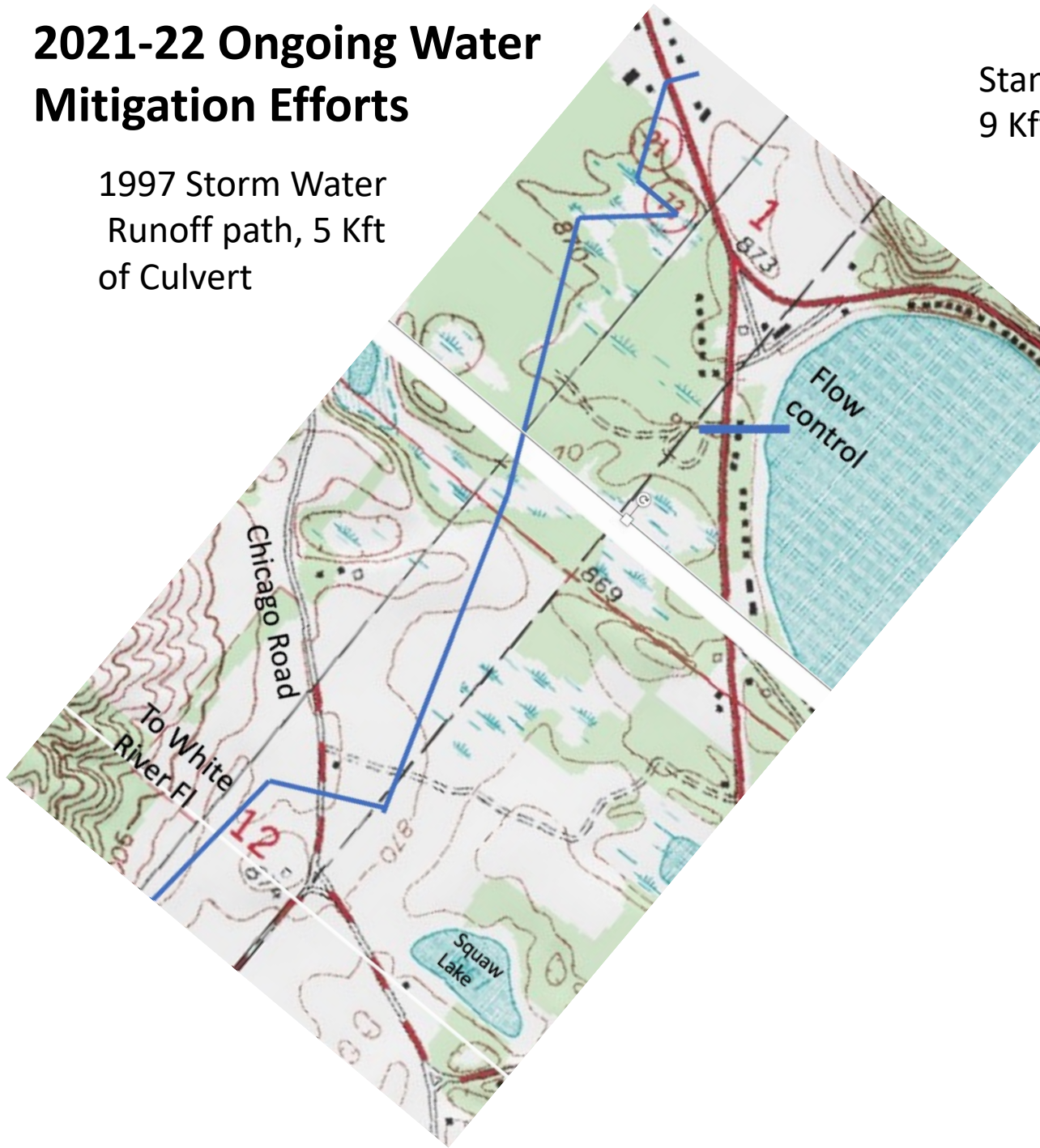


# 2021-22 Ongoing Water Mitigation Efforts

1997 Storm Water Runoff path, 5 Kft of Culvert



Stantec, Silver Lake Northeast to Bruce/Thorstead Creek  
9 Kft of culvert/storm drain



# Hwy 21 Culvert

- Highway 21 old culvert
  - 1949 placement. Prior to Hwy 21 reconstruction, approximately a 30 inch steel culvert
  - Culvert/spillway created to maintain the level of Irogami lake
  - 1953 Public Service Commission order permitted WDNR to remove logs on Irogami side to keep spillway crest at 95.0 ft, permitting fish movement between the 2 lakes during spawning
- 1996 WI DOT rebuild from Oshkosh through Wautoma
  - 21 route smoothed between Irogami and Silver Lake
  - Large concrete culvert replaced corrugated metal culvert
- Elevations (1996 concrete culvert)
  - 867.61 Irogami side
  - 867.41 Silver Lake side
  - When both lakes are at ordinary high water mark (OHWM) no flow occurs between the lakes
- Weir (Top of slide gate 867.78)
  - Sanitary District limited to 10 CFS flow into Bruce/Thorstead creek
  - Water will only flow from Silver to Irogami when > 867.61
  - Weir only displaces water from both lakes when lakes equalized at 868'

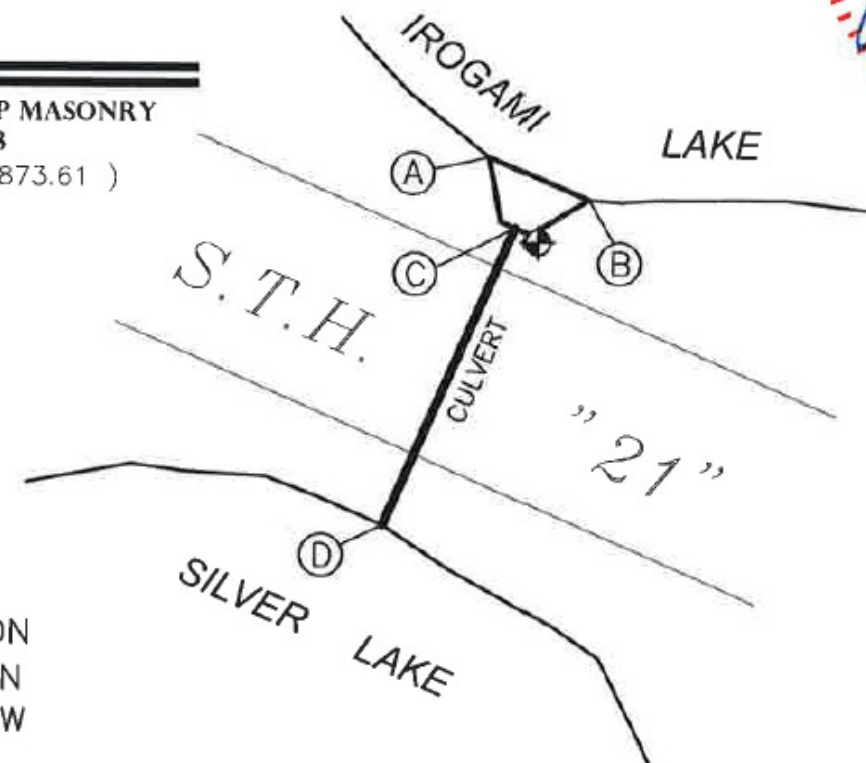
FOR SILVER LAKE MANAGEMENT DISTRICT

## ELEVATION TABLE ( NGVD 29 )

POINT #	ELEVATION	DESCRIPTION
A	867.64	CONCRETE APRON CORNER
B	867.70	CONCRETE APRON CORNER
C	867.61	INVERT CONC. CULVERT (NORTH SIDE)
D	867.41	INVERT CONC. CULVERT (SOUTH SIDE)

BENCHMARK = 

**ALUMINUM CAP NE TOP MASONRY  
ENDWALL, ELEV. = 873.58  
(DOT RECORD ELEV = 873.61 )**



## SITE 1

CULVERT LOCATION  
44° 03' 38.58" N  
89° 14' 12.12" W



# 1997 Storm Water Drainage RFP, Nov 2021 Status

- SLMD asked for a feasibility study of 1997 drainage concept along with updated costs.
  - 1997 estimate of \$440K, using Consumer Price Index calculator equates to **\$723K 2021 dollars**, Estimate more in the **range of \$1.2-1.5M** (not including property easement acquisition costs)
  - Proposed path in conceptual design is the most logical.
  - Crane Engineering did not respond, large planning/land use not their expertise
  - Strand Engineering declined to respond/bid.
  - Stantec responded on 11/10, stating complex project, feasibility study which would include updated cost estimate **\$30-40K**
- Strand Engineering rational for not bidding on RFP (provided by Brandon Herbert)
  - 2 Strand experts with 25+ years in land use planning stated WI DNR would not be favorable to the approach.
    - Diverts runoff from Poygan/Fox watershed to White River (Different watersheds)
    - Path routes through wetlands, WI DNR concern with maintaining wetland water levels with getting runoff to flow to White River.
    - Environmental impact to wetlands with increased flow. .
  - Proposed path would require at least 15 property easements. Failure to obtain 1 of the 15 easements would jeopardize the project
  - When originally proposed in 1997, a sizeable land parcel in the middle of path, owner wanted a substantial easement amount from Silver Lake Sanitary district. Property in a land trust with same family.
- 1997 Storm water runoff **concept does not reduce water level of Silver Lake**, goal was to remove watershed pressure on Silver Lake
- Stantec Silver Lake pump Northeast to Bruce Creek (**2019 \$3M estimate, requires Fee engagement with Stantec to clarify and update**)
  - \$2.28M Construction and contingency
  - \$572K full design and build support
  - \$229K legal and administrative
  - Stantec 11/21 response **\$20-25K for an updated feasibility study**

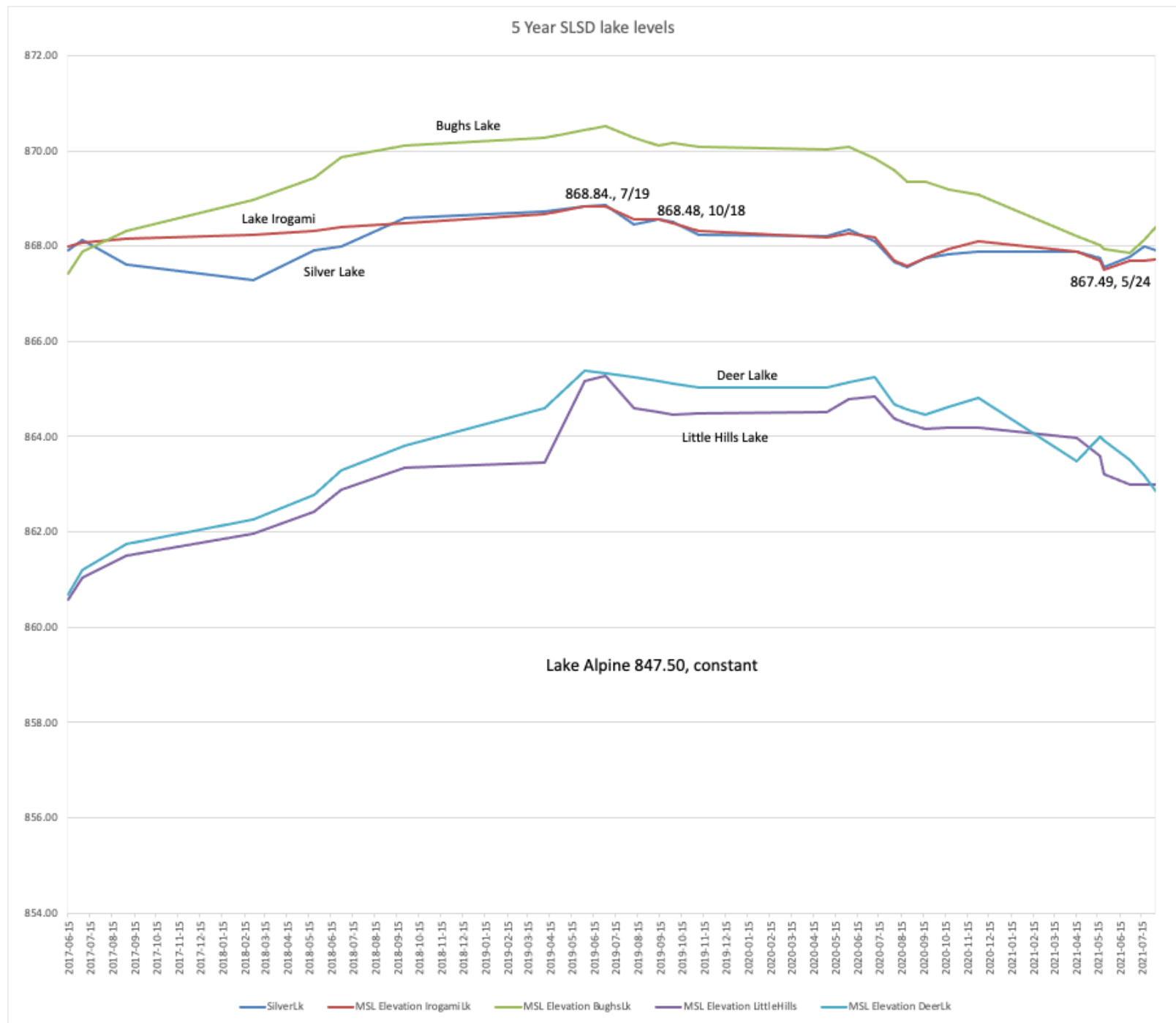
# Other Option to be pursued for Annual Meeting

- Permanent Pump station on Silver side of Hwy 21 culvert (**\$100K, Crane Engineering Estimate**)
  - Arose from Oct 2019 High water committee meeting at Sanitary District. WI DNR stated there are avenues within regulations to move water in this manner.
  - Water would only be moved from Silver when weir was not flowing. Lake Irogami would act as a conduit to the weir outlet. Mutual agreement would have to occur on Silver and Irogami boards to move water.
  - Documents or Q&A exchanges not shared with their membership. Presented as a Yes/No question do you want water from Silver at Irogami 2020 annual meeting. (Rational was they do not want our invasive species)
- Irogami concerns to proposal
  - Raises their OHWM (misconception)
  - Eurasian Milfoil and Zebra mussels invasive species spread to Irogami, when using Irogami as a conduit of water from Silver Lake to Weir Inlet
- Modification to original proposal to be sent out **for bids on providing a revised cost estimate.**
  - 6" weighted and buried pipe to take water from Hwy 21 culvert to weir inlet.
  - Needs to be constructed in a manner which does not impede navigation or recreation on Lake Irogami
  - Increased pump capacity since pressured line/distance required to move water to weir inlet.
- Agencies involved in the projects.
  - County Zoning and Land Conservation, WI DOT, WI DNR, Township of Marion, Silver Lake Sanitary District, Lake Irogami Management District



# 5-Year, County/USGS lake Levels (2016-21)

Date	SilverLk	IrogamiLk
2015-08-26	864.74	867.17
2016-07-01	865.99	867.72
2017-06-15	867.92	867.99
2017-07-05	868.14	868.07
2017-09-03	867.60	868.15
2018-02-27	867.28	868.23
2018-05-22	867.90	868.31
2018-06-29	868.00	868.39
2018-09-26	868.60	868.47
2019-04-08	868.72	868.66
2019-06-03	868.84	868.84
2019-07-01	868.85	868.82
2019-08-09	868.46	868.56
2019-09-13	868.56	868.56
2019-10-03	868.51	868.48
2019-11-08	868.24	868.33
2020-05-04	868.20	868.17
2020-06-03	868.34	868.26
2020-07-09	868.11	868.17
2020-08-05	867.67	867.68
2020-08-24	867.57	867.58
2020-09-17	867.76	867.76
2020-10-20	867.83	867.93
2020-11-30	867.89	868.09
2021-04-15	867.89	867.89
2021-05-18	867.74	867.69
2021-05-24	867.55	867.49
2021-06-29	867.77	867.69
2021-07-19	867.99	867.71
2021-08-03	867.90	867.72



- Hancock USGS station
  - 2019 recorded 43.4" of rain
  - 12" over normal precipitation
- Long Lake, Oasis Township
  - Lake was Dry in 2017
  - Central Sands Water Action Coalition (CSWAC) pushed for irrigation pumping studies
  - Heavy farm agriculture pumping was proven to reduce water levels in Pleasant, Long and Little Plover River.
  - Water protection district formed to be managed by WI DNR
- Silver Lake, Wautoma Impact
  - Heavy farming and Irrigation occurs in western part of Waushara County
  - Much less irrigation in Wautoma and Wild Rose, groundwater table declined a little in 2006-2010 but never depleted to drought levels.
  - **Central Sands** region has not experienced a dry year since 1989
- Central Sands Region received an extra YEAR worth of precipitation from 2014-2019
  - Managing groundwater creates healthy lake, river, and stream environments.
  - Irrigation impacts on surface water, Long (Plainfield), Huron, Fish, Pine and Bohn Lakes, Pleasant, Wolf lake, Little Plover River

## Hancock and Stevens Point USGS stations

Inches Above Average Precipitation, 2014-2020		
Year	Stevens Point	Hancock
2014	4.2	0.6
2015	8.5	3.8
2016	6.3	11.6
2017	5.5	7.4
2018	6.0	11.5
2019	12.9	11.8
2020	1.6	-1.8

