

Special Assessment Dredging Money Spending Plans

Pinnacle Lake is a man made water body that was created by the construction of a dam across a water shed stream valley. Man made lakes of this type are subject to sedimentation over time.

Sedimentation is a process that refers to the deposition and accumulation of both organic (plant) and inorganic matter in lake bottoms. Organic sediments are derived from living matter and represent an accumulation of plant and animal remains that settle to the bottom. In contrast, inorganic sediments are composed of nonliving materials and represent an accumulation of eroded soil sediments, particularly silt and fine clay particles.

As high loads of suspended sediments are transported into lakes and begin to settle they:

- 1) fill in the lake basin making the lake more shallow.
- (2) reduce the amount of surface area/decrease lake volume/storage capacity
- (3) reduce water clarity and decrease light penetration.
- (4) increase water temperatures and lower dissolved oxygen levels.
- (5) smother fish eggs and destroy bottom-dwelling life forms
- (6) stimulate nuisance algae blooms & provide additional rooting sites for water weeds.

Sediment problems are particularly severe in artificial lakes formed by directly impounding streams like was done when Pinnacle Lake was constructed. These mainstream impoundments disrupt natural drainage systems and serve as settling basins for sediments. They are more susceptible to heavy sedimentation than are natural lakes.

One of our main objectives in managing our lake is to keep the soil and excess organic matter (silt, sand, leaves, sticks, etc...) out of the lake waters. Proper management of the water shed involves insuring that land-use practices are implemented to prevent soil erosion upstream of the lake. Monitoring land use practices and minimizing the impacts of disturbances around the lake perimeter and along the upstream tributaries (the watershed) is essential in minimizing and controlling the lake sedimentation that is occurring.

Every activity that occurs in the lake watershed, including the upstream agricultural practices, land development, land clearing/logging operations, road construction, road maintenance and land disturbance associated with new development/ construction, affects the lake's water quality.

Reducing sediment levels and organic materials entering Pinnacle Lake from the watershed should be a major component in the planning and management of the lake. We need to be more proactive on how we manage development and maintain our existing properties and roads. Establishing policing procedures, sedimentation runoff controls, land disturbance regulations, demanding best management practices for storm water management/ erosion control and implementing manmade sediment controls is important. Pinnacle Lake Estates needs to look at ourselves and the third parties up gradient from the lake properties within our watershed.

Within the upstream watershed, we need to demand that wise agricultural and forestry practices be consistently conducted at all times. We need to demand that contour plowing practices and maintenance of vegetative barriers be employed by our upstream neighbors to keep the sediments where they are at.

We need to seek help from the counties, the state regulators, the agricultural and farming agencies to insure that proper land grading and terracing is performed between us and active farmed land. We need to push for installing soil stabilization structures and sediment traps where they are warranted. We need insure that agricultural operations maintain vegetative riparian corridors along the down gradient edges of fields where runoff may occur. We need to take every measure possible to reduce sediment rates into the streams that feed water into the lake. We need to encourage wise land use practices by upstream property owners while setting examples within our own PLE development for land disturbance sediment control.

The development, use and care of engineered storm water sedimentation basins, where possible, constructed above the coves needs to be considered for a wise use of our special assessment dollars that are being set aside for "dredging". The scope of the "future" dredging work to be performed has not been clearly defined and presented to the PLE members. Intermittent dredging in specific areas of the lake is not a long term solution to lake water quality management.

The establishment of natural freshwater marshes and/or small sedimentation lakes should be considered to be a vital part of the lake's watershed management. Upstream vegetative barriers and wetlands have a major beneficial influence on lake water quality by capturing and filtering out sediments and suspended solids that will ultimately find their way into the lake.

Wetlands and sedimentation ponds located up gradient from the lake will act as natural pollution and sediment control systems by collecting the sediments, trapping the nutrients and filtering the fertilizers out of the water that enters the lake. Erosion control barriers should be required during construction on lakeshore and upland lots.

Inexpensive erosion control practices such as employing straw-bale barriers or sediment retaining silt fences should be required for all work involving land disturbances within PLE. We need to try to limit construction activities within PLE during periods of high rainfall. We need to prohibit the inappropriate use of soil fill that can be eroded off a site and find it's way into the lake. Mandating the construction of small retention basins where land disturbance is being performed and rules for re-establishing vegetation promptly to minimize rapid runoff from recently excavated surfaces is important for preservation of the lake's water quality.

The best solution to lake sedimentation problems is to prevent eroded soil particles and excess sticks and leaves from entering a lake in the first place. "Preventative" solutions are much easier, more efficient, and a lot less costly than "restorative" solutions such as dredging. While it is possible to remove sediments from lake bottoms without creating more harm than good, the process is very difficult, lengthy and expensive to do properly.

Although dredging is the most direct way to remove unwanted sediments, it does not represent a solution to the long term problem. Lake dredging, in itself, can provide only temporary, cosmetic relief. It is not an economical solution to our problem. We have a problem that requires a long term solution and not a temporary fix.

There are many difficulties involved with dredging and careful consideration should be given to how it is performed to protect the overall lake water quality. How the sediments are removed, how much mixing occurs while they are removed and how the dredged materials are handled and disposed of by the dredging personnel can have serious adverse environmental impacts to the lake.

The creamy muck in the back of the cove at 3-pipes for example is like a "chocolate mousse" with a large water content per unit volume of "sediment"

material. Mechanical dredging will release the fines and nutrients tied up in the muck into the water. The quality of the lake water will be severely impacted and we could experience a large fish/ aquatic life kill off that will severely reduce the property values if we do not manage this remedial action properly.

No one has outlined a logical plan to properly dredge the lake so far. If they have, most of us are not aware of such a plan's existence.

It appears that most people are clueless as to what a properly executed project of this type will involve from a cost, time and implementation standpoint. We will need to get access agreements and/or purchase or lease access areas, set up proper roadways, establish water separation and management areas for the materials removed, and secure disposal sites outside of the water shed for the dredged materials. They can't be placed on the banks. The slop that will be removed can't be driven out of the lake in dump trucks as it will just run out the bank onto our roadways. The distance from the points of dredging to the sediment disposal sites will be significant. The contracting costs of hiring knowledgeable, experienced, well-equipped dredging contractors will be excessive.

The dredging operation spoils often contain large quantities of absorbed nutrients and will be released into the lake water during the dredging process. In addition, the dredging activity will suspend solids in the water and get distributed across the entire lake. These sediments will threaten the health of the aquatic life. Fish habitat throughout the lake can and will be impacted.

The proposed plan for dredging has not been presented to the property owners. No one has presented any figures on how much of the lake will actually be dredged. The extent of the dredging, the depth of the dredging, the volume of sediment material to be removed, the points of access to the lake perimeter that will be used to facilitate the dredging action has not been publically defined to the best of my knowledge.

With the amount of money the special assessment is going to raise, I assume that the extent of the dredging will be limited to the very back portions of the two (2) big coves where the larger streams flow into the lake. It is assumed that the objective of the planned dredging is to maintain an adequate water depth in the back of the two (2) big coves to provide a very limited, select group of homeowners/ property owners to be able to pull a pontoon boat back to their lake lot frontages. Risking damaging the lake's water quality (potentially for years) and hurting all of the property values in the Pinnacle Lake Estates development for the benefit of a relatively small number of property owners seems to be a selfish use of funds. Dredging canal type channels in the lake bottom will do nothing to solve the problem.

There needs to be a well defined thought out plan and a clear objective for the use of the special assessment "dredging" funds. We need to establish a defined set of actions that will be undertaken with the funds. The extent and magnitude of the dredging to be performed needs to be documented on paper and subject to review by all of the PLE stake holders.

Again, dredging is only a temporary fix. Our special assessment money would be better spent at this time on making other water shed improvements to control sedimentation of the lake that will benefit the majority of us, not a small minority of the total lot owners.

We come to Pinnacle Lake for the pristine water quality it has. We bought places at Pinnacle to enjoy the exceptional water clarity of the lake for swimming and fishing recreational resources it provides. If we turn it to "chocolate milk" for an extended period of time, there is a potential to devastate fish population and promote excess algae and aquatic plant growth

around the perimeter. Who is going to benefit from this action if it is not done improperly? I would think none of us will.

How long will the planned dredging go on? What are the plans for bank restoration where we destroy parts of it in order to excavate temporary canals in the lake bottom so that those that decided to buy lots and build on these narrow waterway passages can get bigger boats to their lots? We need to initially focus our limited funds on minimizing the rate of sedimentation entering the lake. We need to first focus on improving our water sheds projects that keep sediments from ever entering the lake.

On the east cove that backs to 3-pipes and the roadway, the lake narrows down very skinny and hooks to the right well before you get back there such that all you can do is dig out "a canal" on the east side of the cove that was once the creek bed. There is hardly any room to turn a boat around once you get back there as this was part of a narrow stream channel with banks that rose up steeply on either side.

If we dredge out a lake bottom canal for pontoon boats to be able to get back there and the property owners decide to put in docks or park pontoon boats back there, will there be any room to boat back there? Are we dredging it to make this area accessible to all so we can run our boats back there and turn around and come back out of there on the west side of the man made "lake bottom canal" like we driving around a cul-de-sac?

Surely those in the planning positions are not planning to dredge the whole cove out clear out to the public boat docks and ramp with the limited funds the special assessment will generate. What is the dredging objective in this cove? Please define what you plan to do, the extent of the dredging to be performed and how this will benefit the PLE Association as a whole.

In the back of the west cove, it appears that select individuals and/or private property developers elected to dig a "loop" type canal back in there up the former creek basin that was not part of the original lake in order to create "lake front lots" where there was once a meandering stream channel that fanned out in an alluvial manner across the valley floor.

It does not take an environmental scientist to see that this extension of Pinnacle Lake was created by individuals seeking to enhance private property values by digging out a narrow canal on private property along the creek's banks. A review of the readily available aerial photographs from Google Earth illustrates this pretty clearly (See Figures below).

You can see from the historical aerials that individual people(Phil Erzinger and others?) with lots in that area elected to dig a loop shaped canal up into this area of the creek in order to create a private navigation channel for boat access to subdivide lots. It is pretty clear that this canal was excavated up the creek to provide boat access and create water front properties that could be sold at a premium price for personal gain.

The extension of this cove to the north by digging a canal to provide for boat access up into this private property extended the lake boat access back into this area where it once did not exist. Rather than dig a cove, they dug a canal that would provide water frontage on both sides of the former creek which meandered across this area with a small island in the middle.

The 4-12-1995 aerial photograph attached below clearly shows that Pinnacle Lake as originally developed did not extend back into this area. Private parties for their own private benefit dug a private canal that connected to our lake and developed this ground to create "canal front lots" that were not originally on the lake. We should not be financially responsible for dredging this canal that loops up around the creek.

Is it appropriate to hold all of the PLE property owners responsible for chipping in funds to dig out this private loop canal that was constructed by digging out a channel deep enough for private property owner's to access their lots from the lake with small boats by navigation through a canal dug up the former creek bed? I do not think so.

Are you planning to dredge the entire cove out coming out towards the Pinnacle? What is the plan for the money we are going to accumulate with the special assessment?

My point of all this is that we need to focus our efforts on protecting the lake first before we scoop out some silt and rock to benefit a handful of private property owners. Excavating or dredging materials out of this canal to benefit the few and make room for more material to come in and take its place seems pointless. The dredging has been discussed for a number of years now with no basic concept plan being developed or presented to the other stakeholders at Pinnacle Lake.

Should our money not first go towards land acquisition upstream along the creeks to build some sort of sedimentation basins or other constructed wetlands to keep sediments out of the lake? What are we going to do to reduce the rate of silt and organic matter flowing into the lake? We need to do some critical thinking before we undertake poorly thought out knee jerk actions that have other consequences for the lake shareholders.

The Board needs to please share their thoughts with the rest of the property owners on what you are planning to do with the special assessment funds. Is there a written plan of action? Please disclose the plan for spending the special assessment money wisely that the association collects. PLEA needs to look at the big picture and how to solve the problem.

While it is unfortunate that the man made creek canal at the back of the large West Cove has been filling in over time, but it should not be PLEA's responsibility to maintain this by dredging. This is a private party matter for the property owners that have been effected by this natural process who elected to dig this out and/or buy places on the subject canal loop. I think that there will be many of us who feel that the funds will be wasted on special interests and not sound solutions that will extend the life cycle of the lake.

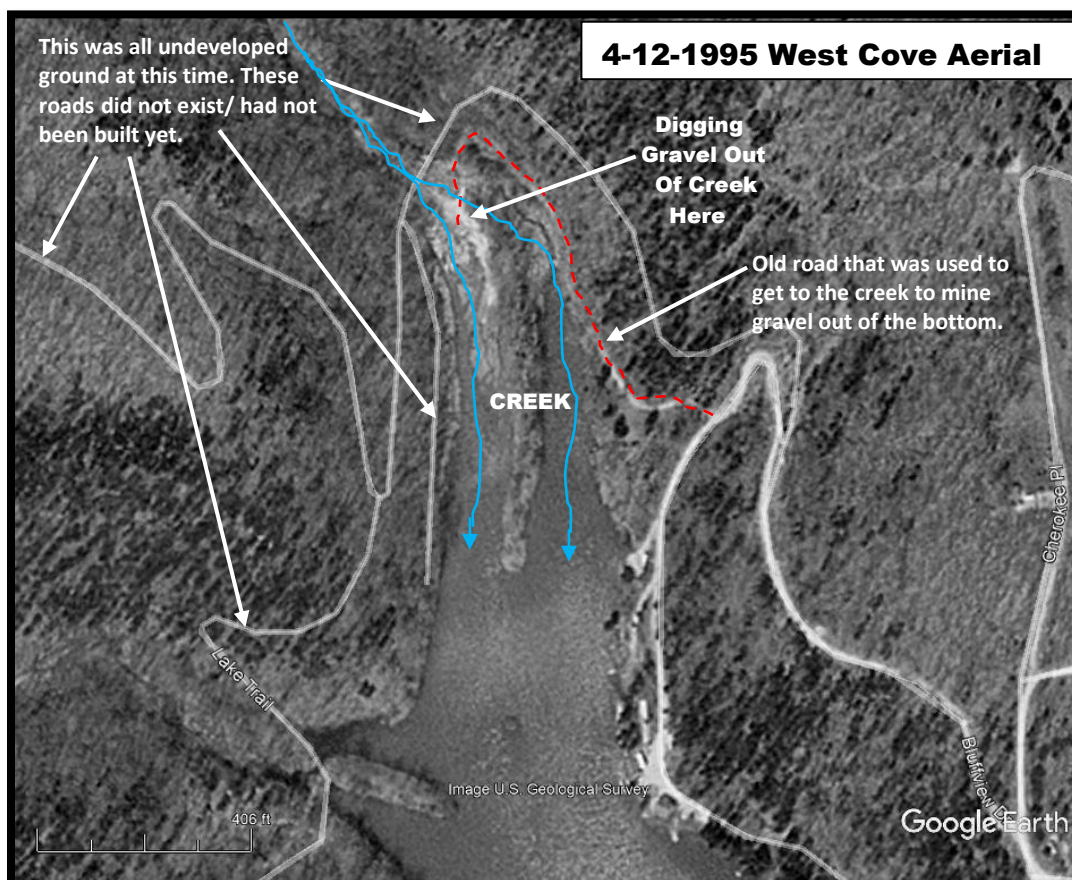
Please make the PLEA Board plans for managing and spending the Special Assessment money available to all of the property owners. We assume that there is a plan drafted and schedule for spending this money on appropriate corrective measures. Perhaps this could be posted online or emailed out to all of the PLEA lot owners for review and comment.

Thank you for your attention to this matter. We look forward to receipt of the planning documents that have been prepared by the board members or other third parties for management and expenditure of the Special Assessment Funds.

Sincerely,

Mark Lynch - Property Owner

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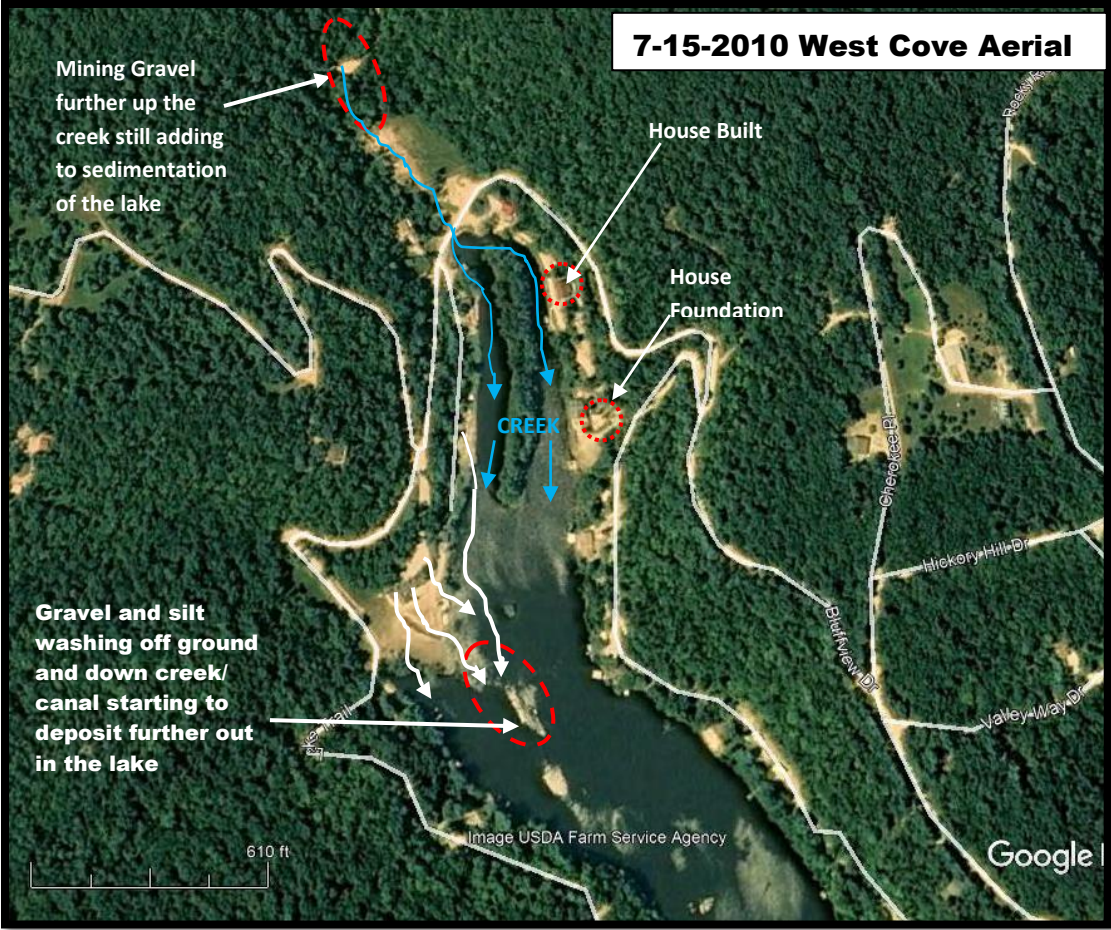


6-14-2005 West Cove Aerial

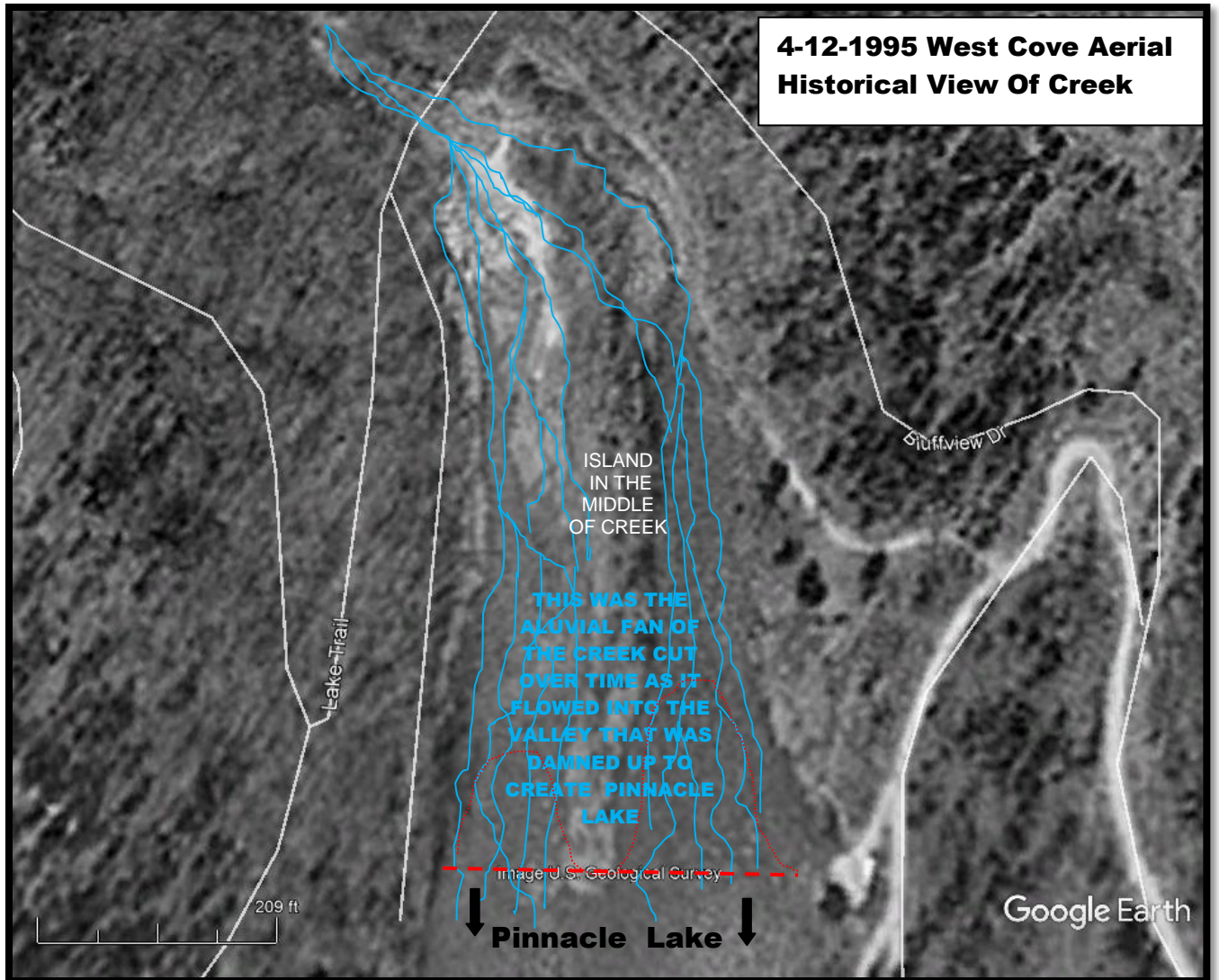


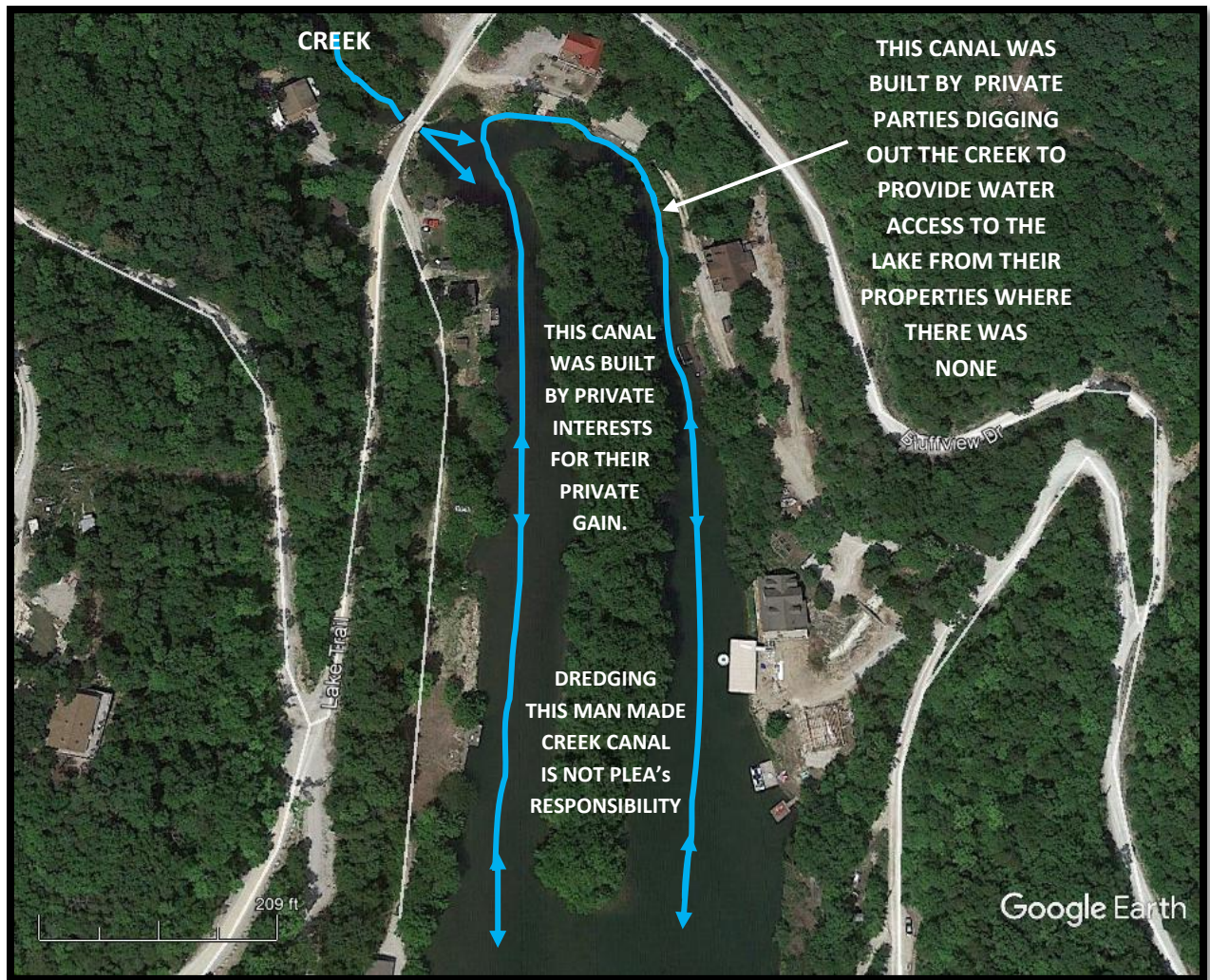
6-9-2006 West Cove Aerial





**4-12-1995 West Cove Aerial
Historical View Of Creek**





CREEK

THIS CANAL WAS
BUILT BY PRIVATE
PARTIES DIGGING
OUT THE CREEK TO
PROVIDE WATER
ACCESS TO THE
LAKE FROM THEIR
PROPERTIES WHERE
THERE WAS
NONE

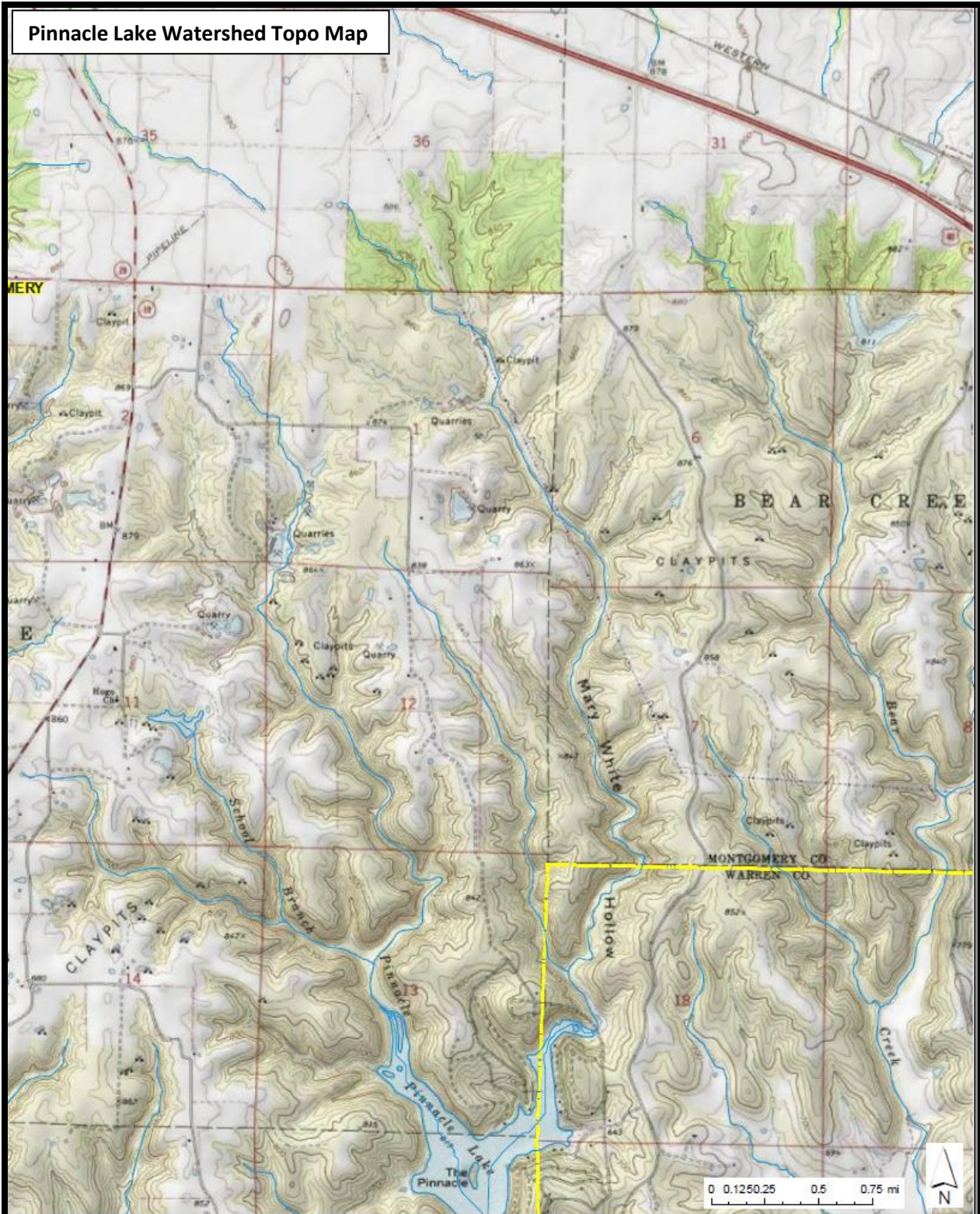
THIS CANAL
WAS BUILT
BY PRIVATE
INTERESTS
FOR THEIR
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DREDGING
THIS MAN MADE
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IS NOT PLEA's
RESPONSIBILITY

209 ft

Google Earth

Pinnacle Lake Watershed Topo Map



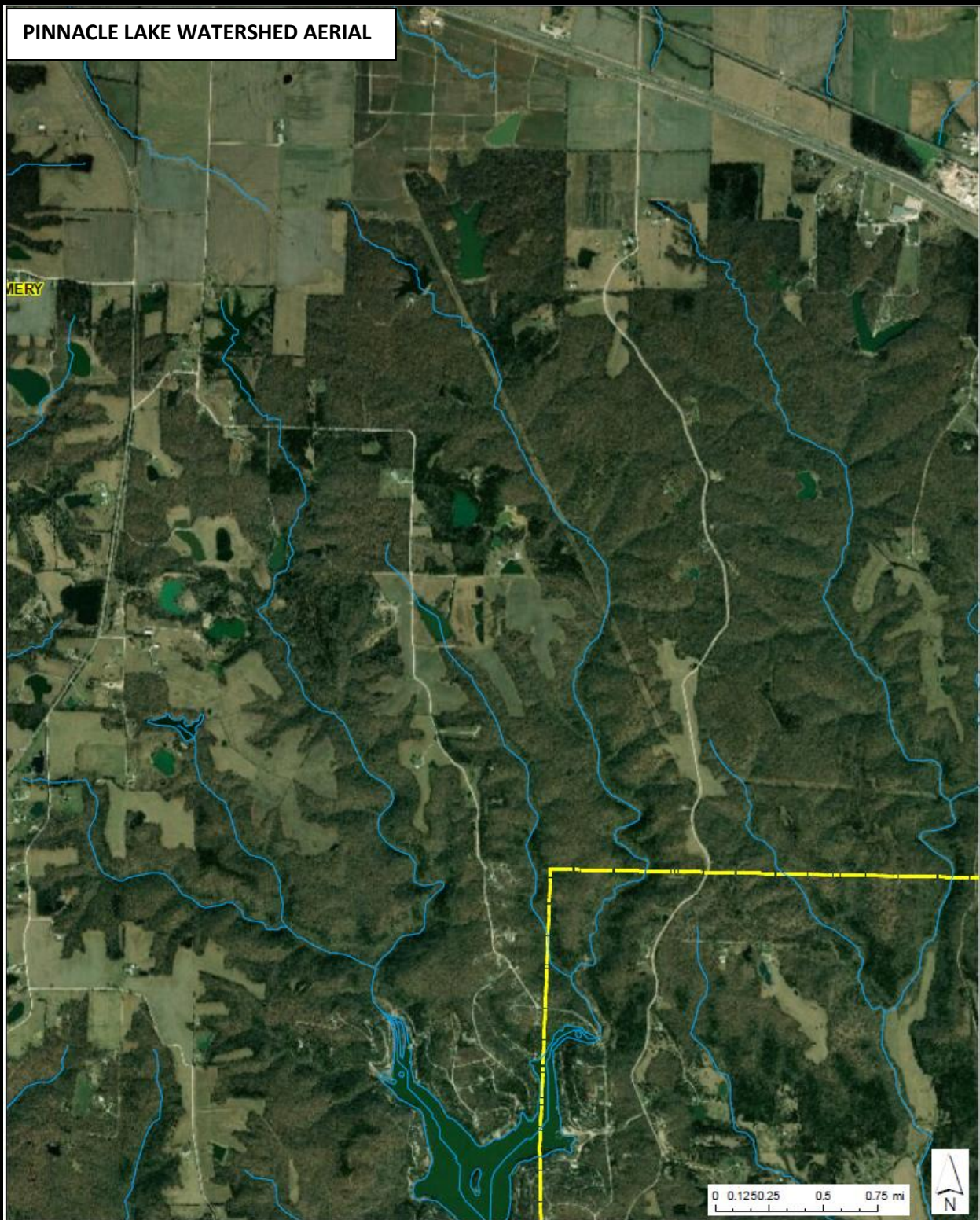
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PINNACLE LAKE WATERSHED AERIAL



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community 5/2019, 2:43:58 PM 2:44:01 PM CDT



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MDNR WATER SHED/ STREAM TEAM INFORMATION: <https://dnr.mo.gov/env/wpp/watersheds.htm>

