

**Town Hall for Silver Creek Pond Property Owners** 

Date: August 14th, 2025

Time: 6:00 pm

Place: Whitehall Township Hall, 7644 Durham Rd, Whitehall Mi, 49461

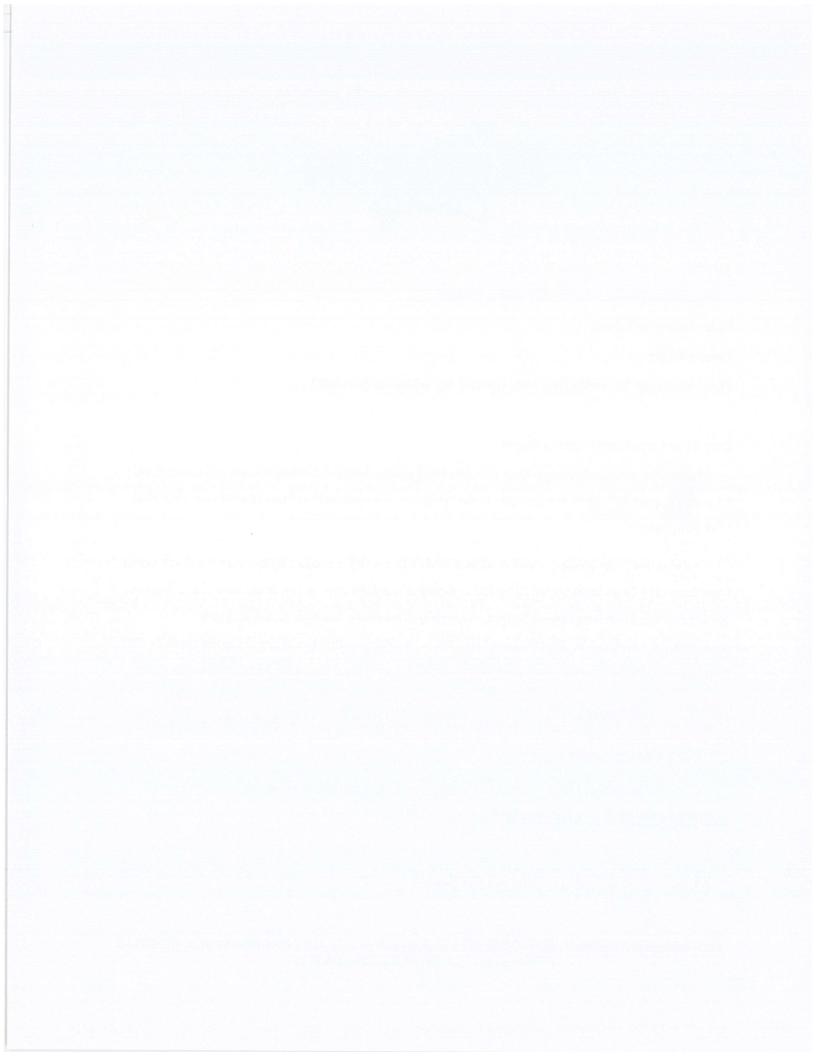
Dear Silver Creek Pond Property Owner,

Please take notice, Muskegon County Public Works Department is holding a town hall meeting on Thursday August 14<sup>th</sup>, 2025 at 6:00 P.M. at the Whitehall Township Hall at 7644 Durham Rd, Whitehall Michigan, 49461.

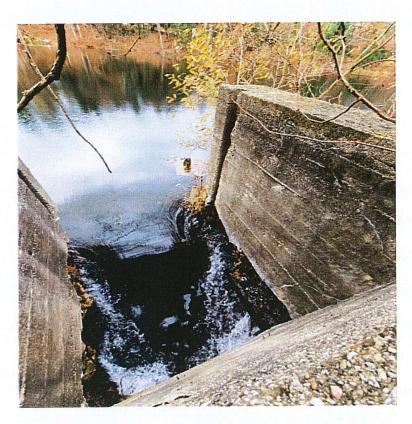
This Meeting is for property owners to hear and consider the proposed action from the Silver Creek Pond Dam Lake Level Study dated 6/26/2025. Included is a draft copy of the study as well as a map of the Silver Creek Pond Assessment District. A primary focus of the meeting is to discuss the apportionment method for distribution of fees to the residents within the proposed assessment district. Fees would consist of the initial repair and reconstruction of the existing dam and overflow structure, future maintenance and repairs, and inspections as required under the authority of Part 315, Dam Safety, and Part 307, Inland Lake Levels of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.

Please feel free to contact Wade VandenBosch, Muskegon County Public Works Director @ VandenBoschWa@co.muskegon.mi.us, with any questions.

Thank you and we hope to see you at the meeting.



# **DRAFT**SILVER CREEK POND LAKE LEVEL ENGINEERING STUDY



### Prepared for:

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#### Background

The Silver Creek Pond Dam is presently a privately owned structure located in Section 14, Town 12 North, Range 17 West, Whitehall Township, Muskegon County, Michigan. It is sited on its own parcel, with a Permanent Identification Number of 61-03-014-400-0013-00. Exhibit A shows the dam's location.

The dam's history is not well documented. However, an investigation of past USGS quadrangle maps from 1900 to present suggests the dam was constructed and the pond filled circa 1958-1959. The dam was owned by Jack Eilers for many years, before he sold it to the present owner, Randall Scott Webster.

The dam's Michigan ID number is #232, and it has been classified as a Low Hazard Potential structure. The pond created by the dam impounds water over a surface area between 30 to 35 acres, depending upon the static water level. The dam embankment is approximately 325 feet long, with a hydraulic height of 6.53 feet from the dam crest to the downstream bottom (591.19 lowest dam crest elevation and 584.66 stream bottom at outlet). The Site/Topographic Survey is Exhibit B and it provides data regarding the embankment, outlet structure and the adjacent roadway.

This project is intended to satisfy Part 307 of the Natural Resources and Environmental Protection Act; Inland Lake Levels. According to Part 307, a petition of the County Board of Commissioners or a petition to the county board of two-thirds of the owners abutting the lake is needed to initiate the establishment of a legal lake level(s). Out of 53 riparian parcels, the owners of 42 parcels signed the petition to establish normal lake levels for Silver Creek Pond. 42 of 53 parcels is 79.2%, thereby satisfying the petition requirement. In any event, the County Board of Commissioners may initiate actions pursuant to Part 307 on its own motion.

After the petition was filed, a subsequent feasibility study was performed at the instruction of the Muskegon County Public Works Board, which was assigned the responsibility of managing the lake level process. That report concluded that it is eminently feasible to establish and maintain a functional legal lake level(s) for Silver Creek Pond. It also stated that repair or replacement of the outlet control structure is necessary. Additionally, the State of Michigan Dam Safety Division recommended raising the embankment crest if needed, which was echoed by many riparian owners on the pond who want to raise the normal water level(s) to provide deeper water, greater oxygenation of the pond with fewer algae blooms, and support a greater biomass and diversity of aquatic life.

Muskegon County Public Works held a public meeting in which they provided citizens information on the process for establishing legal lake levels, planning-level construction cost estimates, annual maintenance estimates, financing options and preparation for the steps to follow. At that meeting County staff asked the property owners in attendance if they still wanted to move forward. The majority were strongly in favor of doing so.

Photographs, attached as Exhibit G, have been included in this report to assist with visualizing the condition of the dam and the deteriorated conditions mentioned above. Additional photographs are in our files and can be appended to this and/or future reports if so requested.

## Silver Creek Hydrology

The land in this area is uniformly sandy and wooded, with little to no branched drainage networks. Very little development is found in this rural area and no county drains or storm sewer systems are present. The topography is undulating with kettles and kames predominating, implying that the fate of most rainfall is to percolate into the ground where it falls.

The design peak discharge and runoff volume for Silver Creek was provided by the EGLE Hydrologic Studies Unit many times over the years. Their formal determination document was sent by e-mail, and is as follows:

We have processed the discharge request submitted by email on February 8, 2024 (Process No. 20240070), as follows:

Silver Creek at Silver Creek Pond Dam, Dam ID 232, Section 14, T12N, R17W, Whitehall Township, Muskegon County, has a total drainage area of 18.4 square miles and a contributing drainage area of 1.47 square miles. The design discharge for this dam is the 1% chance (100-year) flood. The 2%, 1%, and 0.5% chance peak flows are estimated to be 90 cubic feet per second (cfs), 130 cfs, and 190 cfs, respectively. The 1% chance flood volume is estimated to be 130 acre-feet. (Watershed Basin No. 37 White).

Please include a copy of this letter with your inspection report or any subsequent application for permit. These estimates should be confirmed by our office if an application is not submitted within one year. If you have any questions concerning the discharge estimates, please contact Ms. Susan Greiner, Hydrologic Studies and Floodplain Management Unit, at 517-927-3838, or by email at: <a href="mailto:GreinerS@michigan.gov">GreinerS@michigan.gov</a>. If you have any questions concerning the hydraulics or the requirements for the dam safety inspection report, please contact Mr. Thomas Horak of our Dam Safety Unit at 517-231-8594, or by email at: <a href="https://horakt@michigan.gov">Horakt@michigan.gov</a>.

The spreadsheet you requested is attached.

The overall watershed size is 18.4 square miles, but with a contributing drainage area of only 1.47 square miles. This means that over 90% of the watershed conveys water to the pond via groundwater flow. This is evident by witnessing the consistent and strong base flow at the dam. By measuring the depth of flow over the outlet spillway, the base flow was calculated to be a steady 20 cubic feet per second (cfs).

The design recurrence interval for Silver Creek Dam is the 100-year recurrence interval rainfall, which is equivalent to the 1% annual chance event. EGLE calculated the 100-year discharge at 130 cfs, with a total runoff volume of 130 acre-feet. When inspecting the dam in 2002, I performed a separate analysis and derived essentially the same contributing watershed size and 100-year discharge value, giving us confidence in using the EGLE values to analyze the existing condition, and to design the future outlet structure and embankment crest.

At our request, EGLE's Hydrologic Studies Unit provided more detailed watershed parameters for the purpose of performing flood routing if needed. These parameters are: Contributing watershed area = 1.59 square miles, SCS Curve Number = 54.5, Time of Concentration = 3.43 hours, and ponding adjustment = 0.73. The contributing watershed area is slightly different than EGLE's cover letter, but the design discharge remained essentially the same.

## **Hydraulic Analyses**

#### Silver Creek

Even though it is primarily groundwater fed, the Silver Creek headwaters are located 2 miles upstream of the dam. The valley is deeply incised, reflecting the presence of non-cohesive sand deposits of this area. The soil survey shows that 95% of the land is sandy.

The creek possesses a nearly constant base flow of approximately 20 cfs, from groundwater flow reaching here from over 18 square miles of land. Periods of extended droughts could result in a reduction in the base flow. The ultimate design of the new outlet structure should have features that address this possibility to assure the continued maintenance of the established legal lake level(s).

The site/topographic survey includes the location and elevations of the culverts and the road. Silver Creek is 30' to 50' wide between the dam and its confluence with the White River. It possesses a low bank on the south side and high banks on the north side, and both sides are heavily wooded.

Silver Creek flows northeasterly from the dam to two 36" diameter culverts under Silver Creek Road approximately 200' downstream. This portion of the creek is more like a stilling basin than a creek. From there, the creek continues to flow 500' northeasterly to the White River bottomlands. Because of the wide nature of the creek, peak flood stages on Silver Creek will be dominated by the peak flood stage of the White River, which will be higher than the water level created by the design discharge of 130 cfs.

The county road culverts convey the 100-year discharge of 130 cfs without overtopping, provided the White River backwater is no higher than 587.5 at the relevant time. Since the White River peaks at elevation 589.0 days after a design-level storm and Silver Creek peaks in 3.4 hours, it is highly improbable that the White River will be at flood stage when Silver Creek attains peak discharge. There are no records of Silver Creek Road being flooded by the creek. No HEC-RAS simulations have been run on the creek between the dam and the White River.

#### **Existing Silver Creek Dam and Pond Hydraulics**

The existing dam embankment and outlet structure are in a state of disrepair and many years of deferred maintenance. The interior face of the concrete outlet structure is severely eroded, with a substantial amount of cement missing and larger aggregate exposed and generally unsupported by the standard cement/aggregate matrix. Photographs attached as Exhibit G graphically illustrate this condition.

The outlet chamber consists of poured-in-place concrete and is 4.25' wide x 6' deep x 8.83' tall, and has slotted sides to hold stoplogs. The outlet pipe is a 42" diameter concrete pipe discharging to a concrete sluice. The sluice has a diversion that was once used to generate power for a saw mill. A headwall is present at the pipe outlet that suffers from long-term degradation and cracks that have laterally displaced.

The embankment is overgrown with trees at the water's edge and higher. These trees should be removed to prevent water seepage along roots and to prevent burrowing critters from being detected, which would compromise embankment stability. Also, the embankment is lower in the middle than at each end, which reduces the dam's adequacy in safely impounding and conveying design storm discharges and volumes.

Evaluating the existing outlet indicates that, with 2-6" stoplogs in place, the dam has sufficient discharge and storage capacity to safely handle the 100-year event, but with little or no freeboard (vertical distance between the peak impoundment and the dam crest elevations). We inspected the dam on the evening of September 25, 2024, at the end of a very large rainfall that occurred over the previous 12 hours. As much as 9" was reported to have fallen in the Whitehall area. At 7:00 PM the pond level was approximately 18" below the lowest dam crest elevation, confirming the existing dam's hydraulic adequacy.

#### Proposed Silver Creek Dam and Pond Hydraulics

It is recommended to install a new outlet structure, consisting of four standard 8'long 4'x4' concrete box culvert sections with a stacked inlet at the upstream end, for a total length of 36' plus wingwalls. Alternately, the two wingwalls may be replaced with another box culvert section, depending upon the lay of the land. The inlet piece will consist of a specially fabricated concrete box, designed to act as a drop inlet. Initial consultation with a local supplier stated that similar design configurations have been done a

number of times with other lake level control structures. As the design and cost estimates are contingent upon establishment of the lake level(s), the final design details have not been decided at this time.

Exhibit B shows a preliminary sketch plan and profile of the proposed control structure, verifying its geometric compatibility with a proposed lake level of 591.0. Initial calculations verify that the 20 cfs base flow can be restricted to a 32" wide x 24" high base flow weir and the remaining inlet structure will act as the flood control weir supplementing the base flow weir. This design can discharge the entire 130 cfs 100-year flood discharge below elevation 593.0, thereby providing 1' of freeboard, even without performing flood-storage routing through the Silver Creek Pond. This will require raising the southern portion of the dam embankment crest, which is 3' lower than the northern portion of the dam crest.

Additional safety factors are found when studying the available storage in Silver Creek Pond. Exhibit C, Silver Creek Impoundment Map illustrates the amount of flood storage above the static water level (i.e., recommended legal lake level). With a lake level set at 591.0, the entire 130 acre-feet of 100-year rainfall runoff can be stored without overtopping at new crest elevation 594.0 (storage = 137.7 acre-feet), even with zero discharge from the outlet structure to downstream.

We recommend providing excess discharge and storage capacity, as the State of Michigan may soon increase the 100-year rainfall depths in the state. Also, due to some recent dramatic dam failures, we also anticipate more rigorous design and performance standards to be issued by the State of Michigan. This will require retrofitting many dams that presently do not possess excess discharge and storage capacity. Since there is an opportunity to address these future design constraints at the present time with no substantial added costs, we recommend retaining the safety factors provided with our preliminary design.

#### **Existing and Past Lake Levels**

The water level of Silver Creek Pond has varied over time. According to residents who reside on the pond, the water level was typically at 590.5 +/-. This evidence was provided photographically and anecdotally by Ms. Kathleen Fox, of 2076 Mill Pond Trail, who took some pictures to document this assertion. Please refer to Exhibit D, where she shows evidence of past normal water levels being approximately 1' above the current water level shown on September 9, 2024: 589.6. The water damage of the dock cross member and the stain on the property iron supports her assertion.

In the recent past, Mr. Webster, the present dam owner, removed two stoplogs to lower the pond level. He took this step due to concerns over the highly degraded outlet structure, and he didn't want to be responsible for a dam failure. This resulted in the documented pond level of 589.6, which was recently re-established after temporarily dropping the water level further, as described in the next paragraph.

Within the last year, Mr. Webster's concerns for the dam's safety grew more pronounced, as the deteriorated outlet structure continued to degrade. By removing all of the stop logs, he lowered the pond level to the elevation of 588.5. Our original survey documented this elevation, and a recent supplemental survey documented the present water level of 589.6 after we provided him with a professional opinion that the dam was safe with the two stoplogs, but was not safe in the original, higher elevation of 590.5.

Many riparian owners expressed concern over low water levels after the second drawdown, as it exposed extensive mud flat areas, generating offensive odors, deterring animal occupation and greatly diminishing the overall water quality of the pond, and they were supportive of having the two stoplogs reinstalled.

Because of the extensive areas of very shallow water depths, we recommend a target legal lake level of 591.0 be established by the county and the court. This is slightly higher (~5") than the historic, traditional lake level, but it addresses both past and anticipated future eutrophication that naturally fills in ponds like this over time. It is also worth establishing a "maintenance" lake level 2' lower, at 589.0.

#### **On-site Sewage Disposal Conflicts**

All homes and their sewage disposal systems are located on top of the high banks and none are located within 12 vertical feet of the proposed legal lake level of 591.0. Mr. Webster, whose house is at or above elevation 607, is the lowest lying residence on the pond.

#### **Property Owner Survey Results**

We generated a questionnaire and solicited responses from all of the members of the potential assessment district. We received 32 responses. Exhibit E itemizes all the questions and responses. The primary responses from this task are:

- Q2: Is your septic tank, drainfield or well on low ground near the pond? One family said yes, but a review of their site shows the lowest level ground to be at elevation 613, 12' above the proposed lake level. The family may have meant close laterally, and not vertically.
- Q3: Do you have a structure that would need to be moved if the pond level is increased? Two people said maybe and yes. In both cases, they are referring to docks, which are easy to adjust if necessary.
- Q4: Do you believe your property is on the pond or not? One respondent said no. This respondent's property is on the far upstream end of the pond, where it is more of a creek than a pond. According to 2023 aerial photography from county GIS, this property, 1799 Schneider Trail has frontage on the pond.
- Q5: Do you believe you should be in the assessment district? Two respondents said no: Mr. Grieve, 1799 Schneider Trail, for the same reason as Q4; and Mr. Suttorp, 2258 Mill Pond Trail. 2258 Mill Pond Trail is a riparian to the pond, but also has frontage on Silver Creek. Eight others were not sure, or just don't want any more assessments. One respondent said yes, if the dam is owned by the township, no if the dam remains owned by Mr. Webster.
- Q6: (Where) do you want the normal lake level to be? 27 respondents said "maximum possible" or replied +2', +3' and/or max. Three respondents replied +0.
- Q7: Are you aware of any nuisance flooding or erosion around Silver Creek Pond? Three respondents said yes, but did not elaborate.
- Q8: Are you aware of any nuisance vegetation growth around Silver Creek Pond? Five respondents said yes and one said the biggest concern is the wildlife that would be affected if the water level recedes more.
- Q9: Are you aware of any nearshore bank/bluff occupied by animals? Six respondents said yes, but gave no details.
- Q10: Do you want public access to be facilitated? If no, would your opinion change if it meant the township would help with costs? 18 respondents said no & no. Six respondents said no & yes. Seven respondents said yes and seven said maybe, need more information.

The conclusions from this questionnaire and the written comments are that most property owners are concerned about the low water levels that were experienced recently after Mr. Webster removed half of the stoplogs and then all of them out of his concern for the dam's safety. The respondents' greatest concern was the negative impacts the lower water level had on the wildlife at, in and adjacent to the pond.

#### Recreational Uses of the Pond, Including Dock Elevations

The primary recreational use of the pond is kayaks and canoes. There are a few small docks that are easily adjusted in height. If negatively affected by raising the pond level, this work could be added to the project scope at very little cost. No public access presently exists and riparian owners are unanimous in wanting to keep it this way.

#### **Erosion and Ice Damage**

There is little erosion and no apparent ice damage around the pond. Some minor erosion appears to be primarily from human and wildlife activity. It is not necessary to establish a winter lake level, but it may be advised to establish a maintenance lake level to respond to seasonal or temporal (storm-generated) fluctuations. This is especially sensitive to the riparian owners, due to the shallowness of the pond.

#### Fisheries/Wildlife Habitat and Aquatic Weed Growth, Existing and Future

The State of Michigan EGLE and DNR will be notified and given an opportunity to inspect the pond and weigh in on the quality and quantity of the fish and wildlife, along with the quality of the habitat for their prospering. Residents have repeatedly stated lower water levels have a very negative impact on fish numbers and health. And they have stated that they want the normal water level raised to provide deeper water, greater pond oxygenation without algae blooms, and a greater biomass and diversity of aquatic life.

## Maintaining and Manipulating Legal Levels

The new dam outlet structure will not need a detailed O&M Manual. The flood weir will not require any regular operations.

A base flow weir will have a low panel that when removed, will allow drawdown of 1'-2' in the case of embankment failure risk. This failure risk is primary due to seepage, piping or imminent overtopping. The base flow weir will also have provisions to add stoplogs when extended drought reduces base flow, which would lower the lake level below the legally established elevations.

Regular maintenance will be required, but should be very simple to accomplish. Routine observations of the dam will be necessary together with occasional removal of debris accumulation on and adjacent to the outlet structure. Additionally, the embankment will need to be mowed two or three time a year to prevent the re-establishment of brush or trees.

Other than these simple and regular activities, the district will need to solicit proposals for state mandated inspections every three years. If the licensed professional engineer who performs the inspections find other deficiencies, the assessment district will need to address them at that time.

## Estimated Overall Project and Individual Costs, Including Annual Costs

Muskegon County Department of Public Works is managing the actions to establish the assessment district and construct improvements to ensure the established legal lake level(s) can be maintained into the future. At a meeting with the involved and interested citizens, the Department of Public Works discussed the process and the estimated costs for the project. Those cost estimates are shown as follows:

| Construction:         | \$250,000 |
|-----------------------|-----------|
| Legal:                | 40,000    |
| Financing:            | 8,000     |
| Engineering:          | 35,000    |
| Contingency:          | 49,950    |
| Total Estimated Cost: | \$382,950 |

This cost split among 50 parcels equals \$7,659 per parcel. If the apportionment roll is by individual parties (couples acting as 1 party), the cost split among 43 parties equals \$8,906 per party. As a licensed professional engineer who has designed, constructed, repaired and inspected dams for over thirty years, it is my goal to reduce construction, engineering and contingency costs of every project (legal and financing expenses are dictated by others). My estimate is closer to \$250,000 total.

The Department of Public Works also estimated the annual maintenance cost at \$10,000. Similarly, I estimate that annual maintenance costs to be much less than this, considering the dam will be "brand new" and require very little attention for many years, except for regular mowing and triennial inspections.

Three expenses were not listed in that report: 1) Permitting; 2) Easement acquisition, and; 3) Insurance. Permitting is very likely to fit into the \$35,000 engineering budget. Easement acquisition should not be a large cost, but could rise to as much as \$10,000 when including negotiations and paperwork. Insurance should be included as an annual cost, whether handled by the county, the assessment district or by Mr. Webster himself. Adding insurance premiums into the annual costs raises my estimate to \$5,000 per year.

## Recommended Assessment District Boundary & Apportionment Methodology

Please refer to Exhibit F: Silver Creek Pond Assessment District Map and Owner List. The biggest issue was where the upstream (southeast) end should be located. If the pond elevation is raised to 591 +/- some additional parcels will benefit and should be included. We feel the district map is fair as shown, but are willing to listen to other testimony in circuit court and adjust the map if so ordered.

Muskegon County Department of Public Works proposes to apportion costs as follows. First, every parcel shall be assessed a baseline apportionment to cover hard costs that occur whether the court rules for or against the petition. The costs for legal and engineering are estimated to be \$75,000, resulting in a baseline apportionment of \$1,500 for each of the 50 parcels in the assessment district. Second, every person (individual, couple or trust being one 'person') is assessed an equal amount of the remaining costs.

Using the Muskegon County Department of Public Works cost estimate of \$382,950 (minus the \$75,000 baseline apportionment) each of the 43 parties would be assessed an additional \$7,162. Therefore, the lowest assessment would be \$8,662 for parties who own one parcel to a maximum assessment of \$11,662 for those who own three contiguous parcels.

Other assessment methodologies, such as lot frontage or parcel acreage resulted in such dramatic spreads in assessment totals they weren't deemed fair, based upon the similar benefits received by all parties by the forthcoming project. It is worth stating that the dollar amounts are estimates only, and that the final apportionment roll and final assessment amounts will be calculated when hard numbers are determined.

#### **Environmental Assessment**

We fully expect the State of Michigan to review the project scope and to visit the pond to provide their observations and opinions. Since various departments and divisions have differing mandates, it is likely there will be disagreements among them, especially regarding the elevation of the ultimate legal lake level(s). We will try to stay informed of their schedules and reports and respond as best as possible to Muskegon County and the court when so requested.

#### **Conclusions and Recommendations**

After diligent study of the site, the survey and other mapping resources, and the opinions and observations of the local residents, we have the following conclusions and recommendations.

#### **Conclusions:**

- 1) The existing dam is in very poor condition and needs substantial repairs or a re-build.
- 2) The owner of the existing dam does not have the financial resources to perform the needed work.
- 3) A large majority of the people who live on the pond have stated they are in favor of establishing an assessment district to protect and preserve their special resource by upgrading the dam.
- 4) Even after hearing the initial cost estimates from the county representatives, only one person did not favor the project.
- 5) The pond level has been lowered by the owner at least twice from its historic level, in response to concerns of the dam's safety. The pond level had typically been at elevation 590.5 NAVD before being lowered to 589.5 and 588.5 in the recent past.

#### Recommendations:

- 1) Establishing the legal lake levels at 591.0 NAVD (standard) and 589.0 NAVD (maintenance) is recommended to create a slightly deeper pond for colder water, greater oxygenation, healthier fish habitat and less weed and algae blooms over time.
- 2) Reconstruct the dam embankment crest elevation at a uniform 594.0 NAVD is recommended to remediate the irregular portions of the dam that are too low in elevation.

Setting the legal lake level at 591.0 and the dam crest at 594.0 provides excess dam safety protection as the entire 100-year runoff volume of 130 acre-feet can be stored without embankment overtopping with zero discharge through the existing or proposed outlet structure.

Similarly, the proposed outlet structure should be designed to convey the 100-year peak flood discharge while providing 1' of freeboard without performing flood routing through the pond.

