft) 7299	(m) 2224.7	Ecoregion 6.0 NWFM

SA General Location and Boundary (Rationale, comments)
A riparian system that leads into a pond located on the east side of Santa Fe bordering the Santa Fe National Forest. This reservoir was decommissioned due to safety concerns regarding the reservoir and a water diversion to the area was recently shut down due to lack of water rights.

Driving Directions
Driving to Santa Fe from Albuquerque you head north on Old Pecos Trail. Then head east on Camino Del Monte Sol and right on Canyon Road until you reach the reservoir located to the North.

Ownership	Data Sharing Restrictions	Fish Observed in Wetland?
The Nature Conservative and The Santa Fe National Forest	Results to client only.	no

Surveyor Role	Surveyor Name	Surveyor Initials
Landscape	Dustin and Annie	DCS+AM
Biotic	" "	" "
Abiotic	" "	" "
Stressors	" "	" "

Easting (m)	Northing (m)	Zone	Datum	Latitude (DD ft)	Longitude (DD ft)
-105° 53' 24" W	35° 41' 23" N	13	NAD- 83 UTM	35.689722	-105.89
Survey Date	3/7 /24	**Start Time**	13:29	**End Time**	13:45

SA Description

SA Landscape Context (summarize the wetland and surrounding landscape; include condition and impacts)

Starting to get into High desert like environment. The water has recently been discontinued to this area. But all plants appear to still be representative of how the vegetation previosly looked

SA Biotic Condition (vegetation patterns, composition and structure, exotics and invasives, disturbance evidence, fire and herbivory)

When getting near the edge of the valley we see more deciduous trees in the area. Aside from that it is mostly High desert.

SA Abiotic Condition (hydrological alterations {e.g., dams, walls etc.]; flooding characteristics and evidence of overbank flooding; soil disturbance and other site impacts; explain the hydrologic breaks or other factors that define the SA limits)

This area had a stream that ran through it that is now no longer flowing.

Assessment Summary (Overall site condition summary and comments after the field data is collected.)

This area is like a control group because I dont expect this area to change very much.

Provisional Field Score	Rank	Surveyor(s)	Final Score	Rank	Initials	Date
3.04	B	DCS/Am	3.04	B	DCS	3/7/24

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

NMRAM - SA Rank Summary Worksheet: Montane Riverine Wetlands 2.5			
Metric Description	Rating	Wt	Final Score
Landscape Context		Σ 1.0	3.25
L1. Buffer Integrity Index	3	0.25	0.75
L2. Riparian Corridor Connectivity	4	0.25	1.0
L3. Relative Wetland Size	4	0.25	1.0
L4. Surrounding Land Use	2	0.25	0.5
Biotic		Σ	
B1. Relative Native Plant Community Composition	2	0.2	.4
B2. Vegetation Horizontal Patch Structure	2	0.2	.4
B3. Vegetation Vertical Structure	3	0.2	.6
B4. Native Riparian Tree Regeneration	2	0.2	.4
B5. Invasive Exotic Plant Species Cover	3	0.2	.6
Abiotic		Σ	
A1. Floodplain Hydrologic Connectivity	—	—	—
A2. Physical Patch Diversity	2	0.25	.5
A3. Channel Equilibrium	4	0.25	1
A4. Stream Bank Stability and Cover	4	0.25	1
A5. Soil Surface Condition	4	0.15	1

SA Condition Scoring Summary			
Major Attribute	Score	Wt.	Wt. Score
Landscape Context	3.25	0.3	0.975
Biotic	2.4	0.35	0.84
Abiotic	3.5	0.35	1.225
SA WETLAND CONDITION SCORE Σ			3.04
SA WETLAND RANK = 3.04			B

SA Wetland Rank		
Rank	Score	Description
A	≥3.25 - 4.0	Excellent Condition
(B)	≥2.5 - <3.25	Good Condition
C	≥1.75 - <2.5	Fair Condition
D	1.0 - <1.75	Poor Condition

Stressor Summary	Major	Minor	Top Three	
	0	0	1	No water running through
			2	Exotic species
			3	No stream.

Stressor Comments (Evaluation of risk)

This area is mostly high desert which puts it at small risk because the lack of water shouldn't change much

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

Landscape Context

L1 - Buffer Integrity Index

Worksheet 1a. Buffer and RCC Checklist. Check off land cover elements within the buffer area or RCC corridors that are either allowed, or are excluded and considered non-buffer elements that disrupt ecosystem connectivity. Indicate the imagery type and date (season and year of imagery).

Imagery	Google Earth KMZ. file	Image Date	6/23

Allowed buffer/RCC land cover elements			Excluded non-buffer/RCC land cover elements		
Buffer	RCC		Buffer	RCC	
X	X	Natural or semi-natural vegetation patches	X	X	Commercial/residential developments, parking lots, dams, bridges, revetments, and other structures
X	X	Small irrigation ditches without levees	☐	☐	Lawns, parks, golf courses, sports fields
☐	☐	Old fields, unmaintained	☐	☐	Railroads
☐	☐	Open range land	☐	☐	Maintained levees, sediment piles, construction materials, staging areas
X	X	Foot trails, horse trails, unpaved bike trails (low intensity)	☐	☐	Intensive livestock areas, horse paddocks, feedlots
X	X	Non-channel open water	☐	☐	Intensive agriculture: maintained pastures, hay fields, row crops, orchards, and vineyards
X	X	Non-functioning abandoned vegetated levees, or naturally occurring levees	X	X	Paved roads or developed second-order unpaved but graded roads
☐	☐	unpaved two tracks roads	X	X	Open water bounded by a levee or other manmade structure
☐	☐	Other	☐	☐	Other

Worksheet 1b. Buffer Percent Sub-metric. Measure or estimate the percentage of the SA perimeter composed of allowed buffer elements and enter into the Buffer Percent Box below. Rate the sub-metric using Table L1a and enter the rating on the Buffer Integrity Summary Worksheet 1d.

Buffer Percent (%)=	85%

Table L1a. Buffer Percent

Rating	Buffer Percent
○ 4	100%
⊗ 3	≥80% - <100%
○ 2	≥50% - <80%
○ 1	<50%

Worksheet 1c. Buffer Width Sub-metric. Measure the length of each buffer line in meters in the GIS or on the map. Average the line lengths and rate using Table L1b. Enter the rating on the Buffer Integrity Summary Worksheet 1d.

Line	Buffer Width (m)	Buffer Width (ft)	Line	Buffer Width (m)	Buffer Width (ft)
A	164.26	538.91	E	161.93	531.26
B	125.25	410.92	F	231.48	759.44
C	115.39	378.57	G	121.25	397.80
D	111.07	364.40	H	155.87	511.38
Average		148.31 (m)		486.58	(ft)

Table L1b. Buffer Width

Rating	Average buffer width
○ 4	≥190m
⊗ 3	≥130 - <190m
○ 2	≥65 - <130m
○ 1	<65m

Worksheet 1d. Buffer Integrity Summary. Enter the sub-metric Ratings from Tables L1a and L1b above to calculate the Buffer Integrity Index Score using the formula in the box below. Using the Buffer Integrity Index Score, enter rating for Buffer Integrity in Table L1c on the SA Summary Worksheet.

Buffer % Rating	+	Buffer Width Rating	/2 =	Buffer Integrity Index Score
3	+	3	/2 =	3

Table L1c. Summary Rating for Buffer Integrity

Rating	Score
○ 4	>3.5
⊗ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	≤1.5

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

L2 - Riparian Corridor Connectivity (RCC)

Worksheet 2. RCC excluded non-buffer elements calculation. Refer to worksheet 1a for excluded non-buffer RCC land cover elements. Following the steps in the Field Guide, enter the summed values in meters for excluded element lengths for each bank within each segment upstream and downstream of the SA. Sum the values for each segment and calculate % Segment Disruption for the upstream side and the downstream side. Add the total disruption for upstream and downstream segments and then calculate the % Total Disruptions for the riparian corridor. Rate Riparian Corridor Connectivity using Table L2 and the data from this worksheet. Enter rating on the SA Summary Worksheet.

Segments	Upstream Segment		Downstream Segment	
Banks	**Left Bank**	**Right Bank**	**Left Bank**	**Right Bank**
A) Total Bank Disruption (m)	0	0	0	0
B) Total Disruption by Segment (m)	0		0	
C) % Segment Disruption = (B/1000)*100	0		0	
D) Total Disruption both segments	0			
E) % Total Disruptions = (D/2000)*100	Zero disruption noticeable along the banks.			

Table L2. RCC Rating

Rating	Description
(X) 4	**0%** total disruption on both segments combined.
( ) 3	**<15%** total disruption on both segments combined.
( ) 2	**≥15%** - **<40%** total disruption on both segments combined.
( ) 1	**≥40%** total disruption on both segments combined.

L3 - Relative Wetland Size

Worksheet 3a. Calculate the Relative Size Ratio (RSR) between the current WOI size and the historic WOI size. b. Calculate the Relative Wetland Size Score (RWSI (%)) as (1-RSR)*100. Rate Relative Wetland Size Index using Table L3 and enter rating on the SA Summary Worksh

RSR					RWSI						
Current Size	/	Historic Size	=	RSR	1	-	RSR	X	100	=	RWSI (%)
9	/	10	=	0.9	1	-	0.1	X	100	=	10

Table L3. Relative Wetland Size Rating

Rating	RWSI Score	Description
(X) 4	≤10%	Wetland is at or only minimally reduced from its full natural extent
( ) 3	>10% - ≤40%	Wetland remains equal to or more than 60% of its natual size
( ) 2	>40% - ≤70%	Wetland has been reduced by more than 40% its natural size
( ) 1	>70%	Wetland has been reduced by more than 70% its natural size

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

L4 - Surrounding Land Use

orksheet 4. Surrounding Land Use. Enter the percent area occupied by a given Land Use Element in the Land Use Zone (LUZ) surrounding the SA. Calculate the Land Use Index (LUI) Score by element as the product of the element coefficient times the percent of the LUZ Area occupied. (The %LUZ Area must total 100%.) Sum the LUI scores for each element to create the final LUI Score. Rate using Table L4 and enter the rating in the SA Rank Summary Worksheet.

Land Use Element	Coef	% LUZ Area	LUI Score
Paved roads, parking lots, domestic or commercially developed buildings, mining (gravel pit, quarry, open pit, strip mining), railroads	0	0	0
Unpaved roads (e.g., driveway, tractor trail, unpaved parking lots), paddock, dirt lot	0.1	0	0
Dredging, borrow pits, abandoned mines, water-filled artificial impoundments (ponds and reservoirs)	0.1	0	0
Filling or dumping of sediment or soils	0.1	0	0
Intense recreation (all-terrain vehicle use, camping, popular fishing spot, etc.)	0.3	0	0
Rip-rapped channel (highly modified channel with severely limited vegetation zone that is altered by human activities but not a completely concrete channel [that goes under paved roads]), junkyards, trash dumps, disturbed ground (not including roads)	0.3	0	0
Ski area	0.4	0	0
Dam sites and flood-disturbed shorelines around water storage reservoirs	0.5	0	0
Abandoned artificial impoundments (ponds and reservoirs) and associated disturbed flood zones	0.5	10	5
Artificial/Constructed wetlands, irrigation ditches	0.7	20	14
Developed/Managed trail system (high use trail)	0.8	5	4
Agriculture - active tilled crop production	0.2	0	0
griculture - permanent crop (vineyards, orchards, nurseries, berry production)	0.3	0	0
Manicured lawns, sport fields, and golf courses; urban manicured parks	0.3	0	0
Old fields and other disturbed fallow lands dominated by ruderal and/or exotic species (e.g., kochia, Russian thistle, mustards, annual vegetation)	0.5	0	0
Mature old fields and other fallow lands with natural composition, introduced hay field and pastures (e.g., perennial vegetation cover)	0.7	0	0
Restoration areas in process to natural conditions (re-conversion in process)	0.8	65	52
Haying of native grassland (e.g., no tillage, haying and baling only)	0.9	0	0
Heavy logging or tree removal with >50% of large trees (e.g., >30 cm diameter at breast height) removed, woodland/shrub vegetation conversion (chaining, cabling, rotochopping)	0.3	0	0
Commercial tree plantation, Christmas tree farms	0.6	0	0
Selective logging or tree removal with <50% of large trees (e.g., >30 cm diameter at breast height) removed	0.8	0	0
Mature restoration areas returned to natural conditions (re-converted)	0.9	0	0
Natural area, land managed for native vegetation - No agriculture, logging, development	1	0	0
LUI Score= Coefficient * % LUZ Area		100	75

Table L4. Surrounding Land Use Rating	
Rating	**LUI Score**
○ 4	≥95 - 100
○ 3	≥80 - <95
⊗ 2	≥40 - <80
○ 1	<40

SA CODE : SF2MI [1] **SA Name :** Two Mile Pond Reservoir Transect [1] **Date :** 3/7/24 **Surveyor Initials :** DCS

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	IA1				
2	IA2	Low as 0%	None	unknown	Maple, Pinon Juniper, chimisa
3	IIA1				
4	IIIB1				
5	IIIC1	0	>2%	Mullein	Willows around channel grandma grass, wild rye blue stem Chimisa
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

SA CODE : SF2MI [1] **SA Name :** Two Mile Pond Reservoir Transect [1] **Date :** 3/7/24 **Surveyor Initials :** DCS

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

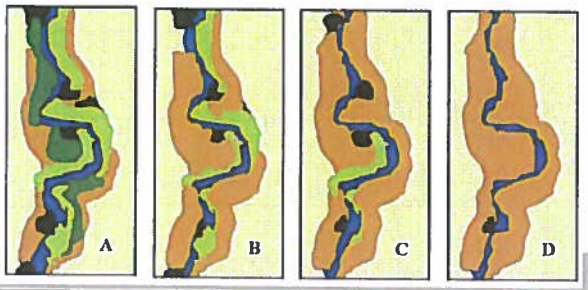
		Tall Woody Stratum [1]				Short Woody Stratum [2]				Herbaceous/Sparse Stratum [3]				CT Score [4]		
CT	Polygon Nos.	Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw[4]	% SA[5]	Wt Score[6]
A	2	Maple	N	Pinion	N	Chamisa	N	Willow	N					4.0	30%	1.2
B	5					willow	N	Chamisa	N	bluestem	N	Wild Rye	N	2.0	70%	1.4
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
													Final Weighted Score[7]			2.6

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤6m (20 feet) and >25% total stratum cover; 3. Herbaceous (graminoids and forbs)>10% total stratum cover. [4]Raw Score is from Table B1a (Appendix B); [5]%SA is the percentage of the SA area covered by the CT and expressed as a decimal number; the total area %SA must equal 1; [6]Wt. Score is the product of the Raw Score * % SA; [7]The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Weighted Score on Table B1 and enter the Rating for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

Table B1. Relative Native Plant Community Composition Rating		
Rating	**CT Final Weighted Score**	
○ 4	≥ 3.75	<10% non-native
○ 3	≥ 3.25 and <3.75	10% ≤20% non-native
☒ 2	> 2.0 and <3.25	20% ≤50% non-native
○ 1	≤2.0	>50% non-native



B2 - Vegetation Horizontal Patch Structure

Worksheet 7. Using Tables B2a and B2c (Appendix B), choose the schematic pattern that best matches the mapped vegetation patch pattern for the SA. Rate using Table B2 and enter rating on the SA Rank Summary Worksheet.

Horizontal Patch Structure pattern A,B,C, or D: C

Table B2. Rating for Vegetation Horizontal Patch Structure	
Rating	**Description**
○ 4	Most closely matches Pattern A. SA has a diverse patch structure (≥4 patch types) and complexity. A dominant patch type would be difficult to determine.
○ 3	Pattern B. SA has a moderate degree of patch diversity (3 patch types present) and complexity. A single, dominant patch type may be present, although the other patch types would be well represented and have more than one occurrence in the SA.
☒ 2	Pattern C. SA has a low degree of patch diversity and complexity. Two or three patch types may be present; however, a single, dominant patch type exists with the others occupying a small portion of the SA.
○ 1	Pattern D. SA has essentially little to no patch diversity or complexity. The SA is dominated by a single patch type. Other patch types, if present, occur infrequently and occupy a small portion of the SA.

B3 - Vegetation Vertical Structure

Worksheet 8. Percentage of SA by vertical structure type (VST). Using the Structure Type from Worksheet 5 and the %SA from Worksheet 6 calculate the total area of the SA occupied by each VST using the formula VST(type) = Sum (%SA for CTs with same VST) x 100. Enter the total %SA for each VST below.

	VST 1 High Structure Forest	VST 2 Low Structure Forest	VST 5 Tall Shrubland	VST 6S Short Shrubland	VST 6W Herbaceous Wetland	VST 6H Herbaceous Vegetation	VST 7 Sparse Vegetation
Total % of SA		40	50			10	

Table B3. Rating for Vegetation Vertical Structure. Using the data from Worksheet 8 rate the SA based on the criteria in Table B3. Pick the row that best fits the distribution of VSTs in the SA. Each row specifies the required dominant structure type plus co- and sub-dominants. Percentage cover required per co- or sub-dominant is a minimum. The types listed in the columns must be the most common VSTs in the SA for the rating to be applicable (Worksheet 8). VSTs 1 and 2 can be inverted in dominance and the rating is still applicable. Work from the top of the table down. As long as the requirements for one row are met, any other types may or may not co-occur without changing the rating. Enter the rating on the SA Rank Summary Worksheet.

Rating	Dominant VST	Co- or Sub-dominant VST ≥15%	Sub-dominant VST ≥5%
○ 4	1	5	6W and/or 6H
	1	6W	
	2 or 1 and 2	5	6W and/or 6H
☒ 3	1		
	2 or 1 and 2	5	
	2 or 1 and 2	6W	
	5	6W	
○ 2	2 or 1 and 2		
	5		
	6W		
○ 1	6S		
	6H		
	7		

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

B4 - Native Riparian Tree Regeneration

Table B4. Native Riparian Tree Regeneration rating. Using the polygon percent cover of native tree seedlings, saplings and poles from Worksheet 5, rate the SA based on polygon percent cover and patch density. Enter the rating on the SA Rank Summary Worksheet.

Rating	Description
○ 4	Native poles, sapling, and seedlings trees well represented, obvious regeneration, many patches or polygons with >5% cover, typically multiple size (age) classes.
○ 3	Native poles, saplings and/or seedlings common, scattered patches or polygons with 1% -5% cover, size classes few.
✗ 2	Native poles, saplings and/or seedlings present but uncommon, restricted to one or two patches or polygons with typically <1% cover, little size class differentiation.
○ 1	Native poles, saplings, and/or seedlings absent (0% cover).

B5 - Invasive Exotic Plant Species Cover

Worksheet 9. Based on Worksheets 5 and 6, calculate or estimate the percentage cover of invasive exotic species for the SA and enter below. Rate using Table B5 and enter the rating on the SA Rank Summary Worksheet.

Rating Method: 3 | Invasive cover (%): 1% | calculate

Table B5. Ratings for Invasive Exotic Plant Species Cover

Rating	Invasive Species Cover %
○ 4	0%
○ 3 ✗	>0% - <1%
○ 2	≥1% - <10%
○ 1	≥10

Additional CTs and Biotic Metric Comments:

Area is very dry since recovering from winter. This transect is mostly high desert but does have some deciduous trees on the far NW side.

SA CODE: SF2MI [1] **Date:** 3/7/24

SA Name: Two Mile Pond Reservoir Transect [1] **Surveyor Initials:** DCS

A2 - Physical Patch Complexity

Worksheet 11. Physical Patch Complexity checklist. Check off existing physical patch types for the upper, middle and lower segments of the SA; count the number of unique patch types and rate using Table A2 in combination with the narrative description. Enter the rating on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (check all existing conditions)
☐	☐	☐	Active side channels
☐	☒	☐	Abandoned channels
☐	☐	☐	Backwater/eddy
☐	☐	☐	Riffles or rapids
☐	☐	☐	Shoals, sparely-vegetated bars
☐	☐	☐	Channel boulders
☐	☐	☐	Oxbow lakes/ponds on floodplains
☐	☐	☐	Vegetated island and side bars
☐	☒	☐	Terraces
☐	☐	☐	Channel pools
☐	☐	☐	Beaver ponds
☐	☐	☐	Swales, depressional features on floodplains
☐	☐	☐	Debris jams in channel
☐	☐	☐	Woody wrack piles on the floodplain
☐	☐	☐	Floodplain micro-topography (mounds, pits)
☐	☐	☐	Downed logs
☐	☐	☐	Natural levees
☐	☐	☐	Standing snags
☐	☐	☐	Variegated, convoluted, or crenulated foreshore
☐	☐	☐	Undercut banks in channels
			No. of unique Patch Types

limited because only middle segment and no stream

Table A2. Rating for Physical Patch Complexity

Rating	Description
○ 4	**High** degree of physical patch complexity across the floodplain. There are many floodplain micro-habitats present (mounds and pits, woody wrack piles, etc.), many fluvial geomorphic surfaces (swales, side channels, terraces, side bars, etc.), and there is high in-channel complexity (pools and riffles, large woody debris, undercut banks, etc.). As a guide, 12 or more unique indicators are present and well distributed throughout the SA (most indicators are found on multiple segments).
○ 3	**Moderate** physical patch complexity scattered across the floodplain. There are several floodplain micro-habitats present, several fluvial geomorphic surfaces, and there is moderate in-channel complexity. As a guide, 9 - 11 indicators are scattered throughout the SA (some on multiple segments).
☒ 2	**Limited** physical patch complexity scattered across the floodplain. There are some floodplain micro-habitats present, some fluvial geomorphic surfaces, and there is limited in-channel complexity. As a guide, on average there are 6 - 8 unique indicators present in the SA (only a few on multiple segments).
○ 1	**Little** or no physical patch complexity on the floodplain. There are few or no floodplain micro-habitats present, few different fluvial geomorphic surfaces, and there is little or no in-channel complexity. As a guide, ≤ 5 unique indicators are present in the SA.

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☒	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☒	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☒	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☒	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☒	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☐	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

Table A3. Rating for Channel Equilibrium	
Rating	**Description**
☒ 4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
○ 3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
○ 2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
○ 1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	☐4	☒4	☐4	Infrequent raw banks, less than 10% of steam bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	☐3	☐3	☐3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	☐2	☐2	☐2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	☐1	☐1	☐1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.
Indicators of Stream Bank Erosion Potential	☐4	☒4	☐4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	☐3	☐3	☐3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	☐2	☐2	☐2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	☐1	☐1	☐1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score 4

Table A4. Stream Bank Stability and Cover Rating	
Rating	**Description**
☒ 4	>3.5 - 4.0
○ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	1.0 - ≤1.5

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

A5 - Soil Surface Condition

Worksheet 14. Soil Surface Condition. Check all that apply in the upper , middle and lower SA segments during the field reconnaissance. The absence of these indicators would signify that disturbances are naturally occurring (e.g., flood deposition or low-density wildlife trails). Estimate the percent soil disturbance by segment area and referring to the SA abiotic map. Rate using Table A5 and enter on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (Check all existing conditions)
☐	☐	☐	Active erosion features due to anthropogenic disturbance (eg. rills, gullies, plant pedestals).
☐	☒	☐	Multiple livestock and other (fishing,hiking) trails,
☐	☐	☐	Vehicle tracks including off-road and construction, etc.
☐	☐	☐	Impervious compacted surfaces or pavement
☐	☐	☐	Grading or plowing
☐	☐	☐	Fill
☐	☐	☐	Gravel pits
☐	☐	☐	Anthropogenic levees and berms
☐	☐	☐	Irrigation-driven salinity and mineral crusts
☐	☐	☐	Fire pits
☐	☐	☐	Other:
			Estimate % soil disturbance by segment area

Average % Soil Disturbance: ~~2~~ <1

Table A5. Soil Surface Condition Rating

Rating	Description
☒ 4	Bare soil areas due to anthropogenic disturbance absent or very limited. No human-caused impervious surfaces or gravel pits are found within the SA. Total disturbance, including erosion, impervious surfaces, fill, or other anthropogenic degradation to the soil surface is less than 1% of the SA.
○ 3	Some amount of bare soil from human causes is present but the extent is limited. Area of impervious surfaces are minimal in extent. Total disturbance, including erosion, impervious surfaces, fill, gravel pits, vehicle tracks or other anthropogenic degradation to the soil surface is between 1% and 5% of the sampling area.
○ 2	Bare soils from human causes are common. These may include dense livestock trails, vehicle tracks, trails, construction staging areas, mechanical rutting, or irrigation-driven salinity. Soil disturbance, while apparent, is limited to specific areas and not found across the majority of the SA. Total disturbance, including erosion, impervious surfaces, fill, gravel mining, or other anthropogenic degradation to the soil surface is greater than 5% or less than 10% of the SA.
○ 1	Bare soil areas degrade portions of the site because of altered hydrology or other long-lasting impacts. Deep ruts from off-road vehicles or machinery are present. Livestock disturbance or trails are widespread and several inches deep. Water is channeled into rills or ponded. Additional human-caused impervious surfaces or soil compaction are present. Total disturbance, including erosion, impervious surfaces, fill,gravel mining or other anthropogenic degradation to the soil surface is equal to or greater than 10% of the SA.

SA CODE : SF2MI [1] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [1] **Surveyor Initials :** DCS

Worksheet 15. Stressor Checklist. Check off stressors by intensity category that may be affecting wetland ecological condition of the SA and WOI. Assign categories using direct evidence where available or your best professional judgement otherwise. If the presence of the stressor is uncertain, mark as "Unkno
Rank Major Stressors in Dominant Stressor column(Pick up to 3)

Rank	Affect				Stressor Group/Stressor	Comments
	Major	Minor	Absent	Unknown		
					Adverse water management	
	☒	☐	☐	☐	Extended low flow dam releases	Water No longer flows here
	☐	☐	☒	☐	Timing of flow releases not concordant	
	☐	☐	☒	☐	Extended high flow dam releases	
	☐	☐	☒	☐	Agriculture/Urban flow diversion upstream	
					Adverse sediment management	
	☐	☐	☒	☐	Adverse sediment retention by dams	
	☐	☐	☒	☐	Sediment loss by dredging	
	☐	☐	☒	☐	Adverse sediment input (roads/development)	
					Artificial water additions	
	☐	☐	☒	☐	Sewer treatment effluent	
	☐	☐	☒	☐	Point source urban runoff	
	☐	☐	☒	☐	Factory, feedlot outfall	
	☐	☐	☒	☐	Agricultural irrigation ditch returns	
	☐	☐	☒	☐	Mining waste	
					Ground water pumping	
	☐	☐	☒	☐	Urban depletions	
	☐	☐	☒	☐	Fracking	
	☐	☐	☒	☐	Agriculture irrigation wells	
					Watershed alteration	
	☐	☐	☒	☐	Extensive recent fires in watershed	
	☐	☐	☒	☐	Extensive recent timber harvest	
	☐	☐	☒	☐	Extensive open pit mining in watershed	
	☐	☐	☒	☐	Livestock/wildlife overgrazing	
					Local biodiversity impacts	
	☐	☐	☒	☐	Evidence of excessive grazing (local)	
	☐	☐	☒	☐	Excessive noise affecting wildlife	
	0	0		0	Counts by Intensity	

Additional Comments Area is mostly High desert. Small stream No longer has water

Version Date: 04/25/2022

Schema: Montane 2.5

2024 MOISTURE MEASUREMENT FORM

PAGE: 1 OF 1

DATE: 3/7

CLIENT: Santa Fe

PROJECT: Riparian Assesment

SITE LOCATION: Transect 2

ACTIVITY: Moisture Meter

GEOLOGISTS: DCS

Moisture Meter Description: Standard Green 1-10 gage meter

Distance from SE endpoint in feet	Date 3/7	Date	Date	Date	Date	Date	Date	Date	Date	Date	Average
0	2										
15	3										
30	7										
45	3										
60	4										
75	4										
89	4										
97	5										
100	6										
115	5										
130	7										
140	7										
190											

Start of Channel

End of Channel

too much debris

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WATER-RESOURCE AND ENVIRONMENTAL CONSULTANTS

NMRAM Montane Riverine Wetlands Version 2.5

SA Cover Worksheet				
SA Code SF2MI [2]	SA Name : Two Mile Pond Reservoir		Project : Riparian Assesement	
AU Code Tsct [2]	AU Name : Transect [2]		WOI : Two Mile Pond Reservoir	
County Santa Fe	HUC 12 Headwaters Santa Fe River	Elevation (ft) 7299	(m) 2224.7	Ecoregion 6.0 NWFM

SA General Location and Boundary (Rationale, comments)
A riparian system that leads into a pond located on the east side of Santa Fe bordering the Santa Fe National Forest. This reservoir was decommissioned due to safety concerns regarding the reservoir and a water diversion to the area was recently shut down due to lack of water rights.

Driving Directions
Driving to Santa Fe from Albuquerque you head north on Old Pecos Trail. Then head east on Camino Del Monte Sol and right on Canyon Road until you reach the reservoir located to the North.

Ownership	Data Sharing Restrictions		Fish Observed in Wetland?
The Nature Conservative and The Santa Fe National Forest	Results to client only.		No

Surveyor Role	Surveyor Name	Surveyor Initials
Landscape	Dustin	DS
Biotic	Annie	AM
Abiotic	Dustin	DS
Stressors	Both	DS

Easting (m)	Northing (m)	Zone	Datum	Latitude (DD ft)	Longitude (DD ft)
-105° 53' 24" W	35° 41' 23" N	13	NAD- 83 UTM	35.689722	-105.89

Survey Date	3/7	Start Time	12:55	End Time	13:29

SA Description

SA Landscape Context (summarize the wetland and surrounding landscape; include condition and impacts)

Above the Dam along the overlook path, this area gets a lot of Hikers and used to have a stream run through it.

SA Biotic Condition (vegetation patterns, composition and structure, exotics and invasives, disturbance evidence, fire and herbivory)

This area had the highest variety of plants with many different trees shrubs and grasses. More than any other location.

SA Abiotic Condition (hydrological alterations {e.g., dams, walls etc.]; flooding characteristics and evidence of overbank flooding; soil disturbance and other site impacts; explain the hydrologic breaks or other factors that define the SA limits)

This area has an abandoned stream that runs through the middle of it.

Assessment Summary (Overall site condition summary and comments after the field data is collected.)

This area is the most diverse the lack of water will likely kill the 20ft thick walls of willow trees around the stream. Ground is covered in leaves.

Provisional Field Score	3.215	Rank	B	Surveyor(s)	DS	Final Score	3.215	Rank	B	Initials	DCS	Date	3/7/24

SA CODE : SF2MI [2] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [2] **Surveyor Initials :** DS

NMRAM - SA Rank Summary Worksheet: Montane Riverine Wetlands 2.5			
Metric Description	Rating	Wt	Final Score
Landscape Context		Σ 1.0	3.25
L1. Buffer Integrity Index	3	0.25	0.75
L2. Riparian Corridor Connectivity	4	0.25	1.0
L3. Relative Wetland Size	4	0.25	1.0
L4. Surrounding Land Use	2	0.25	0.5
Biotic		Σ	
B1. Relative Native Plant Community Composition	4	0.2	.8
B2. Vegetation Horizontal Patch Structure	2	0.2	.4
B3. Vegetation Vertical Structure	3	0.2	.6
B4. Native Riparian Tree Regeneration	4	0.2	.8
B5. Invasive Exotic Plant Species Cover	4	0.2	.8
Abiotic		Σ	
A1. Floodplain Hydrologic Connectivity	–	0.25	–
A2. Physical Patch Diversity	2	0.25	.5
A3. Channel Equilibrium	4	0.25	1
A4. Stream Bank Stability and Cover	4	0.25	1
A5. Soil Surface Condition	2	0.25	.5

SA Condition Scoring Summary			
Major Attribute	Score	Wt.	Wt. Score
Landscape Context	3.25	0.3	0.975
Biotic	3.4	0.35	1.19
Abiotic	3	0.35	1.05
SA WETLAND CONDITION SCORE Σ			3.215
SA WETLAND RANK = 3.215			B

SA Wetland Rank		
Rank	Score	Description
A	≥3.25 - 4.0	Excellent Condition
B	≥2.5 - <3.25	Good Condition
C	≥1.75 - <2.5	Fair Condition
D	1.0 - <1.75	Poor Condition

Stressor Summary	Major	Minor	Top Three
	0	0	1 lots of trail use
			2 No water going to stream
			3 Abandoned stream,

Stressor Comments (Evaluation of risk)

This area is high popularity in the park with a lot of trails and benches. No water is going through the stream anymore. Could kill Willow trees.

SA CODE : SF2MI [2] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [2] **Surveyor Initials :** DCS

Landscape Context

L1 - Buffer Integrity Index

Worksheet 1a. Buffer and RCC Checklist. Check off land cover elements within the buffer area or RCC corridors that are either allowed, or are excluded and considered non-buffer elements that disrupt ecosystem connectivity. Indicate the imagery type and date (season and year of imagery).

Imagery	Google Earth KMZ. file	Image Date	6/23

Allowed buffer/RCC land cover elements			Excluded non-buffer/RCC land cover elements		
Buffer	RCC		Buffer	RCC	
[X]	[X]	Natural or semi-natural vegetation patches	[X]	[X]	Commercial/residential developments, parking lots, dams, bridges, revetments, and other structures
[X]	[X]	Small irrigation ditches without levees	[ ]	[ ]	Lawns, parks, golf courses, sports fields
[ ]	[ ]	Old fields, unmaintained	[ ]	[ ]	Railroads
[ ]	[ ]	Open range land	[ ]	[ ]	Maintained levees, sediment piles, construction materials, staging areas
[X]	[X]	Foot trails, horse trails, unpaved bike trails (low intensity)	[ ]	[ ]	Intensive livestock areas, horse paddocks, feedlots
[X]	[X]	Non-channel open water	[ ]	[ ]	Intensive agriculture: maintained pastures, hay fields, row crops, orchards, and vineyards
[X]	[X]	Non-functioning abandoned vegetated levees, or naturally occurring levees	[X]	[X]	Paved roads or developed second-order unpaved but graded roads
[ ]	[ ]	unpaved two tracks roads	[X]	[X]	Open water bounded by a levee or other manmade structure
[ ]	[ ]	Other	[ ]	[ ]	Other

Worksheet 1b. Buffer Percent Sub-metric. Measure or estimate the percentage of the SA perimeter composed of allowed buffer elements and enter into the Buffer Percent Box below. Rate the sub-metric using Table L1a and enter the rating on the Buffer Integrity Summary Worksheet 1d.

Buffer Percent (%)=	85%

Table L1a. Buffer Percent

Rating	Buffer Percent
( ) 4	100%
(X) 3	≥80% - <100%
( ) 2	≥50% - <80%
( ) 1	<50%

Worksheet 1c. Buffer Width Sub-metric. Measure the length of each buffer line in meters in the GIS or on the map. Average the line lengths and rate using Table L1b. Enter the rating on the Buffer Integrity Summary Worksheet 1d.

Line	Buffer Width (m)	Buffer Width (ft)	Line	Buffer Width (m)	Buffer Width (ft)
A	164.26	538.91	E	161.93	531.26
B	125.25	410.92	F	231.48	759.44
C	115.39	378.57	G	121.25	397.80
D	111.07	364.40	H	155.87	511.38
Average		148.31 (m)		486.58	(ft)

Table L1b. Buffer Width

Rating	Average buffer width
( ) 4	≥190m
(X) 3	≥130 - <190m
( ) 2	≥65 - <130m
( ) 1	<65m

Worksheet 1d. Buffer Integrity Summary. Enter the sub-metric Ratings from Tables L1a and L1b above to calculate the Buffer Integrity Index Score using the formula in the box below. Using the Buffer Integrity Index Score, enter rating for Buffer Integrity in Table L1c on the SA Summary Worksheet.

Buffer % Rating	+	Buffer Width Rating	/2 =	Buffer Integrity Index Score
3	+	3	/2 =	3

Table L1c. Summary Rating for Buffer Integrity

Rating	Score
( ) 4	>3.5
(X) 3	>2.5 - ≤3.5
( ) 2	>1.5 - ≤2.5
( ) 1	≤1.5

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L2 - Riparian Corridor Connectivity (RCC)

Worksheet 2. RCC excluded non-buffer elements calculation. Refer to worksheet 1a for excluded non-buffer RCC land cover elements. Following the steps in the Field Guide, enter the summed values in meters for excluded element lengths for each bank within each segment upstream and downstream of the SA. Sum the values for each segment and calculate % Segment Disruption for the upstream side and the downstream side. Add the total disruption for upstream and downstream segments and then calculate the % Total Disruptions for the riparian corridor. Rate Riparian Corridor Connectivity using Table L2 and the data from this worksheet. Enter rating on the SA Summary Worksheet.

Segments	Upstream Segment		Downstream Segment	
Banks	**Left Bank**	**Right Bank**	**Left Bank**	**Right Bank**
A) Total Bank Disruption (m)	0	0	0	0
B) Total Disruption by Segment (m)	0		0	
C) % Segment Disruption = (B/1000)*100	0		0	
D) Total Disruption both segments	0			
E) % Total Disruptions = (D/2000)*100	Zero disruption noticeable along the banks.			

Table L2. RCC Rating

Rating	Description
(X) 4	**0%** total disruption on both segments combined.
( ) 3	**<15%** total disruption on both segments combined.
( ) 2	**≥15%** - **<40%** total disruption on both segments combined.
( ) 1	**≥40%** total disruption on both segments combined.

L3 - Relative Wetland Size

Worksheet 3a. Calculate the Relative Size Ratio (RSR) between the current WOI size and the historic WOI size. b. Calculate the Relative Wetland Size Score (RWSI (%)) as (1-RSR)*100. Rate Relative Wetland Size Index using Table L3 and enter rating on the SA Summary Worksh

RSR					RWSI						
Current Size	/	Historic Size	=	RSR	1	-	RSR	X	100	=	RWSI (%)
9	/	10	=	0.9	1	-	0.1	X	100	=	10

Table L3. Relative Wetland Size Rating

Rating	RWSI Score	Description
(X) 4	≤10%	Wetland is at or only minimally reduced from its full natural extent
( ) 3	>10% - ≤40%	Wetland remains equal to or more than 60% of its natual size
( ) 2	>40% - ≤70%	Wetland has been reduced by more than 40% its natural size
( ) 1	>70%	Wetland has been reduced by more than 70% its natural size

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L4 - Surrounding Land Use

orksheet 4. Surrounding Land Use. Enter the percent area occupied by a given Land Use Element in the Land Use Zone (LUZ) surrounding the SA. Calculate the Land Use Index (LUI) Score by element as the product of the element coefficient times the percent of the LUZ Area occupied. (The %LUZ Area must total 100%.) Sum the LUI scores for each element to create the final LUI Score. Rate using Table L4 and enter the rating in the SA Rank Summary Worksheet.

Land Use Element	Coef	% LUZ Area	LUI Score
Paved roads, parking lots, domestic or commercially developed buildings, mining (gravel pit, quarry, open pit, strip mining), railroads	0	0	0
Unpaved roads (e.g., driveway, tractor trail, unpaved parking lots), paddock, dirt lot	0.1	0	0
Dredging, borrow pits, abandoned mines, water-filled artificial impoundments (ponds and reservoirs)	0.1	0	0
Filling or dumping of sediment or soils	0.1	0	0
Intense recreation (all-terrain vehicle use, camping, popular fishing spot, etc.)	0.3	0	0
Rip-rapped channel (highly modified channel with severely limited vegetation zone that is altered by human activities but not a completely concrete channel [that goes under paved roads]), junkyards, trash dumps, disturbed ground (not including roads)	0.3	0	0
Ski area	0.4	0	0
Dam sites and flood-disturbed shorelines around water storage reservoirs	0.5	0	0
Abandoned artificial impoundments (ponds and reservoirs) and associated disturbed flood zones	0.5	10	5
Artificial/Constructed wetlands, irrigation ditches	0.7	20	14
Developed/Managed trail system (high use trail)	0.8	5	4
Agriculture - active tilled crop production	0.2	0	0
griculture - permanent crop (vineyards, orchards, nurseries, berry production)	0.3	0	0
Manicured lawns, sport fields, and golf courses; urban manicured parks	0.3	0	0
Old fields and other disturbed fallow lands dominated by ruderal and/or exotic species (e.g., kochia, Russian thistle, mustards, annual vegetation)	0.5	0	0
Mature old fields and other fallow lands with natural composition, introduced hay field and pastures (e.g., perennial vegetation cover)	0.7	0	0
Restoration areas in process to natural conditions (re-conversion in process)	0.8	65	52
Haying of native grassland (e.g., no tillage, haying and baling only)	0.9	0	0
Heavy logging or tree removal with >50% of large trees (e.g., >30 cm diameter at breast height) removed, woodland/shrub vegetation conversion (chaining, cabling, rotochopping)	0.3	0	0
Commercial tree plantation, Christmas tree farms	0.6	0	0
Selective logging or tree removal with <50% of large trees (e.g., >30 cm diameter at breast height) removed	0.8	0	0
Mature restoration areas returned to natural conditions (re-converted)	0.9	0	0
Natural area, land managed for native vegetation - No agriculture, logging, development	1	0	0
LUI Score= Coefficient * % LUZ Area		100	75

Table L4. Surrounding Land Use Rating	
Rating	**LUI Score**
○ 4	≥95 - 100
○ 3	≥80 - <95
⊗ 2	≥40 - <80
○ 1	<40

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Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	~~IB~~ IA2	0%	None	Elm? unknown	Horse tail, Juniper, Restoration channel is dry ventalong rock path
2	IA2	" "	" "	"	" " Around the channel 20ft on
3	IIA1				either side is more dense
4	IIIB1				willow
5	IIIC1				
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

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B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

		Tall Woody Stratum [1]				Short Woody Stratum [2]				Herbaceous/Sparse Stratum [3]				CT Score [4]		
CT	Polygon Nos.	Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw[4]	% SA[5]	Wt Score[6]
A	2	Cottonwood	N	Elm	u	Willow	N	Juniper	N	Horsetail / rye	u	Bluestem / woodreed	u	3.75	100 %	3.75
B																
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
													Final Weighted Score[7]			3.75

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤6m (20 feet) and >25% total stratum cover; 3. Herbaceous (graminoids and forbs)>10% total stratum cover. [4]Raw Score is from Table B1a (Appendix B); [5]%SA is the percentage of the SA area covered by the CT and expressed as a decimal number; the total area %SA must equal 1; [6]Wt. Score is the product of the Raw Score * % SA; [7]The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Weighted Score on Table B1 and enter the Rating for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

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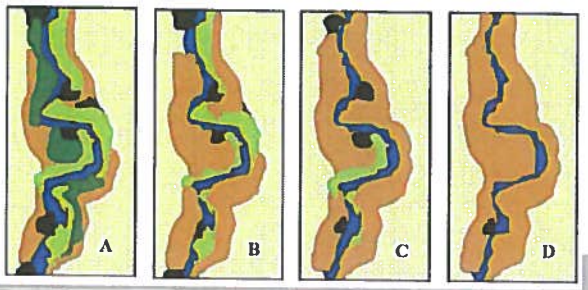
Table B1. Relative Native Plant Community Composition Rating		
Rating	**CT Final Weighted Score**	
☒ 4	≥ 3.75	<10% non-native
○ 3	≥ 3.25 and <3.75	10% ≤20% non-native
○ 2	> 2.0 and <3.25	20% ≤50% non-native
○ 1	≤2.0	>50% non-native



B2 - Vegetation Horizontal Patch Structure

Worksheet 7. Using Tables B2a and B2c (Appendix B), choose the schematic pattern that best matches the mapped vegetation patch pattern for the SA. Rate using Table B2 and enter rating on the SA Rank Summary Worksheet.

Horizontal Patch Structure pattern A,B,C, or D: C

Table B2. Rating for Vegetation Horizontal Patch Structure	
Rating	**Description**
○ 4	Most closely matches Pattern A. SA has a diverse patch structure (≥4 patch types) and complexity. A dominant patch type would be difficult to determine.
○ 3	Pattern B. SA has a moderate degree of patch diversity (3 patch types present) and complexity. A single, dominant patch type may be present, although the other patch types would be well represented and have more than one occurrence in the SA.
☒ 2	Pattern C. SA has a low degree of patch diversity and complexity. Two or three patch types may be present; however, a single, dominant patch type exists with the others occupying a small portion of the SA.
○ 1	Pattern D. SA has essentially little to no patch diversity or complexity. The SA is dominated by a single patch type. Other patch types, if present, occur infrequently and occupy a small portion of the SA.

B3 - Vegetation Vertical Structure

Worksheet 8. Percentage of SA by vertical structure type (VST). Using the Structure Type from Worksheet 5 and the %SA from Worksheet 6 calculate the total area of the SA occupied by each VST using the formula VST(type) = Sum (%SA for CTs with same VST) x 100. Enter the total %SA for each VST below.

	VST 1 High Structure Forest	VST 2 Low Structure Forest	VST 5 Tall Shrubland	VST 6S Short Shrubland	VST 6W Herbaceous Wetland	VST 6H Herbaceous Vegetation	VST 7 Sparse Vegetation
Total % of SA	50			50			

Table B3. Rating for Vegetation Vertical Structure. Using the data from Worksheet 8 rate the SA based on the criteria in Table B3. Pick the row that best fits the distribution of VSTs in the SA. Each row specifies the required dominant structure type plus co- and sub-dominants. Percentage cover required per co- or sub-dominant is a minimum. The types listed in the columns must be the most common VSTs in the SA for the rating to be applicable (Worksheet 8). VSTs 1 and 2 can be inverted in dominance and the rating is still applicable. Work from the top of the table down. As long as the requirements for one row are met, any other types may or may not co-occur without changing the rating. Enter the rating on the SA Rank Summary Worksheet.

Rating	Dominant VST	Co- or Sub-dominant VST ≥15%	Sub-dominant VST ≥5%
○ 4	1	5	6W and/or 6H
	1	6W	
	2 or 1 and 2	5	6W and/or 6H
☒ 3	1		
	2 or 1 and 2	5	
	2 or 1 and 2	6W	
	5	6W	
○ 2	2 or 1 and 2		
	5		
	6W		
○ 1	6S		
	6H		
	7		

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B4 Native Riparian Tree Regeneration

Table B4. Native Riparian Tree Regeneration rating. Using the polygon percent cover of native tree seedlings, saplings and poles from Worksheet 5, rate the SA based on polygon percent cover and patch density. Enter the rating on the SA Rank Summary Worksheet.

Rating	Description
☒ 4	Native poles, sapling, and seedlings trees well represented, obvious regeneration, many patches or polygons with >5% cover, typically multiple size (age) classes.
○ 3	Native poles, saplings and/or seedlings common, scattered patches or polygons with 1% -5% cover, size classes few.
○ 2	Native poles, saplings and/or seedlings present but uncommon, restricted to one or two patches or polygons with typically <1% cover, little size class differentiation.
○ 1	Native poles, saplings, and/or seedlings absent (0% cover).

B5 - Invasive Exotic Plant Species Cover

Worksheet 9. Based on Worksheets 5 and 6, calculate or estimate the percentage cover of invasive exotic species for the SA and enter below. Rate using Table B5 and enter the rating on the SA Rank Summary Worksheet.

Rating Method: 0

Invasive cover (%): 0 calculate

Table B5. Ratings for Invasive Exotic Plant Species Cover

Rating	Invasive Species Cover %
○ 4 X	0%
○ 3	>0% - <1%
○ 2	≥1% - <10%
○ 1	≥10

Additional CTs and Biotic Metric Comments:

More of a High forest environment with lots of diversity. New life starting all around but mostly covered in leaves and other debris.

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A2 - Physical Patch Complexity

Worksheet 11. Physical Patch Complexity checklist. Check off existing physical patch types for the upper, middle and lower segments of the SA; count the number of unique patch types and rate using Table A2 in combination with the narrative description. Enter the rating on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (check all existing conditions)
☐	☐	☐	Active side channels
☐	☒	☐	Abandoned channels
☐	☐	☐	Backwater/eddy
☐	☐	☐	Riffles or rapids
☐	☐	☐	Shoals, sparely-vegetated bars
☐	☒	☐	Channel boulders
☐	☐	☐	Oxbow lakes/ponds on floodplains
☐	☐	☐	Vegetated island and side bars
☐	☒	☐	Terraces
☐	☐	☐	Channel pools
☐	☐	☐	Beaver ponds
☐	☐	☐	Swales, depressional features on floodplains
☐	☐	☐	Debris jams in channel
☐	☐	☐	Woody wrack piles on the floodplain
☐	☐	☐	Floodplain micro-topography (mounds, pits)
☐	☒	☐	Downed logs
☐	☐	☐	Natural levees
☐	☒	☐	Standing snags
☐	☐	☐	Variegated, convoluted, or crenulated foreshore
☐	☐	☐	Undercut banks in channels
			No. of unique Patch Types

limited because only middle Segment and lack of water source

Table A2. Rating for Physical Patch Complexity

Rating	Description
○ 4	**High** degree of physical patch complexity across the floodplain. There are many floodplain micro-habitats present (mounds and pits, woody wrack piles, etc.), many fluvial geomorphic surfaces (swales, side channels, terraces, side bars, etc.), and there is high in-channel complexity (pools and riffles, large woody debris, undercut banks, etc.). As a guide, 12 or more unique indicators are present and well distributed throughout the SA (most indicators are found on multiple segments).
○ 3	**Moderate** physical patch complexity scattered across the floodplain. There are several floodplain micro-habitats present, several fluvial geomorphic surfaces, and there is moderate in-channel complexity. As a guide, 9 - 11 indicators are scattered throughout the SA (some on multiple segments).
☒ 2	**Limited** physical patch complexity scattered across the floodplain. There are some floodplain micro-habitats present, some fluvial geomorphic surfaces, and there is limited in-channel complexity. As a guide, on average there are 6 - 8 unique indicators present in the SA (only a few on multiple segments).
○ 1	**Little** or no physical patch complexity on the floodplain. There are few or no floodplain micro-habitats present, few different fluvial geomorphic surfaces, and there is little or no in-channel complexity. As a guide, ≤ 5 unique indicators are present in the SA.

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A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☑	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☑	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☑	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☑	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☐	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☐	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.

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Table A3. Rating for Channel Equilibrium	
Rating	**Description**
☒ 4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
○ 3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
○ 2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
○ 1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	☐4	☒4	☐4	Infrequent raw banks, less than 10% of steam bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	☐3	☐3	☐3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	☐2	☐2	☐2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	☐1	☐1	☐1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.
Indicators of Stream Bank Erosion Potential	☐4	☒4	☐4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	☐3	☐3	☐3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	☐2	☐2	☐2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	☐1	☐1	☐1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score 4

Table A4. Stream Bank Stability and Cover Rating	
Rating	**Description**
☒ 4	>3.5 - 4.0
○ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	1.0 - ≤1.5

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A5 - Soil Surface Condition

..orksheet 14. Soil Surface Condition. Check all that apply in the upper , middle and lower SA segments during the field reconnaissance. The absence of these indicators would signify that disturbances are naturally occurring (e.g., flood deposition or low-density wildlife trails). Estimate the percent soil disturbance by segment area and referring to the SA abiotic map. Rate using Table A5 and enter on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (Check all existing conditions)
☐	☐	☐	Active erosion features due to anthropogenic disturbance (eg. rills, gullies, plant pedestals).
☐	☒	☐	Multiple livestock and other (fishing,hiking) trails,
☐	☐	☐	Vehicle tracks including off-road and construction, etc.
☐	☐	☐	Impervious compacted surfaces or pavement
☐	☐	☐	Grading or plowing
☐	☐	☐	Fill
☐	☐	☐	Gravel pits
☐	☐	☐	Anthropogenic levees and berms
☐	☐	☐	Irrigation-driven salinity and mineral crusts
☐	☐	☐	Fire pits
☐	☐	☐	Other:
			Estimate % soil disturbance by segment area

Average % Soil Disturbance: < 1%

Table A5. Soil Surface Condition Rating

Rating	Description
○ 4	Bare soil areas due to anthropogenic disturbance absent or very limited. No human-caused impervious surfaces or gravel pits are found within the SA. Total disturbance, including erosion, impervious surfaces, fill, or other anthropogenic degradation to the soil surface is less than 1% of the SA.
○ 3	Some amount of bare soil from human causes is present but the extent is limited. Area of impervious surfaces are minimal in extent. Total disturbance, including erosion, impervious surfaces, fill, gravel pits, vehicle tracks or other anthropogenic degradation to the soil surface is between 1% and 5% of the sampling area.
⊗ 2	Bare soils from human causes are common. These may include dense livestock trails, vehicle tracks, trails, construction staging areas, mechanical rutting, or irrigation-driven salinity. Soil disturbance, while apparent, is limited to specific areas and not found across the majority of the SA. Total disturbance, including erosion, impervious surfaces, fill, gravel mining, or other anthropogenic degradation to the soil surface is greater than 5% or less than 10% of the SA.
○ 1	Bare soil areas degrade portions of the site because of altered hydrology or other long-lasting impacts. Deep ruts from off-road vehicles or machinery are present. Livestock disturbance or trails are widespread and several inches deep. Water is channeled into rills or ponded. Additional human-caused impervious surfaces or soil compaction are present. Total disturbance, including erosion, impervious surfaces, fill,gravel mining or other anthropogenic degradation to the soil surface is equal to or greater than 10% of the SA.

SA CODE : SF2MI [2] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [2] **Surveyor Initials :** DCS

Worksheet 15. Stressor Checklist. Check off stressors by intensity category that may be affecting wetland ecological condition of the SA and WOI. Assign categories using direct evidence where available or your best professional judgement otherwise. If the presence of the stressor is uncertain, mark as "Unkno
Rank Major Stressors in Dominant Stressor column(Pick up to 3)

Rank	Affect				Stressor Group/Stressor	Comments
	Major	Minor	Absent	Unknown		
					Adverse water management	
	☑	☐	☐	☐	Extended low flow dam releases	
	☐	☐	☑	☐	Timing of flow releases not concordant	
	☐	☐	☑	☐	Extended high flow dam releases	
	☐	☐	☑	☐	Agriculture/Urban flow diversion upstream	
					Adverse sediment management	
	☐	☐	☑	☐	Adverse sediment retention by dams	
	☐	☐	☑	☐	Sediment loss by dredging	
	☐	☐	☑	☐	Adverse sediment input (roads/development)	
					Artificial water additions	
	☐	☐	☑	☐	Sewer treatment effluent	
	☐	☐	☑	☐	Point source urban runoff	
	☐	☐	☑	☐	Factory, feedlot outfall	
	☐	☐	☑	☐	Agricultural irrigation ditch returns	
	☐	☐	☑	☐	Mining waste	
					Ground water pumping	
	☐	☐	☑	☐	Urban depletions	
	☐	☐	☑	☐	Fracking	
	☐	☐	☑	☐	Agriculture irrigation wells	
					Watershed alteration	
	☐	☐	☑	☐	Extensive recent fires in watershed	
	☐	☐	☑	☐	Extensive recent timber harvest	
	☐	☐	☑	☐	Extensive open pit mining in watershed	
	☐	☐	☑	☐	Livestock/wildlife overgrazing	
					Local biodiversity impacts	
	☐	☐	☑	☐	Evidence of excessive grazing (local)	
	☐	☐	☑	☐	Excessive noise affecting wildlife	
	0	0		0	**Counts by Intensity**	

Additional Comments: Water is shut off to 'water is shut off to this area'

Version Date: 04/25/2022

Schema: Montane 2.5

2024 MOISTURE MEASUREMENT FORM

PAGE: 1 OF 1

DATE: 3/7 -

CLIENT: Santa Fe

PROJECT: Riparian Assesment

SITE LOCATION: Transect 3

ACTIVITY: Moisture Meter

GEOLOGISTS: DCS

Moisture Meter Description: Standard Green 1-10 gage meter

Distance from SE endpoint in feet	Date 3/7	Date	Date	Date	Date	Date	Date	Date	Date	Date	Average
0	1										
15	1										
30	4										
45	1										
60	1										
75	6										
90	10										
120	water										

Pooling Water

NMRAM Montane Riverine Wetlands Version 2.5

SA Cover Worksheet				
SA Code SF2MI [3]	SA Name : Two Mile Pond Reservoir		Project : Riparian Assesement	
AU Code Tsct [3]	AU Name : Transect [3]		WOI : Two Mile Pond Reservoir	
County Santa Fe	HUC 12 Headwaters Santa Fe River	Elevation (ft) 7299	(m) 2224.7	Ecoregion 6.0 NWFM

SA General Location and Boundary (Rationale, comments)
A riparian system that leads into a pond located on the east side of Santa Fe bordering the Santa Fe National Forest. This reservoir was decommissioned due to safety concerns regarding the reservoir and a water diversion to the area was recently shut down due to lack of water rights.

Driving Directions
Driving to Santa Fe from Albuquerque you head north on Old Pecos Trail. Then head east on Camino Del Monte Sol and right on Canyon Road until you reach the reservoir located to the North.

Ownership	Data Sharing Restrictions	Fish Observed in Wetland?
The Nature Conservative and The Santa Fe National Forest	Results to client only.	No

Surveyor Role	Surveyor Name	Surveyor Initials
Landscape	Dustin	DS
Biotic	Annie	AM
Abiotic	Dustin	DS
Stressors	Both	DS

Easting (m)	Northing (m)	Zone	Datum	Latitude (DD ft)	Longitude (DD ft)
-105° 53' 24" W	35° 41' 23" N	13	NAD- 83 UTM	35.689722	-105.89
Survey Date	3/7/24	**Start Time**	11:32	**End Time**	12:55

SA Description

SA Landscape Context (summarize the wetland and surrounding landscape; include condition and impacts)

This Area is the middle of the wet land with beaver dams and larger forested trees.

SA Biotic Condition (vegetation patterns, composition and structure, exotics and invasives, disturbance evidence, fire and herbivory)

Everything is dry in this area vegetation wise, There were small gnats flying around the water/Dammed area.

SA Abiotic Condition (hydrological alterations {e.g., dams, walls etc.]; flooding characteristics and evidence of overbank flooding; soil disturbance and other site impacts; explain the hydrologic breaks or other factors that define the SA limits)

This area had a storm flow / Beaver dam. This dam held water ≈ 7 inches above the ground level.

Assessment Summary (Overall site condition summary and comments after the field data is collected.)

This area is very dry right now around dam and covered in leaves, Not much ground is viewable except on the trail.

Provisional Field Score	Rank	Surveyor(s)	Final Score	Rank	Initials	Date
3.338	A	DCS	3.338	A	DCS	3/7/24

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

NMRAM - SA Rank Summary Worksheet: Montane Riverine Wetlands 2.5			
Metric Description	Rating	Wt	Final Score
Landscape Context		Σ 1.0	3.25
L1. Buffer Integrity Index	3	0.25	0.75
L2. Riparian Corridor Connectivity	4	0.25	1.0
L3. Relative Wetland Size	4	0.25	1.0
L4. Surrounding Land Use	2	0.25	0.5
Biotic		Σ	
B1. Relative Native Plant Community Composition	2	0.2	.4
B2. Vegetation Horizontal Patch Structure	4	0.2	.8
B3. Vegetation Vertical Structure	3	0.2	.6
B4. Native Riparian Tree Regeneration	3	0.2	.6
B5. Invasive Exotic Plant Species Cover	3	0.2	.6
Abiotic		Σ	
A1. Floodplain Hydrologic Connectivity	-	0.3	-
A2. Physical Patch Diversity	3	0.25	.75
A3. Channel Equilibrium	4	0.25	1
A4. Stream Bank Stability and Cover	4	0.25	1
A5. Soil Surface Condition	4	0.25	1

SA Condition Scoring Summary			
Major Attribute	Score	Wt.	Wt. Score
Landscape Context	3.25	0.3	0.975
Biotic	3.06	0.35	1.05
Abiotic	3.75	0.35	1.312
SA WETLAND CONDITION SCORE Σ			3.338
SA WETLAND RANK =	3.338		A

SA Wetland Rank		
Rank	Score	Description
(A)	≥3.25 - 4.0	Excellent Condition
B	≥2.5 - <3.25	Good Condition
C	≥1.75 - <2.5	Fair Condition
D	1.0 - <1.75	Poor Condition

Stressor Summary	Major	Minor	Top Three
	0	0	1 Trails
			2 Beaver Dams
			3 lack of water

Stressor Comments (Evaluation of risk)

This Area is capable of holding a lot of water in the stormflow / Beaver Dams. lack of water could affect this.

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

Landscape Context

L1 - Buffer Integrity Index

Worksheet 1a. Buffer and RCC Checklist. Check off land cover elements within the buffer area or RCC corridors that are either allowed, or are excluded and considered non-buffer elements that disrupt ecosystem connectivity. Indicate the imagery type and date (season and year of imagery).

Imagery	Google Earth KMZ. file	Image Date	6/23

Allowed buffer/RCC land cover elements			Excluded non-buffer/RCC land cover elements		
Buffer	RCC		Buffer	RCC	
X	X	Natural or semi-natural vegetation patches	X	X	Commercial/residential developments, parking lots, dams, bridges, revetments, and other structures
X	X	Small irrigation ditches without levees	☐	☐	Lawns, parks, golf courses, sports fields
☐	☐	Old fields, unmaintained	☐	☐	Railroads
☐	☐	Open range land	☐	☐	Maintained levees, sediment piles, construction materials, staging areas
X	X	Foot trails, horse trails, unpaved bike trails (low intensity)	☐	☐	Intensive livestock areas, horse paddocks, feedlots
X	X	Non-channel open water	☐	☐	Intensive agriculture: maintained pastures, hay fields, row crops, orchards, and vineyards
X	X	Non-functioning abandoned vegetated levees, or naturally occurring levees	X	X	Paved roads or developed second-order unpaved but graded roads
☐	☐	unpaved two tracks roads	X	X	Open water bounded by a levee or other manmade structure
☐	☐	Other	☐	☐	Other

Worksheet 1b. Buffer Percent Sub-metric. Measure or estimate the percentage of the SA perimeter composed of allowed buffer elements and enter into the Buffer Percent Box below. Rate the sub-metric using Table L1a and enter the rating on the Buffer Integrity Summary Worksheet 1d.

Buffer Percent (%)=	85%

Table L1a. Buffer Percent

Rating	Buffer Percent
○ 4	100%
⊗ 3	≥80% - <100%
○ 2	≥50% - <80%
○ 1	<50%

Worksheet 1c. Buffer Width Sub-metric. Measure the length of each buffer line in meters in the GIS or on the map. Average the line lengths and rate using Table L1b. Enter the rating on the Buffer Integrity Summary Worksheet 1d.

Line	Buffer Width (m)	Buffer Width (ft)	Line	Buffer Width (m)	Buffer Width (ft)
A	164.26	538.91	E	161.93	531.26
B	125.25	410.92	F	231.48	759.44
C	115.39	378.57	G	121.25	397.80
D	111.07	364.40	H	155.87	511.38
Average		148.31 (m)		486.58	(ft)

Table L1b. Buffer Width

Rating	Average buffer width
○ 4	≥190m
⊗ 3	≥130 - <190m
○ 2	≥65 - <130m
○ 1	<65m

Worksheet 1d. Buffer Integrity Summary. Enter the sub-metric Ratings from Tables L1a and L1b above to calculate the Buffer Integrity Index Score using the formula in the box below. Using the Buffer Integrity Index Score, enter rating for Buffer Integrity in Table L1c in the SA Summary Worksheet.

Buffer % Rating	+	Buffer Width Rating	/2 =	Buffer Integrity Index Score
3	+	3	/2 =	3

Table L1c. Summary Rating for Buffer Integrity

Rating	Score
○ 4	>3.5
⊗ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	≤1.5

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

L2 - Riparian Corridor Connectivity (RCC)

Worksheet 2. RCC excluded non-buffer elements calculation. Refer to worksheet 1a for excluded non-buffer RCC land cover elements. Following the steps in the Field Guide, enter the summed values in meters for excluded element lengths for each bank within each segment upstream and downstream of the SA. Sum the values for each segment and calculate % Segment Disruption for the upstream side and the downstream side. Add the total disruption for upstream and downstream segments and then calculate the % Total Disruptions for the riparian corridor. Rate Riparian Corridor Connectivity using Table L2 and the data from this worksheet. Enter rating on the SA Summary Worksheet.

Segments	Upstream Segment		Downstream Segment	
Banks	**Left Bank**	**Right Bank**	**Left Bank**	**Right Bank**
A) Total Bank Disruption (m)	0	0	0	0
B) Total Disruption by Segment (m)	0		0	
C) % Segment Disruption = (B/1000)*100	0		0	
D) Total Disruption both segments	0			
E) % Total Disruptions = (D/2000)*100	Zero disruption noticeable along the banks.			

Table L2. RCC Rating

Rating	Description
(X) 4	**0%** total disruption on both segments combined.
( ) 3	**<15%** total disruption on both segments combined.
( ) 2	**≥15%** - **<40%** total disruption on both segments combined.
( ) 1	**≥40%** total disruption on both segments combined.

L3 - Relative Wetland Size

Worksheet 3a. Calculate the Relative Size Ratio (RSR) between the current WOI size and the historic WOI size. b. Calculate the Relative Wetland Size Score (RWSI (%)) as (1-RSR)*100. Rate Relative Wetland Size Index using Table L3 and enter rating on the SA Summary Worksh

RSR					RWSI						
Current Size	/	Historic Size	=	RSR	1	-	RSR	X	100	=	RWSI (%)
9	/	10	=	0.9	1	-	0.1	X	100	=	10

Table L3. Relative Wetland Size Rating

Rating	RWSI Score	Description
(X) 4	≤10%	Wetland is at or only minimally reduced from its full natural extent
( ) 3	>10% - ≤40%	Wetland remains equal to or more than 60% of its natual size
( ) 2	>40% - ≤70%	Wetland has been reduced by more than 40% its natural size
( ) 1	>70%	Wetland has been reduced by more than 70% its natural size

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

L4 - Surrounding Land Use

Worksheet 4. Surrounding Land Use. Enter the percent area occupied by a given Land Use Element in the Land Use Zone (LUZ) surrounding the SA. Calculate the Land Use Index (LUI) Score by element as the product of the element coefficient times the percent of the LUZ Area occupied. (The %LUZ Area must total 100%.) Sum the LUI scores for each element to create the final LUI Score. Rate using Table L4 and enter the rating in the SA Rank Summary Worksheet.

Land Use Element	Coef	% LUZ Area	LUI Score
Paved roads, parking lots, domestic or commercially developed buildings, mining (gravel pit, quarry, open pit, strip mining), railroads	0	0	0
Unpaved roads (e.g., driveway, tractor trail, unpaved parking lots), paddock, dirt lot	0.1	0	0
Dredging, borrow pits, abandoned mines, water-filled artificial impoundments (ponds and reservoirs)	0.1	0	0
Filling or dumping of sediment or soils	0.1	0	0
Intense recreation (all-terrain vehicle use, camping, popular fishing spot, etc.)	0.3	0	0
Rip-rapped channel (highly modified channel with severely limited vegetation zone that is altered by human activities but not a completely concrete channel [that goes under paved roads]), junkyards, trash dumps, disturbed ground (not including roads)	0.3	0	0
Ski area	0.4	0	0
Dam sites and flood-disturbed shorelines around water storage reservoirs	0.5	0	0
Abandoned artificial impoundments (ponds and reservoirs) and associated disturbed flood zones	0.5	10	5
Artificial/Constructed wetlands, irrigation ditches	0.7	20	14
Developed/Managed trail system (high use trail)	0.8	5	4
Agriculture - active tilled crop production	0.2	0	0
Agriculture - permanent crop (vineyards, orchards, nurseries, berry production)	0.3	0	0
Manicured lawns, sport fields, and golf courses; urban manicured parks	0.3	0	0
Old fields and other disturbed fallow lands dominated by ruderal and/or exotic species (e.g., kochia, Russian thistle, mustards, annual vegetation)	0.5	0	0
Mature old fields and other fallow lands with natural composition, introduced hay field and pastures (e.g., perennial vegetation cover)	0.7	0	0
Restoration areas in process to natural conditions (re-conversion in process)	0.8	65	52
Haying of native grassland (e.g., no tillage, haying and baling only)	0.9	0	0
Heavy logging or tree removal with >50% of large trees (e.g., >30 cm diameter at breast height) removed, woodland/shrub vegetation conversion (chaining, cabling, rotochopping)	0.3	0	0
Commercial tree plantation, Christmas tree farms	0.6	0	0
Selective logging or tree removal with <50% of large trees (e.g., >30 cm diameter at breast height) removed	0.8	0	0
Mature restoration areas returned to natural conditions (re-converted)	0.9	0	0
Natural area, land managed for native vegetation - No agriculture, logging, development	1	0	0
LUI Score= Coefficient * % LUZ Area		100	75

Table L4. Surrounding Land Use Rating	
Rating	**LUI Score**
○ 4	≥95 - 100
○ 3	≥80 - <95
⊗ 2	≥40 - <80
○ 1	<40

SA CODE : SF2MI [3] **SA Name :** Two Mile Pond Reservoir Transect [3] **Date :** 3/7/24 **Surveyor Initials :** DCS

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	IA1				
2	IA2	70 %	> 2%	Mullein	Cotton wood and elm ground is dead leaves and branches
3	IIA1	70% Cumy	N/A	None	Beak grain/grass willows cattails beaver damaging/storm runoff
4	IIIB1				
5	IIIC1				
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

SA CODE · SF2MI [3] **SA Name :** Two Mile Pond Reservoir Transect [3] **Date :** 3/7/24 **Surveyor Initials :** DCS

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

		Tall Woody Stratum [1]				Short Woody Stratum [2]				Herbaceous/Sparse Stratum [3]				CT Score [4]		
CT	Polygon Nos.	Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw[4]	% SA[5]	Wt Score[6]
A	2	Elm	U	Cottonwood	N	Willow	N	–		Mullein	E	Some grass	U	2.4	50	1.2
B	3	Cottonwoods	N	–		Willows	N	–		cattail	N	Beargrain	U	2.5	50	1.25
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
													Final Weighted Score[7]			2,45

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤6m (20 feet) and >25% total stratum cover; 3. Herbaceous (graminoids and forbs)>10% total stratum cover. [4]Raw Score is from Table B1a (Appendix B); [5]%SA is the percentage of the SA area covered by the CT and expressed as a decimal number; the total area %SA must equal 1; [6]Wt. Score is the product of the Raw Score * % SA; [7]The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Weighted Score on Table B1 and enter the Rating for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

SA CODE : SF2MI [3] **Date :** 3/7/24

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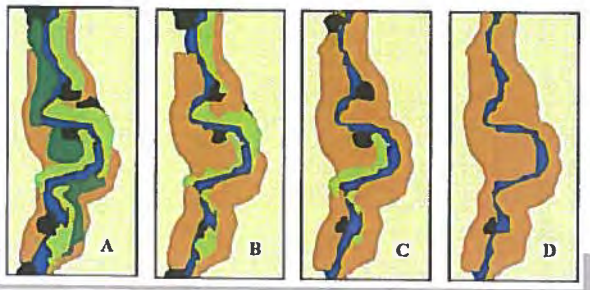
Table B1. Relative Native Plant Community Composition Rating		
Rating	**CT Final Weighted Score**	
○ 4	≥ 3.75	<10% non-native
○ 3	≥ 3.25 and <3.75	10% ≤20% non-native
⊗ 2	> 2.0 and <3.25	20% ≤50% non-native
○ 1	≤2.0	>50% non-native



B2 - Vegetation Horizontal Patch Structure

Worksheet 7. Using Tables B2a and B2c (Appendix B), choose the schematic pattern that best matches the mapped vegetation patch pattern for the SA. Rate using Table B2 and enter rating on the SA Rank Summary Worksheet.

Horizontal Patch Structure pattern A,B,C, or D: A

Table B2. Rating for Vegetation Horizontal Patch Structure	
Rating	**Description**
⊗ 4	Most closely matches Pattern A. SA has a diverse patch structure (≥4 patch types) and complexity. A dominant patch type would be difficult to determine.
○ 3	Pattern B. SA has a moderate degree of patch diversity (3 patch types present) and complexity. A single, dominant patch type may be present, although the other patch types would be well represented and have more than one occurrence in the SA.
○ 2	Pattern C. SA has a low degree of patch diversity and complexity. Two or three patch types may be present; however, a single, dominant patch type exists with the others occupying a small portion of the SA.
○ 1	Pattern D. SA has essentially little to no patch diversity or complexity. The SA is dominated by a single patch type. Other patch types, if present, occur infrequently and occupy a small portion of the SA.

B3 - Vegetation Vertical Structure

Worksheet 8. Percentage of SA by vertical structure type (VST). Using the Structure Type from Worksheet 5 and the %SA from Worksheet 6 calculate the total area of the SA occupied by each VST using the formula VST(type) = Sum (%SA for CTs with same VST) x 100. Enter the total %SA for each VST below.

	VST 1 High Structure Forest	VST 2 Low Structure Forest	VST 5 Tall Shrubland	VST 6S Short Shrubland	VST 6W Herbaceous Wetland	VST 6H Herbaceous Vegetation	VST 7 Sparse Vegetation
Total % of SA	50			50			

Table B3. Rating for Vegetation Vertical Structure. Using the data from Worksheet 8 rate the SA based on the criteria in Table B3. Pick the row that best fits the distribution of VSTs in the SA. Each row specifies the required dominant structure type plus co- and sub-dominants. Percentage cover required per co- or sub-dominant is a minimum. The types listed in the columns must be the most common VSTs in the SA for the rating to be applicable (Worksheet 8). VSTs 1 and 2 can be inverted in dominance and the rating is still applicable. Work from the top of the table down. As long as the requirements for one row are met, any other types may or may not co-occur without changing the rating. Enter the rating on the SA Rank Summary Worksheet.

Rating	Dominant VST	Co- or Sub-dominant VST ≥15%	Sub-dominant VST ≥5%
○ 4	1	5	6W and/or 6H
	1	6W	
	2 or 1 and 2	5	6W and/or 6H
⊗ 3	1		
	2 or 1 and 2	5	
	2 or 1 and 2	6W	
	5	6W	
○ 2	2 or 1 and 2		
	5		
	6W		
○ 1	6S		
	6H		
	7		

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

B4 - Native Riparian Tree Regeneration

Table B4. Native Riparian Tree Regeneration rating. Using the polygon percent cover of native tree seedlings, saplings and poles from Worksheet 5, rate the SA based on polygon percent cover and patch density. Enter the rating on the SA Rank Summary Worksheet.

Rating	Description
○ 4	Native poles, sapling, and seedlings trees well represented, obvious regeneration, many patches or polygons with >5% cover, typically multiple size (age) classes.
☒ 3	Native poles, saplings and/or seedlings common, scattered patches or polygons with 1% -5% cover, size classes few.
○ 2	Native poles, saplings and/or seedlings present but uncommon, restricted to one or two patches or polygons with typically <1% cover, little size class differentiation.
○ 1	Native poles, saplings, and/or seedlings absent (0% cover).

B5 - Invasive Exotic Plant Species Cover

Worksheet 9. Based on Worksheets 5 and 6, calculate or estimate the percentage cover of invasive exotic species for the SA and enter below. Rate using Table B5 and enter the rating on the SA Rank Summary Worksheet.

Rating Method: < 1

Invasive cover (%): < 1 calculate

Table B5. Ratings for Invasive Exotic Plant Species Cover

Rating	Invasive Species Cover %
○ 4	0%
☒ 3	>0% - <1%
○ 2	≥1% - <10%
○ 1	≥10

Additional CTs and Biotic Metric Comments:

This area is very much a High Structure forest with some short shrub land around the stream. visible gnats and new plants growing around water.

SA CODE: SF2MI [3] **Date:** 3/7/24

SA Name: Two Mile Pond Reservoir Transect [3] **Surveyor Initials:** DCS

A2 - Physical Patch Complexity

Worksheet 11. Physical Patch Complexity checklist. Check off existing physical patch types for the upper, middle and lower segments of the SA; count the number of unique patch types and rate using Table A2 in combination with the narrative description. Enter the rating on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (check all existing conditions)
☐	☐	☐	Active side channels
☐	☒	☐	Abandoned channels
☐	☒	☐	Backwater/eddy
☐	☐	☐	Riffles or rapids
☐	☐	☐	Shoals, sparely-vegetated bars
☐	☐	☐	Channel boulders
☐	☐	☐	Oxbow lakes/ponds on floodplains
☐	☐	☐	Vegetated island and side bars
☐	☒	☐	Terraces
☐	☒	☐	Channel pools
☐	☒	☐	Beaver ponds
☐	☐	☐	Swales, depressional features on floodplains
☐	☒	☐	Debris jams in channel
☐	☒	☐	Woody wrack piles on the floodplain
☐	☐	☐	Floodplain micro-topography (mounds, pits)
☐	☒	☐	Downed logs
☐	☒	☐	Natural levees
☐	☐	☐	Standing snags
☐	☐	☐	Variegated, convoluted, or crenulated foreshore
☐	☐	☐	Undercut banks in channels
			No. of unique Patch Types

Moderate chosen because only looked at middle Segment

Table A2. Rating for Physical Patch Complexity

Rating	Description
○ 4	**High** degree of physical patch complexity across the floodplain. There are many floodplain micro-habitats present (mounds and pits, woody wrack piles, etc.), many fluvial geomorphic surfaces (swales, side channels, terraces, side bars, etc.), and there is high in-channel complexity (pools and riffles, large woody debris, undercut banks, etc.). As a guide, 12 or more unique indicators are present and well distributed throughout the SA (most indicators are found on multiple segments).
☒ 3	**Moderate** physical patch complexity scattered across the floodplain. There are several floodplain micro-habitats present, several fluvial geomorphic surfaces, and there is moderate in-channel complexity. As a guide, 9 - 11 indicators are scattered throughout the SA (some on multiple segments).
○ 2	**Limited** physical patch complexity scattered across the floodplain. There are some floodplain micro-habitats present, some fluvial geomorphic surfaces, and there is limited in-channel complexity. As a guide, on average there are 6 - 8 unique indicators present in the SA (only a few on multiple segments).
○ 1	**Little** or no physical patch complexity on the floodplain. There are few or no floodplain micro-habitats present, few different fluvial geomorphic surfaces, and there is little or no in-channel complexity. As a guide, ≤ 5 unique indicators are present in the SA.

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☒	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☒	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☒	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☒	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☐	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☐	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

Table A3. Rating for Channel Equilibrium	
Rating	**Description**
☒ 4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
○ 3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
○ 2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
○ 1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	☐4	☒4	☐4	Infrequent raw banks, less than 10% of steam bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	☐3	☐3	☐3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	☐2	☐2	☐2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	☐1	☐1	☐1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.
Indicators of Stream Bank Erosion Potential	☐4	☒4	☐4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	☐3	☐3	☐3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	☐2	☐2	☐2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	☐1	☐1	☐1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score 4

Table A4. Stream Bank Stability and Cover Rating	
Rating	**Description**
☒ 4	>3.5 - 4.0
○ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	1.0 - ≤1.5

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

A5 - Soil Surface Condition

Worksheet 14. Soil Surface Condition. Check all that apply in the upper , middle and lower SA segments during the field reconnaissance. The absence of these indicators would signify that disturbances are naturally occurring (e.g., flood deposition or low-density wildlife trails). Estimate the percent soil disturbance by segment area and referring to the SA abiotic map. Rate using Table A5 and enter on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (Check all existing conditions)
☐	☐	☐	Active erosion features due to anthropogenic disturbance (eg. rills, gullies, plant pedestals).
☐	☒	☐	Multiple livestock and other (fishing,hiking) trails,
☐	☐	☐	Vehicle tracks including off-road and construction, etc.
☐	☐	☐	Impervious compacted surfaces or pavement
☐	☐	☐	Grading or plowing
☐	☐	☐	Fill
☐	☐	☐	Gravel pits
☐	☐	☐	Anthropogenic levees and berms
☐	☐	☐	Irrigation-driven salinity and mineral crusts
☐	☐	☐	Fire pits
☐	☐	☐	Other:
			Estimate % soil disturbance by segment area

Average % Soil Disturbance: < 1%

Table A5. Soil Surface Condition Rating

Rating	Description
☒ 4	Bare soil areas due to anthropogenic disturbance absent or very limited. No human-caused impervious surfaces or gravel pits are found within the SA. Total disturbance, including erosion, impervious surfaces, fill, or other anthropogenic degradation to the soil surface is less than 1% of the SA.
○ 3	Some amount of bare soil from human causes is present but the extent is limited. Area of impervious surfaces are minimal in extent. Total disturbance, including erosion, impervious surfaces, fill, gravel pits, vehicle tracks or other anthropogenic degradation to the soil surface is between 1% and 5% of the sampling area.
○ 2	Bare soils from human causes are common. These may include dense livestock trails, vehicle tracks, trails, construction staging areas, mechanical rutting, or irrigation-driven salinity. Soil disturbance, while apparent, is limited to specific areas and not found across the majority of the SA. Total disturbance, including erosion, impervious surfaces, fill, gravel mining, or other anthropogenic degradation to the soil surface is greater than 5% or less than 10% of the SA.
○ 1	Bare soil areas degrade portions of the site because of altered hydrology or other long-lasting impacts. Deep ruts from off-road vehicles or machinery are present. Livestock disturbance or trails are widespread and several inches deep. Water is channeled into rills or ponded. Additional human-caused impervious surfaces or soil compaction are present. Total disturbance, including erosion, impervious surfaces, fill,gravel mining or other anthropogenic degradation to the soil surface is equal to or greater than 10% of the SA.

SA CODE : SF2MI [3] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [3] **Surveyor Initials :** DCS

Worksheet 15. Stressor Checklist. Check off stressors by intensity category that may be affecting wetland ecological condition of the SA and WOI. Assign categories using direct evidence where available or your best professional judgement otherwise. If the presence of the stressor is uncertain, mark as "Unkno
Rank Major Stressors in Dominant Stressor column(Pick up to 3)

Rank	Affect				Stressor Group/Stressor	Comments
	Major	Minor	Absent	Unknown		
					Adverse water management	
	☐	☑	☐	☐	Extended low flow dam releases	
	☐	☐	☑	☐	Timing of flow releases not concordant	
	☐	☐	☑	☐	Extended high flow dam releases	
	☐	☐	☑	☐	Agriculture/Urban flow diversion upstream	
					Adverse sediment management	
	☐	☐	☑	☐	Adverse sediment retention by dams	
	☐	☐	☑	☐	Sediment loss by dredging	
	☐	☐	☑	☐	Adverse sediment input (roads/development)	
					Artificial water additions	
	☐	☐	☑	☐	Sewer treatment effluent	
	☐	☐	☑	☐	Point source urban runoff	
	☐	☐	☑	☐	Factory, feedlot outfall	
	☐	☐	☑	☐	Agricultural irrigation ditch returns	
	☐	☐	☑	☐	Mining waste	
					Ground water pumping	
	☐	☐	☑	☐	Urban depletions	
	☐	☐	☑	☐	Fracking	
	☐	☐	☑	☐	Agriculture irrigation wells	
					Watershed alteration	
	☐	☐	☑	☐	Extensive recent fires in watershed	
	☐	☐	☑	☐	Extensive recent timber harvest	
	☐	☐	☑	☐	Extensive open pit mining in watershed	
	☐	☐	☑	☐	Livestock/wildlife overgrazing	
					Local biodiversity impacts	
	☐	☐	☑	☐	Evidence of excessive grazing (local)	
	☐	☐	☑	☐	Excessive noise affecting wildlife	
	0	0		0	**Counts by Intensity**	

Additional Comments: Less water being sent to this area

Version Date: 04/25/2022

Schema: Montane 2.5

2024 MOISTURE MEASUREMENT FORM

DATE: 3/7 -

CLIENT: Santa Fe

PROJECT: Riperian Assesment

SITE LOCATION: Transect 4

ACTIVITY: Moisture Measurement

GEOLOGISTS: DCS + AM

Moisture Meter Description: Standard Green 1-10 gage meter

Distance from SE endpoint in feet	Date 3/7	Date	Date	Date	Date	Date	Date	Date	Date	Date	Average
0	3										
15	3										
30	10										
45	10										
60	3										
75	3										
90	3										
105	10										

Possible seep

Cat tail edge

NMRAM Montane Riverine Wetlands Version 2.5

SA Cover Worksheet				
SA Code SF2MI [4]	SA Name : Two Mile Pond Reservoir		Project : Riparian Assesement	
AU Code Tsct [4]	AU Name : Transect [4]		WOI : Two Mile Pond Reservoir	
County Santa Fe	HUC 12 Headwaters Santa Fe River	Elevation (ft) 7299	(m) 2224.7	Ecoregion 6.0 NWFM

SA General Location and Boundary (Rationale, comments)
A riparian system that leads into a pond located on the east side of Santa Fe bordering the Santa Fe National Forest. This reservoir was decommissioned due to safety concerns regarding the reservoir and a water diversion to the area was recently shut down due to lack of water rights.

Driving Directions
Driving to Santa Fe from Albuquerque you head north on Old Pecos Trail. Then head east on Camino Del Monte Sol and right on Canyon Road until you reach the reservoir located to the North.

Ownership	Data Sharing Restrictions	Fish Observed in Wetland?
The Nature Conservative and The Santa Fe National Forest	Results to client only.	No

Surveyor Role	Surveyor Name	Surveyor Initials
Landscape	Dustin	DS
Biotic	Annie	AM
Abiotic	Dustin	DS
Stressors	Both	DS

Easting (m)	Northing (m)	Zone	Datum	Latitude (DD ft)	Longitude (DD ft)
-105° 53' 24" W	35° 41' 23" N	13	NAD- 83 UTM	35.689722	-105.89
Survey Date 3/7/24	**Start Time** 10:59			**End Time** 11:32	

SA Description

SA Landscape Context (summarize the wetland and surrounding landscape; include condition and impacts)

An abandoned pond, the wet land sits in a valley and recently got its water from the river shut off.

SA Biotic Condition (vegetation patterns, composition and structure, exotics and invasives, disturbance evidence, fire and herbivory)

This location is mostly cat tails and there sounds like a lars population of varios birds in the cat tails. Loud crowd like birds.

SA Abiotic Condition (hydrological alterations {e.g., dams, walls etc.]; flooding characteristics and evidence of overbank flooding; soil disturbance and other site impacts; explain the hydrologic breaks or other factors that define the SA limits)

This area sits in the stepest slope of the Canyon. the wetland here is almost entirely covered in cat tails.

Assessment Summary (Overall site condition summary and comments after the field data is collected.)

This area is the most densely vegetated area in the wet land in terms of SA coverage. almost entire transect is cat tails and willows.

Provisional Field Score	Rank	Surveyor(s)	Final Score	Rank	Initials	Date
3.32	A	DS	3.32	A	DCS	3/7/24

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

NMRAM - SA Rank Summary Worksheet: Montane Riverine Wetlands 25			
Metric Description	Rating	Wt	Final Score
Landscape Context		Σ 1.0	3.25
L1. Buffer Integrity Index	3	0.25	0.75
L2. Riparian Corridor Connectivity	4	0.25	1.0
L3. Relative Wetland Size	4	0.25	1.0
L4. Surrounding Land Use	2	0.25	0.5
Biotic		Σ	
B1. Relative Native Plant Community Composition	4	0.2	.8
B2. Vegetation Horizontal Patch Structure	3	0.2	.6
B3. Vegetation Vertical Structure	3	0.2	.6
B4. Native Riparian Tree Regeneration	3	0.2	.6
B5. Invasive Exotic Plant Species Cover	3	0.2	.6
Abiotic		Σ	
A1. Floodplain Hydrologic Connectivity	1	[illegible]	1
A2. Physical Patch Diversity	2	0.25	.5
A3. Channel Equilibrium	4	0.25	1
A4. Stream Bank Stability and Cover	4	0.25	1
A5. Soil Surface Condition	4	[illegible].25	1

SA Condition Scoring Summary			
Major Attribute	Score	Wt.	Wt. Score
Landscape Context	3.25	0.3	0.975
Biotic	3.2	0.35	1.12
Abiotic	3.5	0.35	1.225
SA WETLAND CONDITION SCORE Σ			3.32
SA WETLAND RANK = 3.32			A

SA Wetland Rank		
Rank	Score	Description
A	≥3.25 - 4.0	Excellent Condition
B	≥2.5 - <3.25	Good Condition
C	≥1.75 - <2.5	Fair Condition
D	1.0 - <1.75	Poor Condition

Stressor Summary	Major	Minor	Top Three
	0	0	1 Trails
			2 Water Stoppage
			3 cat tails

Stressor Comments (Evaluation of risk)

Not Many stressors here besides the lack of water that could happen this year

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

Landscape Context

L1 - Buffer Integrity Index

Worksheet 1a. Buffer and RCC Checklist. Check off land cover elements within the buffer area or RCC corridors that are either allowed, or are excluded and considered non-buffer elements that disrupt ecosystem connectivity. Indicate the imagery type and date (season and year of imagery).

Imagery	Google Earth KMZ. file	Image Date	6/23

Allowed buffer/RCC land cover elements			Excluded non-buffer/RCC land cover elements		
Buffer	RCC		Buffer	RCC	
X	X	Natural or semi-natural vegetation patches	X	X	Commercial/residential developments, parking lots, dams, bridges, revetments, and other structures
X	X	Small irrigation ditches without levees	☐	☐	Lawns, parks, golf courses, sports fields
☐	☐	Old fields, unmaintained	☐	☐	Railroads
☐	☐	Open range land	☐	☐	Maintained levees, sediment piles, construction materials, staging areas
X	X	Foot trails, horse trails, unpaved bike trails (low intensity)	☐	☐	Intensive livestock areas, horse paddocks, feedlots
X	X	Non-channel open water	☐	☐	Intensive agriculture: maintained pastures, hay fields, row crops, orchards, and vineyards
X	X	Non-functioning abandoned vegetated levees, or naturally occurring levees	X	X	Paved roads or developed second-order unpaved but graded roads
☐	☐	unpaved two tracks roads	X	X	Open water bounded by a levee or other manmade structure
☐	☐	Other	☐	☐	Other

Worksheet 1b. Buffer Percent Sub-metric. Measure or estimate the percentage of the SA perimeter composed of allowed buffer elements and enter into the Buffer Percent Box below. Rate the sub-metric using Table L1a and enter the rating on the Buffer Integrity Summary Worksheet 1d.

Buffer Percent (%)=	85%

Table L1a. Buffer Percent

Rating	Buffer Percent
○ 4	100%
⊗ 3	≥80% - <100%
○ 2	≥50% - <80%
○ 1	<50%

Worksheet 1c. Buffer Width Sub-metric. Measure the length of each buffer line in meters in the GIS or on the map. Average the line lengths and rate using Table L1b. Enter the rating on the Buffer Integrity Summary Worksheet 1d.

Line	Buffer Width (m)	Buffer Width (ft)	Line	Buffer Width (m)	Buffer Width (ft)
A	164.26	538.91	E	161.93	531.26
B	125.25	410.92	F	231.48	759.44
C	115.39	378.57	G	121.25	397.80
D	111.07	364.40	H	155.87	511.38
Average		148.31 (m)		486.58 (ft)	

Table L1b. Buffer Width

Rating	Average buffer width
○ 4	≥190m
⊗ 3	≥130 - <190m
○ 2	≥65 - <130m
○ 1	<65m

Worksheet 1d. Buffer Integrity Summary. Enter the sub-metric Ratings from Tables L1a and L1b above to calculate the Buffer Integrity Index Score using the formula in the box below. Using the Buffer Integrity Index Score, enter rating for Buffer Integrity in Table L1c on the SA Summary Worksheet.

Buffer % Rating	+	Buffer Width Rating	/2 =	Buffer Integrity Index Score
3	+	3	/2 =	3

Table L1c. Summary Rating for Buffer Integrity

Rating	Score
○ 4	>3.5
⊗ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	≤1.5

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

L2 - Riparian Corridor Connectivity (RCC)

Worksheet 2. RCC excluded non-buffer elements calculation. Refer to worksheet 1a for excluded non-buffer RCC land cover elements. Following the steps in the Field Guide, enter the summed values in meters for excluded element lengths for each bank within each segment upstream and downstream of the SA. Sum the values for each segment and calculate % Segment Disruption for the upstream side and the downstream side. Add the total disruption for upstream and downstream segments and then calculate the % Total Disruptions for the riparian corridor. Rate Riparian Corridor Connectivity using Table L2 and the data from this worksheet. Enter rating on the SA Summary Worksheet.

Segments	Upstream Segment		Downstream Segment	
Banks	**Left Bank**	**Right Bank**	**Left Bank**	**Right Bank**
A) Total Bank Disruption (m)	0	0	0	0
B) Total Disruption by Segment (m)	0		0	
C) % Segment Disruption = (B/1000)*100	0		0	
D) Total Disruption both segments	0			
E) % Total Disruptions = (D/2000)*100	Zero disruption noticeable along the banks.			

Table L2. RCC Rating

Rating	Description
(X) 4	**0%** total disruption on both segments combined.
( ) 3	**<15%** total disruption on both segments combined.
( ) 2	**≥15% - <40%** total disruption on both segments combined.
( ) 1	**≥40%** total disruption on both segments combined.

L3 - Relative Wetland Size

Worksheet 3a. Calculate the Relative Size Ratio (RSR) between the current WOI size and the historic WOI size. b. Calculate the Relative Wetland Size Score (RWSI (%)) as (1-RSR)*100. Rate Relative Wetland Size Index using Table L3 and enter rating on the SA Summary Worksheet

RSR					RWSI						
Current Size	/	Historic Size	=	RSR	1	-	RSR	X	100	=	RWSI (%)
9	/	10	=	0.9	1	-	0.1	X	100	=	10

Table L3. Relative Wetland Size Rating

Rating	RWSI Score	Description
(X) 4	≤10%	Wetland is at or only minimally reduced from its full natural extent
( ) 3	>10% - ≤40%	Wetland remains equal to or more than 60% of its natual size
( ) 2	>40% - ≤70%	Wetland has been reduced by more than 40% its natural size
( ) 1	>70%	Wetland has been reduced by more than 70% its natural size

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

L4 - Surrounding Land Use

Worksheet 4. Surrounding Land Use. Enter the percent area occupied by a given Land Use Element in the Land Use Zone (LUZ) surrounding the SA. Calculate the Land Use Index (LUI) Score by element as the product of the element coefficient times the percent of the LUZ Area occupied. (The %LUZ Area must total 100%.) Sum the LUI scores for each element to create the final LUI Score. Rate using Table L4 and enter the rating in the SA Rank Summary Worksheet.

Land Use Element	Coef	% LUZ Area	LUI Score
Paved roads, parking lots, domestic or commercially developed buildings, mining (gravel pit, quarry, open pit, strip mining), railroads	0	0	0
Unpaved roads (e.g., driveway, tractor trail, unpaved parking lots), paddock, dirt lot	0.1	0	0
Dredging, borrow pits, abandoned mines, water-filled artificial impoundments (ponds and reservoirs)	0.1	0	0
Filling or dumping of sediment or soils	0.1	0	0
Intense recreation (all-terrain vehicle use, camping, popular fishing spot, etc.)	0.3	0	0
Rip-rapped channel (highly modified channel with severely limited vegetation zone that is altered by human activities but not a completely concrete channel [that goes under paved roads]), junkyards, trash dumps, disturbed ground (not including roads)	0.3	0	0
Ski area	0.4	0	0
Dam sites and flood-disturbed shorelines around water storage reservoirs	0.5	0	0
Abandoned artificial impoundments (ponds and reservoirs) and associated disturbed flood zones	0.5	10	5
Artificial/Constructed wetlands, irrigation ditches	0.7	20	14
Developed/Managed trail system (high use trail)	0.8	5	4
Agriculture - active tilled crop production	0.2	0	0
Agriculture - permanent crop (vineyards, orchards, nurseries, berry production)	0.3	0	0
Manicured lawns, sport fields, and golf courses; urban manicured parks	0.3	0	0
Old fields and other disturbed fallow lands dominated by ruderal and/or exotic species (e.g., kochia, Russian thistle, mustards, annual vegetation)	0.5	0	0
Mature old fields and other fallow lands with natural composition, introduced hay field and pastures (e.g., perennial vegetation cover)	0.7	0	0
Restoration areas in process to natural conditions (re-conversion in process)	0.8	65	52
Haying of native grassland (e.g., no tillage, haying and baling only)	0.9	0	0
Heavy logging or tree removal with >50% of large trees (e.g., >30 cm diameter at breast height) removed, woodland/shrub vegetation conversion (chaining, cabling, rotochopping)	0.3	0	0
Commercial tree plantation, Christmas tree farms	0.6	0	0
Selective logging or tree removal with <50% of large trees (e.g., >30 cm diameter at breast height) removed	0.8	0	0
Mature restoration areas returned to natural conditions (re-converted)	0.9	0	0
Natural area, land managed for native vegetation - No agriculture, logging, development	1	0	0
LUI Score= Coefficient * % LUZ Area		100	75

Table L4. Surrounding Land Use Rating

Rating	LUI Score
○ 4	≥95 - 100
○ 3	≥80 - <95
⊗ 2	≥40 - <80
○ 1	<40

SA CODE : SF2MI [4] **SA Name :** Two Mile Pond Reservoir Transect [4] **Date :** 3/7/24 **Surveyor Initials :** DCS

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	IA1				
2	IA2				
3	IIA1				
4	IIIB1	90%	U	N	Willows + cattails lots of birds in cattails
5	IIIC1	70%	10% of vegetation	Mustard/Mullein	Some Junipers, more mullein, Saltbush, blue stem
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

SA CODE: SF2MI [4] SA Name: Two Mile Pond Reservoir Transect [4] Date: 3/7/24 Surveyor Initials: DCS

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

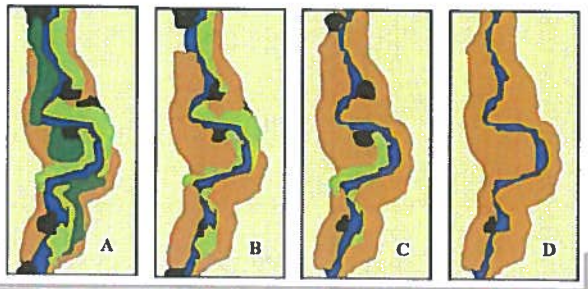
		Tall Woody Stratum [1]				Short Woody Stratum [2]				Herbaceous/Sparse Stratum [3]				CT Score [4]		
CT	Polygon Nos.	Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw[4]	% SA[5]	Wt Score[6]
A	5					Saltbush	N	Chamisos	N	Blue Stem	N	Mullein	E	2.5	10%	0.25
B	4					Willow	N	Cattail	N	Cattail	N			4.0	90%	3.6
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
													Final Weighted Score[7]			3.85

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤6m (20 feet) and >25% total stratum cover; 3. Herbaceous (graminoids and forbs)>10% total stratum cover. [4]Raw Score is from Table B1a (Appendix B); [5]%SA is the percentage of the SA area covered by the CT and expressed as a decimal number; the total area %SA must equal 1; [6]Wt. Score is the product of the Raw Score * % SA; [7]The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Weighted Score on Table B1 and enter the Rating for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

Table B1. Relative Native Plant Community Composition Rating		
Rating	**CT Final Weighted Score**	
(X) 4	≥ 3.75	<10% non-native
( ) 3	≥ 3.25 and <3.75	10% ≤20% non-native
( ) 2	> 2.0 and <3.25	20% ≤50% non-native
( ) 1	≤2.0	>50% non-native



B2 - Vegetation Horizontal Patch Structure

Worksheet 7. Using Tables B2a and B2c (Appendix B), choose the schematic pattern that best matches the mapped vegetation patch pattern for the SA. Rate using Table B2 and enter rating on the SA Rank Summary Worksheet.

Horizontal Patch Structure pattern A,B,C, or D: B

Table B2. Rating for Vegetation Horizontal Patch Structure	
Rating	**Description**
( ) 4	Most closely matches Pattern A. SA has a diverse patch structure (≥4 patch types) and complexity. A dominant patch type would be difficult to determine.
(X) 3	Pattern B. SA has a moderate degree of patch diversity (3 patch types present) and complexity. A single, dominant patch type may be present, although the other patch types would be well represented and have more than one occurrence in the SA.
( ) 2	Pattern C. SA has a low degree of patch diversity and complexity. Two or three patch types may be present; however, a single, dominant patch type exists with the others occupying a small portion of the SA.
( ) 1	Pattern D. SA has essentially little to no patch diversity or complexity. The SA is dominated by a single patch type. Other patch types, if present, occur infrequently and occupy a small portion of the SA.

B3 - Vegetation Vertical Structure

Worksheet 8. Percentage of SA by vertical structure type (VST). Using the Structure Type from Worksheet 5 and the %SA from Worksheet 6 calculate the total area of the SA occupied by each VST using the formula VST(type) = Sum (%SA for CTs with same VST) x 100. Enter the total %SA for each VST below.

	VST 1 High Structure Forest	VST 2 Low Structure Forest	VST 5 Tall Shrubland	VST 6S Short Shrubland	VST 6W Herbaceous Wetland	VST 6H Herbaceous Vegetation	VST 7 Sparse Vegetation
Total % of SA			50		50		

Table B3. Rating for Vegetation Vertical Structure. Using the data from Worksheet 8 rate the SA based on the criteria in Table B3. Pick the row that best fits the distribution of VSTs in the SA. Each row specifies the required dominant structure type plus co- and sub-dominants. Percentage cover required per co- or sub-dominant is a minimum. The types listed in the columns must be the most common VSTs in the SA for the rating to be applicable (Worksheet 8). VSTs 1 and 2 can be inverted in dominance and the rating is still applicable. Work from the top of the table down. As long as the requirements for one row are met, any other types may or may not co-occur without changing the rating. Enter the rating on the SA Rank Summary Worksheet.

Rating	Dominant VST	Co- or Sub-dominant VST ≥15%	Sub-dominant VST ≥5%
( ) 4	1	5	6W and/or 6H
	1	6W	
	2 or 1 and 2	5	6W and/or 6H
(X) 3	1		
	2 or 1 and 2	5	
	2 or 1 and 2	6W	
	5	6W	
( ) 2	2 or 1 and 2		
	5		
	6W		
( ) 1	6S		
	6H		
	7		

SA CODE: SF2MI [4] **Date:** 3/7/24

SA Name: Two Mile Pond Reservoir Transect [4] **Surveyor Initials:** DCS

B4 Native Riparian Tree Regeneration

Table B4. Native Riparian Tree Regeneration rating. Using the polygon percent cover of native tree seedlings, saplings and poles from Worksheet 5, rate the SA based on polygon percent cover and patch density. Enter the rating on the SA Rank Summary Worksheet.

Rating	Description
○ 4	Native poles, sapling, and seedlings trees well represented, obvious regeneration, many patches or polygons with >5% cover, typically multiple size (age) classes.
⊗ 3	Native poles, saplings and/or seedlings common, scattered patches or polygons with 1% -5% cover, size classes few.
○ 2	Native poles, saplings and/or seedlings present but uncommon, restricted to one or two patches or polygons with typically <1% cover, little size class differentiation.
○ 1	Native poles, saplings, and/or seedlings absent (0% cover).

B5 - Invasive Exotic Plant Species Cover

Worksheet 9. Based on Worksheets 5 and 6, calculate or estimate the percentage cover of invasive exotic species for the SA and enter below. Rate using Table B5 and enter the rating on the SA Rank Summary Worksheet.

Rating Method: < 1%

Invasive cover (%): <1

calculate

Table B5. Ratings for Invasive Exotic Plant Species Cover

Rating	Invasive Species Cover %
○ 4	0%
○ 3 X	>0% - <1%
○ 2	≥1% - <10%
○ 1	≥10

Additional CTs and Biotic Metric Comments:

Lots of birds and life can be heard in the willows and cat tails but none identified. Still recovering from winter

SA CODE: SF2MI [4] **Date:** 3/7/24

SA Name: Two Mile Pond Reservoir Transect [4] **Surveyor Initials:** DCS

A2 - Physical Patch Complexity

Worksheet 11. Physical Patch Complexity checklist. Check off existing physical patch types for the upper, middle and lower segments of the SA; count the number of unique patch types and rate using Table A2 in combination with the narrative description. Enter the rating on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (check all existing conditions)
☐	☐	☐	Active side channels
☐	☐	☐	Abandoned channels
☐	☐	☐	Backwater/eddy
☐	☐	☐	Riffles or rapids
☐	☒	☐	Shoals, sparely-vegetated bars
☐	☐	☐	Channel boulders
☐	☐	☐	Oxbow lakes/ponds on floodplains
☐	☒	☐	Vegetated island and side bars
☐	☒	☐	Terraces
☐	☐	☐	Channel pools
☐	☐	☐	Beaver ponds
☐	☐	☐	Swales, depressional features on floodplains
☐	☐	☐	Debris jams in channel
☐	☐	☐	Woody wrack piles on the floodplain
☐	☐	☐	Floodplain micro-topography (mounds, pits)
☐	☐	☐	Downed logs
☐	☒	☐	Natural levees
☐	☐	☐	Standing snags
☐	☐	☐	Variegated, convoluted, or crenulated foreshore
☐	☐	☐	Undercut banks in channels
			No. of unique Patch Types

All cat tail in wetland

Chose limited since only wetland and middle Seg

Table A2. Rating for Physical Patch Complexity

Rating	Description
○ 4	**High** degree of physical patch complexity across the floodplain. There are many floodplain micro-habitats present (mounds and pits, woody wrack piles, etc.), many fluvial geomorphic surfaces (swales, side channels, terraces, side bars, etc.), and there is high in-channel complexity (pools and riffles, large woody debris, undercut banks, etc.). As a guide, 12 or more unique indicators are present and well distributed throughout the SA (most indicators are found on multiple segments).
○ 3	**Moderate** physical patch complexity scattered across the floodplain. There are several floodplain micro-habitats present, several fluvial geomorphic surfaces, and there is moderate in-channel complexity. As a guide, 9 - 11 indicators are scattered throughout the SA (some on multiple segments).
☒ 2	**Limited** physical patch complexity scattered across the floodplain. There are some floodplain micro-habitats present, some fluvial geomorphic surfaces, and there is limited in-channel complexity. As a guide, on average there are 6 - 8 unique indicators present in the SA (only a few on multiple segments).
○ 1	**Little** or no physical patch complexity on the floodplain. There are few or no floodplain micro-habitats present, few different fluvial geomorphic surfaces, and there is little or no in-channel complexity. As a guide, ≤ 5 unique indicators are present in the SA.

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☐	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☒	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☒	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☒	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☐	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☐	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

Table A3. Rating for Channel Equilibrium	
Rating	**Description**
☒ 4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
○ 3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
○ 2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
○ 1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	☐4	☒4	☐4	Infrequent raw banks, less than 10% of steam bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	☐3	☐3	☐3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	☐2	☐2	☐2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	☐1	☐1	☐1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.
Indicators of Stream Bank Erosion Potential	☐4	☒4	☐4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	☐3	☐3	☐3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	☐2	☐2	☐2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	☐1	☐1	☐1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score 4

Table A4. Stream Bank Stability and Cover Rating	
Rating	**Description**
☒ 4	>3.5 - 4.0
○ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	1.0 - ≤1.5

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

A5 - Soil Surface Condition

Worksheet 14. Soil Surface Condition. Check all that apply in the upper , middle and lower SA segments during the field reconnaissance. The absence of these indicators would signify that disturbances are naturally occurring (e.g., flood deposition or low-density wildlife trails). Estimate the percent soil disturbance by segment area and referring to the SA abiotic map. Rate using Table A5 and enter on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (Check all existing conditions)
☐	☐	☐	Active erosion features due to anthropogenic disturbance (eg. rills, gullies, plant pedestals).
☐	☒	☐	Multiple livestock and other (fishing,hiking) trails,
☐	☐	☐	Vehicle tracks including off-road and construction, etc.
☐	☐	☐	Impervious compacted surfaces or pavement
☐	☐	☐	Grading or plowing
☐	☐	☐	Fill
☐	☐	☐	Gravel pits
☐	☐	☐	Anthropogenic levees and berms
☐	☐	☐	Irrigation-driven salinity and mineral crusts
☐	☐	☐	Fire pits
☐	☐	☐	Other:
			Estimate % soil disturbance by segment area

Average % Soil Disturbance: < 1%

Table A5. Soil Surface Condition Rating

Rating	Description
☒ 4	Bare soil areas due to anthropogenic disturbance absent or very limited. No human-caused impervious surfaces or gravel pits are found within the SA. Total disturbance, including erosion, impervious surfaces, fill, or other anthropogenic degradation to the soil surface is less than 1% of the SA.
○ 3	Some amount of bare soil from human causes is present but the extent is limited. Area of impervious surfaces are minimal in extent. Total disturbance, including erosion, impervious surfaces, fill, gravel pits, vehicle tracks or other anthropogenic degradation to the soil surface is between 1% and 5% of the sampling area.
○ 2	Bare soils from human causes are common. These may include dense livestock trails, vehicle tracks, trails, construction staging areas, mechanical rutting, or irrigation-driven salinity. Soil disturbance, while apparent, is limited to specific areas and not found across the majority of the SA. Total disturbance, including erosion, impervious surfaces, fill, gravel mining, or other anthropogenic degradation to the soil surface is greater than 5% or less than 10% of the SA.
○ 1	Bare soil areas degrade portions of the site because of altered hydrology or other long-lasting impacts. Deep ruts from off-road vehicles or machinery are present. Livestock disturbance or trails are widespread and several inches deep. Water is channeled into rills or ponded. Additional human-caused impervious surfaces or soil compaction are present. Total disturbance, including erosion, impervious surfaces, fill,gravel mining or other anthropogenic degradation to the soil surface is equal to or greater than 10% of the SA.

SA CODE : SF2MI [4] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [4] **Surveyor Initials :** DCS

Worksheet 15. Stressor Checklist. Check off stressors by intensity category that may be affecting wetland ecological condition of the SA and WOI. Assign categories using direct evidence where available or your best professional judgement otherwise. If the presence of the stressor is uncertain, mark as "Unknov Rank Major Stressors in Dominant Stressor column(Pick up to 3)

Rank	Affect				Stressor Group/Stressor	Comments
	Major	Minor	Absent	Unknown		
					Adverse water management	
	☐	☑	☐	☐	Extended low flow dam releases	
	☐	☐	☑	☐	Timing of flow releases not concordant	
	☐	☐	☑	☐	Extended high flow dam releases	
	☐	☐	☑	☐	Agriculture/Urban flow diversion upstream	
					Adverse sediment management	
	☐	☐	☑	☐	Adverse sediment retention by dams	
	☐	☐	☑	☐	Sediment loss by dredging	
	☐	☐	☑	☐	Adverse sediment input (roads/development)	
					Artificial water additions	
	☐	☐	☑	☐	Sewer treatment effluent	
	☐	☐	☑	☐	Point source urban runoff	
	☐	☐	☑	☐	Factory, feedlot outfall	
	☐	☐	☑	☐	Agricultural irrigation ditch returns	
	☐	☐	☑	☐	Mining waste	
					Ground water pumping	
	☐	☐	☑	☐	Urban depletions	
	☐	☐	☑	☐	Fracking	
	☐	☐	☑	☐	Agriculture irrigation wells	
					Watershed alteration	
	☐	☐	☑	☐	Extensive recent fires in watershed	
	☐	☐	☑	☐	Extensive recent timber harvest	
	☐	☐	☑	☐	Extensive open pit mining in watershed	
	☐	☐	☑	☐	Livestock/wildlife overgrazing	
					Local biodiversity impacts	
	☐	☐	☑	☐	Evidence of excessive grazing (local)	
	☐	☐	☑	☐	Excessive noise affecting wildlife	
	0	0		0	Counts by Intensity	

Additional Comments: Less water being sent here than before

Version Date: 04/25/2022

Schema: Montane 2.5

2024 MOISTURE MEASUREMENT FORM

PAGE: 1 OF 1

DATE: 3/7 -

CLIENT: Santa Fe

PROJECT: Riparian Assessment

SITE LOCATION: Transect 5

ACTIVITY: Moisture Measurements

GEOLOGISTS: DCS + AM

Moisture Meter Description: Standard green 1-10 gage

Distance from SE endpoint in feet	Date 3/7	Date	Date	Date	Date	Date	Date	Date	Date	Date	Average
0	2.5										
15	2.0										
25	1										
30	2.0										
45'	10										

Cut tail start

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WATER-RESOURCE AND ENVIRONMENTAL CONSULTANTS

NMRAM Montane Riverine Wetlands Version 2.5

SA Cover Worksheet				
SA Code SF2MI [5]	SA Name : Two Mile Pond Reservoir		Project : Riparian Assesement	
AU Code Tsct [5]	AU Name : Transect [5]		WOI : Two Mile Pond Reservoir	
County Santa Fe	HUC 12 Headwaters Santa Fe River	Elevation (ft) 7299	(m) 2224.7	Ecoregion 6.0 NWFM

SA General Location and Boundary (Rationale, comments)
A riparian system that leads into a pond located on the east side of Santa Fe bordering the Santa Fe National Forest. This reservoir was decommissioned due to safety concerns regarding the reservoir and a water diversion to the area was recently shut down due to lack of water rights.

Driving Directions
Driving to Santa Fe from Albuquerque you head north on Old Pecos Trail. Then head east on Camino Del Monte Sol and right on Canyon Road until you reach the reservoir located to the North.

Ownership	Data Sharing Restrictions	Fish Observed in Wetland?
The Nature Conservative and The Santa Fe National Forest	Results to client only.	Yes

Surveyor Role	Surveyor Name	Surveyor Initials
Landscape	Dustin	DS
Biotic	Annie	AM
Abiotic	Dustin	DS
Stressors	Both	DS

Easting (m)	Northing (m)	Zone	Datum	Latitude (DD ft)	Longitude (DD ft)
-105° 53' 24" W	35° 41' 23" N	13	NAD- 83 UTM	35.689722	-105.89
Survey Date	3/7/24	**Start Time**	10:16	**End Time**	10:59

SA Description

SA Landscape Context (summarize the wetland and surrounding landscape; include condition and impacts)
Marsh land within the valley of an abandoned pond. A popular hiking spot.

SA Biotic Condition (vegetation patterns, composition and structure, exotics and invasives, disturbance evidence, fire and herbivory)
Mostly Marsh land. Does transition to High desert on edges of valley

SA Abiotic Condition (hydrological alterations {e.g., dams, walls etc.]; flooding characteristics and evidence of overbank flooding; soil disturbance and other site impacts; explain the hydrologic breaks or other factors that define the SA limits)
Sits within a valley Some Sand bars and lots of cat tails filling the wet land.

Assessment Summary (Overall site condition summary and comments after the field data is collected.)
Very dry this time of year not many "live" plants birds heard North-east.

Provisional Field Score	Rank	Surveyor(s)	Final Score	Rank	Initials	Date
3.26	A	DCS	3.26	A	DCS	3/7/24

SA CODE : SF2MI [5] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [5] **Surveyor Initials :** DCS

NMRAM - SA Rank Summary Worksheet: Montane Riverine Wetlands 2.5			
Metric Description	Rating	Wt	Final Score
Landscape Context		Σ 1.0	3.25
L1. Buffer Integrity Index	3	0.25	0.75
L2. Riparian Corridor Connectivity	4	0.25	1.0
L3. Relative Wetland Size	4	0.25	1.0
L4. Surrounding Land Use	2	0.25	0.5
Biotic		Σ	
B1. Relative Native Plant Community Composition	3	0.2	.6
B2. Vegetation Horizontal Patch Structure	3	0.2	.6
B3. Vegetation Vertical Structure	3	0.2	.6
B4. Native Riparian Tree Regeneration	3	0.2	.6
B5. Invasive Exotic Plant Species Cover	2	0.2	.4
Abiotic		Σ	
A1. Floodplain Hydrologic Connectivity	—	~~0.2~~	—
A2. Physical Patch Diversity	3	0.25	.75
A3. Channel Equilibrium	4	0.25	1
A4. Stream Bank Stability and Cover	4	0.25	1
A5. Soil Surface Condition	4	~~0.2~~ 2.5	1

SA Condition Scoring Summary			
Major Attribute	Score	Wt.	Wt. Score
Landscape Context	3.25	0.3	0.975
Biotic	2.8	0.35	0.98
Abiotic	3.75	0.35	1.31
SA WETLAND CONDITION SCORE Σ			3.26
SA WETLAND RANK = 3.26			A

SA Wetland Rank		
Rank	Score	Description
A	≥3.25 - 4.0	Excellent Condition
B	≥2.5 - <3.25	Good Condition
C	≥1.75 - <2.5	Fair Condition
D	1.0 - <1.75	Poor Condition

Stressor Summary	Major	Minor	Top Three	
	0	0	1	Trails
			2	Cat tails
			3	Less flow to pond

Stressor Comments (Evaluation of risk)

Water has stopped to marsh and popular trail spot is by here.

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Landscape Context

L1 - Buffer Integrity Index

Worksheet 1a. Buffer and RCC Checklist. Check off land cover elements within the buffer area or RCC corridors that are either allowed, or are excluded and considered non-buffer elements that disrupt ecosystem connectivity. Indicate the imagery type and date (season and year of imagery).

Imagery	Google Earth KMZ. file	Image Date	6/23

Allowed buffer/RCC land cover elements			Excluded non-buffer/RCC land cover elements		
Buffer	RCC		Buffer	RCC	
X	X	Natural or semi-natural vegetation patches	X	X	Commercial/residential developments, parking lots, dams, bridges, revetments, and other structures
X	X	Small irrigation ditches without levees	☐	☐	Lawns, parks, golf courses, sports fields
☐	☐	Old fields, unmaintained	☐	☐	Railroads
☐	☐	Open range land	☐	☐	Maintained levees, sediment piles, construction materials, staging areas
X	X	Foot trails, horse trails, unpaved bike trails (low intensity)	☐	☐	Intensive livestock areas, horse paddocks, feedlots
X	X	Non-channel open water	☐	☐	Intensive agriculture: maintained pastures, hay fields, row crops, orchards, and vineyards
X	X	Non-functioning abandoned vegetated levees, or naturally occurring levees	X	X	Paved roads or developed second-order unpaved but graded roads
☐	☐	unpaved two tracks roads	X	X	Open water bounded by a levee or other manmade structure
☐	☐	Other	☐	☐	Other

Worksheet 1b. Buffer Percent Sub-metric. Measure or estimate the percentage of the SA perimeter composed of allowed buffer elements and enter into the Buffer Percent Box below. Rate the sub-metric using Table L1a and enter the rating on the Buffer Integrity Summary Worksheet 1d.

Buffer Percent (%)=	85%

Table L1a. Buffer Percent

Rating	Buffer Percent
○ 4	100%
⊗ 3	≥80% - <100%
○ 2	≥50% - <80%
○ 1	<50%

Worksheet 1c. Buffer Width Sub-metric. Measure the length of each buffer line in meters in the GIS or on the map. Average the line lengths and rate using Table L1b. Enter the rating on the Buffer Integrity Summary Worksheet 1d.

Line	Buffer Width (m)	Buffer Width (ft)	Line	Buffer Width (m)	Buffer Width (ft)
A	164.26	538.91	E	161.93	531.26
B	125.25	410.92	F	231.48	759.44
C	115.39	378.57	G	121.25	397.80
D	111.07	364.40	H	155.87	511.38
Average		148.31 (m)		486.58	(ft)

Table L1b. Buffer Width

Rating	Average buffer width
○ 4	≥190m
⊗ 3	≥130 - <190m
○ 2	≥65 - <130m
○ 1	<65m

Worksheet 1d. Buffer Integrity Summary. Enter the sub-metric Ratings from Tables L1a and L1b above to calculate the Buffer Integrity Index Score using the formula in the box below. Using the Buffer Integrity Index Score, enter rating for Buffer Integrity in Table L1c on the SA Summary Worksheet.

Buffer % Rating	+	Buffer Width Rating	/2 =	Buffer Integrity Index Score
3	+	3	/2 =	3

Table L1c. Summary Rating for Buffer Integrity

Rating	Score
○ 4	>3.5
⊗ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	≤1.5

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L2 - Riparian Corridor Connectivity (RCC)

Worksheet 2. RCC excluded non-buffer elements calculation. Refer to worksheet 1a for excluded non-buffer RCC land cover elements. Following the steps in the Field Guide, enter the summed values in meters for excluded element lengths for each bank within each segment upstream and downstream of the SA. Sum the values for each segment and calculate % Segment Disruption for the upstream side and the downstream side. Add the total disruption for upstream and downstream segments and then calculate the % Total Disruptions for the riparian corridor. Rate Riparian Corridor Connectivity using Table L2 and the data from this worksheet. Enter rating on the SA Summary Worksheet.

Segments	Upstream Segment		Downstream Segment	
Banks	**Left Bank**	**Right Bank**	**Left Bank**	**Right Bank**
A) Total Bank Disruption (m)	0	0	0	0
B) Total Disruption by Segment (m)	0		0	
C) % Segment Disruption = (B/1000)*100	0		0	
D) Total Disruption both segments	0			
E) % Total Disruptions = (D/2000)*100	Zero disruption noticeable along the banks.			

Table L2. RCC Rating

Rating	Description
(X) 4	**0%** total disruption on both segments combined.
( ) 3	**<15%** total disruption on both segments combined.
( ) 2	**≥15% - <40%** total disruption on both segments combined.
( ) 1	**≥40%** total disruption on both segments combined.

L3 - Relative Wetland Size

Worksheet 3a. Calculate the Relative Size Ratio (RSR) between the current WOI size and the historic WOI size. b. Calculate the Relative Wetland Size Score (RWSI (%)) as (1-RSR)*100. Rate Relative Wetland Size Index using Table L3 and enter rating on the SA Summary Worksh

RSR					RWSI						
Current Size	/	Historic Size	=	RSR	1	-	RSR	X	100	=	RWSI (%)
9	/	10	=	0.9	1	-	0.1	X	100	=	10

Table L3. Relative Wetland Size Rating

Rating	RWSI Score	Description
(X) 4	≤10%	Wetland is at or only minimally reduced from its full natural extent
( ) 3	>10% - ≤40%	Wetland remains equal to or more than 60% of its natual size
( ) 2	>40% - ≤70%	Wetland has been reduced by more than 40% its natural size
( ) 1	>70%	Wetland has been reduced by more than 70% its natural size

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L4 - Surrounding Land Use

orksheet 4. Surrounding Land Use. Enter the percent area occupied by a given Land Use Element in the Land Use Zone (LUZ) surrounding the SA. Calculate the Land Use Index (LUI) Score by element as the product of the element coefficient times the percent of the LUZ Area occupied. (The %LUZ Area must total 100%.) Sum the LUI scores for each element to create the final LUI Score. Rate using Table L4 and enter the rating in the SA Rank Summary Worksheet.

Land Use Element	Coef	% LUZ Area	LUI Score
Paved roads, parking lots, domestic or commercially developed buildings, mining (gravel pit, quarry, open pit, strip mining), railroads	0	0	0
Unpaved roads (e.g., driveway, tractor trail, unpaved parking lots), paddock, dirt lot	0.1	0	0
Dredging, borrow pits, abandoned mines, water-filled artificial impoundments (ponds and reservoirs)	0.1	0	0
Filling or dumping of sediment or soils	0.1	0	0
Intense recreation (all-terrain vehicle use, camping, popular fishing spot, etc.)	0.3	0	0
Rip-rapped channel (highly modified channel with severely limited vegetation zone that is altered by human activities but not a completely concrete channel [that goes under paved roads]), junkyards, trash dumps, disturbed ground (not including roads)	0.3	0	0
Ski area	0.4	0	0
Dam sites and flood-disturbed shorelines around water storage reservoirs	0.5	0	0
Abandoned artificial impoundments (ponds and reservoirs) and associated disturbed flood zones	0.5	10	5
Artificial/Constructed wetlands, irrigation ditches	0.7	20	14
Developed/Managed trail system (high use trail)	0.8	5	4
Agriculture - active tilled crop production	0.2	0	0
griculture - permanent crop (vineyards, orchards, nurseries, berry production)	0.3	0	0
Manicured lawns, sport fields, and golf courses; urban manicured parks	0.3	0	0
Old fields and other disturbed fallow lands dominated by ruderal and/or exotic species (e.g., kochia, Russian thistle, mustards, annual vegetation)	0.5	0	0
Mature old fields and other fallow lands with natural composition, introduced hay field and pastures (e.g., perennial vegetation cover)	0.7	0	0
Restoration areas in process to natural conditions (re-conversion in process)	0.8	65	52
Haying of native grassland (e.g., no tillage, haying and baling only)	0.9	0	0
Heavy logging or tree removal with >50% of large trees (e.g., >30 cm diameter at breast height) removed, woodland/shrub vegetation conversion (chaining, cabling, rotochopping)	0.3	0	0
Commercial tree plantation, Christmas tree farms	0.6	0	0
Selective logging or tree removal with <50% of large trees (e.g., >30 cm diameter at breast height) removed	0.8	0	0
Mature restoration areas returned to natural conditions (re-converted)	0.9	0	0
Natural area, land managed for native vegetation - No agriculture, logging, development	1	0	0
LUI Score= Coefficient * % LUZ Area		100	75

Table L4. Surrounding Land Use Rating	
Rating	**LUI Score**
○ 4	≥95 - 100
○ 3	≥80 - <95
⊗ 2	≥40 - <80
○ 1	<40

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Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	IA1				
2	IA2				
3	IIA1				
4	IIIB1	80%	Mullein	Mullein some mustard	Willow then cat tail at Water line
5	IIIC1				
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

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B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

		Tall Woody Stratum [1]				Short Woody Stratum [2]				Herbaceous/Sparse Stratum [3]				CT Score [4]		
CT	Polygon Nos.	Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw[4]	% SA[5]	Wt Score[6]
A	4					willow	N	Cat tail	N	Mullein	E	Trident's Grass	N	3.5	90%	3.15
B																
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
													Final Weighted Score[7]			3.15

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤6m (20 feet) and >25% total stratum cover; 3. Herbaceous (graminoids and forbs)>10% total stratum cover. [4]Raw Score is from Table B1a (Appendix B); [5]%SA is the percentage of the SA area covered by the CT and expressed as a decimal number; the total area %SA must equal 1; [6]Wt. Score is the product of the Raw Score * % SA; [7]The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Weighted Score on Table B1 and enter the Rating for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

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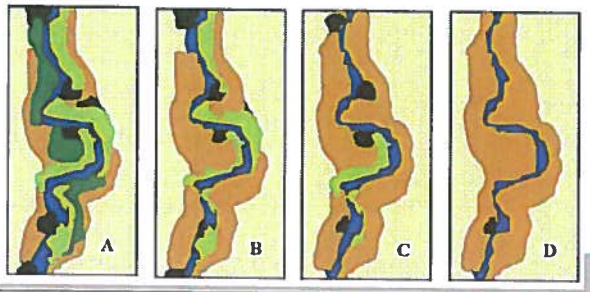
Table B1. Relative Native Plant Community Composition Rating		
Rating	**CT Final Weighted Score**	
○ 4	≥ 3.75	<10% non-native
☒ 3	≥ 3.25 and <3.75	10% ≤20% non-native
○ 2	> 2.0 and <3.25	20% ≤50% non-native
○ 1	≤2.0	>50% non-native



B2 - Vegetation Horizontal Patch Structure

Worksheet 7. Using Tables B2a and B2c (Appendix B), choose the schematic pattern that best matches the mapped vegetation patch pattern for the SA. Rate using Table B2 and enter rating on the SA Rank Summary Worksheet.

Horizontal Patch Structure pattern A,B,C, or D: B

Table B2. Rating for Vegetation Horizontal Patch Structure	
Rating	**Description**
○ 4	Most closely matches Pattern A. SA has a diverse patch structure (≥4 patch types) and complexity. A dominant patch type would be difficult to determine.
☒ 3	Pattern B. SA has a moderate degree of patch diversity (3 patch types present) and complexity. A single, dominant patch type may be present, although the other patch types would be well represented and have more than one occurrence in the SA.
○ 2	Pattern C. SA has a low degree of patch diversity and complexity. Two or three patch types may be present; however, a single, dominant patch type exists with the others occupying a small portion of the SA.
○ 1	Pattern D. SA has essentially little to no patch diversity or complexity. The SA is dominated by a single patch type. Other patch types, if present, occur infrequently and occupy a small portion of the SA.

B3 - Vegetation Vertical Structure

Worksheet 8. Percentage of SA by vertical structure type (VST). Using the Structure Type from Worksheet 5 and the %SA from Worksheet 6 calculate the total area of the SA occupied by each VST using the formula VST(type) = Sum (%SA for CTs with same VST) x 100. Enter the total %SA for each VST below.

	VST 1 High Structure Forest	VST 2 Low Structure Forest	VST 5 Tall Shrubland	VST 6S Short Shrubland	VST 6W Herbaceous Wetland	VST 6H Herbaceous Vegetation	VST 7 Sparse Vegetation
Total % of SA			80%			20%	

Table B3. Rating for Vegetation Vertical Structure. Using the data from Worksheet 8 rate the SA based on the criteria in Table B3. Pick the row that best fits the distribution of VSTs in the SA. Each row specifies the required dominant structure type plus co- and sub-dominants. Percentage cover required per co- or sub-dominant is a minimum. The types listed in the columns must be the most common VSTs in the SA for the rating to be applicable (Worksheet 8). VSTs 1 and 2 can be inverted in dominance and the rating is still applicable. Work from the top of the table down. As long as the requirements for one row are met, any other types may or may not co-occur without changing the rating. Enter the rating on the SA Rank Summary Worksheet.

Rating	Dominant VST	Co- or Sub-dominant VST ≥15%	Sub-dominant VST ≥5%
○ 4	1	5	6W and/or 6H
	1	6W	
	2 or 1 and 2	5	6W and/or 6H
☒ 3	1		
	2 or 1 and 2	5	
	2 or 1 and 2	6W	
	5	6W	
○ 2	2 or 1 and 2		
	5		
	6W		
○ 1	6S		
	6H		
	7		

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B4 - Native Riparian Tree Regeneration

T B4. Native Riparian Tree Regeneration rating. Using the polygon percent cover of native tree seedlings, saplings and poles from Worksheet 5, rate the SA based on polygon percent cover and patch density. Enter the rating on the SA Rank Summary Worksheet.

Rating	Description
○ 4	Native poles, sapling, and seedlings trees well represented, obvious regeneration, many patches or polygons with >5% cover, typically multiple size (age) classes.
⊗ 3	Native poles, saplings and/or seedlings common, scattered patches or polygons with 1% -5% cover, size classes few.
○ 2	Native poles, saplings and/or seedlings present but uncommon, restricted to one or two patches or polygons with typically <1% cover, little size class differentiation.
○ 1	Native poles, saplings, and/or seedlings absent (0% cover).

B5 - Invasive Exotic Plant Species Cover

Worksheet 9. Based on Worksheets 5 and 6, calculate or estimate the percentage cover of invasive exotic species for the SA and enter below. Rate using Table B5 and enter the rating on the SA Rank Summary Worksheet.

Rating Method: >5%

Invasive cover (%): 75%

calculate

Table B5. Ratings for Invasive Exotic Plant Species Cover

Rating	Invasive Species Cover %
○ 4	0%
○ 3	>0% - <1%
○ 2 X	≥1% - <10%
○ 1	≥10

Additional CTs and Biotic Metric Comments:

Trails of deer seen and gold fish seen in pond. Quick transition from High desert to wetland.

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A2 - Physical Patch Complexity

Worksheet 11. Physical Patch Complexity checklist. Check off existing physical patch types for the upper, middle and lower segments of the SA; count the number of unique patch types and rate using Table A2 in combination with the narrative description. Enter the rating on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (check all existing conditions)
☐	☐	☐	Active side channels
☐	☐	☐	Abandoned channels
☐	☐	☐	Backwater/eddy
☐	☐	☐	Riffles or rapids
☐	☒	☐	Shoals, sparely-vegetated bars
☐	☐	☐	Channel boulders
☐	☐	☐	Oxbow lakes/ponds on floodplains
☐	☐	☐	Vegetated island and side bars
☐	☐	☐	Terraces
☐	☒	☐	Channel pools
☐	☒	☐	Beaver ponds
☐	☐	☐	Swales, depressional features on floodplains
☐	☒	☐	Debris jams in channel
☐	☐	☐	Woody wrack piles on the floodplain
☐	☐	☐	Floodplain micro-topography (mounds, pits)
☐	☐	☐	Downed logs
☐	☐	☐	Natural levees
☐	☐	☐	Standing snags
☐	☐	☐	Variegated, convoluted, or crenulated foreshore
☐	☐	☐	Undercut banks in channels
			No. of unique Patch Types

Calling Moderate since only analyzing middle segment

Table A2. Rating for Physical Patch Complexity

Rating	Description
○ 4	**High** degree of physical patch complexity across the floodplain. There are many floodplain micro-habitats present (mounds and pits, woody wrack piles, etc.), many fluvial geomorphic surfaces (swales, side channels, terraces, side bars, etc.), and there is high in-channel complexity (pools and riffles, large woody debris, undercut banks, etc.). As a guide, 12 or more unique indicators are present and well distributed throughout the SA (most indicators are found on multiple segments).
⊗ 3	**Moderate** physical patch complexity scattered across the floodplain. There are several floodplain micro-habitats present, several fluvial geomorphic surfaces, and there is moderate in-channel complexity. As a guide, 9 - 11 indicators are scattered throughout the SA (some on multiple segments).
○ 2	**Limited** physical patch complexity scattered across the floodplain. There are some floodplain micro-habitats present, some fluvial geomorphic surfaces, and there is limited in-channel complexity. As a guide, on average there are 6 - 8 unique indicators present in the SA (only a few on multiple segments).
○ 1	**Little** or no physical patch complexity on the floodplain. There are few or no floodplain micro-habitats present, few different fluvial geomorphic surfaces, and there is little or no in-channel complexity. As a guide, ≤ 5 unique indicators are present in the SA.

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A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☒	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☒	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☒	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☒	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☐	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☒	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.

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Table A3. Rating for Channel Equilibrium	
Rating	**Description**
☒ 4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
○ 3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
○ 2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
○ 1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	☐4	☒4	☐4	Infrequent raw banks, less than 10% of steam bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	☐3	☐3	☐3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	☐2	☐2	☐2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	☐1	☐1	☐1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.
Indicators of Stream Bank Erosion Potential	☐4	☒4	☐4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	☐3	☐3	☐3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	☐2	☐2	☐2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	☐1	☐1	☐1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score 4

Table A4. Stream Bank Stability and Cover Rating	
Rating	**Description**
☒ 4	>3.5 - 4.0
○ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	1.0 - ≤1.5

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A5 - Soil Surface Condition

Worksheet 14. Soil Surface Condition. Check all that apply in the upper , middle and lower SA segments during the field reconnaissance. The absence of these indicators would signify that disturbances are naturally occurring (e.g., flood deposition or low-density wildlife trails). Estimate the percent soil disturbance by segment area and referring to the SA abiotic map. Rate using Table A5 and enter on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (Check all existing conditions)
☐	☐	☐	Active erosion features due to anthropogenic disturbance (eg. rills, gullies, plant pedestals).
☐	☑	☐	Multiple livestock and other (fishing,hiking) trails,
☐	☐	☐	Vehicle tracks including off-road and construction, etc.
☐	☐	☐	Impervious compacted surfaces or pavement
☐	☐	☐	Grading or plowing
☐	☐	☐	Fill
☐	☐	☐	Gravel pits
☐	☐	☐	Anthropogenic levees and berms
☐	☐	☐	Irrigation-driven salinity and mineral crusts
☐	☐	☐	Fire pits
☐	☐	☐	Other:
			Estimate % soil disturbance by segment area

Average % Soil Disturbance: < 1%

Table A5. Soil Surface Condition Rating

Rating	Description
☒ 4	Bare soil areas due to anthropogenic disturbance absent or very limited. No human-caused impervious surfaces or gravel pits are found within the SA. Total disturbance, including erosion, impervious surfaces, fill, or other anthropogenic degradation to the soil surface is less than 1% of the SA.
○ 3	Some amount of bare soil from human causes is present but the extent is limited. Area of impervious surfaces are minimal in extent. Total disturbance, including erosion, impervious surfaces, fill, gravel pits, vehicle tracks or other anthropogenic degradation to the soil surface is between 1% and 5% of the sampling area.
○ 2	Bare soils from human causes are common. These may include dense livestock trails, vehicle tracks, trails, construction staging areas, mechanical rutting, or irrigation-driven salinity. Soil disturbance, while apparent, is limited to specific areas and not found across the majority of the SA. Total disturbance, including erosion, impervious surfaces, fill, gravel mining, or other anthropogenic degradation to the soil surface is greater than 5% or less than 10% of the SA.
○ 1	Bare soil areas degrade portions of the site because of altered hydrology or other long-lasting impacts. Deep ruts from off-road vehicles or machinery are present. Livestock disturbance or trails are widespread and several inches deep. Water is channeled into rills or ponded. Additional human-caused impervious surfaces or soil compaction are present. Total disturbance, including erosion, impervious surfaces, fill,gravel mining or other anthropogenic degradation to the soil surface is equal to or greater than 10% of the SA.

SA CODE : SF2MI [5] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [5] **Surveyor Initials :** DCS

Worksheet 15. Stressor Checklist. Check off stressors by intensity category that may be affecting wetland ecological condition of the SA and WOI. Assign categories using direct evidence where available or your best professional judgement otherwise. If the presence of the stressor is uncertain, mark as "Unkno Rank Major Stressors in Dominant Stressor column(Pick up to 3)

Rank	Affect				Stressor Group/Stressor	Comments
	Major	Minor	Absent	Unknown		
					Adverse water management	
	☐	☒	☐	☐	Extended low flow dam releases	
	☐	☐	☒	☐	Timing of flow releases not concordant	
	☐	☐	☒	☐	Extended high flow dam releases	
	☐	☐	☒	☐	Agriculture/Urban flow diversion upstream	
					Adverse sediment management	
	☐	☐	☒	☐	Adverse sediment retention by dams	
	☐	☐	☒	☐	Sediment loss by dredging	
	☐	☐	☒	☐	Adverse sediment input (roads/development)	
					Artificial water additions	
	☐	☐	☒	☐	Sewer treatment effluent	
	☐	☐	☒	☐	Point source urban runoff	
	☐	☐	☒	☐	Factory, feedlot outfall	
	☐	☐	☒	☐	Agricultural irrigation ditch returns	
	☐	☐	☒	☐	Mining waste	
					Ground water pumping	
	☐	☐	☒	☐	Urban depletions	
	☐	☐	☒	☐	Fracking	
	☐	☐	☒	☐	Agriculture irrigation wells	
					Watershed alteration	
	☐	☐	☒	☐	Extensive recent fires in watershed	
	☐	☐	☒	☐	Extensive recent timber harvest	
	☐	☐	☒	☐	Extensive open pit mining in watershed	
	☐	☐	☒	☐	Livestock/wildlife overgrazing	
					Local biodiversity impacts	
	☐	☐	☒	☐	Evidence of excessive grazing (local)	
	☐	☐	☒	☐	Excessive noise affecting wildlife	
	0	0		0	Counts by Intensity	

Additional Comments less water being sent here

Version Date: 04/25/2022

Schema: Montane 2.5

2024 MOISTURE MEASUREMENT FORM

DATE: 3-7-

CLIENT: Santa Fe

PROJECT: Riparian Assesment

SITE LOCATION: Transect 6

ACTIVITY: Moisture Measurements

GEOLOGISTS: DCS + AM

Moisture Meter Description: Standard Green 1-10 Meter

Distance from SE endpoint in feet	Date 3/7	Date	Date	Date	Date	Date	Date	Date	Date	Date	Average
0	3										
15	5										
30	3										
45	2.5										
≈ 55 Edge of water	10.0										

NMRAM Montane Riverine Wetlands Version 2.5

SA Cover Worksheet				
SA Code SF2MI [6]	SA Name : Two Mile Pond Reservoir		Project : Riparian Assesement	
AU Code Tsct [6]	AU Name : Transect [6]		WOI : Two Mile Pond Reservoir	
County Santa Fe	HUC 12 Headwaters Santa Fe River	Elevation (ft) 7299	(m) 2224.7	Ecoregion 6.0 NWFM

SA General Location and Boundary (Rationale, comments)
A riparian system that leads into a pond located on the east side of Santa Fe bordering the Santa Fe National Forest. This reservoir was decommissioned due to safety concerns regarding the reservoir and a water diversion to the area was recently shut down due to lack of water rights.

Driving Directions
Driving to Santa Fe from Albuquerque you head north on Old Pecos Trail. Then head east on Camino Del Monte Sol and right on Canyon Road until you reach the reservoir located to the North.

Ownership	Data Sharing Restrictions	Fish Observed in Wetland?
The Nature Conservative and The Santa Fe National Forest	Results to client only.	YES

Surveyor Role	Surveyor Name	Surveyor Initials
Landscape	Dustin	DS
Biotic	Annie	DCS
Abiotic	Dustin	DS
Stressors	Both	DCS AM

Easting (m)	Northing (m)	Zone	Datum	Latitude (DD ft)	Longitude (DD ft)
-105° 53' 24" W	35° 41' 23" N	13	NAD- 83 UTM	35.689722	-105.89
Survey Date	3/7/24	**Start Time**	09:04	**End Time**	10:16

SA Description

SA Landscape Context (summarize the wetland and surrounding landscape; include condition and impacts)

An abandoned pond that has been acting as a nature perserve. Water recently turned off

SA Biotic Condition (vegetation patterns, composition and structure, exotics and invasives, disturbance evidence, fire and herbivory)

Dry end of winter vegetation. Not much green/New life.

SA Abiotic Condition (hydrological alterations {e.g., dams, walls etc.]; flooding characteristics and evidence of overbank flooding; soil disturbance and other site impacts; explain the hydrologic breaks or other factors that define the SA limits)

Sits in a valley and has drain pipe that limits height of water

Assessment Summary (Overall site condition summary and comments after the field data is collected.)

Very dry vegetation with little to no wild life present. High desert transitions to willows and cattails.

Provisional Field Score	Rank	Surveyor(s)	Final Score	Rank	Initials	Date
3.125	B	DCS	3.125	B	DCS	3/7/24

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

NMRAM - SA Rank Summary Worksheet: Montane Riverine Wetlands 2.5			
Metric Description	Rating	Wt	Final Score
Landscape Context		Σ 1.0	3.25
L1. Buffer Integrity Index	3	0.25	0.75
L2. Riparian Corridor Connectivity	4	0.25	1.0
L3. Relative Wetland Size	4	0.25	1.0
L4. Surrounding Land Use	2	0.25	0.5
Biotic		Σ	
B1. Relative Native Plant Community Composition	2	0.2	.4
B2. Vegetation Horizontal Patch Structure	3	0.2	.6
B3. Vegetation Vertical Structure	2	0.2	.4
B4. Native Riparian Tree Regeneration	3	0.2	.6
B5. Invasive Exotic Plant Species Cover	2	0.2	.4
Abiotic		Σ	
A1. Floodplain Hydrologic Connectivity	—	~~0.3~~	—
A2. Physical Patch Diversity	3	0.25	.75
A3. Channel Equilibrium	4	0.25	1
A4. Stream Bank Stability and Cover	4	0.25	1
A5. Soil Surface Condition	4	~~0.1~~ 0.25	1

SA Condition Scoring Summary			
Major Attribute	Score	Wt.	Wt. Score
Landscape Context	3.25	0.3	0.975
Biotic	2.40	0.35	0.84
Abiotic	3.75	0.35	1.31
SA WETLAND CONDITION SCORE Σ			3.125
SA WETLAND RANK =			B

SA Wetland Rank		
Rank	Score	Description
A	≥3.25 - 4.0	Excellent Condition
(B)	≥2.5 - <3.25	Good Condition
C	≥1.75 - <2.5	Fair Condition
D	1.0 - <1.75	Poor Condition

Stressor Summary	Major	Minor	Top Three	
	0	0	1	trails
			2	cat tails
			3	mustard

Stressor Comments (Evaluation of risk)

Small trails that run by trail.
Cat tails taking over edge of pond.
Some patches of Mustard.

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

Landscape Context

L1 - Buffer Integrity Index

Worksheet 1a. Buffer and RCC Checklist. Check off land cover elements within the buffer area or RCC corridors that are either allowed, or are excluded and considered non-buffer elements that disrupt ecosystem connectivity. Indicate the imagery type and date (season and year of imagery).

Imagery	Google Earth KMZ. file	Image Date	6/23

Allowed buffer/RCC land cover elements			Excluded non-buffer/RCC land cover elements		
Buffer	RCC		Buffer	RCC	
[X]	[X]	Natural or semi-natural vegetation patches	[X]	[X]	Commercial/residential developments, parking lots, dams, bridges, revetments, and other structures
[X]	[X]	Small irrigation ditches without levees	[ ]	[ ]	Lawns, parks, golf courses, sports fields
[ ]	[ ]	Old fields, unmaintained	[ ]	[ ]	Railroads
[ ]	[ ]	Open range land	[ ]	[ ]	Maintained levees, sediment piles, construction materials, staging areas
[X]	[X]	Foot trails, horse trails, unpaved bike trails (low intensity)	[ ]	[ ]	Intensive livestock areas, horse paddocks, feedlots
[X]	[X]	Non-channel open water	[ ]	[ ]	Intensive agriculture: maintained pastures, hay fields, row crops, orchards, and vineyards
[X]	[X]	Non-functioning abandoned vegetated levees, or naturally occurring levees	[X]	[X]	Paved roads or developed second-order unpaved but graded roads
[ ]	[ ]	unpaved two tracks roads	[X]	[X]	Open water bounded by a levee or other manmade structure
[ ]	[ ]	Other	[ ]	[ ]	Other

Worksheet 1b. Buffer Percent Sub-metric. Measure or estimate the percentage of the SA perimeter composed of allowed buffer elements and enter into the Buffer Percent Box below. Rate the sub-metric using Table L1a and enter the rating on the Buffer Integrity Summary Worksheet 1d.

Buffer Percent (%)=	85%

Table L1a. Buffer Percent

Rating	Buffer Percent
( ) 4	100%
(X) 3	≥80% - <100%
( ) 2	≥50% - <80%
( ) 1	<50%

Worksheet 1c. Buffer Width Sub-metric. Measure the length of each buffer line in meters in the GIS or on the map. Average the line lengths and rate using Table L1b. Enter the rating on the Buffer Integrity Summary Worksheet 1d.

Line	Buffer Width (m)	Buffer Width (ft)	Line	Buffer Width (m)	Buffer Width (ft)
A	164.26	538.91	E	161.93	531.26
B	125.25	410.92	F	231.48	759.44
C	115.39	378.57	G	121.25	397.80
D	111.07	364.40	H	155.87	511.38
Average		148.31 (m)		486.58	(ft)

Table L1b. Buffer Width

Rating	Average buffer width
( ) 4	≥190m
(X) 3	≥130 - <190m
( ) 2	≥65 - <130m
( ) 1	<65m

Worksheet 1d. Buffer Integrity Summary. Enter the sub-metric Ratings from Tables L1a and L1b above to calculate the Buffer Integrity Index Score using the formula in the box below. Using the Buffer Integrity Index Score, enter rating for Buffer Integrity in Table L1c on the SA Summary Worksheet.

Buffer % Rating	+	Buffer Width Rating	/2 =	Buffer Integrity Index Score
3	+	3	/2 =	3

Table L1c. Summary Rating for Buffer Integrity

Rating	Score
( ) 4	>3.5
(X) 3	>2.5 - ≤3.5
( ) 2	>1.5 - ≤2.5
( ) 1	≤1.5

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

L2 - Riparian Corridor Connectivity (RCC)

Worksheet 2. RCC excluded non-buffer elements calculation. Refer to worksheet 1a for excluded non-buffer RCC land cover elements. Following the steps in the Field Guide, enter the summed values in meters for excluded element lengths for each bank within each segment upstream and downstream of the SA. Sum the values for each segment and calculate % Segment Disruption for the upstream side and the downstream side. Add the total disruption for upstream and downstream segments and then calculate the % Total Disruptions for the riparian corridor. Rate Riparian Corridor Connectivity using Table L2 and the data from this worksheet. Enter rating on the SA Summary Worksheet.

Segments	Upstream Segment		Downstream Segment	
Banks	**Left Bank**	**Right Bank**	**Left Bank**	**Right Bank**
A) Total Bank Disruption (m)	0	0	0	0
B) Total Disruption by Segment (m)	0		0	
C) % Segment Disruption = (B/1000)*100	0		0	
D) Total Disruption both segments	0			
E) % Total Disruptions = (D/2000)*100	Zero disruption noticeable along the banks.			

Table L2. RCC Rating

Rating	Description
(X) 4	**0%** total disruption on both segments combined.
( ) 3	**<15%** total disruption on both segments combined.
( ) 2	**≥15%** - **<40%** total disruption on both segments combined.
( ) 1	**≥40%** total disruption on both segments combined.

L3 - Relative Wetland Size

Worksheet 3a. Calculate the Relative Size Ratio (RSR) between the current WOI size and the historic WOI size. b. Calculate the Relative Wetland Size Score (RWSI (%)) as (1-RSR)*100. Rate Relative Wetland Size Index using Table L3 and enter rating on the SA Summary Worksh

RSR					RWSI						
Current Size	/	Historic Size	=	RSR	1	-	RSR	X	100	=	RWSI (%)
9	/	10	=	0.9	1	-	0.1	X	100	=	10

Table L3. Relative Wetland Size Rating

Rating	RWSI Score	Description
(X) 4	≤10%	Wetland is at or only minimally reduced from its full natural extent
( ) 3	>10% - ≤40%	Wetland remains equal to or more than 60% of its natual size
( ) 2	>40% - ≤70%	Wetland has been reduced by more than 40% its natural size
( ) 1	>70%	Wetland has been reduced by more than 70% its natural size

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

L4 - Surrounding Land Use

Worksheet 4. Surrounding Land Use. Enter the percent area occupied by a given Land Use Element in the Land Use Zone (LUZ) surrounding the SA. Calculate the Land Use Index (LUI) Score by element as the product of the element coefficient times the percent of the LUZ Area occupied. (The %LUZ Area must total 100%.) Sum the LUI scores for each element to create the final LUI Score. Rate using Table L4 and enter the rating in the SA Rank Summary Worksheet.

Land Use Element	Coef	% LUZ Area	LUI Score
Paved roads, parking lots, domestic or commercially developed buildings, mining (gravel pit, quarry, open pit, strip mining), railroads	0	0	0
Unpaved roads (e.g., driveway, tractor trail, unpaved parking lots), paddock, dirt lot	0.1	0	0
Dredging, borrow pits, abandoned mines, water-filled artificial impoundments (ponds and reservoirs)	0.1	0	0
Filling or dumping of sediment or soils	0.1	0	0
Intense recreation (all-terrain vehicle use, camping, popular fishing spot, etc.)	0.3	0	0
Rip-rapped channel (highly modified channel with severely limited vegetation zone that is altered by human activities but not a completely concrete channel [that goes under paved roads]), junkyards, trash dumps, disturbed ground (not including roads)	0.3	0	0
Ski area	0.4	0	0
Dam sites and flood-disturbed shorelines around water storage reservoirs	0.5	0	0
Abandoned artificial impoundments (ponds and reservoirs) and associated disturbed flood zones	0.5	10	5
Artificial/Constructed wetlands, irrigation ditches	0.7	20	14
Developed/Managed trail system (high use trail)	0.8	5	4
Agriculture - active tilled crop production	0.2	0	0
Agriculture - permanent crop (vineyards, orchards, nurseries, berry production)	0.3	0	0
Manicured lawns, sport fields, and golf courses; urban manicured parks	0.3	0	0
Old fields and other disturbed fallow lands dominated by ruderal and/or exotic species (e.g., kochia, Russian thistle, mustards, annual vegetation)	0.5	0	0
Mature old fields and other fallow lands with natural composition, introduced hay field and pastures (e.g., perennial vegetation cover)	0.7	0	0
Restoration areas in process to natural conditions (re-conversion in process)	0.8	65	52
Haying of native grassland (e.g., no tillage, haying and baling only)	0.9	0	0
Heavy logging or tree removal with >50% of large trees (e.g., >30 cm diameter at breast height) removed, woodland/shrub vegetation conversion (chaining, cabling, rotochopping)	0.3	0	0
Commercial tree plantation, Christmas tree farms	0.6	0	0
Selective logging or tree removal with <50% of large trees (e.g., >30 cm diameter at breast height) removed	0.8	0	0
Mature restoration areas returned to natural conditions (re-converted)	0.9	0	0
Natural area, land managed for native vegetation - No agriculture, logging, development	1	0	0
LUI Score= Coefficient * % LUZ Area		100	75

Table L4. Surrounding Land Use Rating	
Rating	**LUI Score**
○ 4	≥95 - 100
○ 3	≥80 - <95
⊗ 2	≥40 - <80
○ 1	<40

SA CODE : SF2MI [6] **SA Name :** Two Mile Pond Reservoir Transect [6] **Date :** 3/7/24 **Surveyor Initials :** DCS

Biotic Metrics

Worksheet 5. Vegetation Community Patch Polygon Data for Biotic Metrics B3, B4, and B5 for Polygons from SA Biotic Map. Enter data for each polygon under a unique number assigned from the SA Biotic Map. Each polygon is evaluated with respect to Vegetation Vertical Structure (B3), Native Tree Regeneration (B4), and Invasive Exotic Plant Species Cover (B5) metrics. Enter the Vertical Structure Type (VST) for B3, tree regeneration % cover within the polygon for B4 and the % cover of invasive exotic species for B5. Use the Tables in Appendix B and the Field Guide for metric instructions. Enter the species codes for the invasive exotic species found in the polygon (from NM Noxious Weed List - Appendix D). Use the comments box for documenting and describing vegetation community patch features.

Polygon No	B3 Vertical Structure Type	B4 Tree Regeneration % Cover	B5 Invasive Exotic Species % Cover	Invasive Exotic Species (List Code(s))	Comments
1	IA1				
2	IA2				
3	IIA1				
4	IIIB1	80%	< 5%	Mullein	Broad leaf cat tail + Willow Possible switch grass Common Mullican
5	IIIC1	0 tree / 60 comm	25% of veg	Mustard	Saltbush and colorado blue stem very dry
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

SA CODE : SF2MI [6] **SA Name :** Two Mile Pond Reservoir Transect [6] **Date :** 3/7/24 **Surveyor Initials :**

B1 - Relative Native Plant Community Composition

Worksheet 6. CT Plant Species and Polygon Assignments. Starting with CT A, enter the number of the first polygon from Worksheet 5. Enter the species codes for the two top dominant species in each stratum that appears in the polygon. See footnotes for special instructions. If a species appears in more than one strata, assign the species to the stratum in which it is more abundant. Each polygon is either assigned to the same CT if it has the same composition or a new CT is created for the polygon.

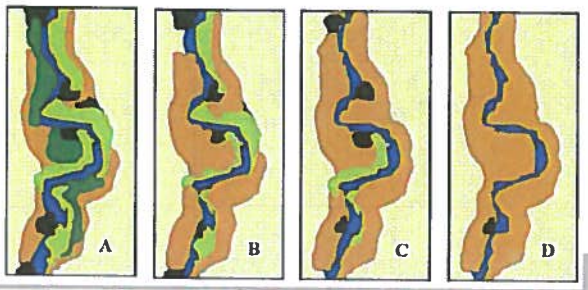
		Tall Woody Stratum [1]				Short Woody Stratum [2]				Herbaceous/Sparse Stratum [3]				CT Score [4]		
CT	Polygon Nos.	Species 1	E N	Species 2	E N	Species 3	E N	Species 4	E N	Species 5	E N	Species 6	E N	Raw[4]	% SA[5]	Wt Score[6]
A	5					Salt bush	N	Chimisa -	N	Mustard	E	Blue Stem	N	2.0	60%	1.2
B	4					Willow	N	cattail	N	Mullein	E	Switch grass	N	4.0	40%	1.6
C																
D																
E																
F																
G																
H																
I																
J																
K																
L																
M																
N																
O																
													Final Weighted Score[7]			2.8

1. Trees and shrubs > 6 m (20 feet) and > 25% total stratum cover; 2. Trees and shrubs ≤6m (20 feet) and >25% total stratum cover; 3. Herbaceous (graminoids and forbs)>10% total stratum cover. [4]Raw Score is from Table B1a (Appendix B); [5]%SA is the percentage of the SA area covered by the CT and expressed as a decimal number; the total area %SA must equal 1; [6]Wt. Score is the product of the Raw Score * % SA; [7]The Final Weighted Score is the sum of the Wt. Scores. Rate the CT Final Weighted Score on Table B1 and enter the Rating for Relative Native Plant Community Composition on the SA Rank Summary Worksheet.

SA CODE: SF2MI [6] **Date:** 3/7/24

SA Name: Two Mile Pond Reservoir Transect [6] **Surveyor Initials:** DCS

Table B1. Relative Native Plant Community Composition Rating		
Rating	**CT Final Weighted Score**	
○ 4	≥ 3.75	<10% non-native
○ 3	≥ 3.25 and <3.75	10% ≤20% non-native
☒ 2	> 2.0 and <3.25	20% ≤50% non-native
○ 1	≤2.0	>50% non-native



B2 - Vegetation Horizontal Patch Structure

Worksheet 7. Using Tables B2a and B2c (Appendix B), choose the schematic pattern that best matches the mapped vegetation patch pattern for the SA. Rate using Table B2 and enter rating on the SA Rank Summary Worksheet.

Horizontal Patch Structure pattern A,B,C, or D: B

Table B2. Rating for Vegetation Horizontal Patch Structure	
Rating	**Description**
○ 4	Most closely matches Pattern A. SA has a diverse patch structure (≥4 patch types) and complexity. A dominant patch type would be difficult to determine.
☒ 3	Pattern B. SA has a moderate degree of patch diversity (3 patch types present) and complexity. A single, dominant patch type may be present, although the other patch types would be well represented and have more than one occurrence in the SA.
○ 2	Pattern C. SA has a low degree of patch diversity and complexity. Two or three patch types may be present; however, a single, dominant patch type exists with the others occupying a small portion of the SA.
○ 1	Pattern D. SA has essentially little to no patch diversity or complexity. The SA is dominated by a single patch type. Other patch types, if present, occur infrequently and occupy a small portion of the SA.

B3 - Vegetation Vertical Structure

Worksheet 8. Percentage of SA by vertical structure type (VST). Using the Structure Type from Worksheet 5 and the %SA from Worksheet 6 calculate the total area of the SA occupied by each VST using the formula VST(type) = Sum (%SA for CTs with same VST) x 100. Enter the total %SA for each VST below.

	VST 1 High Structure Forest	VST 2 Low Structure Forest	VST 5 Tall Shrubland	VST 6S Short Shrubland	VST 6W Herbaceous Wetland	VST 6H Herbaceous Vegetation	VST 7 Sparse Vegetation
Total % of SA			40		60		

Table B3. Rating for Vegetation Vertical Structure. Using the data from Worksheet 8 rate the SA based on the criteria in Table B3. Pick the row that best fits the distribution of VSTs in the SA. Each row specifies the required dominant structure type plus co- and sub-dominants. Percentage cover required per co- or sub-dominant is a minimum. The types listed in the columns must be the most common VSTs in the SA for the rating to be applicable (Worksheet 8). VSTs 1 and 2 can be inverted in dominance and the rating is still applicable. Work from the top of the table down. As long as the requirements for one row are met, any other types may or may not co-occur without changing the rating. Enter the rating on the SA Rank Summary Worksheet.

Rating	Dominant VST	Co- or Sub-dominant VST ≥15%	Sub-dominant VST ≥5%
○ 4	1	5	6W and/or 6H
	1	6W	
	2 or 1 and 2	5	6W and/or 6H
○ 3	1		
	2 or 1 and 2	5	
	2 or 1 and 2	6W	
	5	6W	
☒ 2	2 or 1 and 2		
	5		
	6W		
○ 1	6S		
	6H		
	7		

SA CODE: SF2MI [6] **Date:** 3/7/24

SA Name: Two Mile Pond Reservoir Transect [6] **Surveyor Initials:** DCS

B4 - Native Riparian Tree Regeneration

Table B4. Native Riparian Tree Regeneration rating. Using the polygon percent cover of native tree seedlings, saplings and poles from Worksheet 5, rate the SA based on polygon percent cover and patch density. Enter the rating on the SA Rank Summary Worksheet.

Rating	Description
○ 4	Native poles, sapling, and seedlings trees well represented, obvious regeneration, many patches or polygons with >5% cover, typically multiple size (age) classes.
⊗ 3	Native poles, saplings and/or seedlings common, scattered patches or polygons with 1% -5% cover, size classes few.
○ 2	Native poles, saplings and/or seedlings present but uncommon, restricted to one or two patches or polygons with typically <1% cover, little size class differentiation.
○ 1	Native poles, saplings, and/or seedlings absent (0% cover).

B5 - Invasive Exotic Plant Species Cover

Worksheet 9. Based on Worksheets 5 and 6, calculate or estimate the percentage cover of invasive exotic species for the SA and enter below. Rate using Table B5 and enter the rating on the SA Rank Summary Worksheet.

Rating Method: > 5

Invasive cover (%): >5

calculate

Table B5. Ratings for Invasive Exotic Plant Species Cover

Rating	Invasive Species Cover %
○ 4	0%
○ 3	>0% - <1%
X 2	≥1% - <10%
○ 1	≥10

Additional CTs and Biotic Metric Comments:

New plants sprouting but most of area is recovering from winter.

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

A2 - Physical Patch Complexity

Worksheet 11. Physical Patch Complexity checklist. Check off existing physical patch types for the upper, middle and lower segments of the SA; count the number of unique patch types and rate using Table A2 in combination with the narrative description. Enter the rating on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (check all existing conditions)
☐	☐	☐	Active side channels
☐	☐	☐	Abandoned channels
☐	☐	☐	Backwater/eddy
☐	☐	☐	Riffles or rapids
☐	☒	☐	Shoals, sparely-vegetated bars
☐	☐	☐	Channel boulders
☐	☐	☐	Oxbow lakes/ponds on floodplains
☐	☒	☐	Vegetated island and side bars
☐	☒	☐	Terraces
☐	☐	☐	Channel pools
☐	☐	☐	Beaver ponds
☐	☐	☐	Swales, depressional features on floodplains
☐	☐	☐	Debris jams in channel
☐	☐	☐	Woody wrack piles on the floodplain
☐	☐	☐	Floodplain micro-topography (mounds, pits)
☐	☐	☐	Downed logs
☐	☐	☐	Natural levees
☐	☐	☐	Standing snags
☐	☐	☐	Variegated, convoluted, or crenulated foreshore
☐	☐	☐	Undercut banks in channels
			No. of unique Patch Types

Calling Moderate since only looking at middle channel

Table A2. Rating for Physical Patch Complexity

Rating	Description
○ 4	**High** degree of physical patch complexity across the floodplain. There are many floodplain micro-habitats present (mounds and pits, woody wrack piles, etc.), many fluvial geomorphic surfaces (swales, side channels, terraces, side bars, etc.), and there is high in-channel complexity (pools and riffles, large woody debris, undercut banks, etc.). As a guide, 12 or more unique indicators are present and well distributed throughout the SA (most indicators are found on multiple segments).
☒ 3	**Moderate** physical patch complexity scattered across the floodplain. There are several floodplain micro-habitats present, several fluvial geomorphic surfaces, and there is moderate in-channel complexity. As a guide, 9 - 11 indicators are scattered throughout the SA (some on multiple segments).
○ 2	**Limited** physical patch complexity scattered across the floodplain. There are some floodplain micro-habitats present, some fluvial geomorphic surfaces, and there is limited in-channel complexity. As a guide, on average there are 6 - 8 unique indicators present in the SA (only a few on multiple segments).
○ 1	**Little** or no physical patch complexity on the floodplain. There are few or no floodplain micro-habitats present, few different fluvial geomorphic surfaces, and there is little or no in-channel complexity. As a guide, ≤ 5 unique indicators are present in the SA.

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

A3- Channel Equilibrium

Worksheet 12. Channel Equilibrium Checklist. Check all field indicators that apply to the upper, middle and lower segment of the SA observed at the channel edge of the traverse. Rate using the Table A3 descriptions and based on a preponderance of evidence from this checklist. Enter the rating on the SA Rank Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators(check all existing conditions)
Indicators of Channel Equilibrium	☐	☐	☐	The channel has a well-defined bankfull contour that clearly demarcates the point of incipient flooding where moderate frequent flow events spread flow across the floodplain.
	☐	☒	☐	Perennial riparian vegetation is abundant and well established along the bankfull contour, but not below it.
	☐	☑	☐	There is leaf litter, thatch, or wrack in most pools.
	☐	☑	☐	The channel contains embedded woody debris of the size and amount consistent with what is naturally available in the riparian area.
	☐	☐	☐	There is little or no active undercutting or burial of riparian vegetation.
	☐	☐	☐	There are no bars that are densely vegetated with perennial vegetation (neither mid-channel bars or point bars).
	☐	☐	☐	Channel and point-bars consist of well-sorted bed material.
	☐	☐	☐	The channel bed is not planar and without an abundance of fine materials filling the interstitial spaces between larger stream substrate.
	☐	☐	☐	There are channel pools at meander bends and some deep pools within the reach.
Indicators of Active Degradation	☐	☐	☐	The channel is characterized by deeply undercut banks with exposed living roots of trees or shrubs.
	☐	☐	☐	There are abundant bank slides or slumps, or the lower banks are uniformly scoured and not vegetated.
	☐	☐	☐	Bank vegetation is declining in stature or vigor, or many riparian trees and shrubs along the banks are leaning or falling into the channel.
	☐	☐	☐	Channel bed is scoured to large cobbles or boulders and entrained bank material is filling the cobble interstices and pools.
	☐	☐	☐	There are active headcuts within the channel.
	☐	☐	☐	An obvious historical floodplain has recently been abandoned, as indicated by the age structure of its riparian vegetation.
Indicators of Active Aggradation	☐	☐	☐	There is abundant fresh splays of coarse sediment covering the floodplain above the natural point bar elevation.
	☐	☐	☐	There are partially buried living tree trunks or shrubs along the banks.
	☐	☐	☐	The channel bed is planar overall. The stream lacks well-defined channel pools at meander bends, or pools are filled with sediment.
	☐	☐	☐	There are partially buried or sediment-choked culverts.
	☐	☐	☐	There are avulsion channels on the floodplain or adjacent valley floor.

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

Table A3. Rating for Channel Equilibrium	
Rating	**Description**
☒ 4	Most of the channel throughout the SA is in equilibrium condition with little evidence of excessive aggradation or degradation based on the field indicators listed in Worksheet 12.
○ 3	There is some evidence of excessive aggradation or degradation; the channel throughout the SA seems to approach an equilibrium condition. Circle primary process: aggradation or degradation.
○ 2	There is evidence of severe aggradation or degradation throughout most of the channel through the SA. Circle primary process: aggradation or degradation.
○ 1	The channel is artificially hardened, channelized, or is concrete throughout most of the SA.

A4- Stream Bank Stability and Cover

Worksheet 13. Bank Soil Stability and Streambank Erosion Potential Checklist. Check the indicator that best describes the condition looking a minimum of 25 m upstream and downstream at the channel edge of the upper, middle and lower segment of the SA. Average the six scores for both Bank Soil Stability and Streambank Erosion Potential. Rate using the Table A4 and enter the rating on the SA Summary Worksheet.

Condition	Upper Segment	Middle Segment	Lower Segment	Field Indicators
Indicators of Bank Soil Stability	☐4	☒4	☐4	Infrequent raw banks, less than 10% of steam bank under stress from trampling, slumping, vegetation removal or active erosion, etc.
	☐3	☐3	☐3	Raw banks and loose soil intermittently and 10%-25% of stream bank under stress from trampling, trail crossing, hoof punching, vegetation removal, erosion etc.
	☐2	☐2	☐2	Significant raw banks and loose soil, 25%-50% of stream bank under stress, trampled, slumping or eroding etc.
	☐1	☐1	☐1	Raw banks almost continuous with greater than 50% of stream bank under stress, loose soil, slumping, trampled or eroding; or channel appear to lack banks due to trampling; or channel that is artificially hardened or concrete along most of its length.
Indicators of Stream Bank Erosion Potential	☐4	☒4	☐4	≥ 80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by boulders, large cobbles and/or large woody debris that prevent bank erosion.
	☐3	☐3	☐3	≥50% - <80% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation are protected to allow only minor erosion.
	☐2	☐2	☐2	≥25% - <50% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those area not covered by vegetation or stabilized by roots, are covered by materials or vegetation that give limited protection.
	☐1	☐1	☐1	Less than 25% of the stream bank surfaces are covered by vegetation in vigorous condition with dense root mass or by cobble or larger material. Those areas not covered by vegetation provide little or no control over erosion and excess shear stress, and the banks are susceptible to erosion by high water flows.

Average Indicator Score 4

Table A4. Stream Bank Stability and Cover Rating	
Rating	**Description**
☒ 4	>3.5 - 4.0
○ 3	>2.5 - ≤3.5
○ 2	>1.5 - ≤2.5
○ 1	1.0 - ≤1.5

SA CODE : SF2MI [6] **Date :** 3/7/24

SA Name : Two Mile Pond Reservoir Transect [6] **Surveyor Initials :** DCS

A5 - Soil Surface Condition

Worksheet 14. Soil Surface Condition. Check all that apply in the upper , middle and lower SA segments during the field reconnaissance. The absence of these indicators would signify that disturbances are naturally occurring (e.g., flood deposition or low-density wildlife trails). Estimate the percent soil disturbance by segment area and referring to the SA abiotic map. Rate using Table A5 and enter on the SA Rank Summary Worksheet.

Upper Segment	Middle Segment	Lower Segment	Field Indicators (Check all existing conditions)
☐	☐	☐	Active erosion features due to anthropogenic disturbance (eg. rills, gullies, plant pedestals).
☐	☒	☐	Multiple livestock and other (fishing,hiking) trails,
☐	☐	☐	Vehicle tracks including off-road and construction, etc.
☐	☐	☐	Impervious compacted surfaces or pavement
☐	☐	☐	Grading or plowing
☐	☐	☐	Fill
☐	☐	☐	Gravel pits
☐	☐	☐	Anthropogenic levees and berms
☐	☐	☐	Irrigation-driven salinity and mineral crusts
☐	☐	☐	Fire pits
☐	☐	☐	Other:
			Estimate % soil disturbance by segment area

Average % Soil Disturbance: <1

Table A5. Soil Surface Condition Rating	
Rating	**Description**
☒ 4	Bare soil areas due to anthropogenic disturbance absent or very limited. No human-caused impervious surfaces or gravel pits are found within the SA. Total disturbance, including erosion, impervious surfaces, fill, or other anthropogenic degradation to the soil surface is less than 1% of the SA.
○ 3	Some amount of bare soil from human causes is present but the extent is limited. Area of impervious surfaces are minimal in extent. Total disturbance, including erosion, impervious surfaces, fill, gravel pits, vehicle tracks or other anthropogenic degradation to the soil surface is between 1% and 5% of the sampling area.
○ 2	Bare soils from human causes are common. These may include dense livestock trails, vehicle tracks, trails, construction staging areas, mechanical rutting, or irrigation-driven salinity. Soil disturbance, while apparent, is limited to specific areas and not found across the majority of the SA. Total disturbance, including erosion, impervious surfaces, fill, gravel mining, or other anthropogenic degradation to the soil surface is greater than 5% or less than 10% of the SA.
○ 1	Bare soil areas degrade portions of the site because of altered hydrology or other long-lasting impacts. Deep ruts from off-road vehicles or machinery are present. Livestock disturbance or trails are widespread and several inches deep. Water is channeled into rills or ponded. Additional human-caused impervious surfaces or soil compaction are present. Total disturbance, including erosion, impervious surfaces, fill,gravel mining or other anthropogenic degradation to the soil surface is equal to or greater than 10% of the SA.

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Worksheet 15. Stressor Checklist. Check off stressors by intensity category that may be affecting wetland ecological condition of the SA and WOI. Assign categories using direct evidence where available or your best professional judgement otherwise. If the presence of the stressor is uncertain, mark as "Unkno" Rank Major Stressors in Dominant Stressor column(Pick up to 3)

Rank	Affect				Stressor Group/Stressor	Comments
	Major	Minor	Absent	Unknown		
					Adverse water management	
	☐	☐	☒	☐	Extended low flow dam releases	
	☐	☐	☒	☐	Timing of flow releases not concordant	
	☐	☐	☒	☐	Extended high flow dam releases	
	☐	☐	☒	☐	Agriculture/Urban flow diversion upstream	
					Adverse sediment management	
	☐	☐	☐	☒	Adverse sediment retention by dams	
	☐	☐	☒	☐	Sediment loss by dredging	
	☐	☐	☒	☐	Adverse sediment input (roads/development)	
					Artificial water additions	
	☐	☐	☒	☐	Sewer treatment effluent	
	☐	☐	☒	☐	Point source urban runoff	
	☐	☐	☒	☐	Factory, feedlot outfall	
	☐	☐	☒	☐	Agricultural irrigation ditch returns	
	☐	☐	☒	☐	Mining waste	
					Ground water pumping	
	☐	☐	☒	☐	Urban depletions	
	☐	☐	☒	☐	Fracking	
	☐	☐	☒	☐	Agriculture irrigation wells	
					Watershed alteration	
	☐	☐	☒	☐	Extensive recent fires in watershed	
	☐	☐	☒	☐	Extensive recent timber harvest	
	☐	☐	☒	☐	Extensive open pit mining in watershed	
	☐	☐	☒	☐	Livestock/wildlife overgrazing	
					Local biodiversity impacts	
	☐	☐	☒	☐	Evidence of excessive grazing (local)	
	☐	☐	☒	☐	Excessive noise affecting wildlife	
	0	0		0	Counts by Intensity	

Additional Comments: Water has stopped being sent to this Area.

Version Date: 04/25/2022

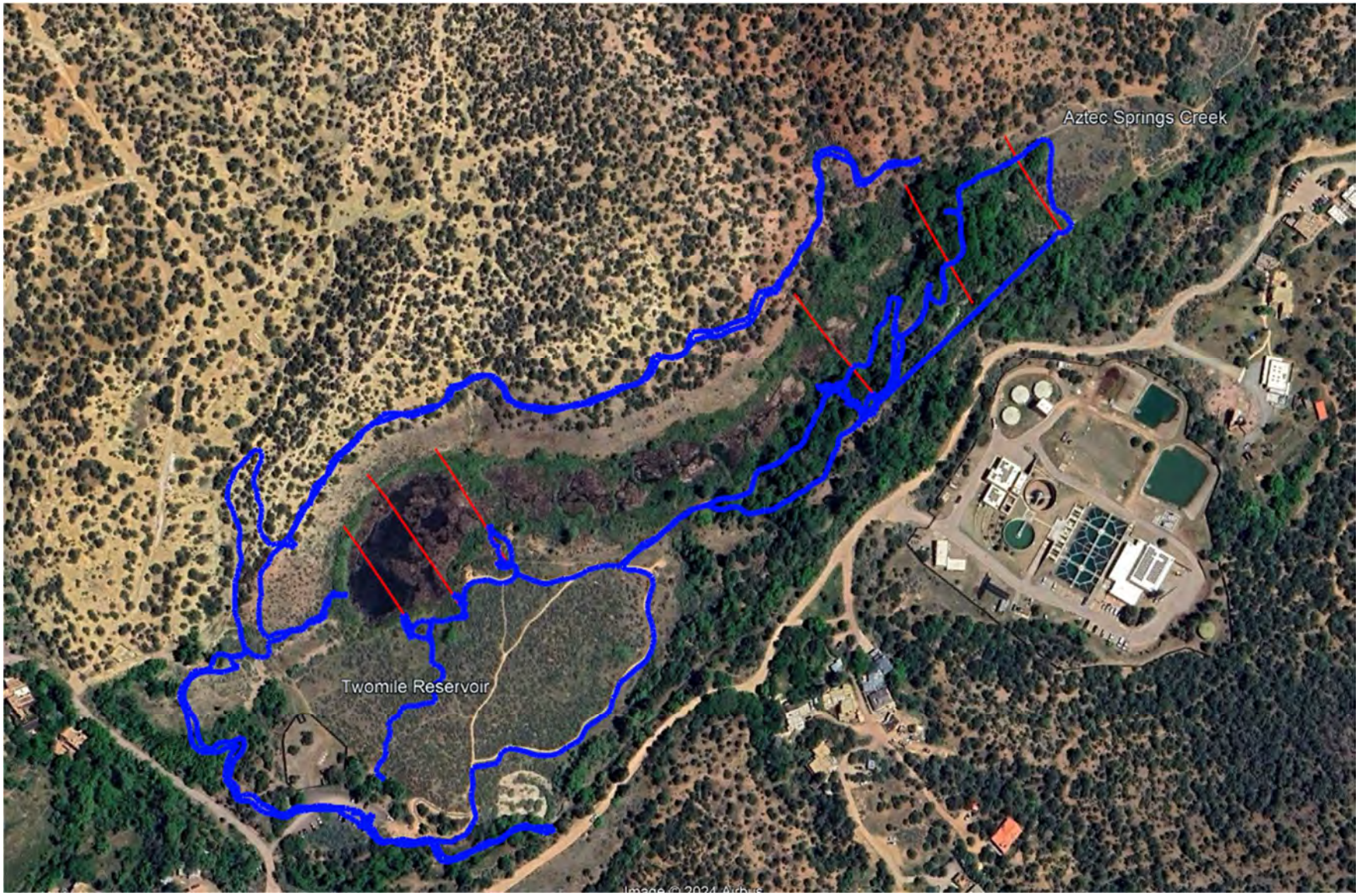
Schema: Montane 2.5

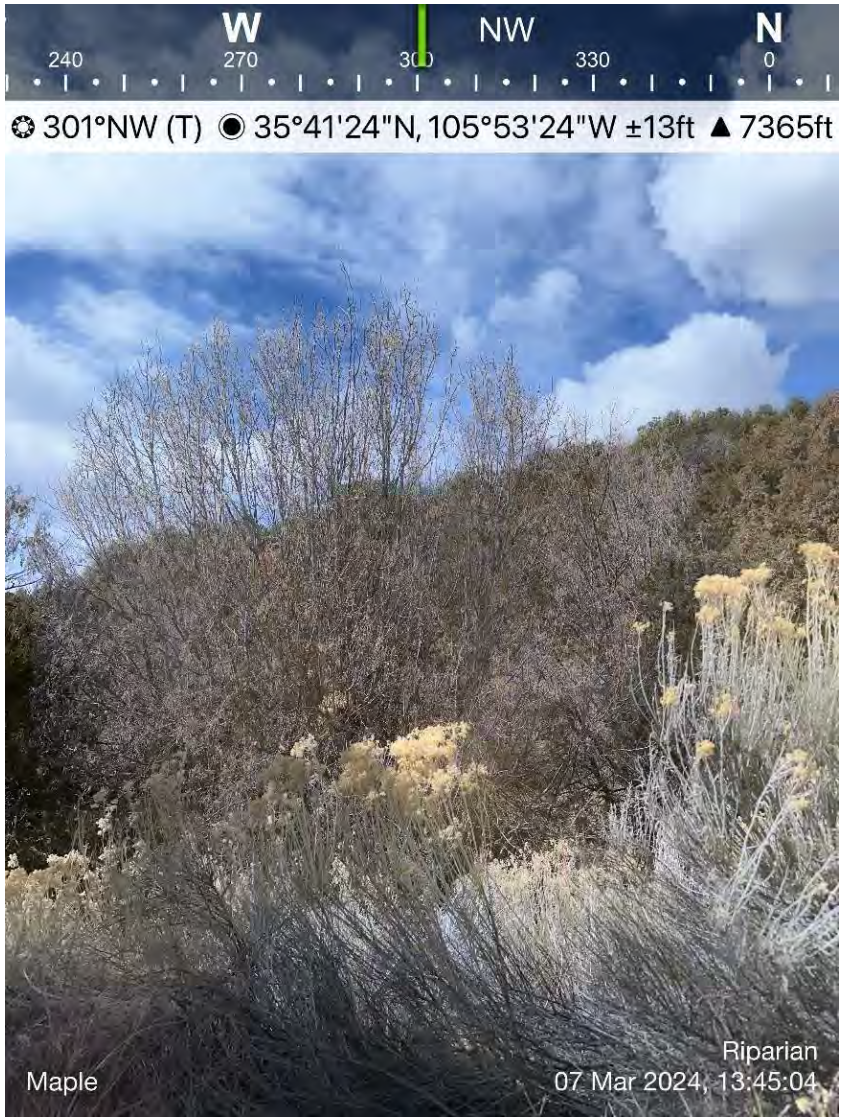
Appendix E.

Field Photos

APPENDIX E.

PHOTOGRAPHS OF MARCH 7, 2024 FIELD RECONNAISSANCE OF TWO-MILE POND





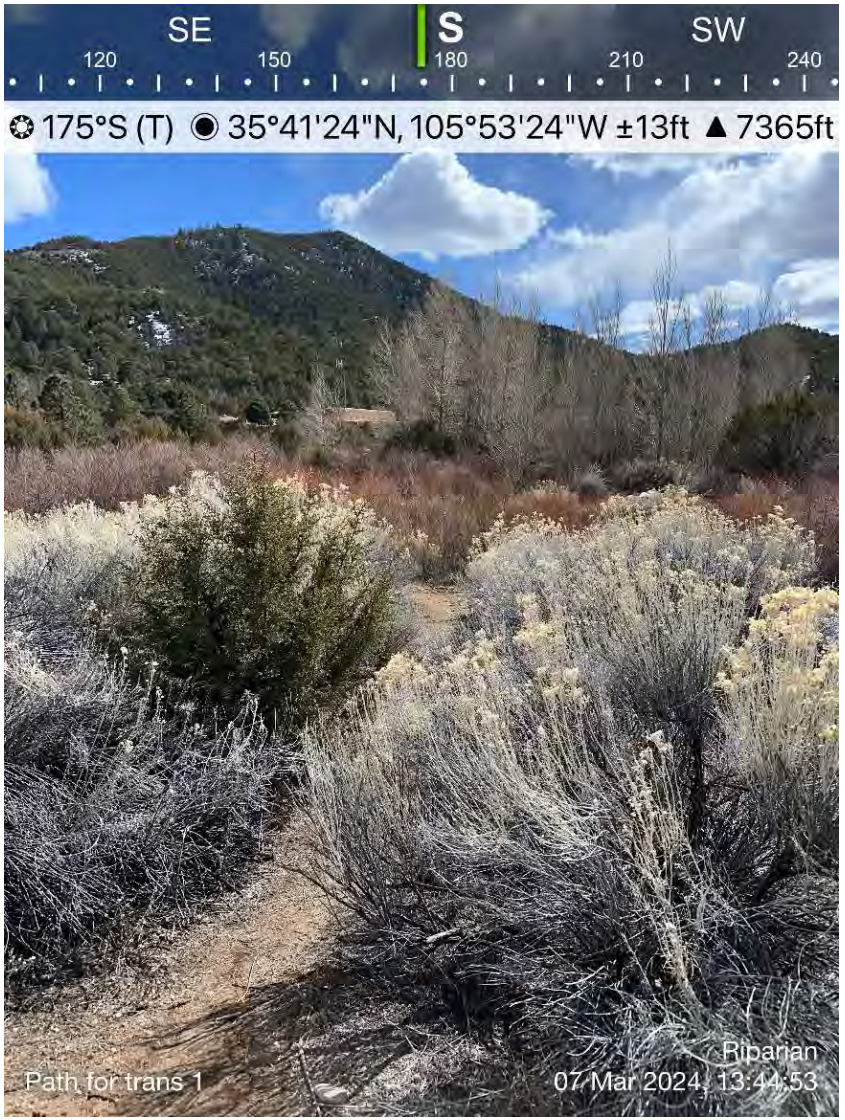


Figure E1. Photos from Transect 1 taken on 3/7/24. This area was the driest area in the entire investigation and begins at the start of the transition into a high desert-like landscape.

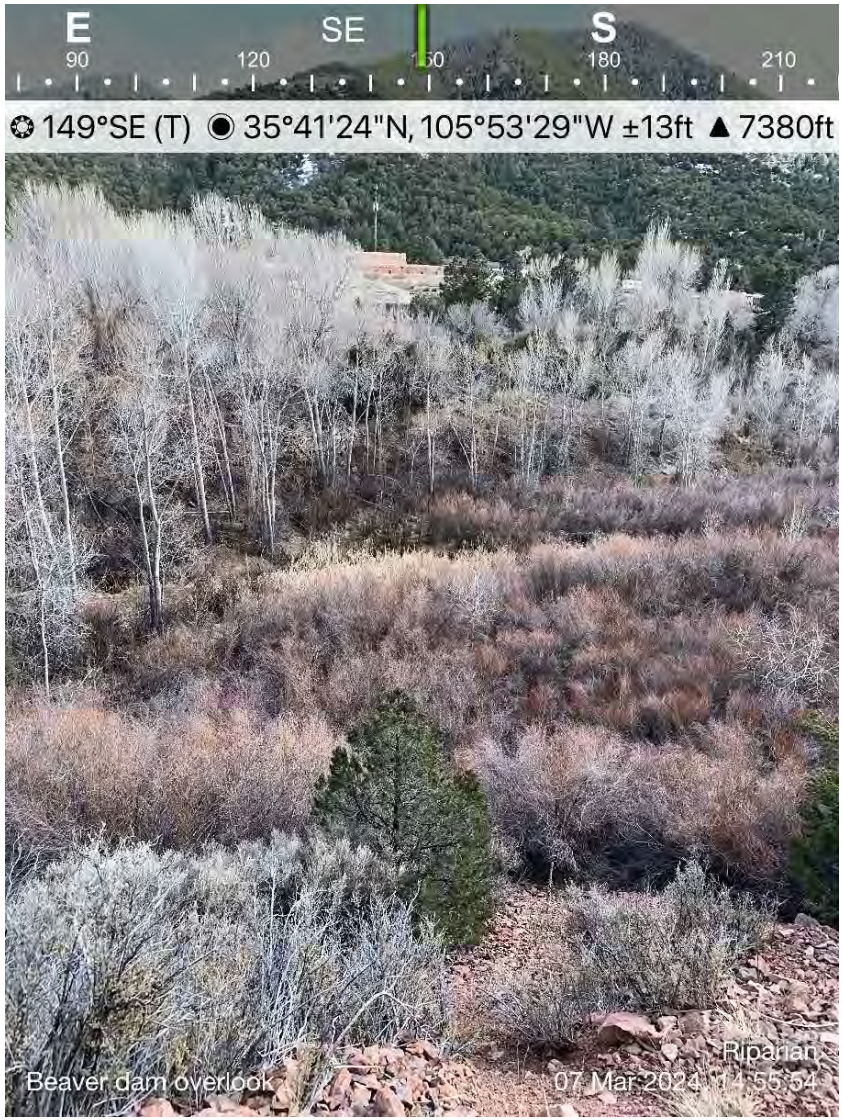


Figure E2. Photos taken of Transect 2 on 3/7/24. This area is located above the dam. The second photo also overlooks some of Transect 3 on the south and Transect 2 on the east.

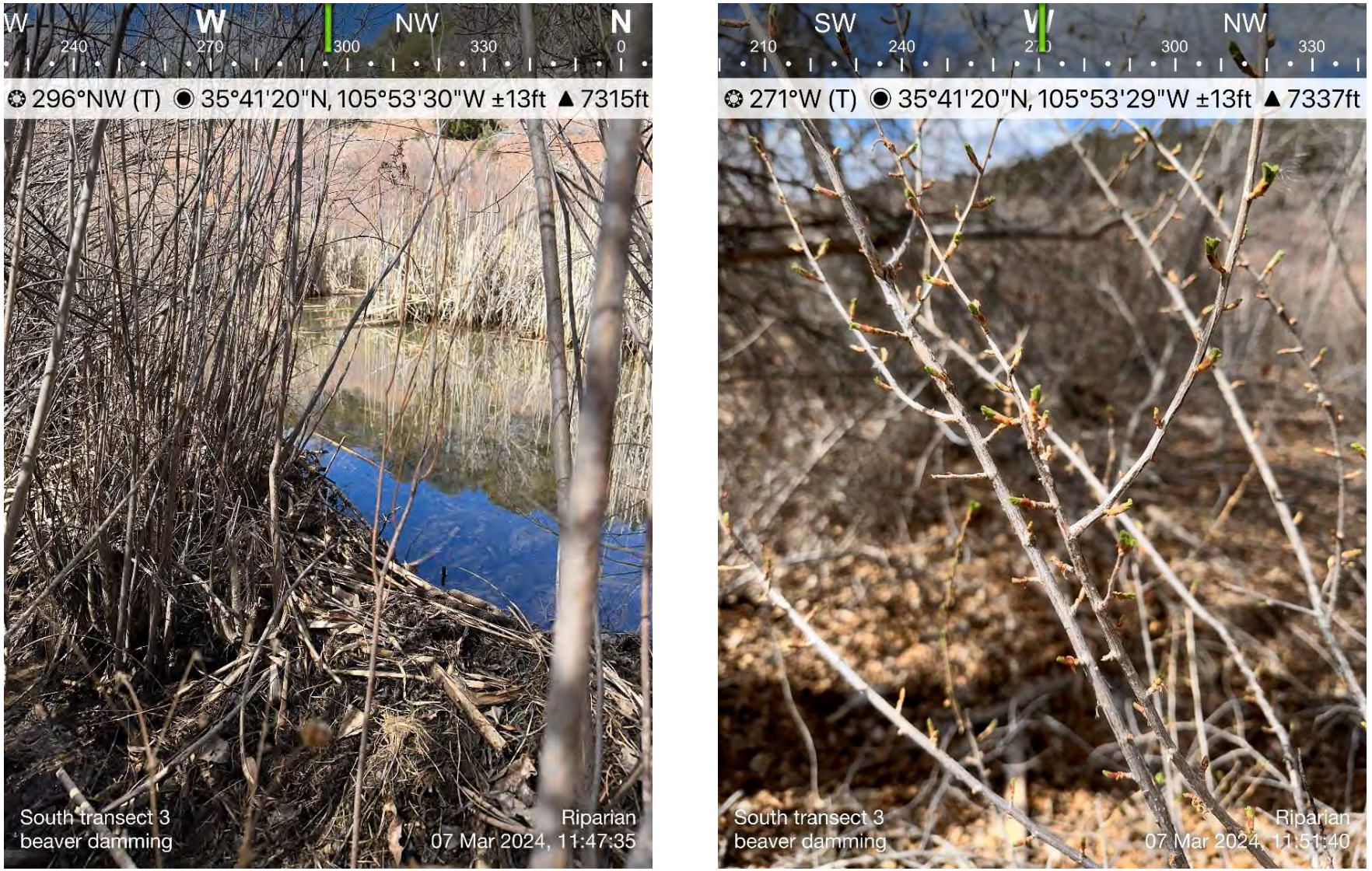


Figure E3. Photos taken along Transect 3 on 3/7/24. The photo on the left shows the storm flood formed dam and the photo on the right represents new growth on a younger tree.

Figure E4. Photos taken of Transect 4 on 3/7/24. The photo on the left shows a possible seep that comes out on the hill approximately 15 ft above the pond. The photo on the right shows the entirety of Transect 4 across.

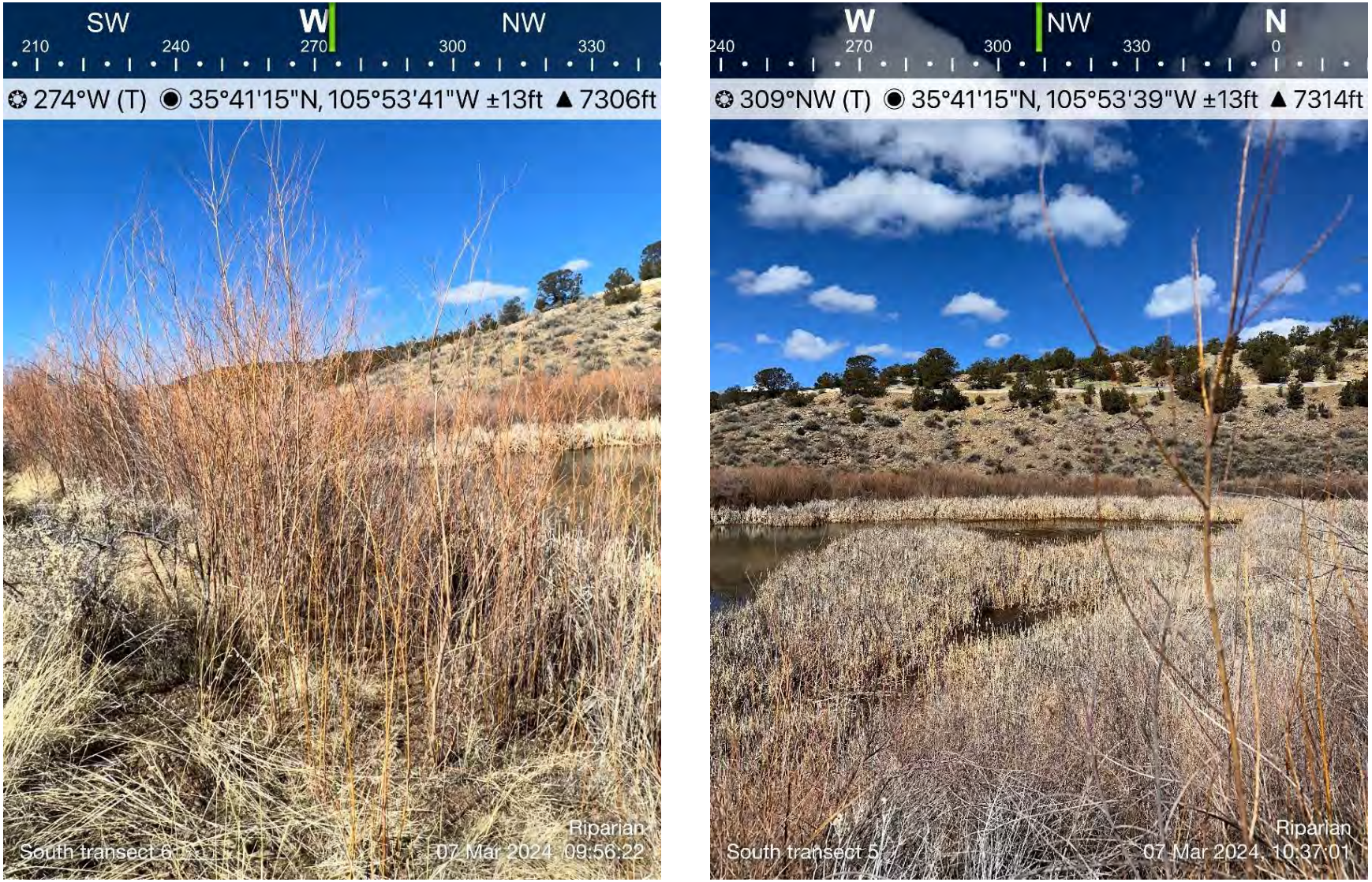


Figure E5. Photos taken along Transect 5 on 3/7/24. The left photo is of the willows that surround the pond and the right photo is of the cattails that fill the pond.

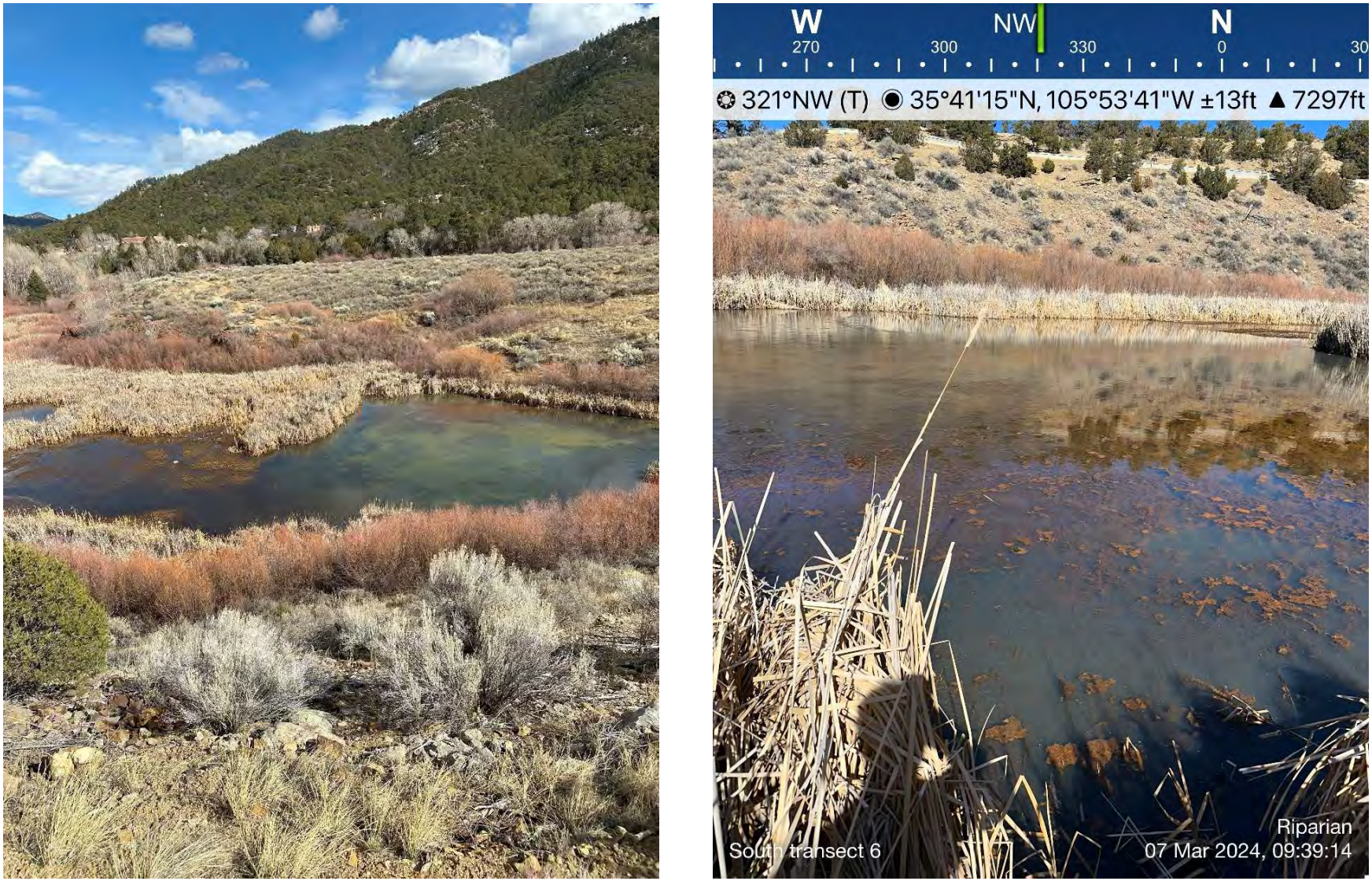


Figure E6. Photos taken along Transect 6 on 3/7/24. The left photo is an overview of the entire transect and the right photo is of the pond and growth within it.