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Chicken Creek Bay at Strawberry Reservoir
Boat Ramp Feasibility Study 2011
(90% Interim Report)
December 1, 2011

Brown Consulting Engineers (BCE) has completed alternate design options for boat ramp locations along the north shore of Chicken Creek Bay, Wasatch County, Utah for the Division of Wildlife Resources.

RFP #AR 11199 requested above water and below water (bathymetric) topography mapping of approximately 26 hectares (64 acres). Brown Consulting Engineers has completed topography consisting of 74 acres at Chicken Creek Bay. Approximately 26 acres are above the high water mark.

Site Elevations:

A project benchmark datum based on WGS 84 gps elevations was established on a set rebar and aluminum cap at the southeast corner of the existing area paved parking lot (CP-3 Elevation= 7652.62). Two additional control points were established in the project area.

The project datum corresponded relatively well with USGS quad elevations but was found to be approximately 3.4 feet above the record dam elevation. The project ground elevation was correlated with the dam elevations based on the high water elevation surveyed on October 11, 2011 (Elevation=7600.8) and the elevation from daily water users log of the same date (Elevation= 75970.4).

Historical Water Elevations:

The historical daily water elevations were obtained through the DWR. These records were reviewed beginning in 2000. The high water elevation of 7602.4 was reached only one time in the last 12 years and that was in 2011. The 10-year high water was recorded on June 6, 2011 = 7606.03 (Record Elevation= 7602.63). The 10-year low was recorded on December 31, 2004 = 7582.28 (Record Elevation= 7578.88). The recorded average low elevation for the last 10 years is from 2000-2010 = 7591.06 (Record Elevation= 7587.66).

Converted Elevation Table:

Description	Historical Record Elevation	Project Elevation (Elevation= -39.27 feet)
Highwater	7602.63	7606.03
10-Year Low	7578.88	7582.28
Average Low	7587.66	7591.06

Existing Site:

The 'beach' area is sandy gravelly soil with sagebrush cover. The area between the high and 10-year average low water elevation slopes toward the lake at approximately 4-5%.

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Parking Lot and Boat Ramp Requirements:

Project specifications called for plans and specifications to be developed for three areas along the Chicken Creek Bay shoreline at Strawberry Reservoir. The parking lot was to be approximately 1.9 acres and accommodate 72 vehicles and trailers (each parking space is to be 16.4'X 52.5'. In order to accommodate 72 vehicles and trailers, the paved parking lots are all approximately 3.0-3.2 acres in size. The ramp was to be 69- feet wide with a grade of 12%-16%. Based on the existing site topography we have designed a parking lot and boat ramp in three alternate locations.

We have presented the three alternate boat ramp and parking lot locations along Chicken Creek Bay as follows:

Alternate #1:

Alternate #1 is farthest to the west along the shore and is located at the end of the existing paved access to the lake. We have designed the parking lot with 72 parking spaces. The ramp is 69 feet wide. It will slope at 5.6% for 250 feet. It will then slope 2.0% for an additional 350 feet.

Alternate #2:

Alternate #2 is the middle location. Access to this ramp will be by anew paved or existing unimproved dirt road. We have designed the parking lot with 72 parking spaces. The ramp is 69 feet wide. It will slope at 7.2% for 250 feet. It will then slope 4.0% for an additional 260 feet. The parking lot will require approximately 600 feet of new access road.

Alternate #3:

Alternate #3 is farthest east along the shore. Access will be by a new paved or existing unimproved dirt road. We have designed the parking lot with 73 parking spaces. The ramp is 46 feet wide. It will slope at 8.0% for 300 feet. It will then slope 4.0% for an additional 200 feet. The parking lot will require approximately 1400 feet of new access road.

Geotechnical

The soils along the shore are relatively uniform. A good subgrade can be prepared using the existing on site materials. A copy of the Geotechnical report is attached.
Boat ramp and parking lot design recommend a compacted subgrade with 3 inches of asphalt over 6inches of road base for the parking lot. The boat ramp is recommended to have a compacted subgrade with 6-inches of concrete over 4-inches of road base.

Plans and design Requirements

Construction plans for each site have been prepared.

1. The ramp and parking lot have been located to minimize the amount of disturbance to the area.
2. Each parking lot is approximately 3.0-3.2 acres and has spaces for 72 vehicles and trailers.
3. Boat ramp lengths are estimated to be approximately 500-550 feet in to get the ramp to the 10 year low of approx. el.=7582. The top of the ramp is set at elevation=7614.0 approx. 2 feet above the high water.

4. The slopes of the ramps are set at between 5.6% and 8.0% percent grade for the first 250-300 feet. Then at the natural slope of 2-4 percent for the next 2-300 feet to get to the 10 year average low elevation of 7582.0.

Summary and Recommendations

Based on our visit to the site and the existing features for all three ramp locations we would recommend the following:

1. Alternate #3 is the recommended site.
2. It is the only site that is steep enough to allow the ramp to get to the 10 year low elevation of 7582.0 in 500 feet. Alternate #1 is just too flat!
3. The slope for the first 300 feet is adequate at 8% to launch most small boats, although this is less than the desired 12% minimum. The additional 200 feet of ramp is at 4.0%.
4. 1400 feet of paved access road may be included for alternate #3.The other 2 sites would require less paved access road.
5. No other area along this beach provides better or steeper access to the lake.
6. The Parking Lot is within about 100 feet of Highway 40.

To minimize the size of the paved parking lot we would also recommend that the parking space be sized at 12' X 48".

Respectfully Submitted;

Marc Brown P.E., P.L.S.
Brown Consulting Engineers