Date:	July 13, 2021
Name of Grantee:	Michigan River Water Conservancy District
Name of Water Project:	Hydrographic Survey of Meadow Creek Reservoir
Type of Report:	Final Report
Supporting Roundtable:	North Platte
WSRF Funds:	$ 11,342.00
Total Project Cost:	$ 14,502.38

Task 1 - (Hydrographic Survey of Meadow Creek Reservoir) **100% Complete**

Survey Systems (SSI) was selected and contracted by Michigan Creek Water Conservancy District to conduct a Single Beam Hydrographic Survey of Meadow Creek Reservoir located near Walden in Jackson County, Colorado in April of 2021. They traveled and completed the survey during the week of June 1-4 of 2021.

The purpose of the survey was to develop a stage capacity table to reflect the available water storage in the reservoir at a 0.1' interval from empty to the maximum elevation observed during the course of collecting the cross sections around the reservoir. SSI were also tasked with determining the useable capacity of the lake by determining the dead pool elevation and providing that information. The specified accuracy for this survey was a 1-foot contour interval with a 90% confidence interval. The planned lines that SSI chose were at a 50-foot interval for latitudinal and 100' for longitudinal cross sections throughout the reservoir. Where possible planned lines were run, and where it was too shallow to observe planned lines, remote platform was utilized.

SSI was tasked with collecting not only hydrographic data but tying in the ground collection elevations above the water line to the hydrographic data. Control was established by SSI for this project. The control network was statically observed with survey grade GPS and processed by utilizing, National Geodetic Survey (NGS), Online Positioning User System (OPUS). In addition to this static process, SSI utilized standard RTK methods to establish additional control for the project at advantageous locations to allow us to observe the project as efficiently as possible.

There were three phases for the data collection for the reservoir: (1) ground-based topography, (2) hydrographic data collection, and (3) shallow water data collection.

To collect ground-based topography, survey crews collected perpendicular cross sections from the water's edge to the maximum elevation for the observed maximum elevation of the top of the outlet structure / spillway and extending to the dam crest elevation. SSI observed cross sections every 50 to 100 feet as deemed necessary by the relief to accurately depict the exterior boundary of the reservoir and specific cross section locations were left to the field crew's discretion. In addition to this, as-built observations were made at the dam and the emergency spillway as requested and shown on the final survey.

The Hypack Max© software was utilized for the hydrographic survey portion for this project. Sound velocity profiles were collected prior to the start of the survey day and at a minimum spacing of every four hours, while planned lines were being observed. These profiles were used to correct the soundings to the reservoirs specific speed of sound in water. This ensured that the thermocline was taken into account during the project. SSI commenced the hydrographic collection by verifying the existing vessel

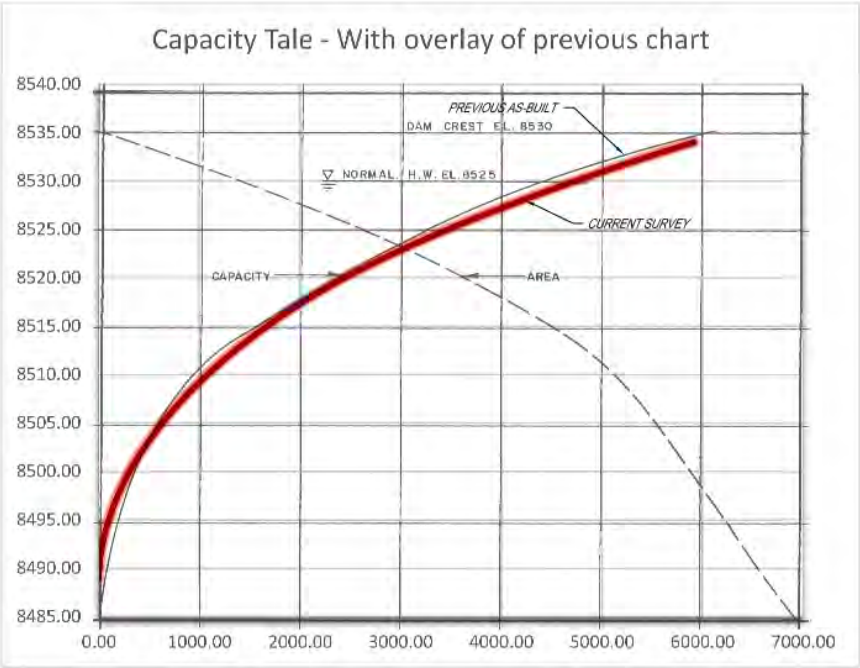
offsets and latency values before data collection. A bar check along with a manual depth measurement were conducted and the offsets were confirmed, and the survey started. A sound velocity probe was used to determine the speed of sound in water for this project. The probe was then used to check this speed every day we were collecting data. Once SSI verified the vessel was operating within project parameters and sound velocities were collected, SSI observed the perimeter of the lake and then planned lines were established. SSI then collected data along the planned survey lines. At the end of each day the field collection was verified by processing the daily files through Hypack Max 32 bit Single Beam Editor©. Once the single beam editing was completed, the data was delivered to the office to refine the planned line survey data.

Shallow water data collection was conducted with the Teledyne Ocean Science Z-Boat 1250© deployed off of the survey vessel. SSI collected the area between the 3' minimum depth of the survey vessel, and the observed ground level cross sections. The Z-Boat 1250© allowed us to access and collect the shallow areas and fill the gap between the survey vessel observations and the shore line observations. The 200 kHz transducer was utilized for this project due to its success of maintaining lock on the bottom of the lake. Survey data in the northern small connected pond was collected using the Z-Boat only.

Once all of the lines were processed, a cross check analysis was conducted within Hypack software to determine the accuracy of all the intersections of all the planned lines. Below is the result of the cross statistics report. The collected data met the minimum standard of quality assurance/quality control (QA/QC) for the project.

The data was then incorporated into the final surface used for this report. The data collected from Thumper, Z-Boat, and conventional field survey data was then brought into Cyclone to verify overlap accuracy. This process ensures that there is no vertical shift within the overlapping data, and that all of the sound velocity corrections were applied to all of the soundings correctly. All of the overlapping data were verified and the project was deemed accurate and complete.

Once all of the QA/QC processes were observed, the surface creation to determine the volumes was conducted. Volumes were calculated using Hypack and AutoCAD. Comparing the volumes created by these two separate methods, resulted in a separate check of the volumes for the reservoir. Then the Stage capacity table was created at every one tenth of a survey foot.



SURFACE ELEVATION	MEADOW CREEK WATER LEVEL IN TENTHS VOLUMES SHOWN IN ACRE FEET										SURFACE AREA
FEET	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	ACRES
8489	0.3	0.4	0.5	0.7	0.9	1.1	1.4	1.8	2.2	2.6	0.994
8490	3.1	3.7	4.3	5.0	5.8	6.6	7.5	8.4	9.4	10.5	
8491	11.7	12.8	14.1	15.3	16.7	18.1	19.5	21.0	22.6	24.2	
8492	25.9	27.6	29.4	31.2	33.1	35.0	37.0	39.0	41.0	43.1	
8493	45.3	47.5	49.7	52.0	54.3	56.7	59.1	61.6	64.1	66.6	
8494	69.2	71.8	74.5	77.2	79.9	82.7	85.5	88.4	91.3	94.3	25.986
8495	97.3	100.4	103.5	106.7	109.9	113.2	116.5	119.8	123.2	126.6	
8496	130.1	133.6	137.1	140.8	144.4	148.1	151.9	155.7	159.5	163.4	
8497	167.3	171.3	175.3	179.3	183.3	187.4	191.6	195.8	200.0	204.3	
8498	208.6	212.9	217.3	221.7	226.2	230.7	235.3	239.9	244.6	249.3	
8499	254.1	258.9	263.8	268.8	273.8	278.8	283.9	289.0	294.2	299.5	48.090
8500	304.7	310.1	315.4	320.9	326.3	331.9	337.4	343.1	348.7	354.4	
8501	360.2	366.0	371.9	377.9	383.9	389.9	396.0	402.2	408.4	414.6	
8502	420.9	427.3	433.6	440.1	446.5	453.1	459.6	466.3	472.9	479.7	
8503	486.5	493.3	500.2	507.1	514.0	521.1	528.1	535.2	542.3	549.5	
8504	556.6	563.9	571.1	578.4	585.8	593.2	600.6	608.0	615.6	623.1	72.108
8505	630.7	638.3	646.0	653.8	661.6	669.4	677.3	685.3	693.3	701.3	
8506	709.4	717.6	725.8	734.0	742.3	750.7	759.1	767.6	776.1	784.7	
8507	793.3	802.0	810.8	819.5	828.4	837.3	846.2	855.3	864.3	873.4	
8508	882.6	891.8	901.1	910.5	919.9	929.3	938.8	948.4	958.0	967.6	
8509	977.3	987.1	996.9	1006.8	1016.7	1026.7	1036.7	1046.8	1057.0	1067.2	97.366
8510	1077.4	1087.8	1098.2	1108.6	1119.1	1129.7	1140.3	1151.0	1161.7	1172.5	
8511	1183.4	1194.3	1205.3	1216.3	1227.4	1238.6	1249.8	1261.1	1272.4	1283.8	
8512	1295.3	1306.8	1318.3	1330.0	1341.6	1353.4	1365.2	1377.1	1389.0	1401.0	
8513	1413.1	1425.3	1437.5	1449.8	1462.1	1474.5	1487.0	1499.6	1512.2	1524.9	
8514	1537.6	1550.4	1563.3	1576.2	1589.2	1602.2	1615.3	1628.5	1641.8	1655.1	127.692
8515	1668.5	1681.9	1695.4	1709.0	1722.6	1736.4	1750.2	1764.0	1778.0	1792.0	
8516	1806.1	1820.3	1834.6	1848.9	1863.4	1877.9	1892.5	1907.2	1922.0	1936.8	
8517	1951.8	1966.8	1981.9	1997.1	2012.4	2027.8	2043.2	2058.8	2074.4	2090.1	
8518	2105.9	2121.8	2137.7	2153.8	2170.0	2186.2	2202.6	2219.1	2235.6	2252.3	
8519	2269.1	2286.0	2302.9	2320.0	2337.2	2354.4	2371.8	2389.3	2406.9	2424.7	168.230
8520	2442.5	2460.5	2478.6	2496.8	2515.1	2533.5	2552.0	2570.6	2589.3	2608.1	
8521	2627.1	2646.1	2665.3	2684.5	2703.9	2723.3	2742.9	2762.6	2782.4	2802.3	
8522	2822.2	2842.3	2862.5	2882.8	2903.2	2923.6	2944.2	2964.9	2985.7	3006.6	
8523	3027.6	3048.6	3069.8	3091.1	3112.5	3134.0	3155.6	3177.3	3199.1	3221.0	
8524	3243.0	3265.1	3287.3	3309.5	3331.9	3354.4	3377.0	3399.6	3422.4	3445.3	220.433
8525	3468.3	3491.4	3514.6	3537.9	3561.3	3584.8	3608.4	3632.1	3655.9	3679.8	
8526	3703.9	3728.0	3752.2	3776.5	3800.9	3825.4	3850.0	3874.7	3899.5	3924.3	
8527	3949.3	3974.4	3999.6	4024.8	4050.2	4075.7	4101.2	4126.8	4152.5	4178.3	
8528	4204.2	4230.1	4256.2	4282.3	4308.5	4334.8	4361.1	4387.5	4414.0	4440.5	
8529	4467.2	4493.8	4520.6	4547.4	4574.3	4601.2	4628.2	4655.3	4682.5	4709.7	266.492
8530	4737.0	4764.3	4791.8	4819.3	4846.9	4874.7	4902.7	4930.8	4958.9	4987.2	
8531	5015.6	5044.0	5072.6	5101.3	5130.0	5158.9	5187.8	5216.9	5246.0	5275.3	
8532	5304.7	5334.1	5363.7	5393.3	5423.1	5452.9	5482.9	5513.0	5543.2	5573.4	
8533	5603.8	5634.3	5664.9	5695.6	5726.3	5757.2	5788.2	5819.3	5850.5	5881.7	
8534	5913.1	5944.7	5976.3	6008.0	6039.8	6071.7	6103.7	6135.8	6168.0	6200.3	314.517

CENTER LINE SURVEYING, INC. DBA SURVEY SYSTEMS

June 30, 2021

Meadow Creek Reservoir, Walden

Michigan Creek Water Conservancy District
Jim Baller

Dear Mr. Baller,

Survey Systems (SSI) would like to thank you for the opportunity to survey Meadow Creek Reservoir located near Walden in Jackson County Colorado.

This report contains the following information:

- Introduction & Project Control
- Equipment
- Field Collection & Production
- In-House Processing
- Results

We look forward to discussing the results with you and hope you would be willing to give us a positive reference to anyone interested in our professional services.

Sincerely,

Gerald Matt Nichols, PLS, CFeds
President/Owner

INTRODUCTION

Survey Systems (SSI) was selected and contracted by Michigan Creek Water Conservancy District to conduct a Single Beam Hydrographic Survey of Meadow Creek Reservoir located near Walden in Jackson County, Colorado in April of 2021. We traveled and completed the survey during the week of June 1-4 of 2021. The purpose of the survey was to develop a stage capacity table to reflect the available water storage in the reservoir at a 0.1' interval from empty to the maximum elevation observed during the course of collecting the cross sections around the reservoir. We were also tasked with determining the useable capacity of the lake by determining the dead pool elevation and providing that information.

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Control was established by SSI for this project. The control network was statically observed with survey grade GPS and processed by utilizing, National Geodetic Survey (NGS), Online Positioning User System (OPUS). In addition to this static process, SSI utilized standard RTK methods to establish additional control for the project at advantageous locations to allow us to observe the project as efficiently as possible. The project control is as follows.

PROJECT CONTROL

HORIZONTAL, Colorado State Plane, NAD83(2011) North Zone 0501
VERTICAL, NAVD 88
Geoid Model=2018 Conus
Note for future survey work: The project coordinates below are "Grid" State Plane values.
Project Primary Control Point = 477100

POINT	NORTHING	EASTING	ELEVATION	CODE	Latitude NAD83(2011)	Longitude NAD83(2011)	Height NAVD88
477100	1,469,584.67	2,837,570.00	8545.922	CP	N40°37'15.36899"	W106°05'06.43596"	8506.784
477102	1,470,289.18	2,838,164.68	8565.667	CP	N40°37'22.36917"	W106°04'58.78419"	8526.57
477103	1,471,149.07	2,840,144.68	8570.652	CP	N40°37'30.99378"	W106°04'33.17950"	8531.657
477104	1,467,521.65	2,838,761.75	8540.612	CP DMP	N40°36'55.06104"	W106°04'50.80616"	8501.462
477105	1,467,662.79	2,838,089.84	8534.951	CP DMP	N40°36'56.41215"	W106°04'59.53077"	8495.78

SSI EQUIPMENT

- Hotwoods© 12' Pontoon Survey Vessel "Thumper"
- Teledyne Oceanscience Z-1250 Power Trimaran "Zeb"
- Hypack Max 2020© Software
- Leica Cyclone Software
- Trimble Business Center© Software
- AML Oceanographic© Base X2 Sound Velocity Probe with SeacCast© Software
- Teledyne Odom Hydrographic©, Echotrac CV200 Single Beam Dual Frequency Echo Sounder
- Teledyne Odom Hydrographic©, OTSBB200/24-4/20 Transducer Dual Frequency 200kHz and 24kHz
- Trimble© R10 RTK Receivers

Echotrac CV200

"Thumper"

Trimble GPS Equipment

"Zeb"

FIELD COLLECTION & PRODUCTION

There were three phases for the data collection for the reservoir

1. **Ground Based Topography**
   Survey crews collected perpendicular cross sections from the water's edge to the maximum elevation for the observed maximum elevation of the top of the outlet structure / spillway and extending to the dam crest elevation. SSI observed cross sections every 50 to 100 feet as deemed necessary by the relief to accurately depict the exterior boundary of the reservoir and specific cross section locations were left to the field crew's discretion. In addition to this, as-built observations were made at the dam and the emergency spillway as requested and shown on the final survey.

2. **Hydrographic Data Collection**

   The Hypack Max© software was utilized for the hydrographic survey portion for this project.

   Sound velocity profiles were collected prior to the start of the survey day and at a minimum spacing of every four hours, while planned lines were being observed. These profiles were used to correct the soundings to the reservoirs specific speed of sound in water. This ensured that the thermocline was taken into account during the project.

   SSI commenced the hydrographic collection by verifying the existing vessel offsets and latency values before data collection. A bar check along with a manual depth measurement were conducted and the offsets were confirmed, and the survey started. A sound velocity probe was used to determine the speed of sound in water for this project. The probe was then used to check this speed every day we were collecting data.

   Once SSI verified the vessel was operating within project parameters and sound velocities were collected, SSI observed the perimeter of the lake and then planned lines were established. SSI then collected data along the planned survey lines. At the end of each day the field collection was verified by processing the daily files through Hypack Max 32 bit Single Beam Editor©. Once the single beam editing was completed, the data was delivered to the office to refine the planned line survey data.

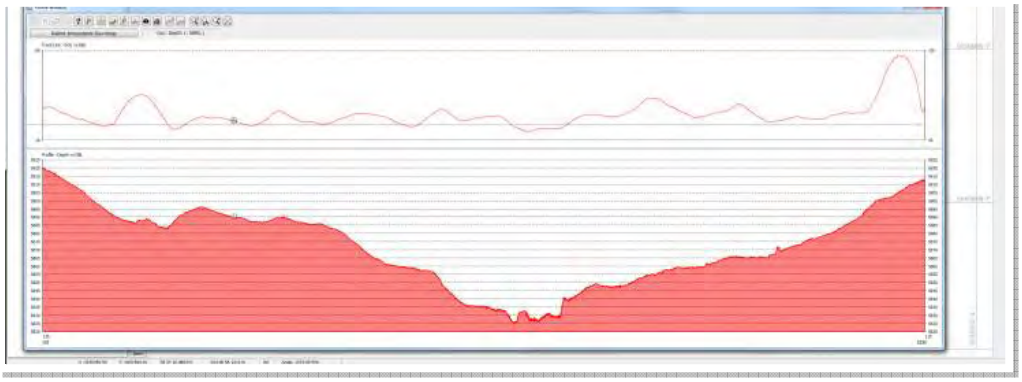
3. **Shallow Water Data Collection**

   This portion of the project was conducted with the Teledyne Ocean Science Z-Boat 1250© deployed off of the survey vessel. SSI collected the area between the 3' minimum depth of the survey vessel, and the observed ground level cross sections. The Z-Boat 1250© allowed us to access and collect the shallow areas and fill the gap between the survey vessel observations and the shore line observations.

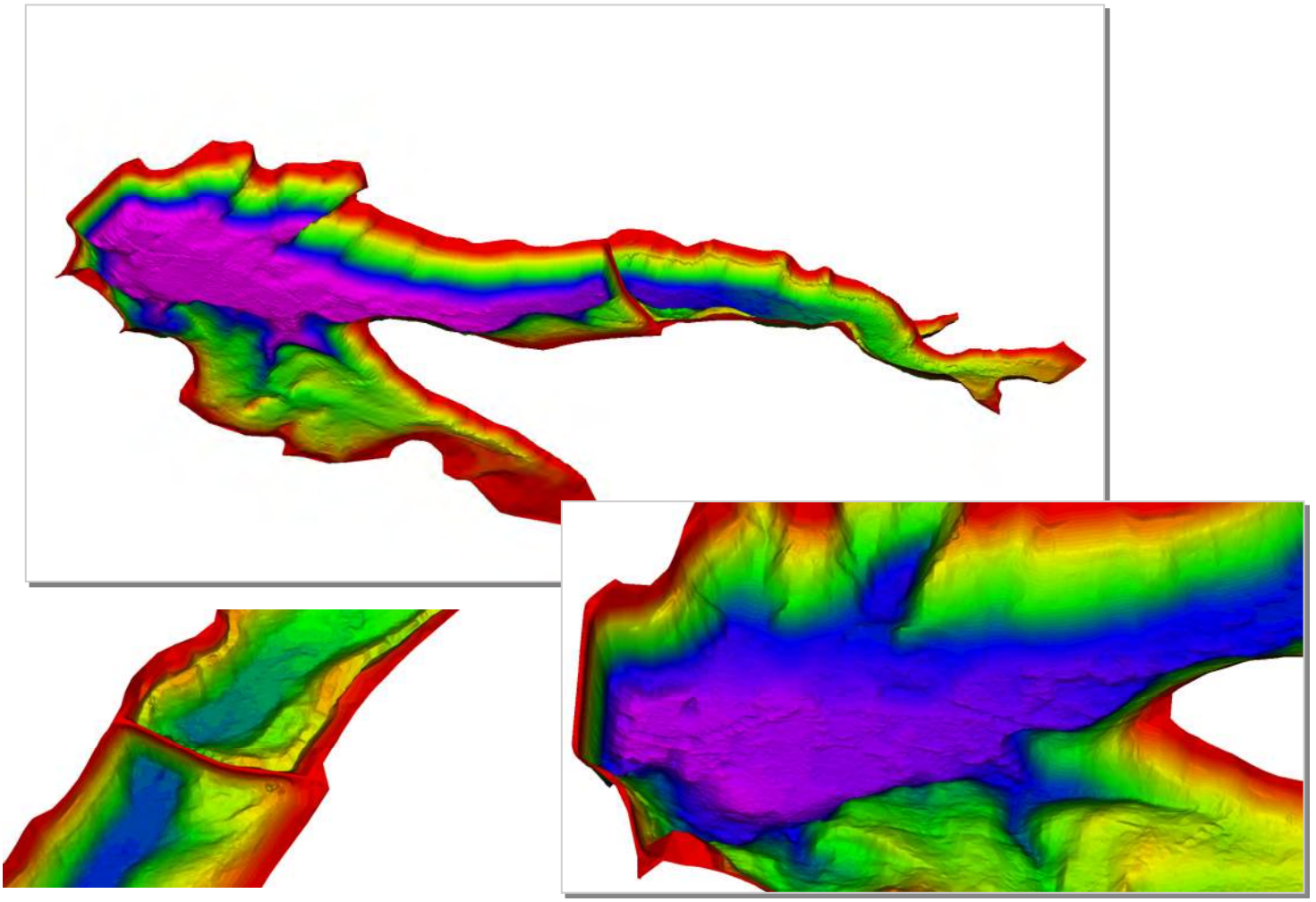
   The 200 kHz transducer was utilized for this project due to its success of maintaining lock on the bottom of the lake. Survey data in the northern small connected pond was collected using the Z-Boat only..

IN-HOUSE PROCESSING

Information collected in the field was processed daily using Hypack. This daily processing allowed us to determine any additional areas of interest as well as the area to survey with the Z-Boat.
Below are images of that process and software screen shots.



SINGLE BEAM EDITOR

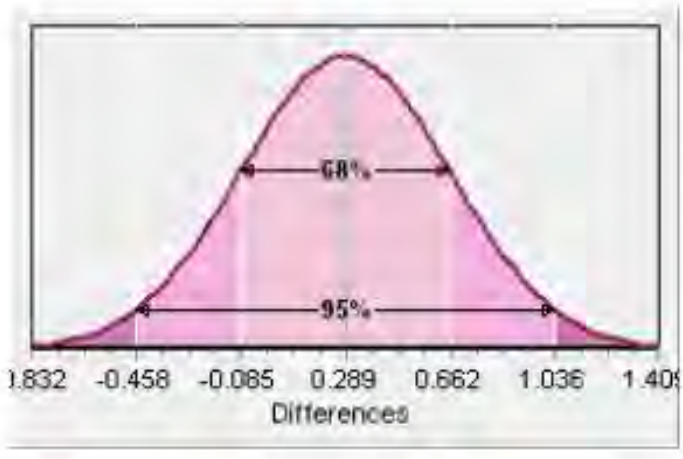


RESULTS

Once all of the lines were processed, a cross check analysis was conducted within Hypack software to determine the accuracy of all the intersections of all the planned lines. Below is the result of the cross statistics report. The collected data met the minimum standard of quality assurance/quality control (QA/QC) for the project. The data was then incorporated into the final surface used for this report.

The data collected from Thumper, Z-Boat, and conventional field survey data was then brought into Cyclone to verify overlap accuracy. This process ensures that there is no vertical shift within the overlapping data, and that all of the sound velocity corrections were applied to all of the soundings correctly. All of the overlapping data were verified and the project was deemed accurate and complete.

Once all of the QA/QC processes were observed, the surface creation to determine the volumes was conducted. Volumes were calculated using Hypack and AutoCAD. Comparing the volumes created by these two separate methods, resulted in a separate check of the volumes for the reservoir. Then the Stage capacity table was created at every one tenth of a survey foot. This table is attached as **Exhibit A**.



Date: **6/24/2021**
Time: **5:01:57 PM**
Number Of Intersections: **444**
Standard Deviation: **0.374**
Absolute Difference Mean: **0.289**
Arithmetic Mean: **-0.012**
Minimum Difference: **-1.865**
Maximum Difference: **0.991**

The following are details regarding our observations on Meadow Creek Reservoir.

- A comparison with the previous stage capacity chart is located on the site diagram included on sheets 1 and 2 in **Exhibit B**. The comparison assumes the previous data was collected using NGVD29, and the previous chart was adjusted up by 4.8' to NAVD88 for the purpose of this comparison. This adjustment used in comparison was determined using the NOAA tool VERTCON, and compared to a previous asbuilt.
- As-Built data was collected at the North and South outlet structures and our dead pool calculations were completed with the hydrographic data and the outlet structure configurations. For this purpose the top elevation of the dead pool is equal to the outlet structure west of the dam of 8493.2'. The reservoir needs to be above this elevation to flow out of the invert elevation of the 30-inch RCP outlet pipe at the outlet structure (Elevation 8493.2')
- The maximum elevation for the capacity table was observed at the emergency spillway which has an elevation of 8530.20' NAVD88.
- The staff gauge observed at the reservoir was damaged and not usable.
- This report also has a control diagram of the set control for this project. These control points and the datum should be utilized to observe any future work to ensure the data can be incorporated without further field work to update the stage capacity table. This diagram included on sheets 1 and 2 in **Exhibit B**
- The staff gauge observed at the reservoir was damaged and not usable.
- Previous as-built information was gathered from a set of as-built plans dated August 27, 1980, C-1592.

Again, I would like to thank you for the opportunity to provide our services and look forward to working with you in the future.

Gerald Matt Nichols, PLS, CFeds
President/Owner

EXHIBIT A

SURFACE ELEVATION	MEADOW CREEK WATER LEVEL IN TENTHS VOLUMES SHOWN IN ACRE FEET										SURFACE AREA
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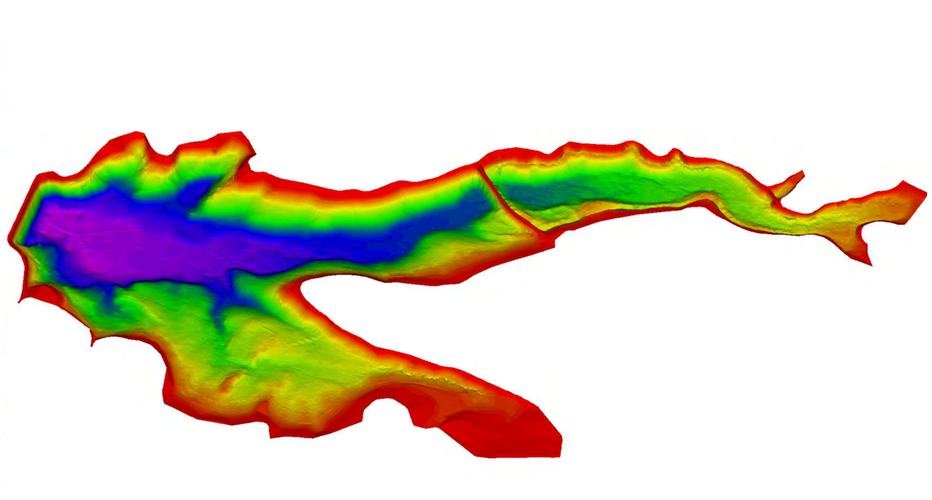
8509	977.3	987.1	996.9	1006.8	1016.7	1026.7	1036.7	1046.8	1057.0	1067.2	97.366
8510	1077.4	1087.8	1098.2	1108.6	1119.1	1129.7	1140.3	1151.0	1161.7	1172.5	
8511	1183.4	1194.3	1205.3	1216.3	1227.4	1238.6	1249.8	1261.1	1272.4	1283.8	
8512	1295.3	1306.8	1318.3	1330.0	1341.6	1353.4	1365.2	1377.1	1389.0	1401.0	
8513	1413.1	1425.3	1437.5	1449.8	1462.1	1474.5	1487.0	1499.6	1512.2	1524.9	
8514	1537.6	1550.4	1563.3	1576.2	1589.2	1602.2	1615.3	1628.5	1641.8	1655.1	127.692
8515	1668.5	1681.9	1695.4	1709.0	1722.6	1736.4	1750.2	1764.0	1778.0	1792.0	
8516	1806.1	1820.3	1834.6	1848.9	1863.4	1877.9	1892.5	1907.2	1922.0	1936.8	
8517	1951.8	1966.8	1981.9	1997.1	2012.4	2027.8	2043.2	2058.8	2074.4	2090.1	
8518	2105.9	2121.8	2137.7	2153.8	2170.0	2186.2	2202.6	2219.1	2235.6	2252.3	
8519	2269.1	2286.0	2302.9	2320.0	2337.2	2354.4	2371.8	2389.3	2406.9	2424.7	168.230
8520	2442.5	2460.5	2478.6	2496.8	2515.1	2533.5	2552.0	2570.6	2589.3	2608.1	
8521	2627.1	2646.1	2665.3	2684.5	2703.9	2723.3	2742.9	2762.6	2782.4	2802.3	
8522	2822.2	2842.3	2862.5	2882.8	2903.2	2923.6	2944.2	2964.9	2985.7	3006.6	
8523	3027.6	3048.6	3069.8	3091.1	3112.5	3134.0	3155.6	3177.3	3199.1	3221.0	
8524	3243.0	3265.1	3287.3	3309.5	3331.9	3354.4	3377.0	3399.6	3422.4	3445.3	220.433
8525	3468.3	3491.4	3514.6	3537.9	3561.3	3584.8	3608.4	3632.1	3655.9	3679.8	
8526	3703.9	3728.0	3752.2	3776.5	3800.9	3825.4	3850.0	3874.7	3899.5	3924.3	
8527	3949.3	3974.4	3999.6	4024.8	4050.2	4075.7	4101.2	4126.8	4152.5	4178.3	
8528	4204.2	4230.1	4256.2	4282.3	4308.5	4334.8	4361.1	4387.5	4414.0	4440.5	
8529	4467.2	4493.8	4520.6	4547.4	4574.3	4601.2	4628.2	4655.3	4682.5	4709.7	266.492
8530	4737.0	4764.3	4791.8	4819.3	4846.9	4874.7	4902.7	4930.8	4958.9	4987.2	
8531	5015.6	5044.0	5072.6	5101.3	5130.0	5158.9	5187.8	5216.9	5246.0	5275.3	
8532	5304.7	5334.1	5363.7	5393.3	5423.1	5452.9	5482.9	5513.0	5543.2	5573.4	
8533	5603.8	5634.3	5664.9	5695.6	5726.3	5757.2	5788.2	5819.3	5850.5	5881.7	
8534	5913.1	5944.7	5976.3	6008.0	6039.8	6071.7	6103.7	6135.8	6168.0	6200.3	314.517

NOTE: DEADPOOL ELEVATION = 8493.2' AT THE OUTLET PIPE ON THE WEST SIDE OF THE DAM

FOR ON HAND USABLE VOLUME SUBTRACT THE DEADPOOL OF 49.7 ACRE FEET FROM THE NUMBER SHOWN

EXHIBIT B



Point Table

Point #	Elevation	Northing	Easting	Description
477100	8545.92	1469584.67	2837570.00	CP
477102	8565.67	1470289.18	2838164.68	CP
477103	8570.65	1471149.07	2840144.68	CP
477104	8540.61	1467521.64	2838761.75	CP DMP
477105	8534.95	1467662.79	2838089.84	CP DMP

NOTE: ALL CONTROL COORDINATES ARE IN US SURVEY FEET

SURFACE ELEVATION	MEADOW CREEK WATER LEVEL IN TENTHS VOLUMES SHOWN IN ACRE FEET										SURFACE AREA
FEET	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9	ACRES
8489	0.3	0.4	0.5	0.7	0.9	1.1	1.4	1.8	2.2	2.6	0.994
8490	3.1	3.7	4.3	5.0	5.8	6.6	7.5	8.4	9.4	10.5	
8491	11.7	12.8	14.1	15.3	16.7	18.1	19.5	21.0	22.6	24.2	
8492	25.9	27.6	29.4	31.2	33.1	35.0	37.0	39.0	41.0	43.1	
8493	45.3	47.5	49.7	52.0	54.3	56.7	59.1	61.6	64.1	66.6	
8494	69.2	71.8	74.5	77.2	79.9	82.7	85.5	88.4	91.3	94.3	25.986
8495	97.3	100.4	103.5	106.7	109.9	113.2	116.5	119.8	123.2	126.6	
8496	130.1	133.6	137.1	140.8	144.4	148.1	151.9	155.7	159.5	163.4	
8497	167.3	171.3	175.3	179.3	183.3	187.4	191.6	195.8	200.0	204.3	
8498	208.6	212.9	217.3	221.7	226.2	230.7	235.3	239.9	244.6	249.3	
8499	254.1	258.9	263.8	268.8	273.8	278.8	283.9	289.0	294.2	299.5	48.090
8500	304.7	310.1	315.4	320.9	326.3	331.9	337.4	343.1	348.7	354.4	
8501	360.2	366.0	371.9	377.9	383.9	389.9	396.0	402.2	408.4	414.6	
8502	420.9	427.3	433.6	440.1	446.5	453.1	459.6	466.3	472.9	479.7	
8503	486.5	493.3	500.2	507.1	514.0	521.1	528.1	535.2	542.3	549.5	
8504	556.6	563.9	571.1	578.4	585.8	593.2	600.6	608.0	615.6	623.1	72.106
8505	630.7	638.3	646.0	653.8	661.6	669.4	677.3	685.3	693.3	701.3	
8506	709.4	717.6	725.8	734.0	742.3	750.7	759.1	767.6	776.1	784.7	
8507	793.3	802.0	810.8	819.5	828.4	837.3	846.2	855.3	864.3	873.4	
8508	882.6	891.8	901.1	910.5	919.9	929.3	938.8	948.4	958.0	967.6	
8509	977.3	987.1	996.9	1006.8	1016.7	1026.7	1036.7	1046.8	1057.0	1067.2	97.366
8510	1077.4	1087.8	1098.2	1108.6	1119.1	1129.7	1140.3	1151.0	1161.7	1172.5	
8511	1183.4	1194.3	1205.3	1216.3	1227.4	1238.6	1249.8	1261.1	1272.4	1283.8	
8512	1295.3	1306.8	1318.3	1330.0	1341.6	1353.4	1365.2	1377.1	1389.0	1401.0	
8513	1413.1	1425.3	1437.5	1449.8	1462.1	1474.5	1487.0	1499.6	1512.2	1524.9	
8514	1537.6	1550.4	1563.3	1576.2	1589.2	1602.2	1615.3	1628.5	1641.8	1655.1	127.692
8515	1668.5	1681.9	1695.4	1709.0	1722.6	1736.4	1750.2	1764.0	1778.0	1792.0	
8516	1806.1	1820.3	1834.6	1848.9	1863.4	1877.9	1892.5	1907.2	1922.0	1936.8	
8517	1951.8	1966.8	1981.9	1997.1	2012.4	2027.8	2043.2	2058.8	2074.4	2090.1	
8518	2105.9	2121.8	2137.7	2153.8	2170.0	2186.2	2202.6	2219.1	2235.6	2252.3	
8519	2269.1	2286.0	2302.9	2320.0	2337.2	2354.4	2371.8	2389.3	2406.9	2424.7	168.230
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8522	2822.2	2842.3	2862.5	2882.8	2903.2	2923.6	2944.2	2964.9	2985.7	3006.6	
8523	3027.6	3048.6	3069.8	3091.1	3112.5	3134.0	3155.6	3177.3	3199.1	3221.0	
8524	3243.0	3265.1	3287.3	3309.5	3331.9	3354.4	3377.0	3399.6	3422.4	3445.3	220.433
8525	3468.3	3491.4	3514.6	3537.9	3561.3	3584.8	3608.4	3632.1	3655.9	3679.8	
8526	3703.9	3728.0	3752.2	3776.5	3800.9	3825.4	3850.0	3874.7	3899.5	3924.3	
8527	3949.3	3974.4	3999.6	4024.8	4050.2	4075.7	4101.2	4126.8	4152.5	4178.3	
8528	4204.2	4230.1	4256.2	4282.3	4308.5	4334.8	4361.1	4387.5	4414.0	4440.5	
8529	4467.2	4493.8	4520.6	4547.4	4574.3	4601.2	4628.2	4655.3	4682.5	4709.7	266.492
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8531	5015.6	5044.0	5072.6	5101.3	5130.0	5158.9	5187.8	5216.9	5246.0	5275.3	
8532	5304.7	5334.1	5363.7	5393.3	5423.1	5452.9	5482.9	5513.0	5543.2	5573.4	
8533	5603.8	5634.3	5664.9	5695.6	5726.3	5757.2	5788.2	5819.3	5850.5	5881.7	
8534	5913.1	5944.7	5976.3	6008.0	6039.8	6071.7	6103.7	6135.8	6168.0	6200.3	314.517

CHECKED BY: RIG
DRAWN BY: SA
JOB NUMBER: 21-109-01-057
CLIENT CODE: MCJC

SHEET NO. 1 OF 2

ISSUE DATE: 6/10/2021

DATE	REVISION COMMENTS

MEADOW CREEK RESERVOIR
STAGE CAPACITY SURVEY

SURVEY SYSTEMS
A Professional Land Surveying Company
P.O. Box 2168 - Evergreen, CO 80437
Tel: 303.679.8122 - Fax: 303.679.8123
Info@SurveySystems.net www.SurveySystemsInc.com
A Service-Disabled Veteran-Owned Small Business SDVOSB | SBE

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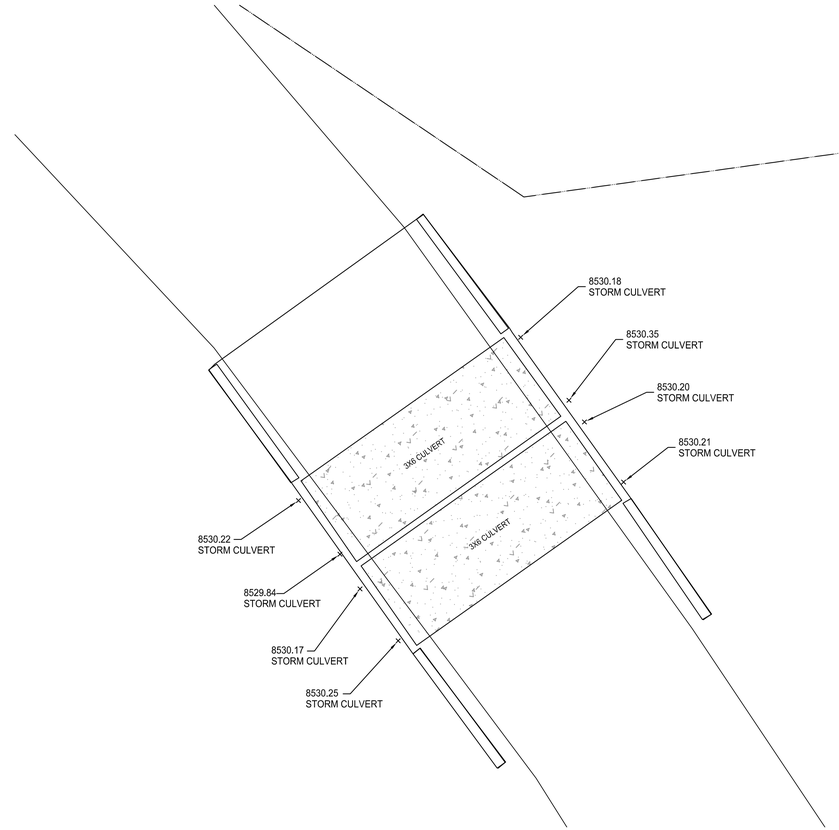
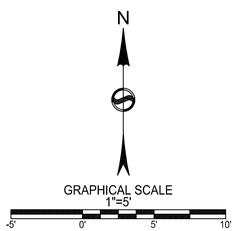
DETAIL A: OUTLET STRUCTURE



DETAIL B: EMERGENCY SPILLWAY



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CHECKED BY: RIG
DRAWN BY: SH
PROJECT NUMBER: 2021-109-01-057
CLIENT CODE: MCUC

SHEET NO.
2 OF 2

ISSUE DATE: 6/10/2021

DATE	REVISION COMMENTS

MEADOW CREEK RESERVOIR
STAGE CAPACITY SURVEY

SURVEY SYSTEMS
A Professional Land Surveying Company
P.O. Box 2168 - Evergreen, CO 80437 Tel: 303.679.8122 - Fax: 303.679.8123
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