

# City Manager's Office

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## MEMORANDUM

**DATE:** 03/06/2023

**TO:** Mayor and City Council

**THROUGH:** Doug Thornley, City Manager *Approved Electronically*

**FROM:** Trina Magoon, Director of Utility Services

**SUBJECT:** North Valleys' Flood Action Plans

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The North Valleys' Silver and Swan Lakes experienced high water levels in 2017 and 2019. Recent forecasts indicate multiple significant rainfall events will impact our region over the coming week. The City of Reno primarily manages flood response for Silver Lake, and Washoe County primarily manages flood response for Swan Lake. In order to prepare for rising lake levels, the City of Reno and Washoe County have developed Flood Action Plans for Silver and Swan lakes, respectively.

### Silver Lake

The City of Reno Maintenance and Operations, Utility Services, and Public Works Departments prepared the attached Silver Lake Flood Action Plan, outlining the actions which will occur as water rises in the lake. The Flood action plan has four stages:

- Monitor at elevation 4964
- Stage 1 at elevation 4966
- Stage 2 at elevation 4968
- Stage 3 at elevation 4970

The plan includes a figure of each stage, identifying the location of existing and proposed flood control measures at each progressive stage. For reference, Silver Lake was at elevation 4963.5 on March 2, 2023, which is before the Monitor stage. The Federal Emergency Management Agency (FEMA) 100-year Water Surface Elevation (WSEL) of Silver Lake is 4972, which is beyond Stage 3.

Also attached to the plan are the Silver Lake Playa Stage-Storage Relationship graph and the Silver Lake Water Surface Elevations with Cumulative Precipitation 2017-2023.

The City of Reno is installing a camera to provide a live web camera to monitor Silver Lake water levels. The camera has been ordered and will be installed upon arrival.

### Swan Lake

Washoe County maintains a live web camera at Swan Lake to monitor water levels and collects water surface elevation data on a frequent basis during winter months. This data is kept up to date on the County website at [Swan and Silver Lake Water Level Monitoring \(washoecounty.gov\)](https://washoecounty.gov/land-use-planning/swan-and-silver-lake-water-level-monitoring) For reference, Swan Lake was at elevation 4919.6 on March 2, 2023. The peak water surface elevation in 2017 and 2019 was approximately 4923.5. The FEMA 100-year WSEL of Swan Lake is 4924. Please see attached Swan Lake Playa Stage-Storage Relationship graph and the Swan Lake Water Surface Elevations with Cumulative Precipitation 2017-2023 for additional information.

Attachment: Silver Lake Flood Action Plan



# SILVER LAKE FLOOD ACTION PLAN

SILVER LAKE 100-YEAR WATER SURFACE ELEVATION = 4972

## Monitor: (Silver Lake Water Surface Elevation @ 4,964')

- Begin monitoring Silver Lake's water surface elevation.
- Begin Hydraulic Reporting: assess impacts of snow water equivalent towards Silver Lake.
- Notify commercial property owners to gear up for the flood and to begin ordering flood control devices (i.e. HESCO barrier, pumps, valves, pump piping, material for berms, etc)
- Establish Right of Entry for projected flood impacted properties and channels
- Begin coordination with the Sheriff for inmate use to install HESCO barrier.
- Begin inspections and repairs of existing in-place flood control devices (i.e. HESCO barrier, pumps, valves, pump piping, earthen berms, etc)

## Stage 1: (Silver Lake Water Surface Elevation @ 4,966')

- **Urban Outfitters:** install 5x pumps (private) with 5x valves (private) to shut off backwatering of onsite culverts, and install pump piping (private).
- **Road between Urban Outfitters and Fosdick Fulfillment:** Install HESCO barrier (COR) segments to plug openings in existing HESCO barrier (COR) along this road.
- **Viega LLC:** install HESCO barrier (private) along northern property line.
- Continue inspections and repairs of existing in-place flood control devices (i.e. HESCO barrier, pumps, valves, pump piping, earthen berms, etc)

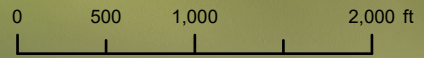
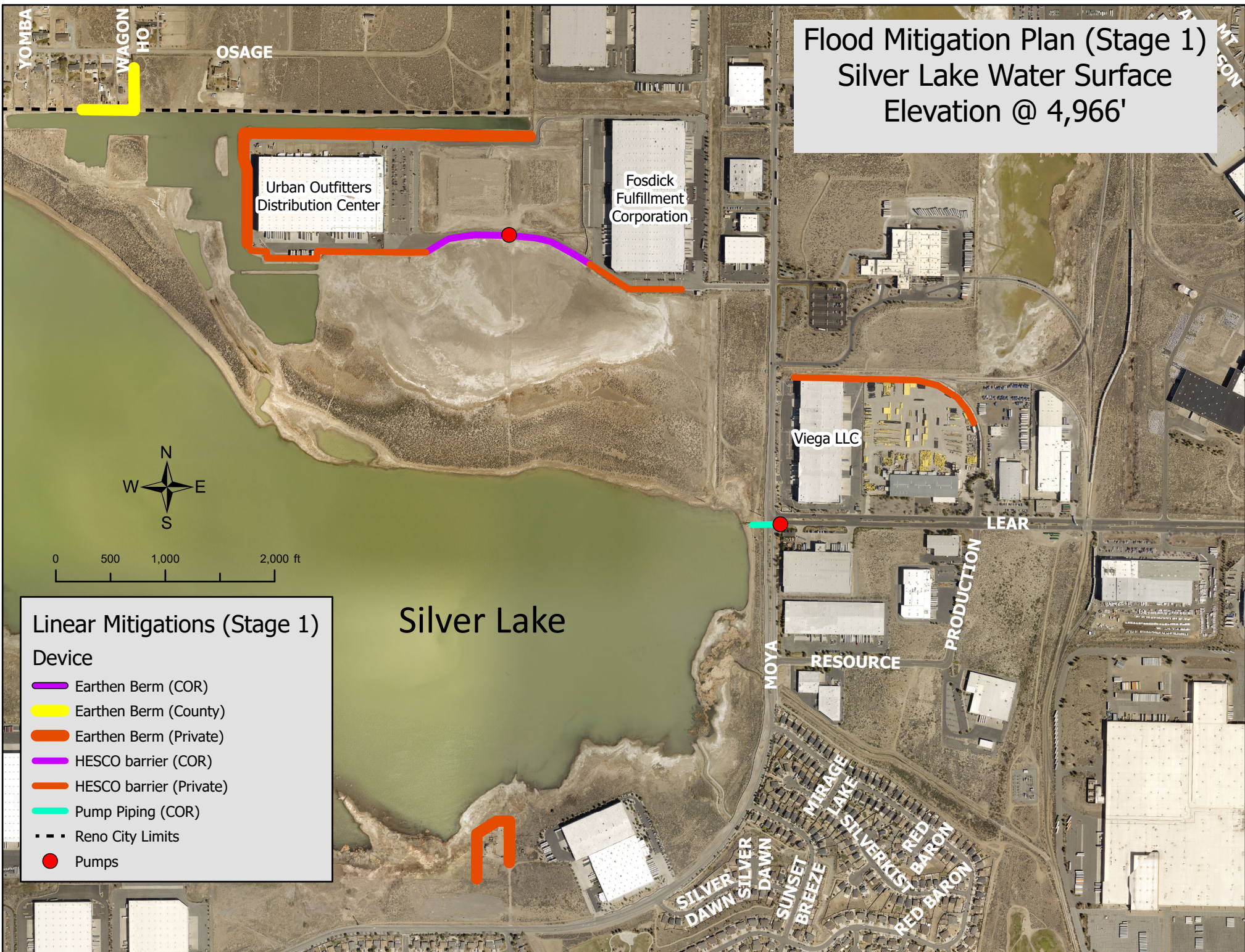
## Stage 2: (Silver Lake Water Surface Elevation @ 4,968')

- **Channel 1 @ near inlet of 2 x 4' x 12' RCBs:** Install dam, 1x pump w/ pump piping (COR)
- **Channel 2 and Moya:**
  - At inlet of channel 2 on northeast side of Veigo LCC property: install dam (COR)
  - Near inlet of 30" RCP (ID 138846): Install dam (COR), 1x pump w/ pump piping (COR)
  - At the manhole (ID 242395). Install 1x valve, 1x pump w/ pump piping (COR)
- **Moya Blvd and Lear Blvd:**
  - At manhole (ID 222182): Turn on existing 1x pump(COR), shut off existing 1x valve (COR)
  - At catch basin (ID 222184): Install 1x valve, 1x pump w/ pump piping (COR)

## Stage 3: (Silver Lake Water Surface Elevation @ 4,970')

- **Osage Rd:**
  - Near inlet of 36" CMP (County): Install dam, 1x pump w/ pump piping (County)
  - Along Osage Rd east bound shoulder and along property line of 8700 Osage Rd: Install HESCO barrier (County)
- Continue inspections and repairs of existing in-place flood control devices (i.e. HESCO barrier, pumps, valves, pump piping, earthen berms, etc)
- Coordinate additional flood mitigation measures and resources in preparation for flood levels to increase to or beyond the 100 year water surface elevations of 4,972'.
- Order HESCO barrier rail for further potential flooding protection.

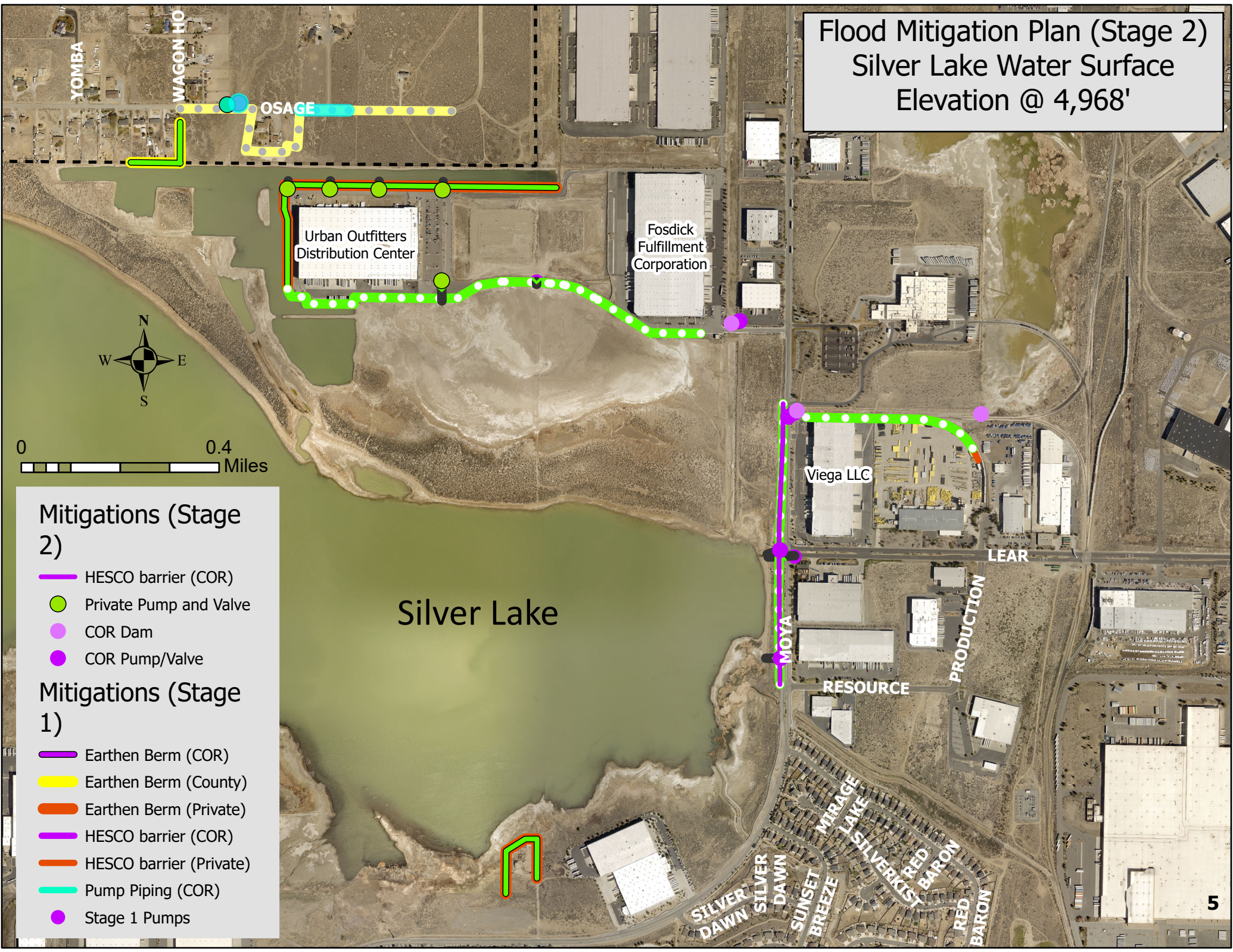
Flood Mitigation Plan (Stage 1)  
 Silver Lake Water Surface  
 Elevation @ 4,966'



- Linear Mitigations (Stage 1)**
- Device**
- Earthen Berm (COR)
  - Earthen Berm (County)
  - Earthen Berm (Private)
  - HESCO barrier (COR)
  - HESCO barrier (Private)
  - Pump Piping (COR)
  - Reno City Limits
  - Pumps

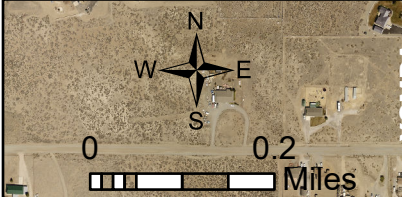
Silver Lake

# Flood Mitigation Plan (Stage 2) Silver Lake Water Surface Elevation @ 4,968'



- ### Mitigations (Stage 2)
- HESCO barrier (COR)
  - Private Pump and Valve
  - COR Dam
  - COR Pump/Valve
- ### Mitigations (Stage 1)
- Earthen Berm (COR)
  - Earthen Berm (County)
  - Earthen Berm (Private)
  - HESCO barrier (COR)
  - HESCO barrier (Private)
  - Pump Piping (COR)
  - Stage 1 Pumps

# Flood Mitigation Plan (Stage 3) Silver Lake Water Surface Elevation @ 4,970'



## Linear Mitigations (Stage 3)

- Pump Piping (County)
- HESCO Barrier (County)

## Point Mitigations (Stage 3)

- Pump/Valve (County)
- Dam (County)

## Linear Mitigations (Stage 2)

- HESCO barrier (COR)

## Point Mitigations (Stage 2)

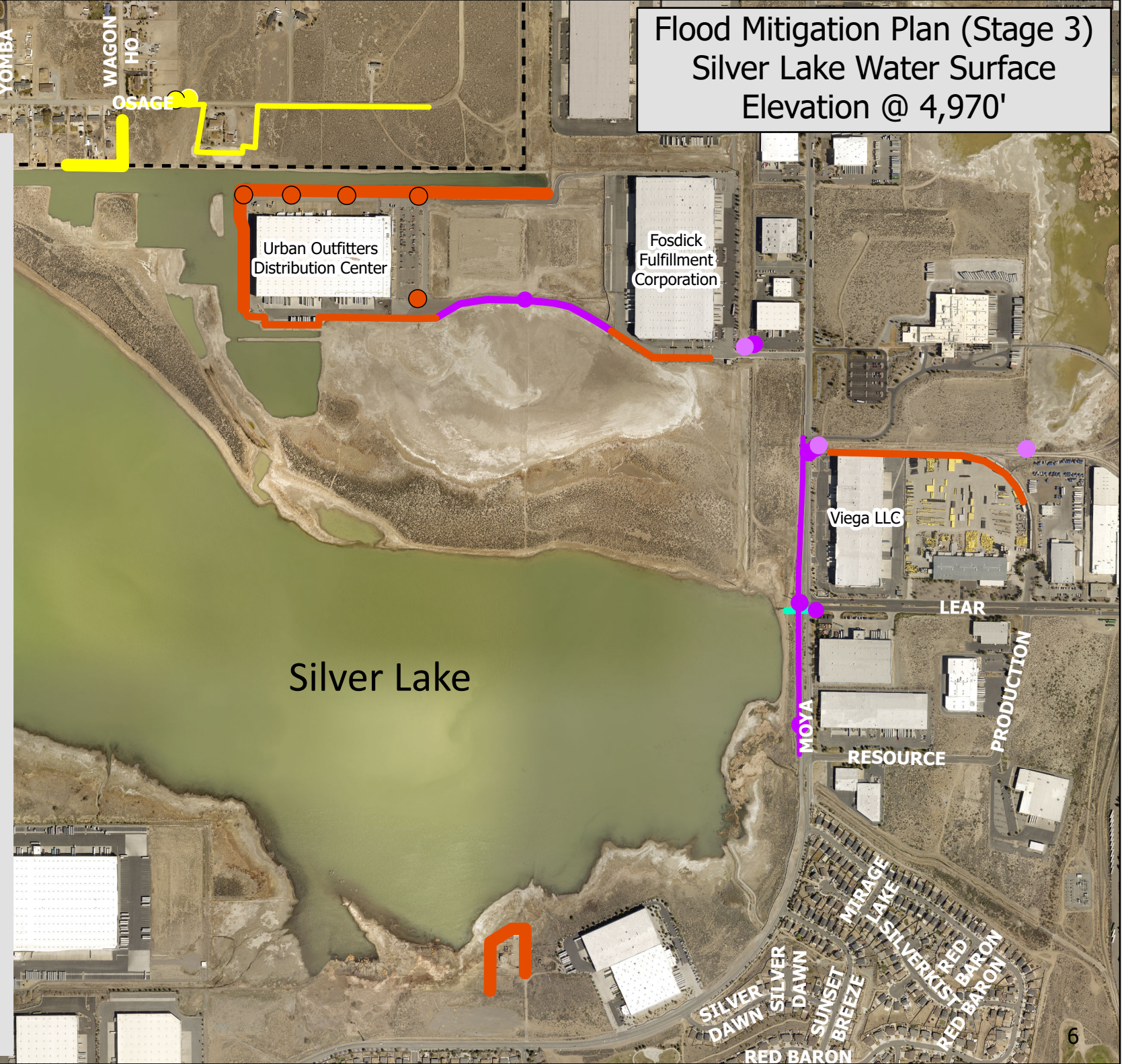
- Private Pump and Valve
- COR Dam
- COR Pump/Valve

## Point Mitigations (Stage 1)

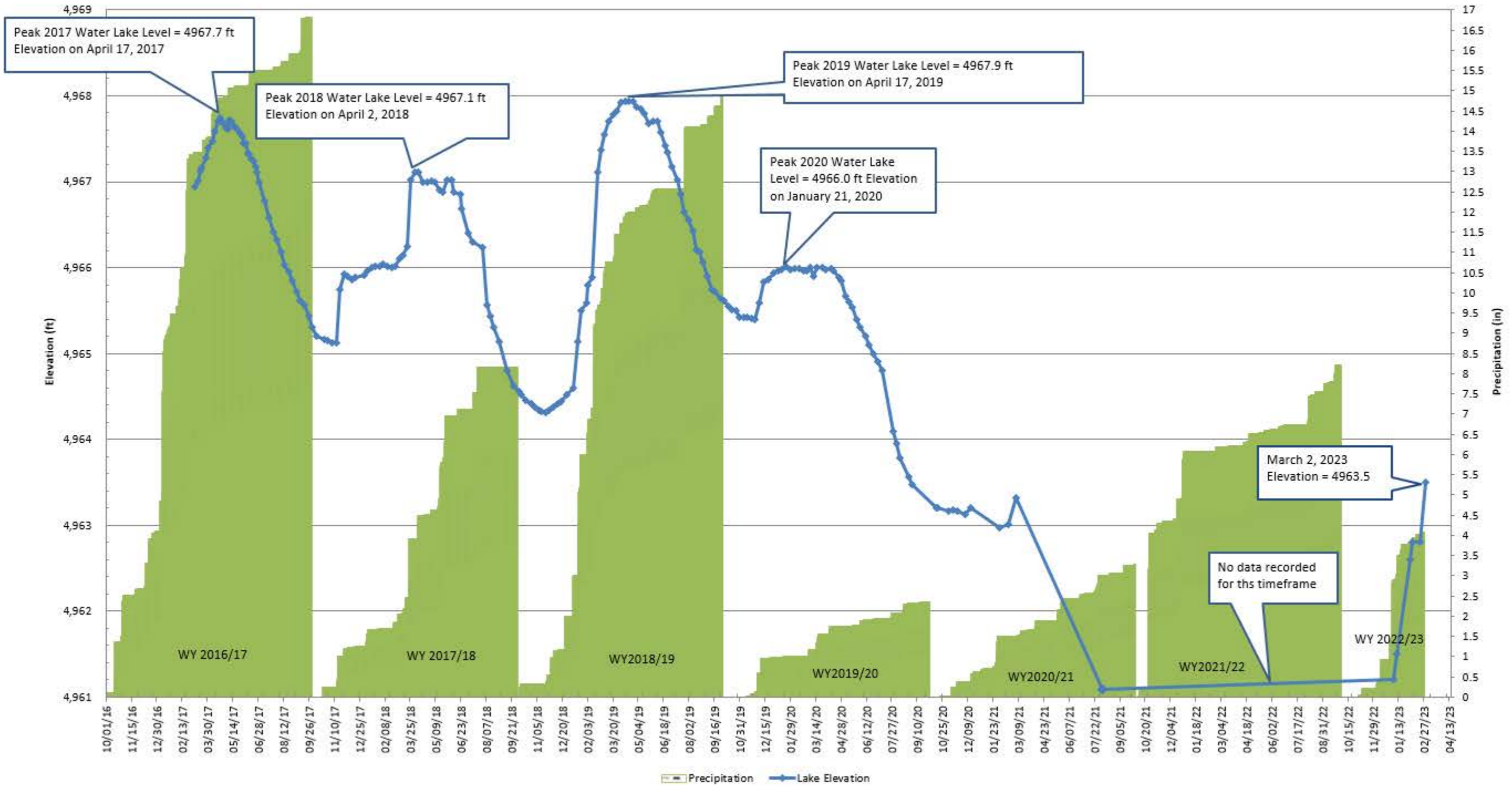
- Stage 1 Pumps

## Linear Mitigations (Stage 1)

- Earthen Berm (COR)
- Earthen Berm (County)
- Earthen Berm (Private)
- HESCO barrier (COR)
- HESCO barrier (Private)
- Pump Piping (COR)



# Silver Lake Water Elevations w/ Culmulative Precipitation 2017 -23



# SILVER LAKE PLAYA

## STAGE-STORAGE RELATIONSHIP

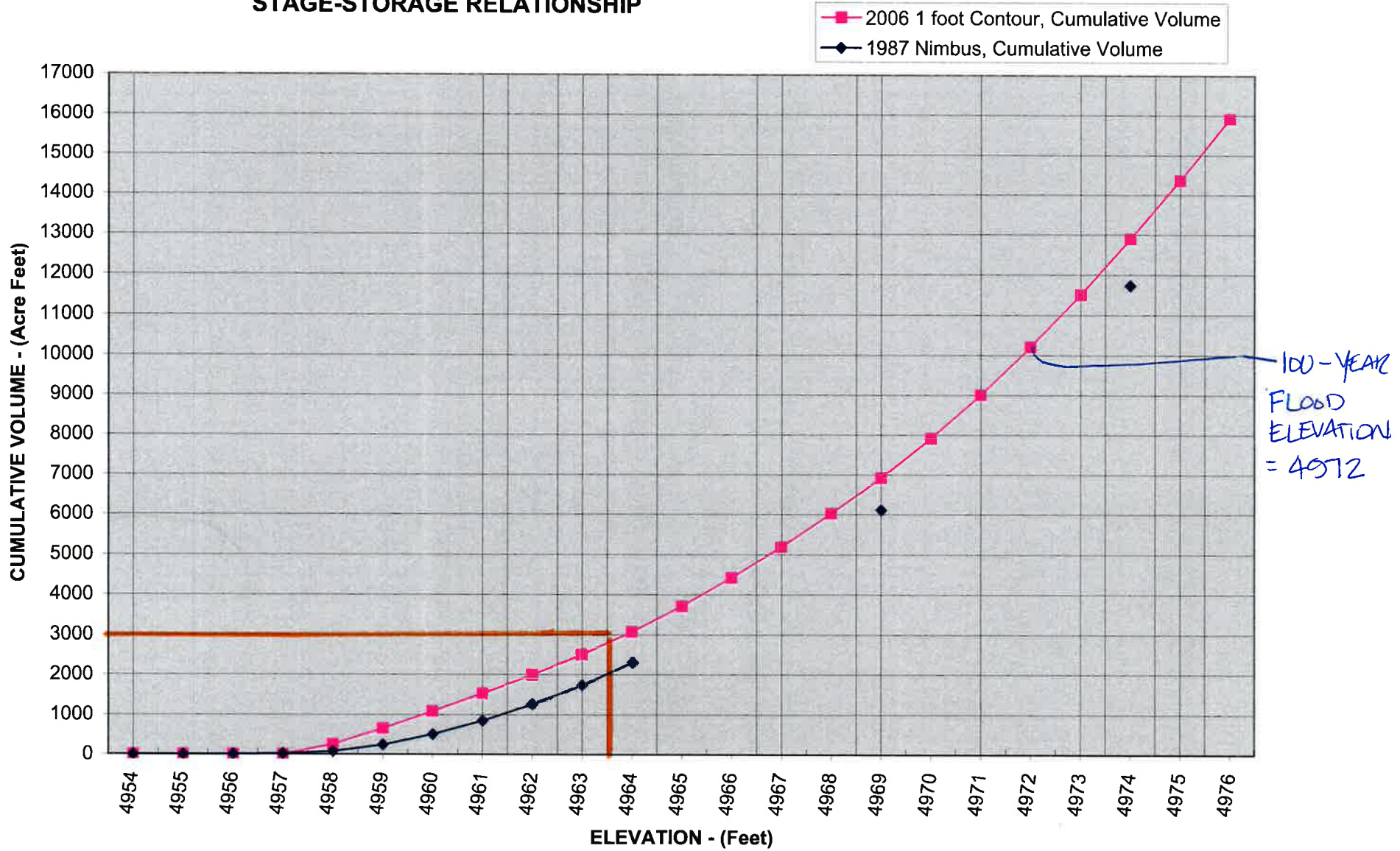
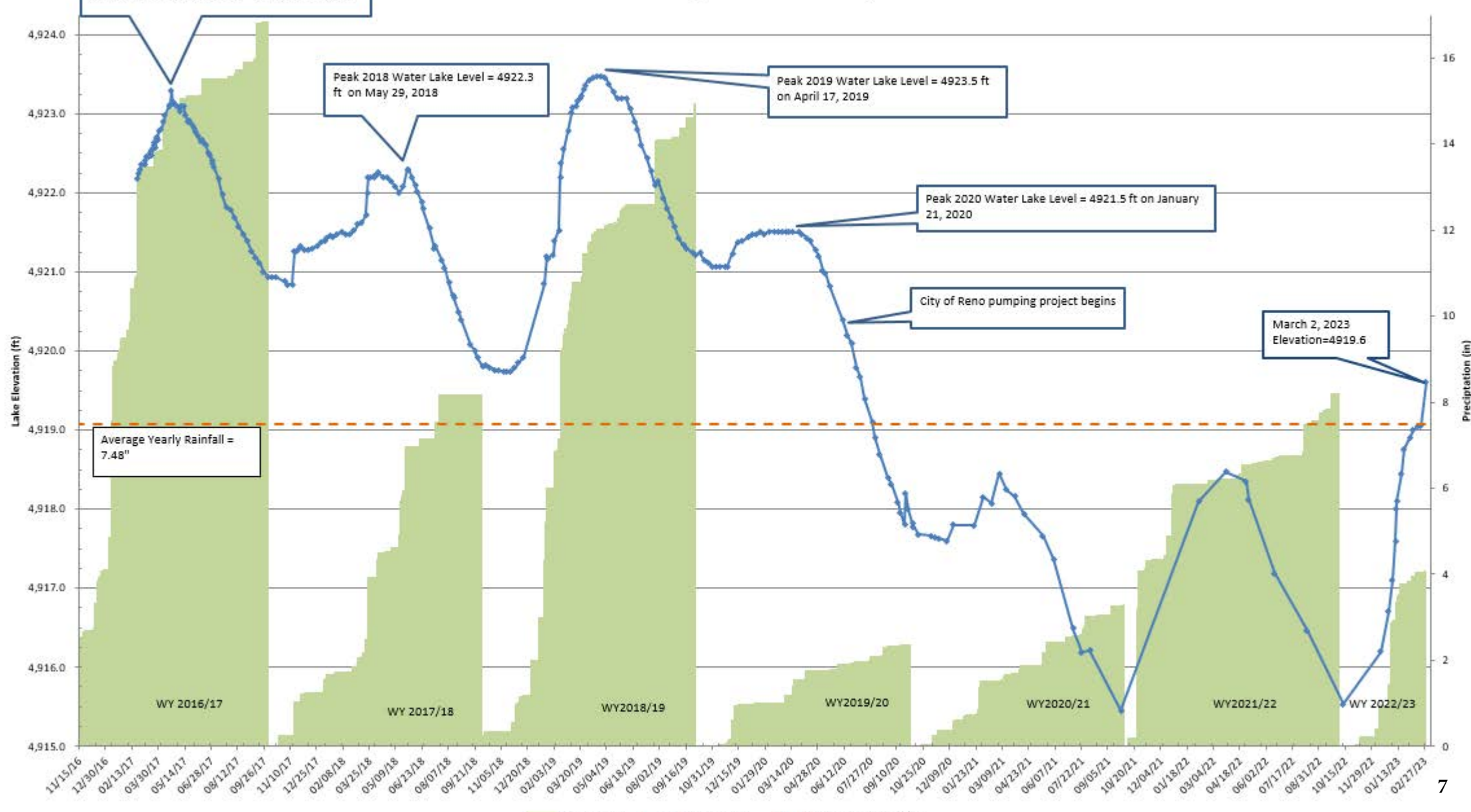


Figure 8



# Swan Lake Water Elevations w/ Culmulative Precipitation 2017-23



# SWAN LAKE PLAYA

## STAGE-STORAGE RELATIONSHIP

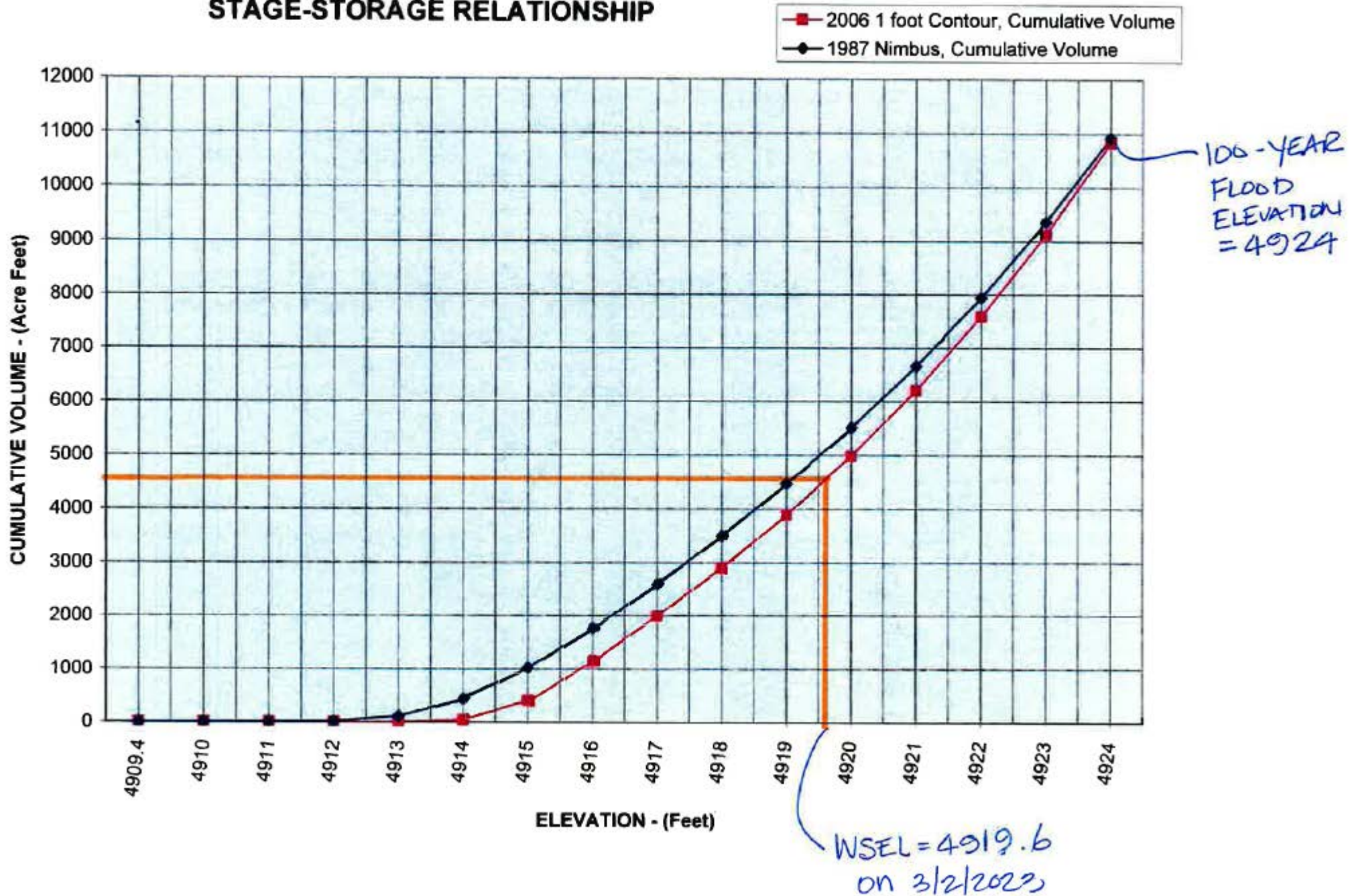


Figure 9