Utility Services Department

MEMORANDUM

DATE: February 28, 2023

TO: Honorable Mayor and City Council

THROUGH: Doug Thornley, City Manager Approved Electronically

FROM: Trina Magoon, Director of Utility Services

SUBJECT: **January 2023 Storm Event: Status of City Maintained Retention, Detention, and Flood Control Channels in the Swan Lake Watershed**

During the January 11, 2023 City Council Meeting, Council members expressed concerns related to recent rainfall events and the capacity of drainage infrastructure in the Swan Lake area of the North Valleys.

In response to the recent storm events, Utility Services and Maintenance and Operations (M&O) staff inspected numerous stormwater conveyance and flood control facilities across the City during and after the January 2023 precipitation events.

This memo focuses on the twelve (12) city owned stormwater conveyance / flood control facilities inspected in the North Valleys, in response to concerns expressed by Council. Specifically, they include four basins and eight channel segments, all maintained by the City of Reno. Please see the attached "North Valley's Field Inspection Report Conducted January 11, 2023" which includes a site inspection location map and associated inspection photos.

There are two main types of stormwater runoff mitigation basins--detention and retention. *Detention* basins temporarily store stormwater runoff and release the flow at a gradual rate to prevent higher flows downstream. They are designed to prevent downstream flooding and will completely drain after the stormwater event. *Retention* basins hold water, allowing the water to infiltrate into the ground over time. Typically these type of basins will have an overflow our outlet pipe that is designed at an elevation to hold a particular amount of water, preventing the water from flowing downstream, in this case, to Swan Lake or Silver Lake.

During the inspections, all 12 flood control facilities were operating as designed to retain, detain, and/or convey stormwater runoff to Swan Lake. No flooding issues were observed at the time of the inspections.

Per the Truckee Meadows Regional Drainage Manual (TMRDM), all retention basins must infiltrate ponded water within 7 days. Due to continued storm events and snowfall, Utility Services staff will re-inspect all identified retention basins (both city and privately owned) within the Swan Lake watershed once the continued precipitation ceases, and notify any basin owners requiring corrective action by March 31, 2023.

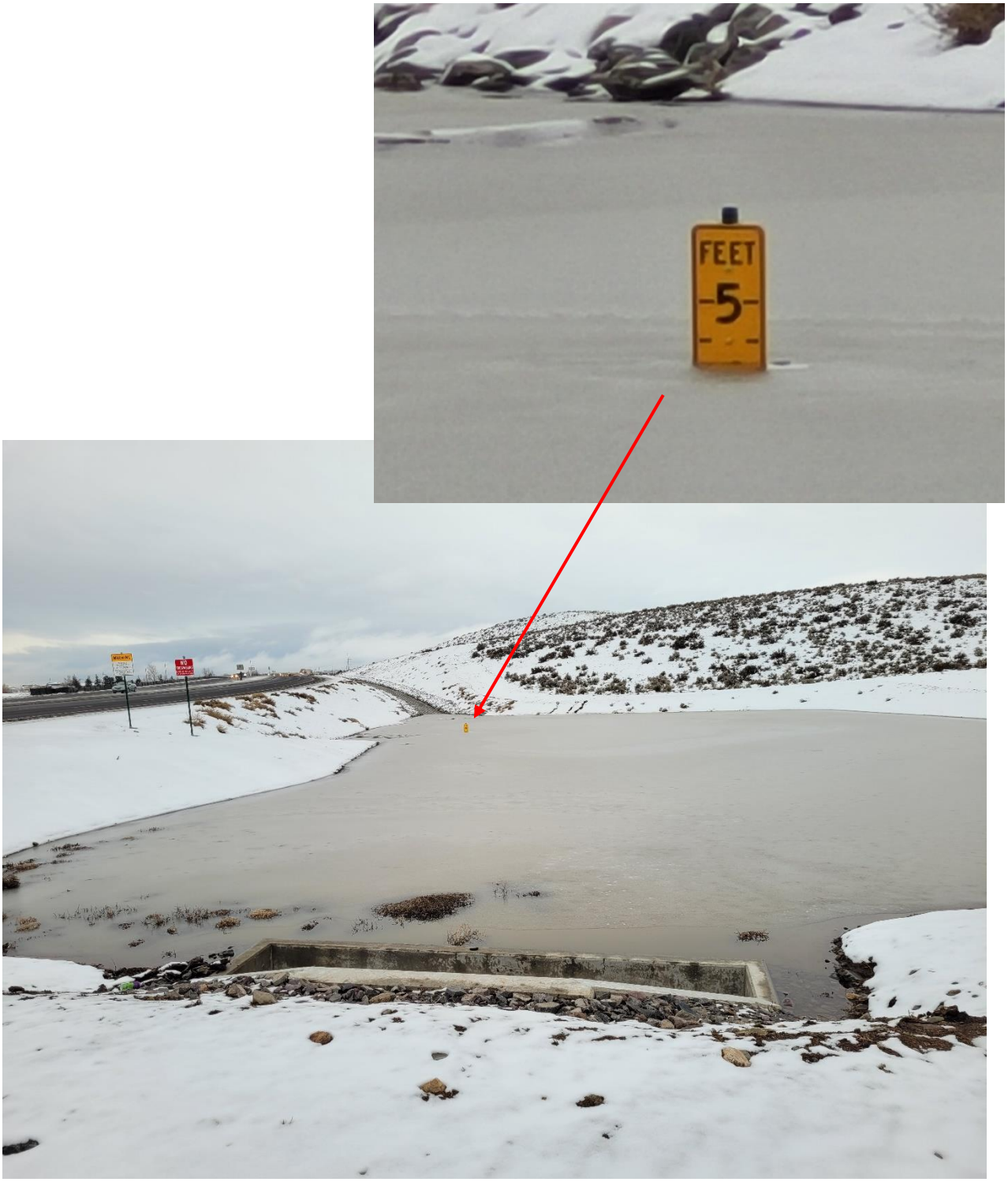
Please note the additional actions taken by Council since the 2017 Swan Lake flood event, to reduce stormwater and effluent flows into Swan Lake and manage lake levels:

1. On August 14, 2019, City Council directed staff to mitigate increased stormwater runoff from new development in the Silver Lake, Swan Lake, and White Lake closed basins by implementing a stormwater retention ratio of 1.3:1. This requires 1.3 cubic feet of stormwater retention for every 1 cubic foot of increased stormwater runoff in closed drainage basins.
2. On September 11, 2019, Development Services staff provided Council outlined details of a new City Flood Control Inspection Program. The city-wide detention basin inspection program began in September 2022, with one full-time staff dedicated to data collection, mapping, and inspecting all detention and retention basins within the City.
3. City Council authorized award of construction contract for the Reno Stead Water Reclamation Facility (RSWRF) Flow Shave project on December 5, 2018 that is capable of diverting 0.5 million gallons per day (MGD) of raw sewage from RSWRF to the Truckee Meadows Water Reclamation Facility (TMWRF), thereby reducing effluent discharged to Swan Lake. The initial flow shave began in June 2019, and was halted in March 2021, when Swan Lake levels fell below elevation 4918.5 ft. The city is currently utilizing flow shave to reduce recycled water discharge to Swan Lake and will continue to do so, as needed, on an annual basis until the American Flat Advanced Purified Water Facility is in place and operational.
4. On August 6, 2019, the City Council authorized the project to remove water from Swan Lake for agricultural use. The dewatering project began in April 2020 and continued through July 2021, when Swan Lake levels fell below elevation 4917. The project pumped water from the northeast corner of Swan Lake up to the American Flat Farm where it is used for crop irrigation. At its peak, it was able to dispose of 365 million gallons per year. It is anticipated that pumping of Swan Lake will commence in mid-April of 2023 for continued agricultural use.
5. The City of Reno is currently partnering with TMWA for the design of the Advanced Purified Water Facility (APWF) project at American Flat. This facility will provide an alternate effluent discharge location associated with the RSWRF 4MGD Expansion project from Swan Lake. At the same time, it will create a sustainable, drought proof water resource, and allow for decreased dependence on the Truckee River.

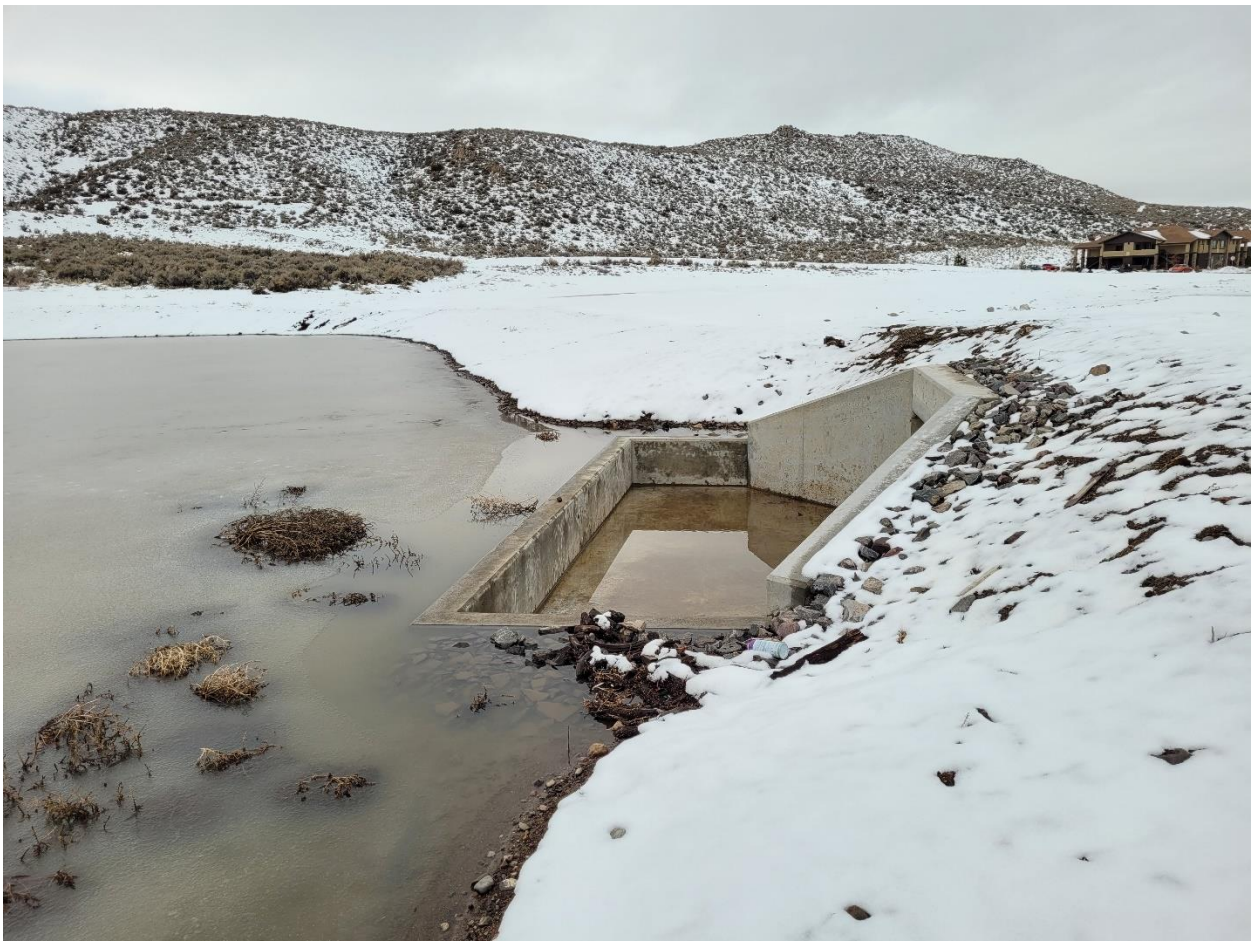
NORTH VALLEYS FIELD INSPECTION REPORT
CONDUCTED JANUARY 11, 2023

CITY OF RENO - UTILITY SERVICES AND MAINTENANCE AND OPERATIONS DEPARTMENTS
Site Inspections Performed / Photos By: Norman Nash and Tim Lovett

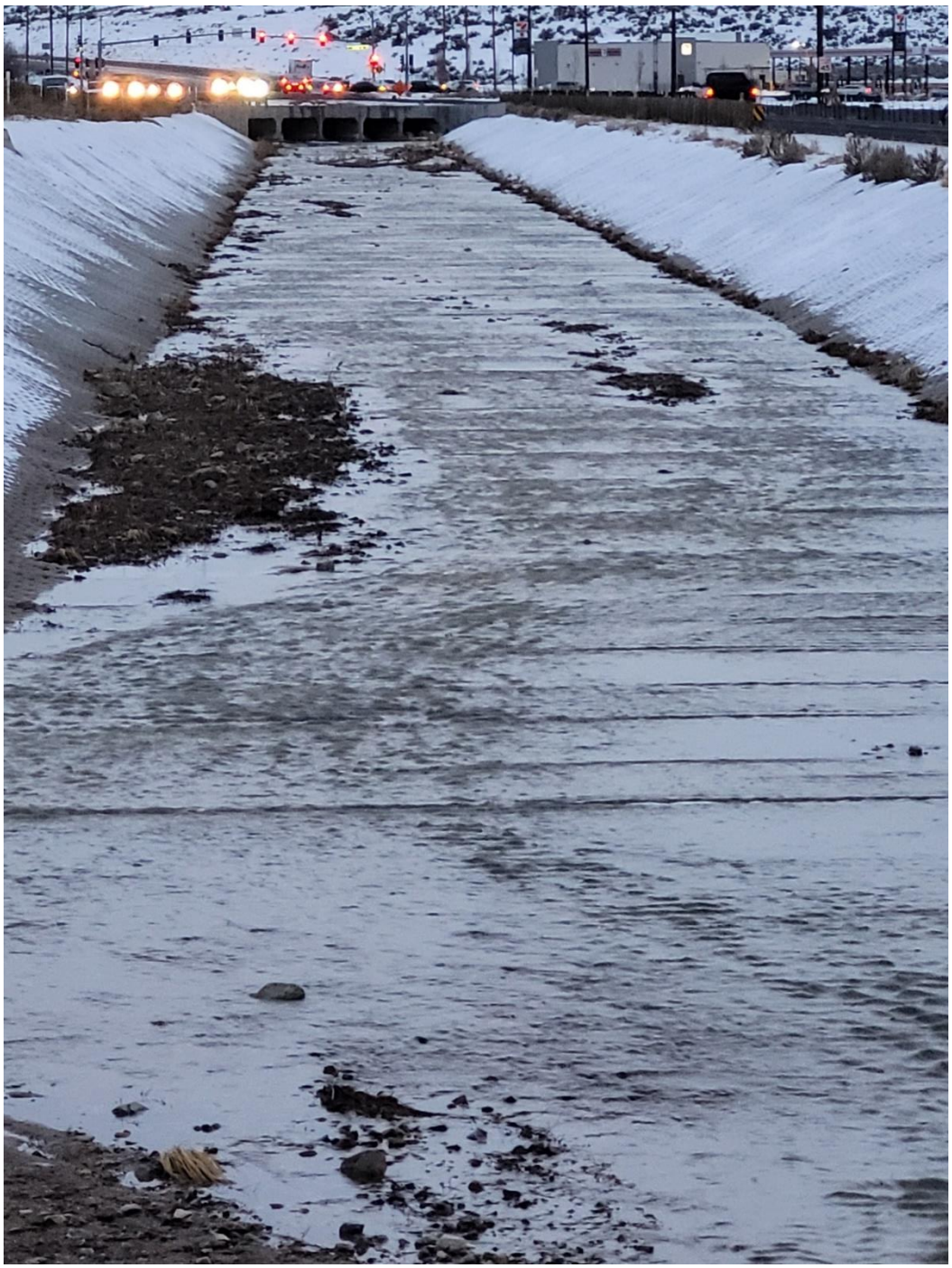

Fredonia Dr
Military Rd
Lear Blvd
Lear Blvd
Lear Blvd
Convair Way
Finnsech Dr
Mahon Dr
Fleetwood Dr
Freemont Way
Magnolia Way
Appenzell St
Tulear St
Corso St
Charlene Rd
Suncrest Dr
Lemmon Valley
Reservoir St
Kelly Ln
Tholl Dr
Military Rd
Lemmon Dr
Bernoulli St
Antelope Creek Dr
Cassilis Dr
Wise Ave
North Valleys Regional Park
Sky Vista Pkwy
Margaret Dr
13
12
11
10
9
8
7
6
5
4
3
2
1
North Valley Inspections
1/11/2023
Channel
Detention Basin
Retention Basin
N
0
0.25
Mi



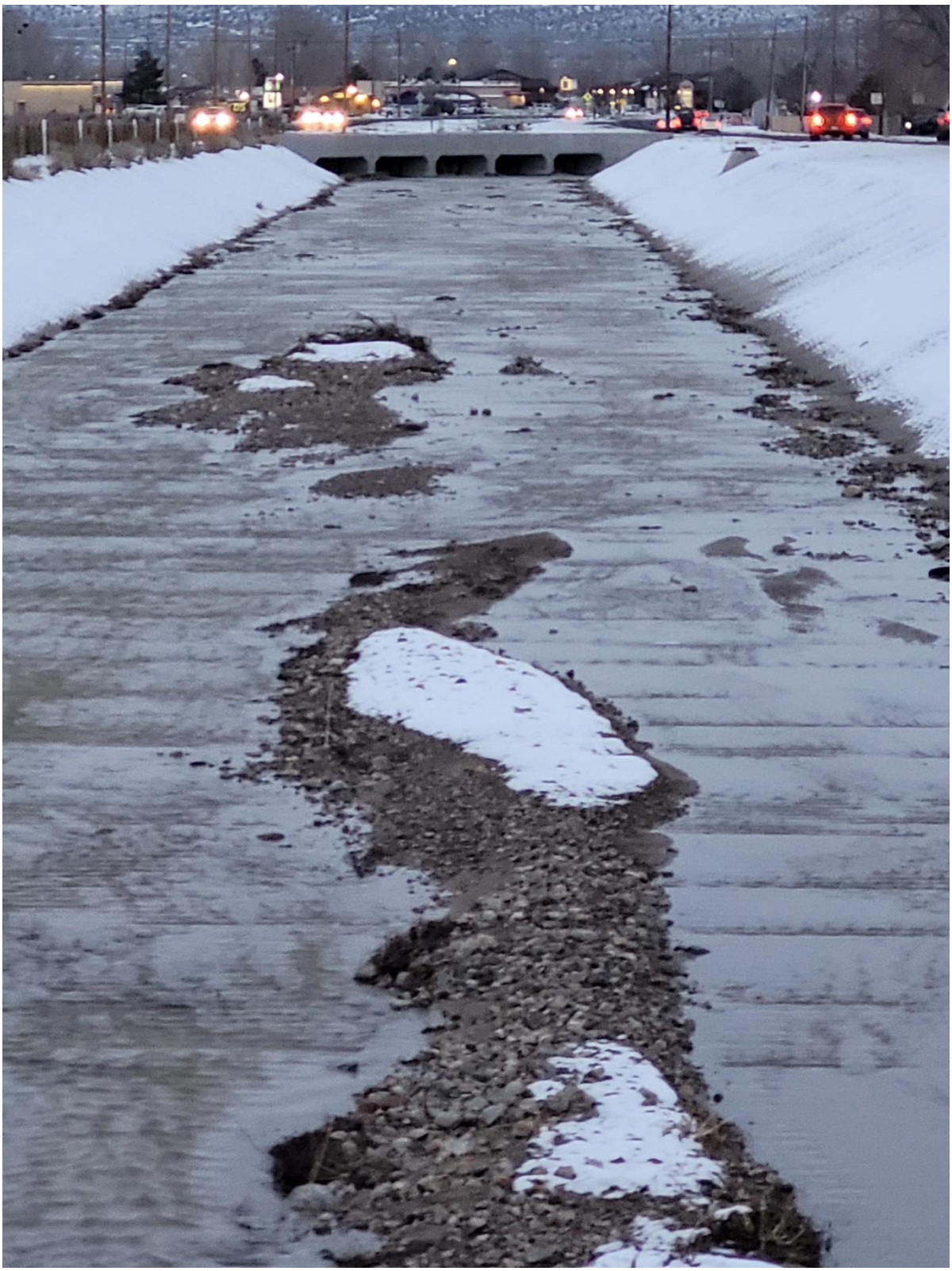
Inspection Site 1) Retention structure south of 8075 Lemmon Dr. The water level inside the basin is below the designed outlet structure and is in no danger of overtopping. (1/11/2023)



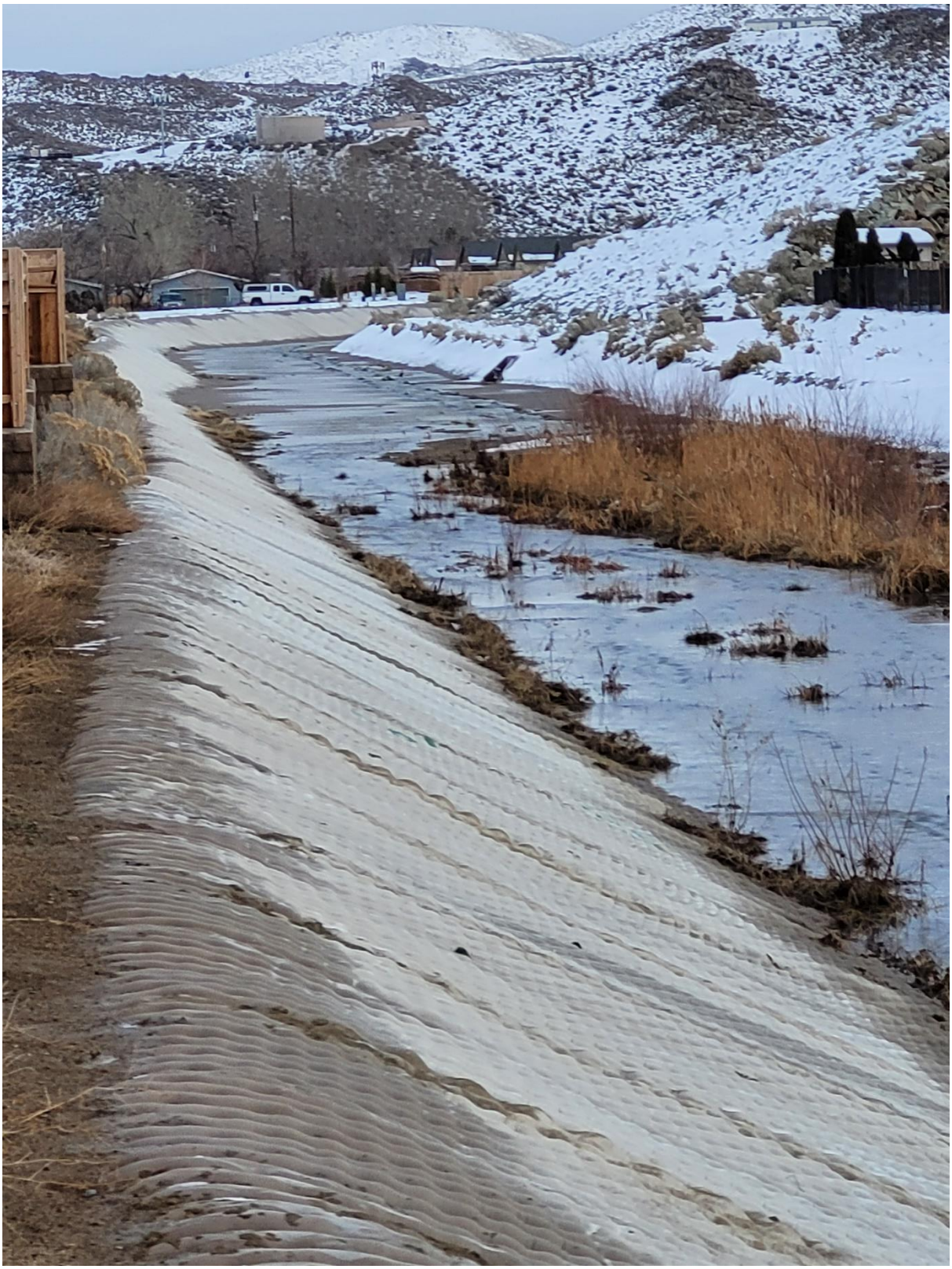
Inspection Site 1) Picture of the outlet structure. It is clean with no obstructions to impede water. (1/11/2023)



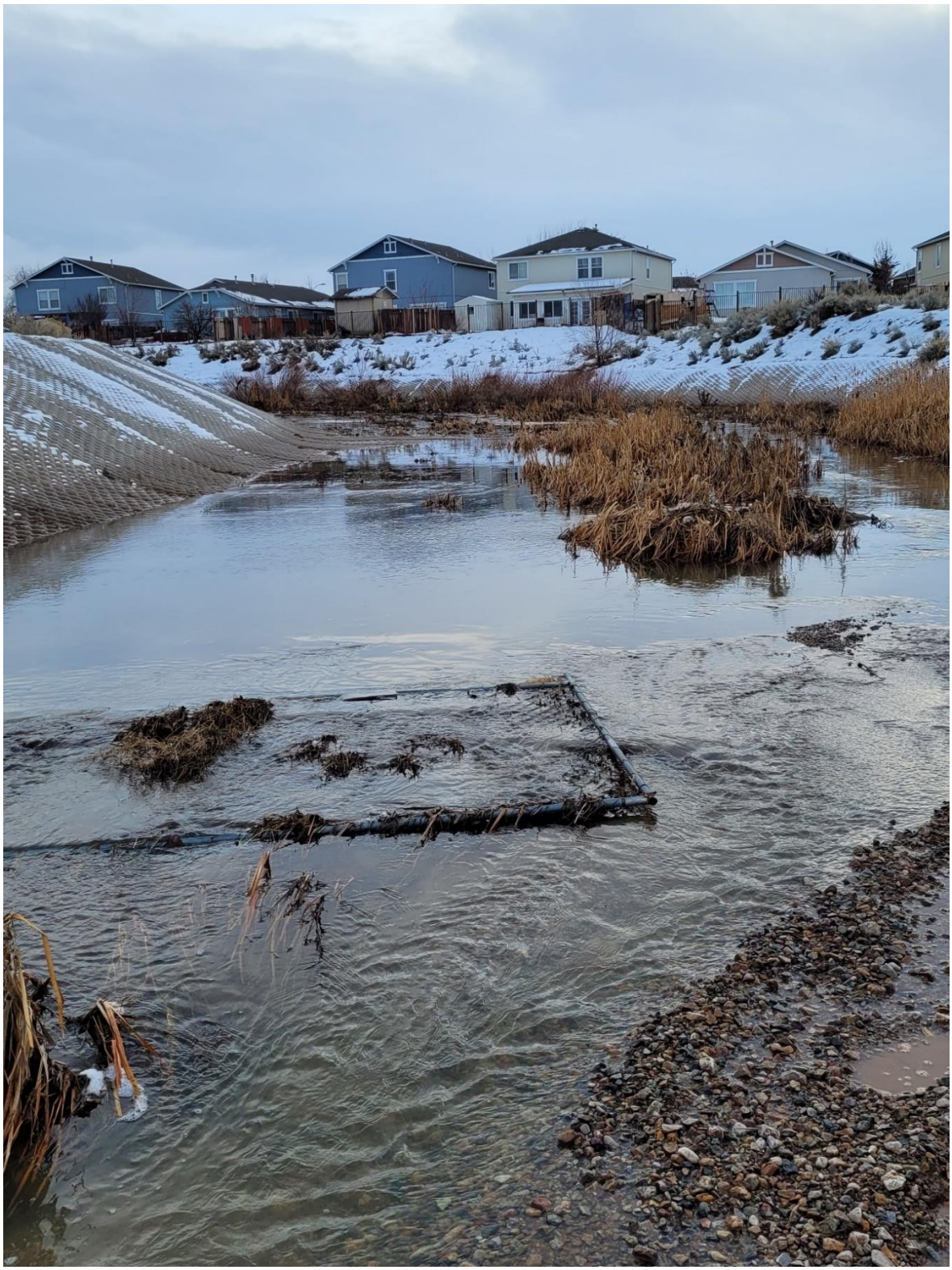
Inspection Site 2) Lemmon Valley drainage - picture of the road crossing under Lemmon Dr. near Lemmon Dr. and Military Rd. The channel is clear with no obstructions to impede water. (1/11/2023)



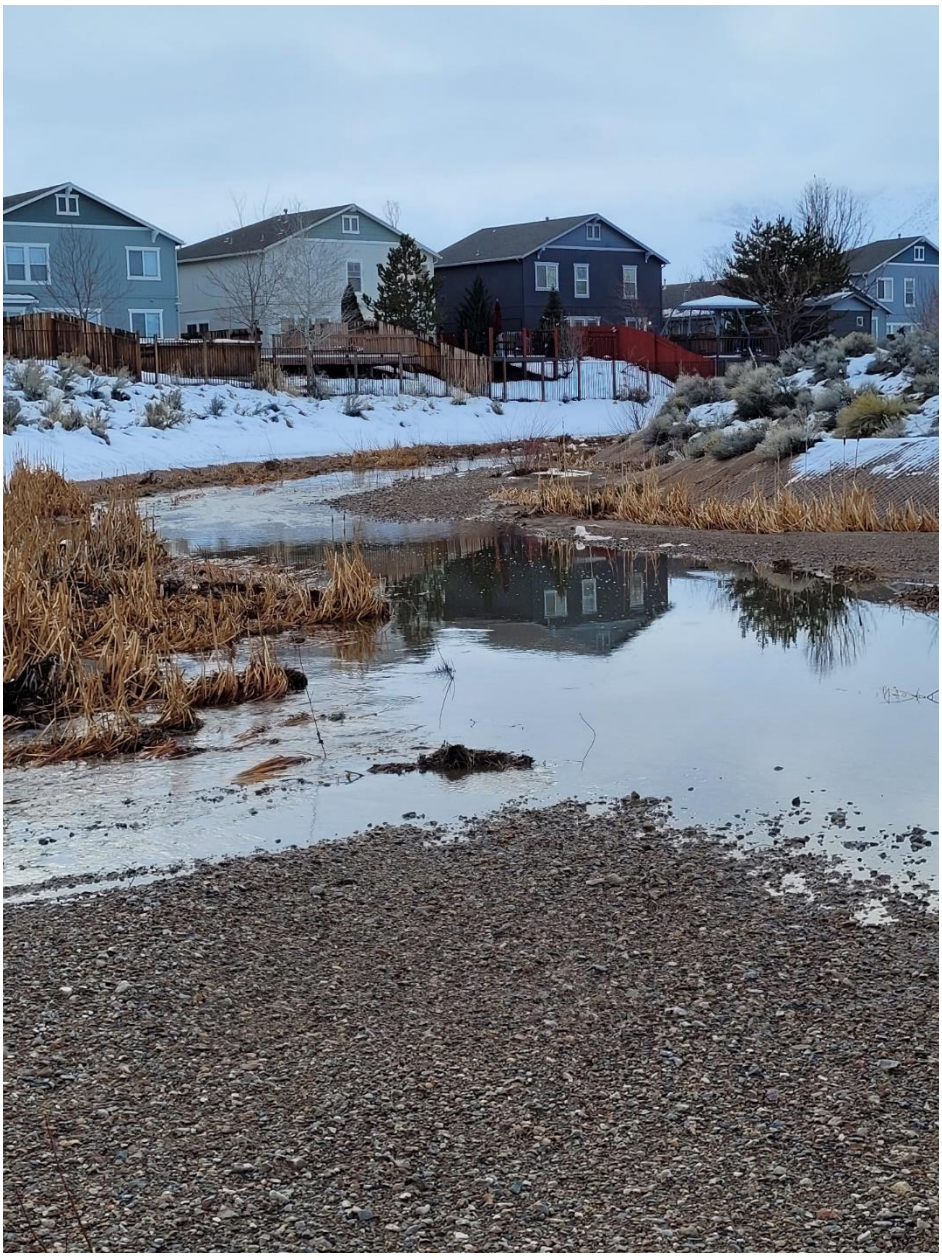
Inspection Site 3) Downstream road crossing under Lemmon Dr. heading north toward Swan Lake. The channel is clear with no obstructions to impede the water. (1/11/2023)



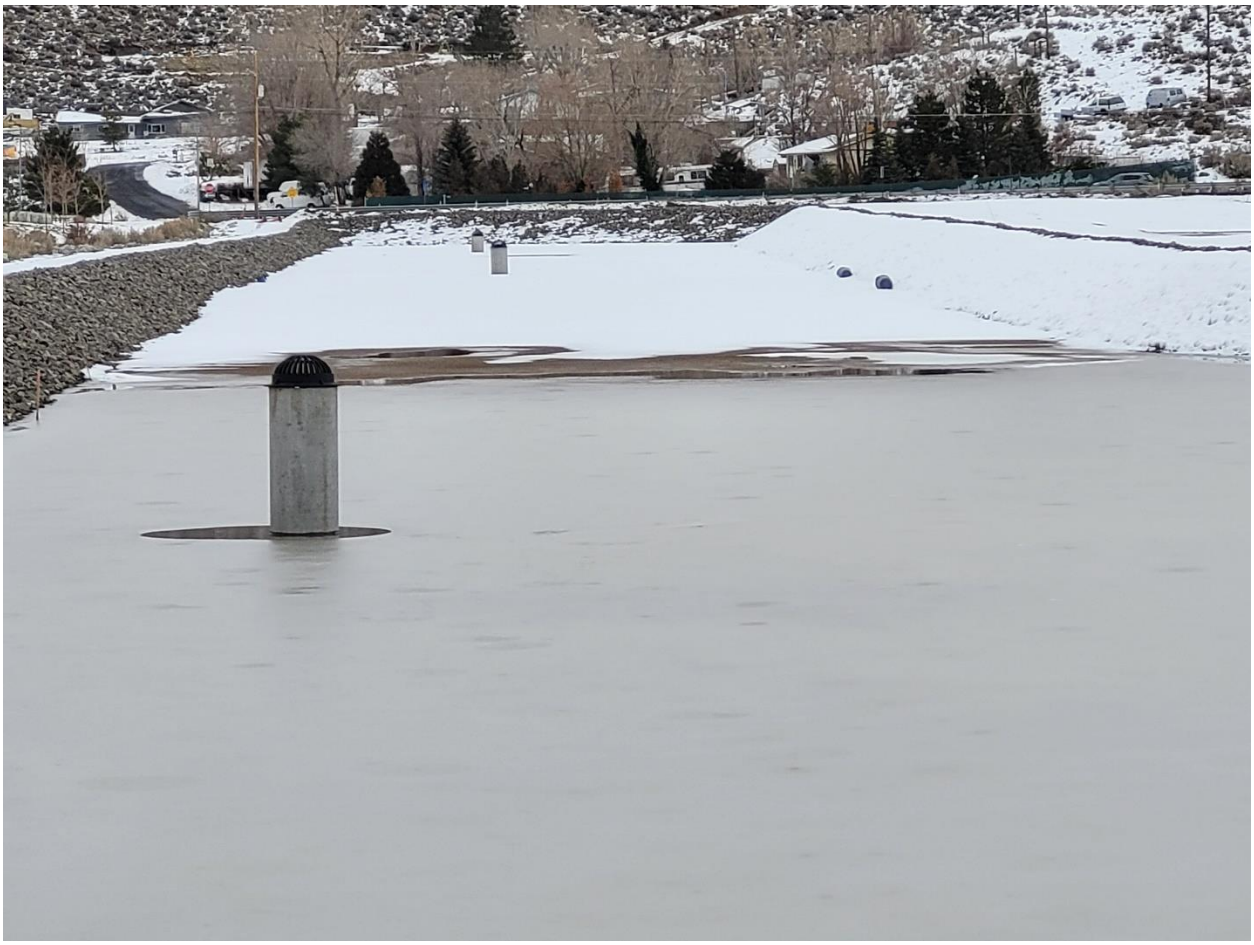
Inspection Site 4) Downstream of Lemmon Dr. road crossing. The channel is in no danger and functioning as designed. (1/11/2023)



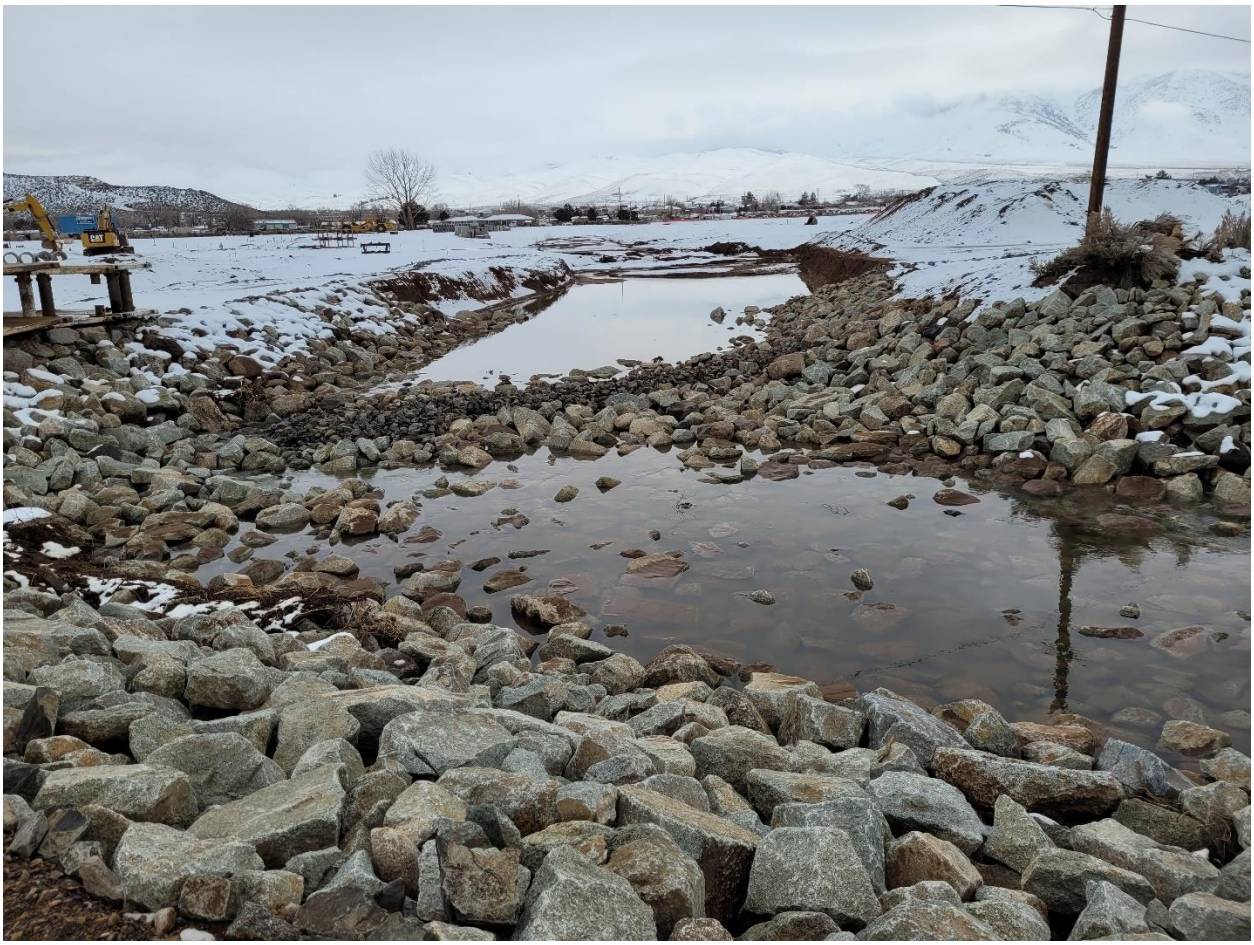
Inspection Site 5) Picture at the confluence of Lemmon and Military Rd. drainage channels, looking towards Lemmon Valley Road. Some debris present however the channel is functioning as designed and is not in danger of overtopping. (1/11/2023)



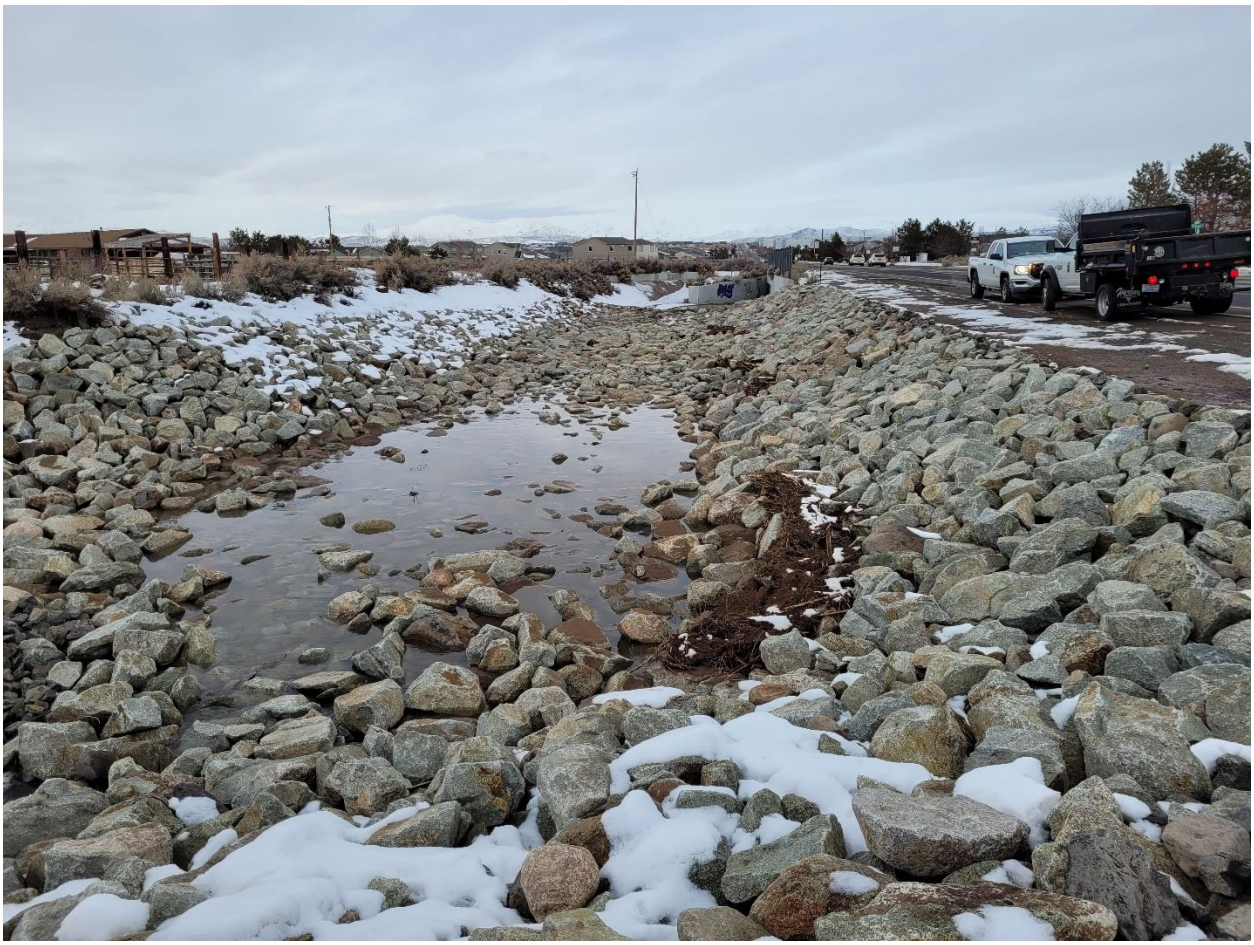
Inspection Site 5) Picture at the confluence of Lemmon Valley Rd. and Military Rd. drainage channels, looking towards Military Rd. The channel is clear and functioning as designed. (1/11/2023)



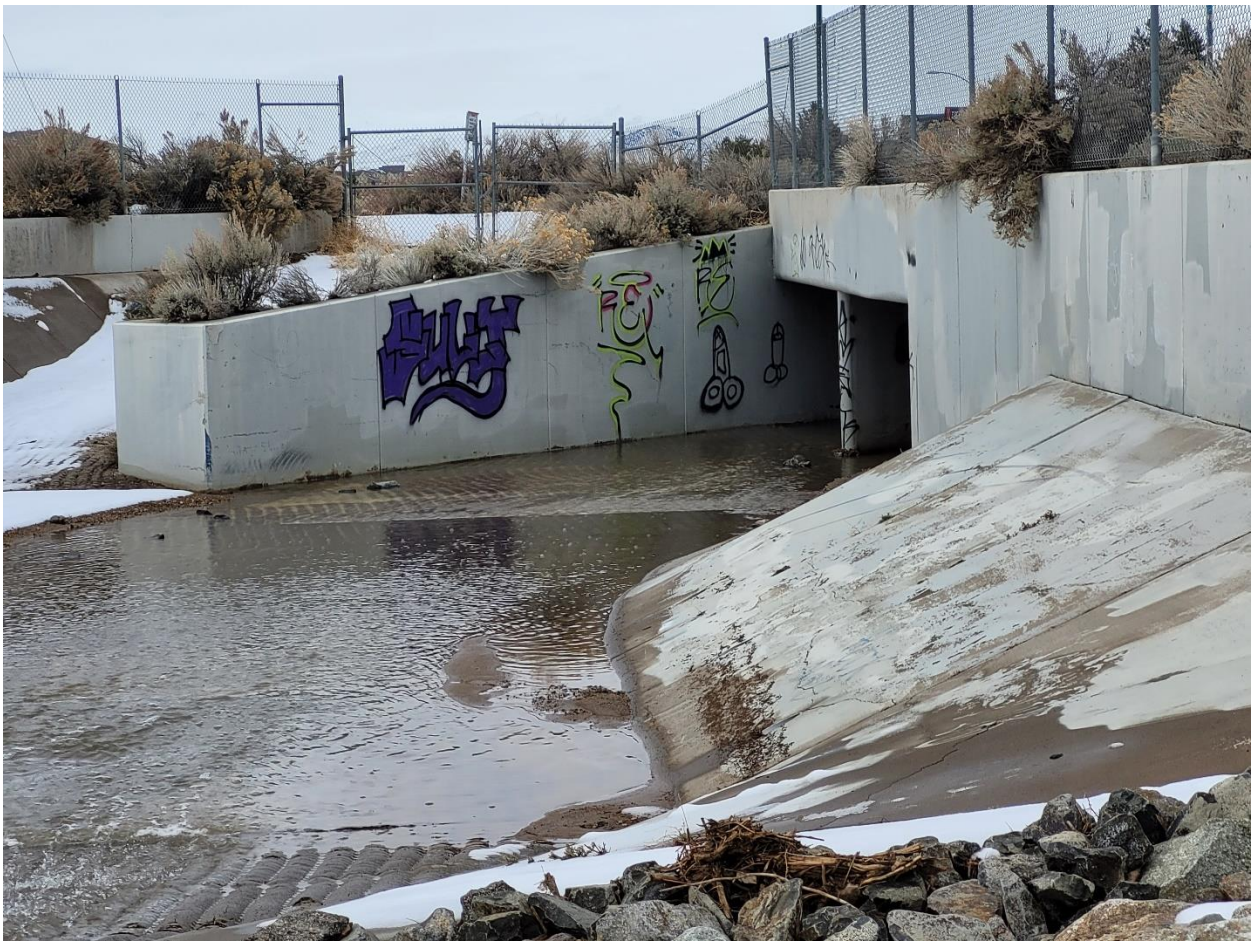
Inspection Location 6) Construction site south of 8730 Military Rd. This retention area is still under construction and no danger of overtopping. (1/11/2023)



Inspection Site 7) Drainage from the construction site on the west side of Military Rd., across Military from Tulear St. The contractor has begun to install the riprap along the channel but has not completed the installation. The standing water is not causing any damage and there is no concern about overtopping the ditch. (1/11/2023)

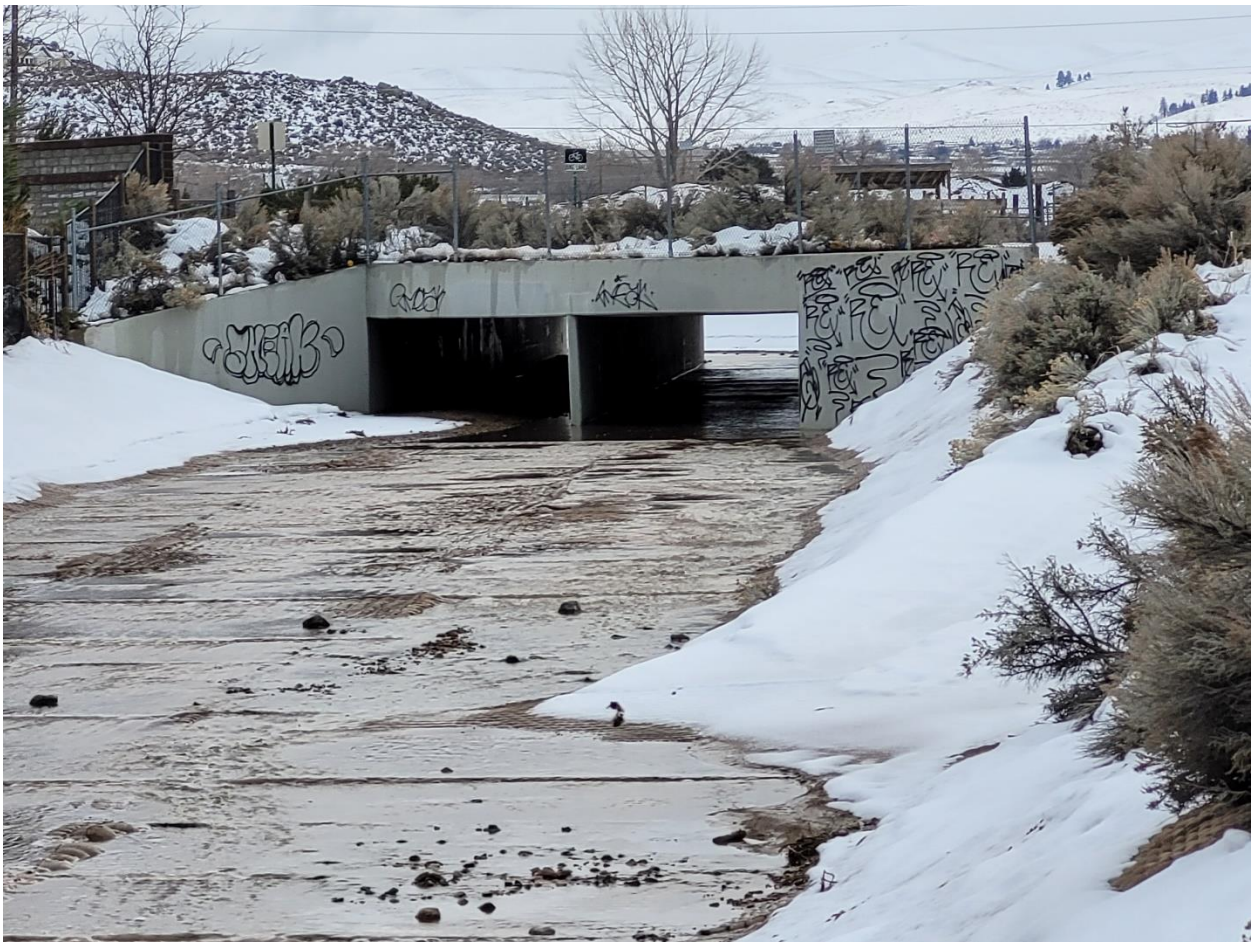


Inspection Site 7) Completed channel downstream of the construction site heading toward Military Rd. It is clean with no obstructions to impede water. (1/11/2023)

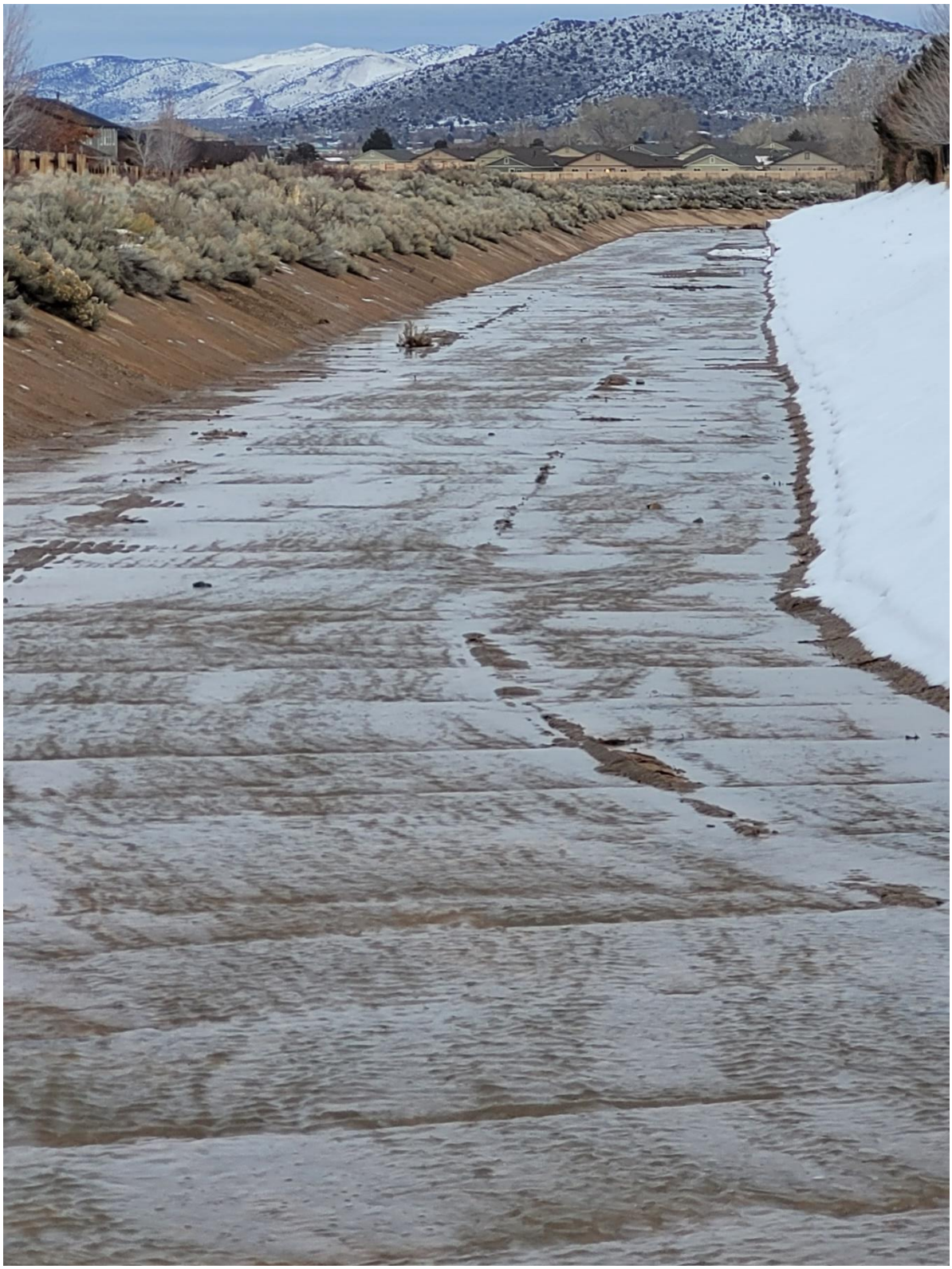


Inspection Site 8) Road crossing at Military Rd. is clean with no obstructions to impede water. (1/11/2023)

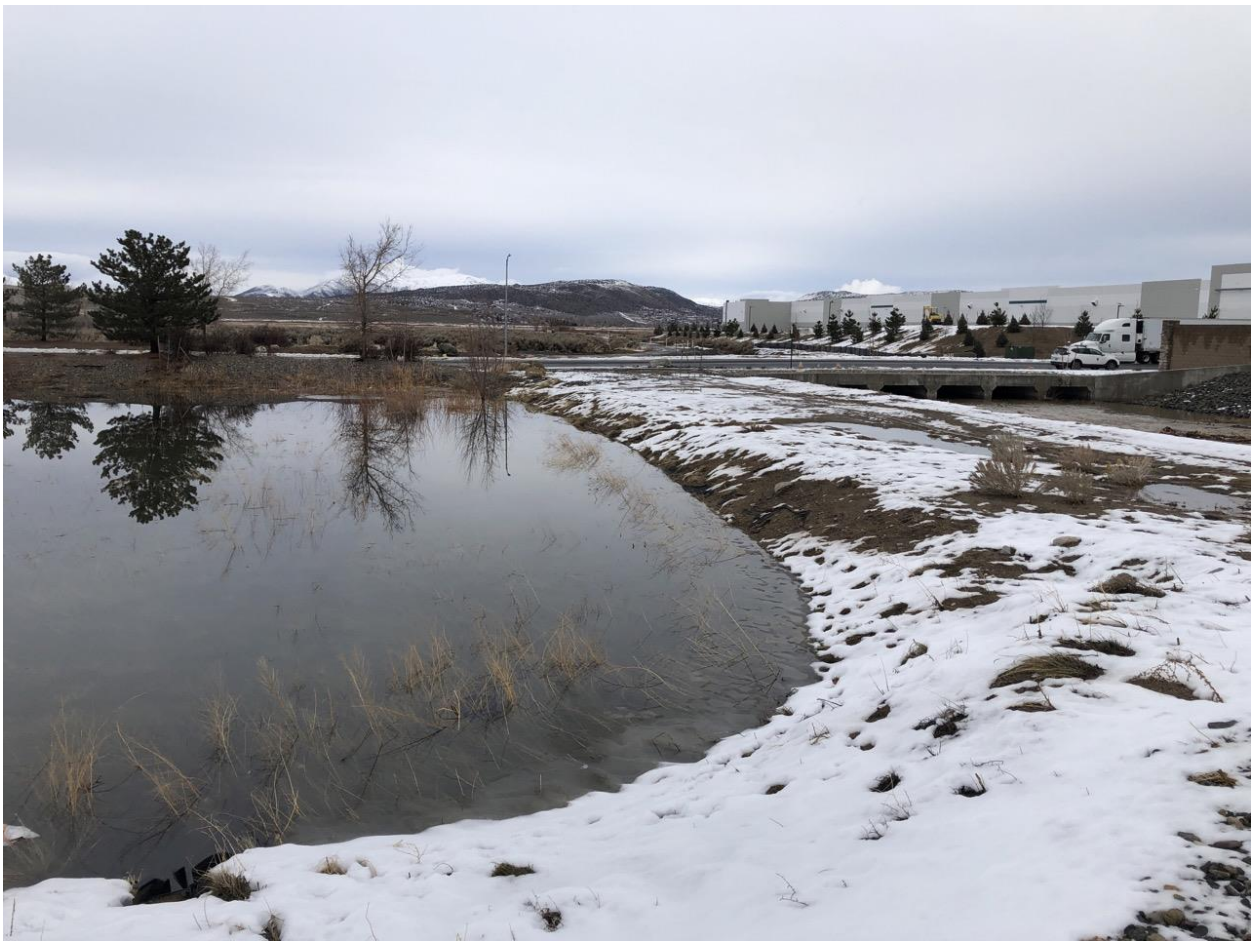
Inspection Site 8) Channel leading into the road crossing at Military Rd. is clean with no obstructions to impede water. It is clear of debris and functioning as designed. (1/11/2023)

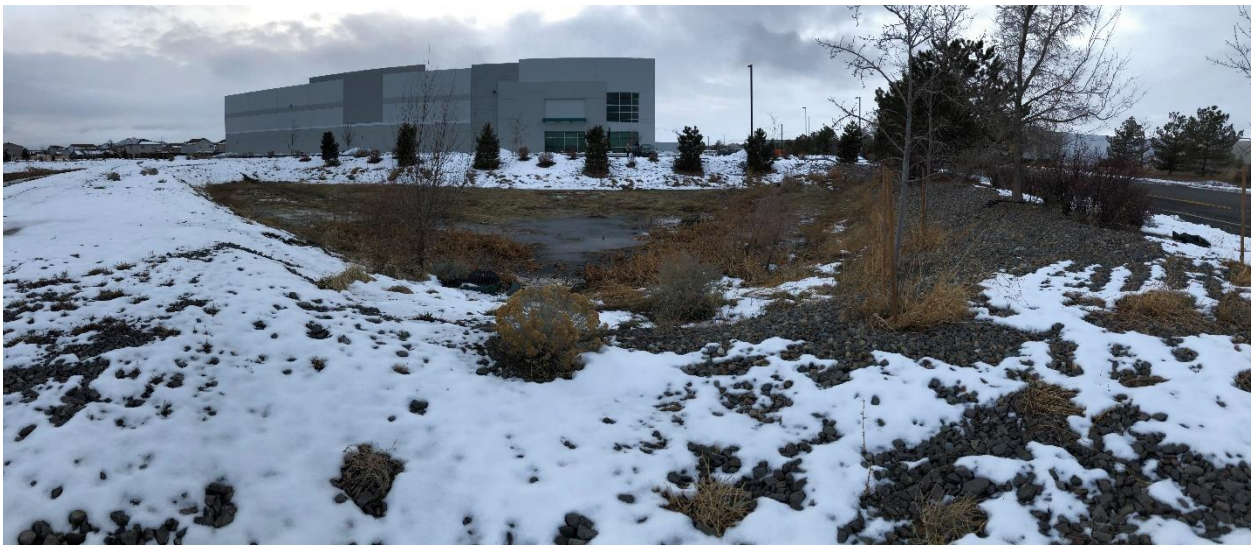


Inspection Site 9) Drainage ditch north of Tulear St. This is the road crossing under Military Rd. It is clear of debris and flowing without obstruction. (1/11/2023)

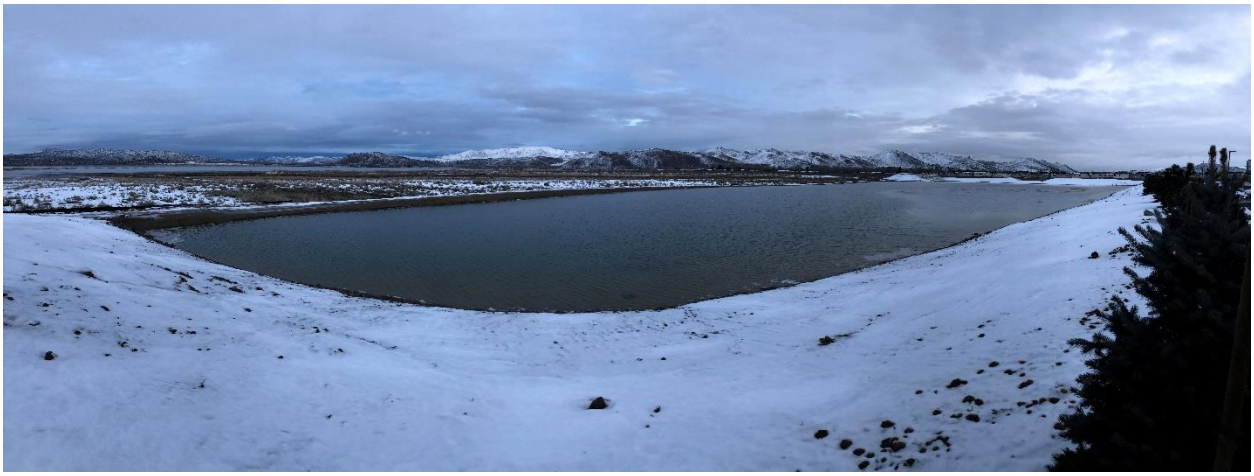


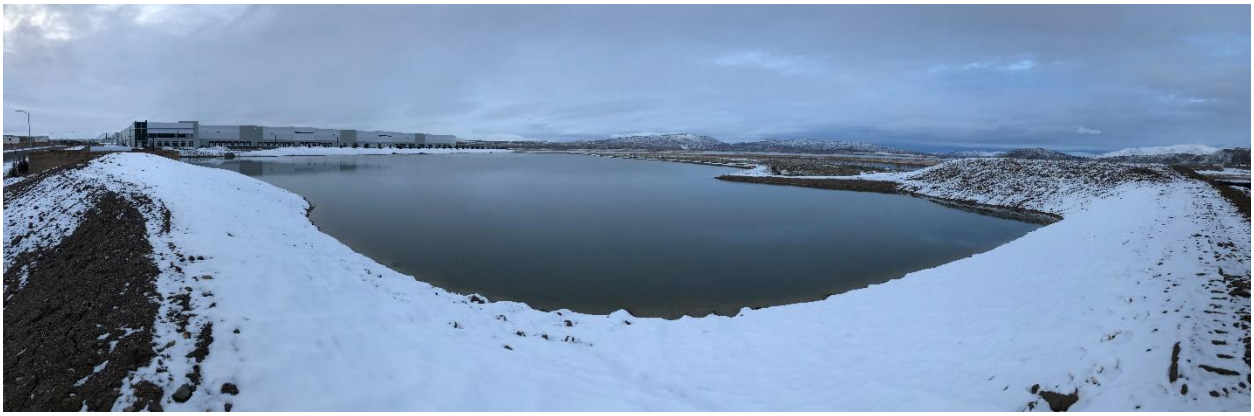
Inspection Site 10) Downstream channel running toward Swan Lake. It is clean with no obstructions to impede water. (1/11/2023)



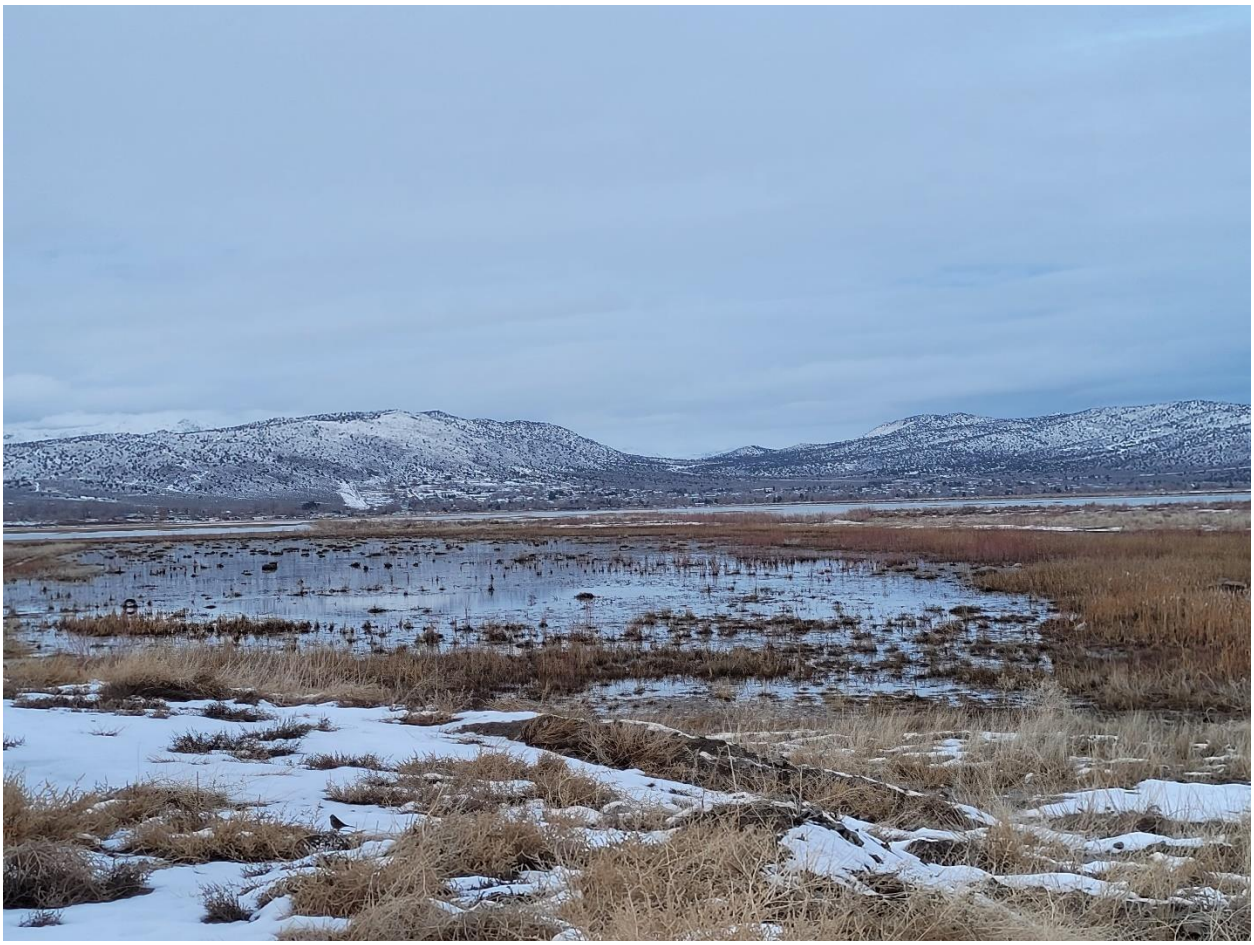


Inspection Site 11) Pictures taken on Monday 1/9/23 (top) and Wednesday 1/11/2023 (bottom) of the detention basin on the south side of Lear Blvd. This detention basin was nearly full on Monday, 1/9/23. The basin is functioning correctly, as it is almost empty in the picture taken on the following Wednesday inspection. (1/11/2023)





Inspection Site 12) This retention basin is designed to retain or hold water that will infiltrate into the ground and is functioning properly. Note that 'retention' basins function differently from 'detention' basins. Retention basins hold water. Detention basins are designed to slowly release water through a conveyance system. (1/11/2023)



Inspection Site 13) Drainage from Military Rd. and Lemmon Dr. entering into Swan Lake. It is clear of any debris and there are no obstructions to impede water (1/11/2023)