

APPENDIX A – DEPARTMENT OF THE ARMY PERMIT

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March 2, 2002

Regulatory Division
Atlantic Permits Branch
Merritt Island Field Office
200102464 (IP-EB) Lake Kissimmee
199805442 (MOD-EB) Lake Tohopekaliga
200102468 (IP-EB) Lake Marian
200102471 (IP-EB) Lake Hatchineha

Mr. Chris Michael
Florida Fish and Wildlife
Conservation Commission
Aquatic Resources Enhancement Section
600 N. Thacker Avenue, Suite A1
Kissimmee, Florida 34741

Dear Mr. Michael:

Reference is made to the three Department of the Army (DA) permit applications and one modification you submitted for work in Lake Kissimmee, Lake Tohopekaliga, Lake Marian, and Lake Hatchineha. The Florida Fish and Wildlife Conservation Commission (FFWCC) proposes to remove muck materials from these lakes and dispose of it in various in-lake areas and upland locations. The muck removal activities will occur when the lake levels are low enough to expose sufficient area to make operations feasible. The FFWCC is working with the Planning Division of the Corps on a drawdown schedule and the associated environmental impact statement (EIS).

This letter will address four closely related pending actions held in the Merritt Island Field Office, they are:

1. 200102464 (IP-EB) Lake Kissimmee
2. 199805442 (MOD-EB) Lake Tohopekaliga
3. 200102468 (IP-EB) Lake Marian
4. 200102471 (IP-EB) Lake Hatchineha

These four DA permit applications and the Corps' Lake Drawdown EIS are interrelated and interdependent and should be addressed together. The primary common issues include:

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1. The lake draw-down schedule and the Corps' development of an Environmental Impact Statement.
2. Effects of the draw-down and demucking activities on the snail kite and other Federally listed species.
3. The need of an alternatives analysis for filling activity associated with the placement of dredged materials in the in-lake spoil islands.

The primary objective of this letter is to discuss the information required by the Regulatory Division in the review of the four pending permit applications. The primary issue that will be handled by the Regulatory Division is the alternatives analysis of in-lake spoil island creation. Planning Division will request Section 7 consultation under the Endangered Species Act for any affected Federally listed species. This letter requests additional information on alternative disposal sites.

SPOIL SITES - ALTERNATIVES ANALYSIS

All four DA permit applications propose mechanical scraping of muck materials and placing the materials into mounds located within the exposed lake bottoms (waters of the United States). These mounds have been called wildlife islands or in-lake spoil islands. The in-lake spoil islands are considered fill in waters of the U.S. and are regulated under Section 404 of the Clean Water Act.

1. Regulations, Section 404

Section 404 of the Clean Water Act required the promulgation of regulations that guide the Corps' review of fill in waters of the United States. The Corps must consider alternatives during the application evaluation. This review is required by the National Environmental Policy Act (NEPA) and the Section 404(b)(1) Guidelines. Under NEPA, the Corps must give detailed consideration to reasonable alternatives that focus on the accomplishment of the applicant's and the public purpose and need for the project. The Corps is neither a proponent nor an opponent of the applicant's proposal which will be identified as the "applicant's preferred alternative." In addition, other project designs, or restrictions imposed as permit conditions may be evaluated. The no-action alternative will also be considered. This includes project modifications that would eliminate work under the jurisdiction of the Corps. Alternatives that are unavailable to the applicant, whether or not they require a permit, will be considered to the extent necessary to allow a complete and objective evaluation of the public interest. An alternatives analysis should include cost comparison analysis of upland disposal as opposed to in-

lake disposal. The analysis should consider all options that eliminate the need for filling activities within the lake system.

To satisfy the 404(b)(1) Guidelines, additional detail is sometimes required. One of the restrictions on discharges imposed by the guidelines is that no discharge of dredged or fill material shall be permitted if there is a practicable alternative that would have less adverse impact on the aquatic ecosystem. An alternative is considered practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose. If it is otherwise a practicable alternative, an area not presently owned by the applicant but which could be reasonably obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered. When the activity associated with a discharge into waters of the United States is not water dependent, practicable alternatives are presumed to be available and less damaging to the aquatic ecosystem unless clearly demonstrated otherwise. It is the applicant's responsibility to clearly rebut these presumptions. Additionally, the Corps wetland policy states that no permit will be granted to alter waters of the U.S. unless benefits are greater than the damage to the resource.

The Corps review of the disposal of dredged materials into waters of the U.S. should include a beneficial use analysis, and possibly an assessment of contaminants, as provided in the Inland Testing Manual. The EPA web page provides guidance on the management and disposal of dredged materials at www.epa.gov/owow/oceans/dmmp. The Corps is also concerned about the potential for concentration and eventual release of nutrients back into the lake systems.

2. Beneficial Uses of Dredged Materials:

The avoidance of filling waters of the U.S. (creation of in-lake spoil areas) must center on finding beneficial uses of the dredged materials. The dredged materials during the demucking operations have a high organic content, high water content, and high seed content. While the high organic content make the materials valuable to agricultural operations, the high moisture content makes transport difficult and costly. The high seed content makes the materials less desirable as an agricultural supplement. According to the Lake Management Plan for the Kissimmee Chain of Lakes (the Plan) the optimum drawdown and demuck cycle should be 7-10 years, while budgeting may limit the operations to every 12 years. A realistic cycle for discussion may be 10 years. It may be reasonable to consider the purchase of public access points along the shorelines. These areas could serve as permanent work staging areas, muck storage and drying areas, muck treatment areas for elimination of seed sources and muck marketing stations.

The materials located above the average water level appears to oxidize at a rapid rate. Materials located below the average water levels do not oxidize as rapidly. Spoil materials placed above average water levels appear to contain very little organic materials after only seven years of exposure. The remaining materials are primarily sand and clearly have economic value. As local land owners are educated about the future value of the lake dredge materials they may be more willing to allow stock piling of the material if granted ownership of the materials as compensation for use of their lands for storage.

Please provide a cost analysis of transporting the materials to processing locations that have been considered. The materials in organic form or sand by-product should have economic value. Please explain why there is no reasonable market for the materials. Have any efforts been made to study the beneficial uses and market options that are available? Has the FFWCC assessed the potential to promote through local advertisement, the availability of the muck, and sand materials.

3. Affects of the In-Lake disposal process:

The EPA and FWS have expressed concerns over potential that the muck materials transported to the in-lake spoil island may contain higher concentrations of metals and pesticides than the surrounding water column. Organic materials typically sequester metals and pesticides. The Corps has reviewed the materials provided in response to the EPA letter dated July 10, 2001, and FWS letter dated October 5, 2001. Results of sediment testing was provided in that response. The Corps will forward the materials to the EPA and FWS. Preliminary review of the testing data raises several questions involving the sampling procedure. While the results indicated no excess levels of metals, there was no conclusion assessment of pesticide levels. The test data indicates that organochloride pesticides were undetectable. There is no summary of the results from the lab as was provided in the case of the metals. Were the samples taken from unconsolidated lake sediments or from the dredged mucks collected from removal or in-lake disposal. The in-land testing manual discusses identification of contaminant sources and concentration of testing efforts in these locations. Please provide an assessment of the various contamination sources and a comparison of the sediment testing results.

The FFWCC provided discussions on the nutrients held in the muck materials and their part in the total lake nutrient loads. The materials provided do not contain information on the long term fate of the nutrients in the in-lake disposal islands and nutrient loads within the entire lake system. While the FFWCC's project purpose may

only be concerned with the relocation of the physical built up of excess organics, the Corps, FWS and EPA are concerned with the nutrient buildup in the lake system. The project proposal has the potential to reduce the organic build up and reduce nutrient loads. The assessment of the project purpose and public interest of the proposed activities must consider the total nutrient budget of the lake system. Please provide an assessment of the amounts of nutrients in the muck materials left in the lake system in relationship to the entire lake system.

Under what environmental and weather conditions were nutrient levels tested in the water column. As the spoil islands reduce in volume what is the fate of the nutrients found in the organic materials. Observations of the in-lake spoil islands indicate no efforts are made to control run-off. Are there any plans or techniques that will be followed to stabilize the in-lake disposal areas? Are there any plans or techniques proposed to vegetate the in-lake spoil islands? Are there any plans for vegetation monitoring plans (frequency of monitoring, follow up actions)?

4. Cost analysis of various options:

Please provide a fact based assessment of the options discussed. The alternatives analysis of the in-lake disposal method is based primarily on cost. Please provide cost assessments of the various muck management and transportation options.

5. Comprehensive Lake Management Plan:

The Corps has reviewed the Plan. The plan does little to consider a comprehensive nutrient control program for the Kissimmee chain of lakes, overall nutrient control for the entire lake system, control of agricultural and residential run-off, primarily in the north end of the chain of lakes. EPA and FWS suggest a lake system wide management plan that incorporates control of nutrient inputs from upland runoff, demucking program with total removal of nutrient laden mucks, and monitoring of problem areas.

Past demucking efforts relied primarily on drawdowns, discing, burning and herbicide applications. The practice of creating in-lake spoil islands is a very recent development. The Plan provides little guidance on in-lake disposal islands. The construction of in-lake disposal islands represents permanent changes to the lakes that may have unintended and potentially detrimental consequences to the lake's ecosystem.

The FFWCC should consider the recommendations provided by the FWS in the October 5, 2001 letter, under the Fish and Wildlife Coordination Act's portion of that letter. The resource concerns

listed in that section have merit and should be addressed before the use of in-lake spoil islands becomes a common practice throughout the lake system.

ENDANGERED SPECIES ACT AND SECTION 7 COORDINATION

During the review of the original permit request for work in Lake Tohopekaliga under application number 199805442, the Corp determined the action may affect, but is not likely to adversely affect the bald eagle and snail kite. By letter dated January 21, 1999, the FWS concurred with the determination on the bald eagle but indicated the need for additional information to evaluate the potential effects on the proposal on the snail kite. The Corps issued the permit on May 12, 1999. By letter dated, October 5, 2001, the Corps was informed that proper coordination under the Endangered Species Act was not properly performed. The Corps has reviewed the record and concurs that the evaluation of the action on the snail kite as required under the ESA was not properly completed.

Since the FWS did not concur with the may affect, not likely to adversely affect determination made by the Corps the requirements of the Endangered Species Act have not been met. Due to the incomplete consultation on the Everglades Snail Kite, as required under Section 7 of the Endangered Species Act the Corps strongly suggests no additional demucking operations occur until the permit modification request is completed and the deficiencies of the existing permit DA permit number 199805442(IP-EB) are corrected.

Additionally, the work proposed along the chain of lakes may affect the Audubon's caracara, bald eagle, wood stork, red-cockaded woodpecker, Florida grasshopper sparrow, Florida scrub-jay, and the eastern indigo snake.

As previously indicated the Corps' Planning Division will request Section 7 consultation under the Endangered Species Act for these Federally listed species affected by the drawdown and demucking operations proposed.

LETTERS FROM FEDERAL AGENCIES

The Federal resource agencies have provided comments to the Corps on the four actions being considered and grouped together here in this review. All issues raised in these letters must be addressed. The Corps has reviewed the FFWCC response to comments provided in the EPA letter dated July 10, 2001 and FWS letter dated October 5, 2001. Specific discussion and additional clarification has previously been provided in this correspondence.

The FWS letter dated January 21, 1999, was in response to the Corps' December 22, 1998, Public Notice for work in Lake Tohopekaliga. The Public Notice indicated the project may affect, but is not likely to adversely affect the snail kite. The FWS letter requested information on the projects affects on the snail kite and provided no position the Corps determination. The information was never provided to the FWS and the DA permit was issued.

The FWS letter dated September 22, 2000, was in response to the Corps' Notice of Intent to Prepare Draft Environmental Impact Statement for the Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement. The letter provided comments to the Planning Division. The letter supported the practice of lake drawdown, suggested limiting nutrient loading of the lake system and questioned the practice of in-lake disposal.

The EPA letter dated May 9, 2000, was in response to the Notice of Intent to Prepare Draft Environmental Impact Statement for the Lake Tohopekaliga Extreme Drawdown and Habitat Enhancement. The letter provided comments to the Planning Division. The letter supported the drawdown practice, warned that nutrient loading of the lake system should be controlled, and discussed potential problems associated with in-lake disposal.

The EPA letter dated July 10, 2001, provided comments on the public notice dated June 18, 2001, noticing DA application 200102464 for work in Lake Kissimmee. The letter supported the drawdown practice, warned that nutrient loading of the lake system should be controlled and discussed potential problems associated with in-lake disposal.

The FWS letter dated October 5, 2001, provided comments on the request to modify DA permit 199905442 for work within Lake Tohopekaliga. The letter explained why the required Endangered Species Section 7 consultation on the snail kite was incomplete. The letter repeated requests for information from the original letter and requested additional information. The letter explained why the FWS considers the EIS on the drawdown and the DW permit modification to be interrelated and interdependent.

The FWS letter dated November 9, 2001, provided comments on the Corps' public notice dated August 24, 2001 for work in Lake Marian. Significant issues on effects on the snail kite, muck removal, drawdown schedules, and in-lake disposal were presented.

The FWS letter dated November 21, 2001, provided comments on the Corps' public notice dated June 18, 2001 for work in Lake Kissimmee.

Significant issues on affects on the snail kite, muck removal, drawdown schedules, and in-lake disposal were presented.

SPECIFIC COMMENTS ON THE FOUR PENDING PERMIT ACTIONS

1. 200102464 (IP-EB) Lake Kissimmee

By letter dated September 17, 2001, the Corps forwarded comments and requested additional information. Most of the issues raised in that letter are more specifically presented in this letter and may be addressed comprehensively. Under what water elevations will this proposal be performed? How does the Lake Kissimmee demucking proposed in the project rely on the drawdown proposed in the "Lake Toho Extreme Drawdown and Habitat Enhancement Project" EIS?

2. 199805442 (MOD-EB) Lake Tohopekaliga

Reference is made to the Department of the Army permit application you submitted to modify and extend the work in Lake Tohopekaliga authorized under Department of the Army permit number 199805442 (IP-TB). The FFWCC proposes to increase the amount of dredge materials from 4 million cubic yards to 6.7 million cubic yards of material from Lake Toho. The FFECC also requests two additional in-lake disposal islands for the deposition of dredged muck materials. These two new in-lake disposal islands are proposed for research by the University of Florida. The lake draw down schedule is presently under review by the Corps' Planning Division and South Florida Water Management District.

The Environmental Protection Agency (EPA), Florida Department of Environmental Protection (DEP), Mr. Ben Speight of the Shady Oaks Ranch, and Mr. Gerald M. Ward expressed concerns about this project. The EPA is supportive of these enhancement projects, but they are concerned about the increasing number and impacts of these spoil islands in the lakes. They are requesting an alternative analysis. The DEP objects to this project as they have experienced problems associated with the spoil islands including aesthetics, exotics, and lack of cooperation with your agency. Mr. Speight says that the previous placement of muck and organic material created an unsightly view for their tenants. Mr. Ward also objected to issuance of this permit as he feels that not enough information was provided. Copies of the comments are enclosed and specific remarks have been highlighted for your review and response.

Information indicates all the spoil islands authorized in the issued DA permit have not been constructed. Please assess the possibility of using existing or previously permitted spoil islands

for the research location. The permitted or existing spoil areas may be reconfigured to meet the needs of the research design.

3. 200102468 (IP-EB) Lake Marian

Based on the information provided the Corps determined the project proposal is not likely to adversely affect any Federally listed species. The FWS stated in their letter dated November 9, 2001, that they cannot concur with the Corps determination. The FWS indicated the presence of eight Federally listed species that should be considered by the Corps, they are; the Everglade snail kite, Audubon's caracara, bald eagle, wood stork, red-cockaded woodpecker, Florida grasshopper sparrow, Florida scrub-jay, and the eastern indigo snake. Since the project proposal includes in-lake disposal and is associated with the "Lake Toho Extreme Drawdown and Habitat Enhancement Project" EIS all the issues previously raised in this letter will apply to this application.

4. 200102471 (IP-EB) Lake Hatchineha

The Corps has an application for demucking activities in Lake Hatchineha that are connected to the "Lake Toho Extreme Drawdown and Habitat Enhancement Project" EIS. The proposal appears to affect the entire shoreline of the lake, down to at least 48.0 feet msl. Please provide specific information describing the limits of the work area. The proposal includes the removal of muck to upland areas and into in-lake disposal areas. Please provide specific areas of muck in-lake disposal, the number of in-lake spoil islands proposed and their areas. All the avoidance and minimization discussion previously discussed must address work in this lake system.

The project proposal will be placed on a public notice upon receipt of sufficient information. The review of the proposal will be associated with the "Lake Toho Extreme Drawdown and Habitat Enhancement Project" EIS assessment.

SUMMARY

Due to the incomplete consultation on the Everglades Snail Kite, as required under Section 7 of the Endangered Species Act, and the lack of a sufficient Alternatives Analysis on in-lake spoil fill, as required under Section 404 of the Clean Water Act the Corps strongly suggests no additional demucking operations occur until the permit modification request is completed and the deficiencies of the existing DA permit number 199805442 (IP-EB) are corrected. The information requested in this letter will be used to make an alternatives analysis of the in-lake disposal areas. The Regulatory

Division will utilize the results of the Section 7 consultation provided to the Planning Division by the FWS.

Please provide the information requested in this letter and all the attached letters from the FWS and EPA. The FFWCC should seriously consider a comprehensive approach to the lake restoration activities occurring in the Kissimmee Chain of Lakes.

The above information must be provided for us to complete our public interest review. Any other information you feel may be helpful in order to justify the project should also be submitted at this time. Any questions concerning the application should be directed to Stephen Brooker at the Corps of Engineers Merritt Island Regulatory Field Office, 2460 North Courtenay Parkway, Suite 216, Merritt Island, Florida 32955 or at 321-453-3020.

Sincerely,

Oswaldo Collazo
Chief, Atlantic Permits Branch

Enclosures

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March 27, 2002

Steve Brooker
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Dear Mr. Brooker:

This letter is in response to the United States Army Corps of Engineers (USACE) letter dated 6 March 2002. The first two issues outlined on page 2 of the letter are being addressed through the Environmental Impact Statement and formal consultation process with the USACE Planning Division. Therefore, the Florida Fish and Wildlife Conservation Commission (FWC) will limit discussion to the third issue known as an "alternative analysis" for filling activities (in-lake disposal islands).

USACE statement, page 3, number 2: "While the high organic content make the materials valuable to agricultural operations..."

FWC comment:

The value of scraped material for agricultural purposes has been determined by local ranchers to be undesirable primarily due to the unwanted seed base that exists in the spoil resulting in degradation of existing pasture grasses. Additionally, this often requires management to control at a cost absorbed by the rancher.

FWC staff have determined that additional treatment of the soils may have to be implemented in order to convince local ranchers to accept scraped material. A strategy is being discussed that would allow us to utilize upland disposal on some ranchers property, but at an additional cost to the project. Based on information ranchers have provided us, spoil material needs to be leveled, treated with at least 1,500 lbs of lime per acre, and seeded with pasture grasses. Approximately, 1,613 cubic yards of material can be spread over one acre at an average depth of one foot. To remove, transport and level this amount of material to an average depth of one foot per acre, the cost would be \$2,420/acre based on \$1.50 a cubic yard. Add to that an estimated cost of \$1,420/acre for lime, fertilizer, mulch and seed with Pensacola Bahia Seed (Argentina is even more expensive) and the total cost per acre of disposed material

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would be \$3,839.50/acre. Treating the soil with lime, fertilizer, mulch and seeding brings the total cost to \$2.38 a cubic yard (an increase of 59%).

Based on the estimated 6.7 million cubic yards present and an average of 1,613 cubic yards/acre, FWC staff would need to locate 4,154 acres of land for disposal use. If this amount of land were available and hauling distances were within one mile and contractors treated the soil with lime, fertilizer, mulch and seed, the project cost would now be \$15,946,000. The estimates from above for lime came from Lesco Service Center - Orlando - 407-870-8600 on March 18, 2002. The estimated cost of fertilizer, mulch, seed and labor came from Mack Construction Company 407-908-9650 on March 18, 2002.

Many local ranchers have been approached about this idea and some are interested; however, the problem comes from the loss of pasture for the interim time while the newly seeded pasture matures. Each rancher currently raises a number of cattle on each acre. If available pasture acreage is lost, each rancher would have to sell cattle or supplementally feed at an additional cost to the rancher. Other problems may still persist with undesirable plants competing with the desired Bahia grass. To offset or control this problem, herbicides may be needed and again the cost per acre rises and would have to be absorbed by the rancher.

Additionally, one local rancher has stated a simple fact that he and other ranchers have reduced their ownership of acreage and what remains is currently prime productive pasture. The rancher asked us why should they use their good pasture? Each rancher has had to face selling off marginal lands, where this material might have actually benefitted them, because of taxes.

USACE statement, page 3, number 2: "It may be reasonable to consider the purchase of public access points along the shorelines".

FWC comment:

There is adequate public and private access points to the shoreline of Lake Tohopekaliga. The problem is not access, but identification of suitable upland disposal sites. However, access to a shoreline can be problematic if the shoreline to be scraped is surrounded by wetland conditions (i.e. too wet to mobilize and demobilize heavy equipment). Highly developed areas, such as on the north end of Lake Tohopekaliga do create access problems and very few open lots remain.

Many of the local subdivisions have small lots, bordering along the lake's edge, and some lakefront landowners have canals and boat docks that limit access even if we can get the equipment on the lake bottom. These areas create difficult corridors for access, but land purchase is unrealistic due to the fact that land costs are very high (\$150,000 - \$250,000/lot), open lots are very limited or do not exist at all. FWC Division of Fisheries Director, Ed Moyer, has said repeatedly, "FWC can not use this money to purchase land".

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Comprehensive Land Use plans would have to be changed if land were available. Most of the land around Lake Tohopekaliga is or has been platted for subdivisions and a huge upland disposal site would require drastic land use changes. Where agriculture land (>10 acres in size) is present the cost again would be tremendous (conservatively, \$50,000 - \$100,000/acre).

If FWC were to investigate land purchase further this information would have to be considered:

1. Muck on one acre ($43,560 \text{ ft}^2$), stacked 10 ft high = $435,600 \text{ ft}^3/27 = 16,133 \text{ yd}^3/\text{acre}$ could be disposed of
2. Total muck present - $6,700,000 \text{ yd}^3$ (as of August 2000)/ $16,133 \text{ yd}^3 = 415$ acres would be needed.
3. If available and using the cost/acre above, just the land cost would be - \$20,750,000 - \$41,500,000.

Again, upland land purchase for disposal is cost prohibitive.

USACE statement, page 4, number 2: "The remaining materials are primarily sand and clearly have economic value".

FWC comment:

To a part this question has some merit. Depending on each island's size and exposure of the organic material to the elements; yes the organics do break down through time and sand will remain. However, this exposure (again depending on size of the island) can easily take 15 to 20 years to see all or most of the organic material decompose. Since the first islands were built in 1994 on Lake Jackson, Osceola County, Florida, not enough time has passed to see a complete decomposition of this material. It is FWC's staff experience that a sand shell forms over the island as the exposed organic material decomposes very rapidly. Internally, however, organic material remains prevalent. Recently, FWC staff confirmed that a large amount of organic material is still present in the interior of an island (near Lake Kissimmee State Park) constructed during the 1996 Lake Kissimmee Project.

FWC staff over and over again have tried to find someone (contractors, dirt haulers, muck farms, etc.) or some company (peat mining companies, vegetable farms, sod farms, fertilizer company, etc.) to find a use for this material. To date, no one has found a use for it. Often the cost of transporting the material makes it economically infeasible.

Pure sand may have some economic value, but to date no FWC staff member has been able to find anyone willing to use this material for any economic gain, and we have tried. Most ranchers and landowners recognize that the material has a very low, if any, economic value and can actually wind up costing them in the long run.

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The "beneficial uses of dredged materials" have been investigated and will continue to be aggressively investigated. To date, FWC staff has offered the material, at no charge to anyone interested and our contractors would actually load it onto their trucks at no cost. Material was offered to all local fill contractors, mulching companies, engineering firms that specialize in waste products and recycling and Department of Transportation (DOT) shoulder enhancement, road stabilization and mitigation projects. All of these investigations were unsuccessful endeavors.

Additionally, in 1990, during the East Lake Tohopekaliga Project, FWC staff offered any amount of the material desired to the general public, again at no cost. A pile of removed material was placed at a very accessible location and less than 25% of a two dump truck load pile was actually removed by the public.

Again, every avenue of use that FWC staff can think of has been pursued and we have found no takers. Let it be understood that all FWC staff members that work on these types of projects statewide will continue to pursue any and all ideas for future use of this organic based material and we hope a solution is found soon.

USACE statement, page 4, number 3: "While the results indicated no excess kinds of metals, there was no conclusion assessment of pesticide levels."

FWC comment:

The laboratory that conducted the testing provided a summary for lead (a heavy metal) which was detected. A summary was provided so that the reader would better understand the implications of lead being present in the samples. The other metals and organochloride pesticides that were tested for were undetected and therefore should require no explanation or summary.

Pesticide levels were tested and found not to be present at detectable levels. What more needs to be said? No contaminants were present in the muck samples (collected by a certified chemist) and analyzed in a certified laboratory (by a certified chemist) that does similar testing on a daily basis. The laboratory used was Environmental Conservation Laboratories, Inc. (ENCO) Orlando, 10207 General Drive, Orlando, Florida 32824 and is State Certified by the State of Florida, Department of Health, Bureau of Laboratories #E83182.

USACE statement, page 4, number 3: "Were the samples taken from unconsolidated lake sediments or from the dredged muck collected for removal or in-lake disposal?"

FWC comment:

Before FWC staff deposits material upland or in-lake, existing unconsolidated sediments in proposed scrape areas of the lake are tested. Each sample was analyzed by a Certified Laboratory (ENCO) for heavy metals and organochloride pesticides. Samples were collected from areas where discharge from the surrounding watershed occurs (for example, Mill Slough, Shingle Creek, etc.). These areas have the highest

probability of containing elevated levels of contaminants. Yet, each sample indicated pesticides were not present at detectable levels.

USACE statement, page 4, number 3: "The island testing manual discusses identification of contaminant sources and concentration of testing efforts in these locations".

FWC comment:

FWC staff members have no knowledge of possible contaminant sources. The surrounding uplands of Lake Tohopekaliga is either been developed with houses or is used for ranching (low density range cattle). FWC staff will contact the Department of Environmental Protection (DEP) to identify any known contaminant sources. The results of this inquiry will be forwarded to the USACE as soon as they respond to our inquiry. If any unknown possible pollutant source is brought to our attention by the DEP information, FWC will test each area as we have done before.

USACE statement, page 5, number 3: "Please provide an assessment of the amounts of nutrients in the muck materials left in the lake system in relationship to the entire lake system".

FWC comment:

As stated in earlier correspondence, FWC staff believes in-lake disposal islands do not act as a point source of nutrient load according to past data collected on lakes Jackson in Osceola County (Attachment 1), Orange Lake in Alachua County (Attachment 2) and Lake Istokpoga in Highlands County (Attachment 3). Expert opinions have been requested in the past regarding potential water quality impacts by in-lake disposal construction which indicate little if any negative impacts (Attachments 4, 5 and 6). An FWC staff chemist (Mr. Ted Lange, Eustis, Florida) believes that nutrients will be internally trapped within the island.

However, in an attempt to further document what we firmly believe concerning these water quality issues, FWC staff, is having a proposal drafted by University of Florida, Department of Fisheries and Aquatic Services to address nutrient loads in the lake including in-lake disposal. Additionally, the proposal will include a further pesticide and heavy metals study and plans are to further determine any effects caused by constructing in-lake disposal islands on the surrounding water column, fish and wildlife. Once a proposal has been drafted, FWC staff will determine the possibility of funding and starting the study. If accepted and funded, FWC staff will forward a copy of the proposal and the final paper to the USACE.

USACE statement, page 5, number 3: "Are there any plans or techniques that will be followed to stabilize the in-lake disposal areas? Are there any plans or techniques proposed to vegetate the in-lake spoil islands?"

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FWC comment:

FWC staff has changed, at the request of FWC Game Management biologists, the design of in-lake disposal islands construction by adding a plateau around each island's circumference which serves as an alligator resting spot and wave break thus limiting erosion. Additionally, aquatic, semi-aquatic and terrestrial vegetation quickly reestablishes on each island naturally and usually very rapidly. If revegetation becomes necessary to stabilize any or all of the islands, FWC staff will see that proper native vegetation is transplanted as necessary. The need for transplanting of native plants on any island will be addressed after the first six (6) months the islands have been in place.

USACE statement, page 5, number 3: "Are there any plans for vegetation monitoring (frequency of maintaining, follow up action)?"

FWC comment:

FWC staff will regularly (whenever on the lake and/or every other month) visually monitor all in-lake disposal islands to ensure vegetation is being established as well as monitor exotic and/or invasive native species. Any problematic plant species will be aggressively controlled through herbicide applications as needed, in conjunction with DEP.

One on-going University of Florida study, already funded by FWC, includes analysis of vegetation on some of the islands. This study proposal has been provided in the recent past and a copy of the final report will be forwarded to USACE when completed.

USACE statement, page 5, number 4: "Please provide cost assessment of the various muck management and transportation options".

FWC comment:

There are currently only two viable options for disposal of the organic material, either upland or in-lake. Upland disposal is only cost effective when hauling distances are within one mile from the removal site on the lake bottom. FWC staff have initiated contact with many upland landowners around Lake Tohopekaliga to secure upland disposal sites where feasible and this effort will be stepped up as the project's start date nears and we feel more assured the project will finally take place.

FWC staff have also contacted staff from the South Florida Water Management District (SFWMD), Osceola County and Florida DOT to discuss possible upland disposal options that might be available from each of these agencies. This dialogue is ongoing.

Cost of removing the organic material is currently very reasonable (\$1.09/cubic yard-statewide contract in 2001); however, this cost is based on a one way hauling distance of up to one mile from the removal location. Costs associated with this project dramatically increase once the hauling distance exceeds one mile one way condition.

An example of using our 2001 statewide contract of \$1.09/cubic yard and an additional \$0.30/cubic yard hauled per mile for each additional mile beyond the first one way mile for the Lake Tohopekaliga Project would be :

Based on the targeted 6,700,000 cubic yards to be removed:

- up to one mile	\$ 7,303,000
- over one and up to two miles	\$ 9,313,000
- over two miles and up to three miles	\$ 11,323,000
- over five miles and up to six miles	\$ 17,353,000
- over ten miles and up to eleven miles	\$ 27,403,000

Another example of increased cost per cubic yard of material removed from our lakes comes from a recent (April/June 2001) project conducted by Citrus County (Mr. Tom Dick, 352-527-7620) where the County oversaw an organic sediment removal project from in-lake boat trails in the Tsala Apopka Chain of Lakes at a cost of \$16.05/yd³. This cost was based primarily on the distance to the disposal sites and restrictions placed upon them by both permitting agencies (DEP and USACE) for no in-lake disposal. Based on this \$16.05/yd³ cost for the Citrus County project, the costs of the proposed Lake Tohopekaliga project would be \$107,535,000 representing a project increased cost of 1,472%. Currently, Citrus County can not clean any additional boat trails due to the high cost of this operation.

USACE statement, page 5, number 5: "The plan does little to consider a comprehensive nutrient control program for the Kissimmee Chain of Lakes, overall nutrient control for the entire lake system, control of agricultural and residential run-off, primarily in the north end of the chain of lakes".

FWC comment:

Although nutrient abatement is important and should be curtailed, the 2002-2003 Lake Tohopekaliga Drawdown and Habitat Enhancement Project is not a nutrient control management plan and **FWC is not the agency in charge of nutrient related problems in the system!**

The objective of the project is to enhance the littoral zone to reestablish quality fish and wildlife habitat, thus the name of the project. Moreover, the FWC has not been charged to manage water quality, instead DEP, SFWMD, United States Fish and Wildlife Service (USFWS) and Environmental Protection Agency (EPA) are responsible agencies for protecting water quality. However, we have included a newly published water quality paper (Attachment 7) titled: "Effects of Point-Source Removal on Lake Water Quality: A Case History of Lake Tohopekaliga, Florida" published by Mr. Vince Williams (previous FWC Project Leader for the Kissimmee Chain of Lakes from 1972 - 1991). This report may enlighten other agencies to FWC's history about working to improve Lake Tohopekaliga's water quality, as this entire nutrient removal program was initiated by the local community at the guidance of FWC staff members. By removing the four sewage treatment plant discharges from the Lake Tohopekaliga tributaries, reductions of 95%, 80%, 50% and 30% were seen in ortho-phosphorous, total

phosphorous, nitrogen, and chlorophyll _a values, respectively, by 1998. Secchi disk transparencies increased an average 50%.

All FWC staff members are in favor of management programs that address problematic nutrient issues. FWC staff also believe the Lake Tohopekaliga project will not negatively impact water quality and as stated earlier, plan on working with the University of Florida to further document effects that may occur, if any. FWC staff also want to support any of the agencies in charge of water quality to be proactive and start a full blown study and/or implementation of any approved nutrient abatement project that is necessary for the entire Chain of Lakes. Rest assured FWC will be there to support you in every way possible.

USACE statement, page 5, number 5: "Past demucking efforts relied primarily on drawdowns, discing, burning and herbicide applications. The practice of creating in-lake spoil islands is a very recent development".

FWC comment:

In the 1970s, drawdowns alone resulted in improvements to the littoral zone habitat and the fishery. Positive results were achieved from a reduction of the flocculent organic material drying up, consolidating and the reestablishment of a more diverse and increased desirable aquatic plant community. The amount of fibrous organic material that has accumulated since the inception of flood control in 1965 slowly accumulated initially. Then through time, exponential accumulation of the fibrous organic material has occurred. Nearly, 40 years of fibrous organic accumulation has resulted in new strategies to remove the material which include heavy equipment and in-lake disposal islands. Drawdowns alone, and primarily due to their limited exposure time to accomplish the necessary drying, is no longer enough to improve the littoral habitat. Demucking, while the lake is drawn down for the anticipated 90 day period, is the only known option that works using today's knowledge. In order to demuck the littoral zone and allow for an enhanced vegetated community to germinate on a hard sand substrate, heavy equipment is needed to scrape off the organic material that in places along the lake shore can be up to three feet in depth. Demucking brings in the need for disposal of all of the material targeted for removal.

Development by man around the shoreline of Lake Tohopekaliga has resulted in the inability to dispose of all organic material on the adjacent uplands. During 1987, FWC staff were able to dispose of material (200,000 cubic yards) on undeveloped uplands, due to the limited amount. The 2002-2003 Lake Tohopekaliga project involves an estimated 6,700,000 cubic yards of material and proposes a much broader scope of work, thus different alternatives are necessary to dispose of the material.

FWC staff have attempted many other strategies to reduce the organic accumulation present on the lake bottom both for the present and the future. Some techniques include: burning, discing and aggressive herbicide applications. FWC staff have determined that discing material is a very poor management tool. Burning offers some very limited benefits: short term plant biomass reduction, and at times additional

plant species diversity (often short lived). Herbicide applications have proven very useful when employed as a preventative measure. Aggressive plant management, with the use of herbicides, has proven to be the most positive technique employed post muck removal. In fact, FWC staff will utilize herbicide applications as our primary post management tool in an attempt to prolong the positive effects of scraping the shorelines during the 2002-2003 Lake Tohopekaliga project. Limited, but often very beneficial, followup scraping projects can also be performed, once the major project is completed and an extreme drawdown is not required. This has proven to be a very valuable tool on Lake Kissimmee following the 1996 Lake Kissimmee Habitat Enhancement Project.

FWC has reviewed the list of letters from the USFWS and EPA. Questions regarding Snail Kites, water quality and in-lake disposal has been repeated in most if not all the correspondence. These letters involve lakes Tohopekaliga, Kissimmee, Marian and Okeechobee.

A letter dated 18 September 2001 from the EPA concerned a proposed project for Lake Okeechobee which was not submitted by the Kissimmee Fisheries office. Instead, any questions regarding this project should be directed to the Okeechobee FWC field office at 863-462-5190.

The USACE has omitted a permit application for Lake Cypress, Osceola County. The USACE has also asked for information regarding Lake Hatchineha, Osceola County, that was provided in the original permit application. Included are copies of those permit applications which were originally mailed and second copies hand delivered to your office in March 2001 (Attachments 8 and 9). Please include lakes Cypress and Hatchineha in any future discussions or correspondence.

I have only included correspondence that pertain to the Lake Tohopekaliga permit modification [permit#1998-05442(IP-EB)] (Attachments 10 and 11) and permit request for lakes Kissimmee (Attachments 12, 13 and 14) and Marian (Attachment 15). I have not provided any answers to the EPA letter dated 24 September 2001 (Attachment 16) for Lake Marian, however, the questions raised in this letter are verbatim to ones raised for lakes Tohopekaliga and Kissimmee. Therefore, I refer you to my responses provided in the correspondence for lakes Tohopekaliga and Kissimmee rather than repeat the same answers in new correspondence for Lake Marian.

One important part of the Lake Marian plan is again in-lake disposal. FWC purchased lands adjacent to Lake Marian and it has been brought to our attention, by our own FWC Game Management staff, that these lands can not be used for upland disposal. The funding mechanism used for the purchase of these lands strictly prohibits this activity from taking place. This is the problem imposed upon FWC Fisheries staff with most all state owned property surrounding any of these projects.

In conclusion, it is FWC's staffs contention that we have led the way in comprehensive aggressive management of the Kissimmee Chain of Lakes for fish and wildlife. FWC staff biologists have been on the system for over 40 years and each biologist has collected a room full of data. Each year staff members have published annual and/or completion reports documenting each years findings. Many peer reviewed technical papers have also been published. This information has been compiled into two notebooks and have been provided to you in the recent past. All the past 40 years of daily onsite work and biology has brought us to the current comprehensive approach to properly manage these resources. To even think that these current alternatives are from a simple shotgun or shoot from the hip approach is very irresponsible. FWC staff have and will continue to address the fish and wildlife habitat degradation problems that will persist on this chain of lakes for many years to come. FWC staff hopes that USACE, USFWS, EPA, DEP and SFWMD will all work with us in protecting some of the last remaining lakes that are not on the brink of complete collapse. Thanking you in advance for your help now and in the future.

Sincerely,



Martin J. Mann
Biological Scientist IV

CM/mjm/aj
Attachments

cc: Beth Berger, EPA
Dave Hallac, USFWS
Liz Manners, USACE

IN-LAKE DISPOSAL ISLAND
ALTERNATIVES ANALYSIS

The primary project purpose is to significantly reduce the large vegetative areas along the littoral areas of the numerous lakes of the Kissimmee Chain of Lakes. Historically, natural high water cycles and heavy winds carried the large natural forming mats of vegetation out of the lake and onto upland areas. These organic materials were naturally deposited in upland areas adjacent to the shoreline. The organics oxidized naturally in the aerobic conditions. These high water events have been eliminated through flood control management.

In the more recent past drawdowns have been used to allow the natural reduction of the accumulated organic mucks in the littoral areas of the lake. The materials were allowed to dry and decompose in the hot sun. Recently the simple drawdown event has been augmented with the practice of either removing the material to an upland site or relocating it into large mounds in various locations along the littoral zones of the lakes. Under Section 404 of the Clean Water Act this practice is considered filling of waters of the United States and requires a Department of the Army (DA). During the review of the proposal for DA permits the Corps must consider alternatives that avoid the filling of waters of the United States.

Similar review is required by the National Environmental Policy Act (NEPA) and the Section 404(b)(1) Guidelines. Under NEPA, the Corps must give detailed consideration to reasonable alternatives to wetland filling that focus on the accomplishment of the applicant's and the public purpose and need for the project.

AVOIDANCE

Avoidance of wetland filling can only be accomplished by trucking the materials to an upland spoil site or pushing it to the banks of the lake shore. The logistics of removing the muck material involves many variables that influence the overall cost feasibility of the operation.

These variables include but are not limited to:

- a. transportation costs per cubic yard
- b. distances to disposal sites

- c. beneficial uses of the material
- d. creation of markets for the materials
- e. manipulation of materials to improve marketability of materials availability of disposal sites
- f. availability of lake shore disposal sites
- g. cooperation of adjacent property owners
- h. use of existing public lands
- i. purchase of public access points
- j. purchase of spoil areas adjacent to lake shores

Transportation Cost

The FFWCC has provided cost assessments of removing the organic material by truck. Statewide contracts in 2001 averaged \$1.09/cubic yard. The cost is based on a one way hauling distance of up to one mile from the removal location. Costs associated with this project dramatically increase once the hauling distance exceeds one mile one way condition. An example of using our 2001 statewide contract of \$1.09/cubic yard and an additional \$0.30/cubic yard hauled per mile for each additional mile beyond the first one way mile for the Lake Tohopekaliga Project would be:

Based on the targeted 6,700,000 cubic yards to be removed:

- up to one mile \$ 7,303,000
- over one and up to two miles \$ 9,313,000
- over two miles and up to three miles \$ 11,323,000
- over five miles and up to six miles \$ 17,353,000
- over ten miles and up to eleven miles \$ 27,403,000

Hauling costs makes transportation of materials over several miles less practicable. Practicable spoil sites should be located near the lake shorelines.

Beneficial Uses

The "beneficial uses of dredged materials" have been investigated by FFWCC staff during past restoration events. The materials have been offered to contractors, dirt haulers, muck farms, peat mining companies, vegetable farms, sod farms, fertilizer companies, fill contractors, mulching companies, engineering firms that specialize in waste products and recycling, the Department of Transportation (DOT) shoulder enhancement and road stabilization, mitigation projects, and private individuals.

The added costs of handling and transporting the material makes it economically infeasible in most cases. The seed source in the materials makes the material undesirable in agricultural applications unless treated. Proper treatment increases handling and cost. Proper preparation also takes space resulting in the loss of pasture for the interim time while the newly seeded pasture matures. Organic materials placed in upland areas decompose in 5-10 years. The remaining material is primarily sand. The handling and transportation costs reduce the economic value of these materials.

Spoil sites located on or near the banks of the lake could significantly reduce transportation and handling costs. The materials could be placed in upland sites, dried and have more economic value. Most adjacent private landowners are unwilling to allow the FFWCC to place the dredge materials on their private property. State agencies that manage state owned lands have indicated their land management policies do not allow the placement of dredged materials. The FFWCC has indicated the Commission will not use the restoration funds for the purchase of upland spoil areas.

MINIMIZATION

Minimization of wetland impacts must consider the long-term use and management of any spoil islands authorized. The need for additional spoil islands may occur as additional mucks accumulate and materials are removed from the lakes in future projects. If the islands are managed as a storage and oxidation site then the same islands may be reused each drawdown and scraping cycle. For this reason the management of the spoil islands and aggressive aquatic weed control will dictate the life span of an in-lake spoil islands.

Variables that influence long term in-lake spoil island capacities are:

- a. island configuration and muck exposure to oxygen (maintain maximum aerobic conditions)
- b. removal of sand from islands as organic content is reduced
- c. access to islands allowing the removal of materials when opportunities occur

- d. aggressive aquatic weed control that reduces muck loads and lengths duration between scraping cycles
- e. management of nutrient inputs to the lake systems that may accelerate the vegetative growth rates.

The design of in-lake spoil islands will have a significant influence on the amount of muck materials that oxidize over time. Spoil island have reduced in height by 25-50% over a period of several years. If the materials on the spoil islands converts to primarily sand the opportunity to move the materials back into the lake or transport to a beneficial use site should be considered. Spoil islands located near access points will increase these opportunities.

Herbicide applications have proven very useful when employed as a preventative measure. Aggressive plant management, with the use of herbicides, has proven to be the most positive technique employed post muck removal. The FFWCC will utilize herbicide applications as the primary post management tool in an attempt to prolong the positive effects of scraping the shorelines during scheduled lake restoration projects. Often very beneficial, follow-up scraping projects can also be performed, once the major project is completed and an extreme drawdown is not required.

Based on the lack of nearshore disposal areas, lack of economically feasible beneficial uses, and the cost of transportation of materials the FFWCC has concluded that the use of in-lake spoil islands is the only practicable alternative that would accomplish the project objective.

A copy of the March 6, 2002, Regulatory Division letter to the FFWCC requesting information required for an alternatives analysis and other permitting issues is included in Appendix A.

A copy of the FFWCC letter in response to the Corps March 27, 2002, letter is included in Appendix A.

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DEPARTMENT OF THE ARMY PERMIT

Permittee: FLORIDA GAME AND FRESH WATER FISH COMMISSION

Permit No: 1998-05442 (IP-EB)

U.S. Army Engineer District. Jacksonville

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: The permittee is authorized to remove aquatic vegetation and approximately 4 million cubic yards of organic material from Lake Tohopekaliga. The removal will be done using heavy equipment such as bulldozers, front-end loaders, trackhoes, graders, and four to six-wheel drive dump trucks. The permittee is also authorized to construct 47 in-lake disposal sites (wildlife islands). The work described above is to be completed in accordance with the 39 pages of drawings and one attachment affixed at the end of this permit instrument.

Project Location: The proposed project is located in Lake Tohopekaliga, Osceola County, Florida.

Township 25 South, Range 29 East, Sections 21-23, 26, 28, 33, and 35.

Township 26 South, Range 29 East, Sections 1-2, 4-5, 8-9, 12-13, 16, 21, 24-25, 28, and 33-34.

Township 26 South, Range 30 East, Section 7, 17-20, and 30-33.

Township 27 South, Range 29 East, Section 4-5, 7-8, and 18.

Township 27 South, Range 30 East, Section 3, 10-11, and 13-14.

Latitude & Longitude: Latitude. 28°15100" North Longitude. 81°24112" West

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Permittee: FLORIDA GAME AND FRESH WATER FISH COMMISSION
Permit No: 1998-05442 (IP-EB)
Page 2

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on 12 MAY 2004. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature and the mailing address of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

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Special Conditions: Implementation of the special conditions will depend on water levels and it is understood that overall the project will benefit Bald Eagles and Snail Kites. These recommendations should be followed and if compliance with the special conditions is not practicable, then an explanation of why they are not practicable should be provided to the Corps of Engineers.

1. The Habitat Management Guidelines for the Bald Eagle in the Southeast Region (FWS 1987) recommend that development be prohibited in the primary zone, which extends 750 feet from the nest tree. Development within the secondary zone, 750 feet to 1,500 feet from the nest tree, should be restricted to the non-nesting period of May 16 to September 30. Removal of vegetation with heavy machinery should not occur within the primary or secondary zones during the nesting season of October 1 to May 15.

2. For the snail kits, water levels should be lowered prior to the nesting season, which commences in March and April, as most nests in this area are constructed in cattails. When the water is lowered after nest construction, the nests will often collapse and are subject to predation.

Further Information:

I. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(x) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) .

(x) Section 404 of the Clean Water Act (33 U.S.C. 1344) .

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413) .

2. **Limits of this authorization.**

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

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Permittee: FLORIDA GAME AND FRESH WATER FISH COMMISSION Permit
No: 1998-05442 (IP-EB)

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d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the united States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or

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No: 1998-0S442(IP-EB)

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enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Permittee: FLORIDA GAME AND FRESH WATER FISH COMMISSION
Permit No: 1998-05442 (IP-EB)
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Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

One index page and one attachments, totaling 48 pages, are affixed behind this signature page.

Michael W. Hulon 8/9/99
(PERMITTEE) Biological Administrator II (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Stephen Brooker 23 Aug 1999
(DISTRICT ENGINEER) (DATE)
Joe R. Miller
Colonel, U.S. Army

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEEE-SIGNATURE) (DATE)

(NAME-PRINTED)

(ADDRESS)

(CITY, STATE, AND ZIP CODE)

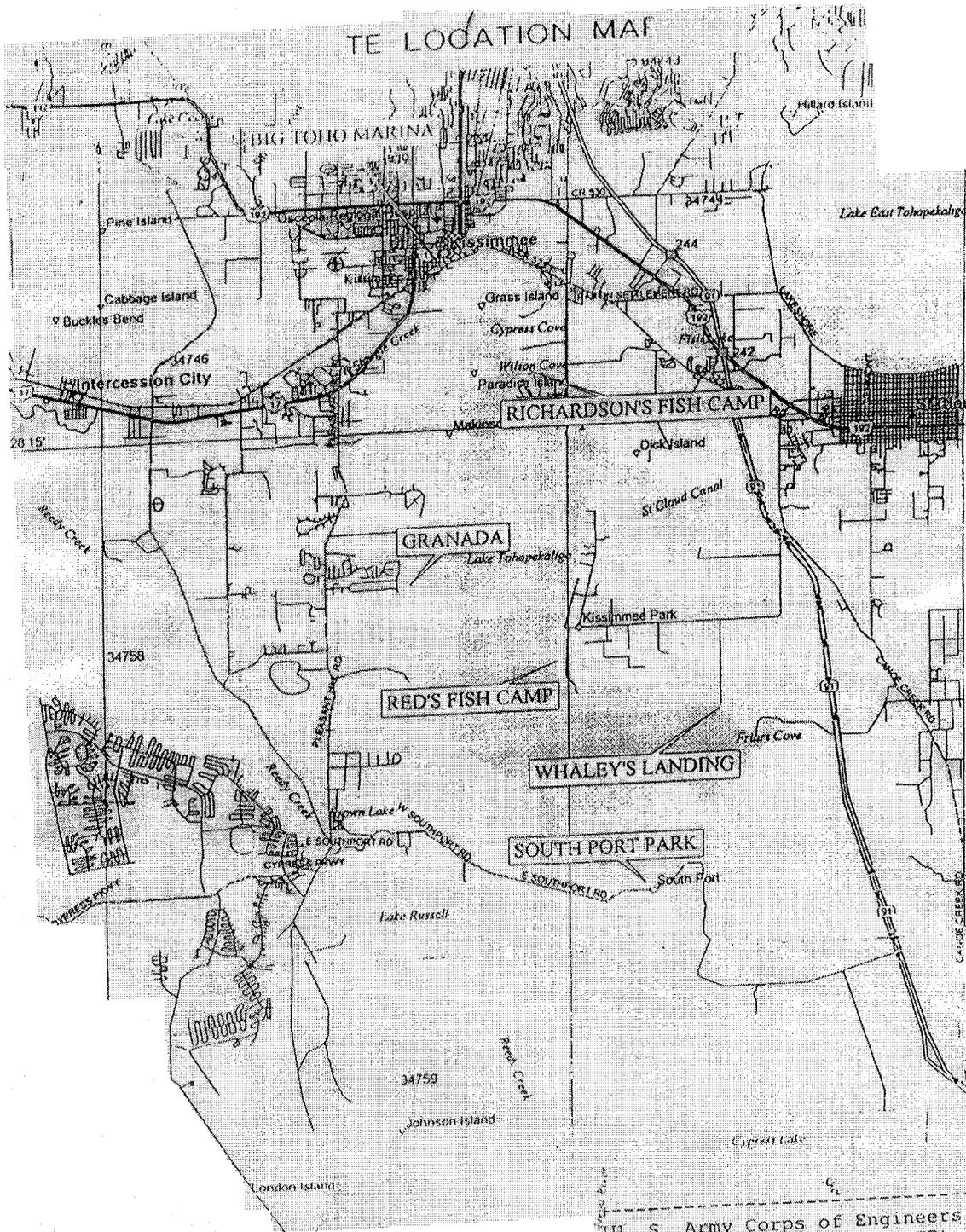
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***Attachments to Department of the Army
Permit Number 1998-05442(IP-EB)***

1. PERMIT DRAWINGS: Thirty-nine pages dated April 29, 1999.
2. WATER QUALITY CERTIFICATION: The Department of Environmental Protection, Bureau of Invasive Plant Management, St. Johns River Region issued Aquatic Plant Management Permit Number SJ-98-498 for this project. This permit expires November 2001. (8 pages)

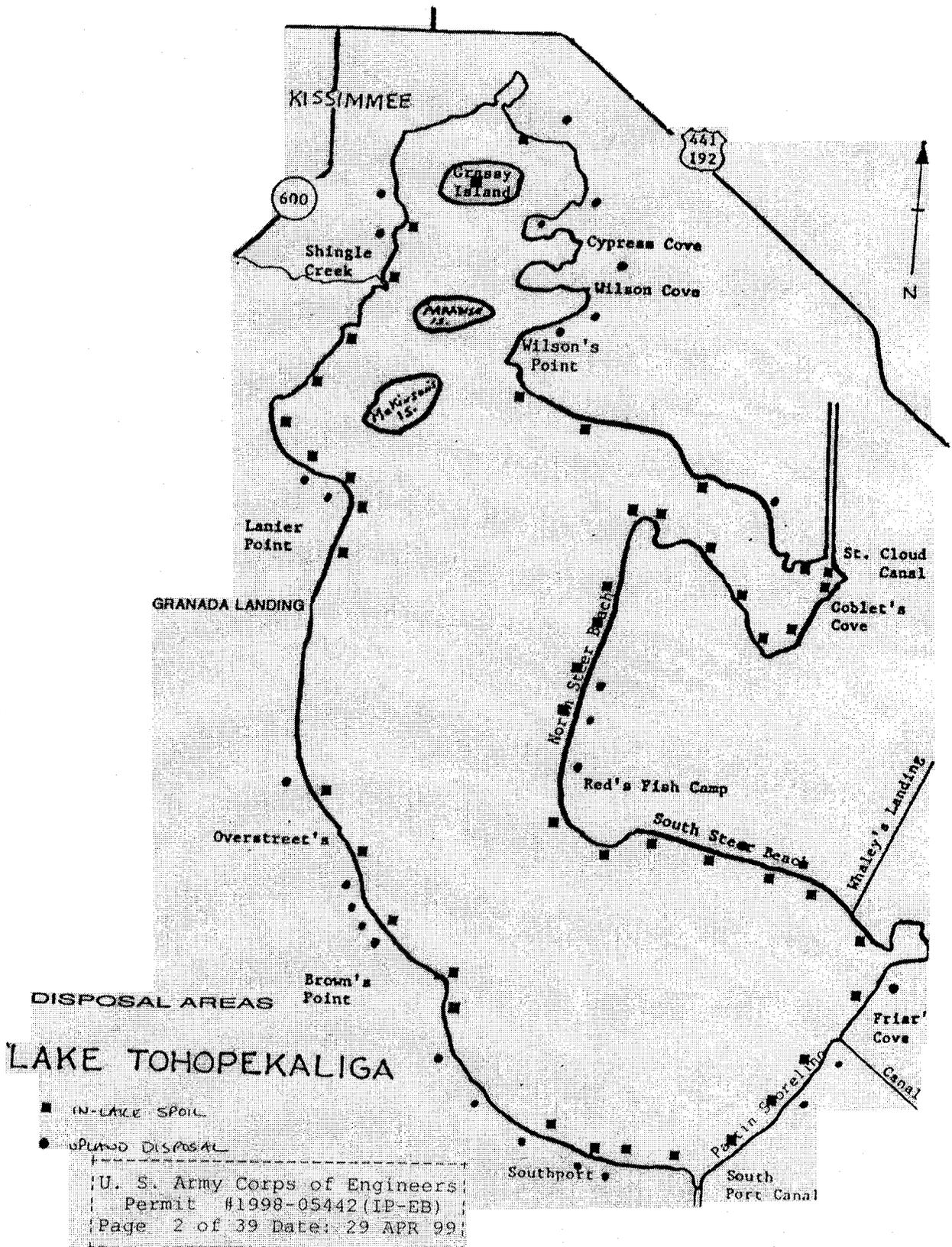
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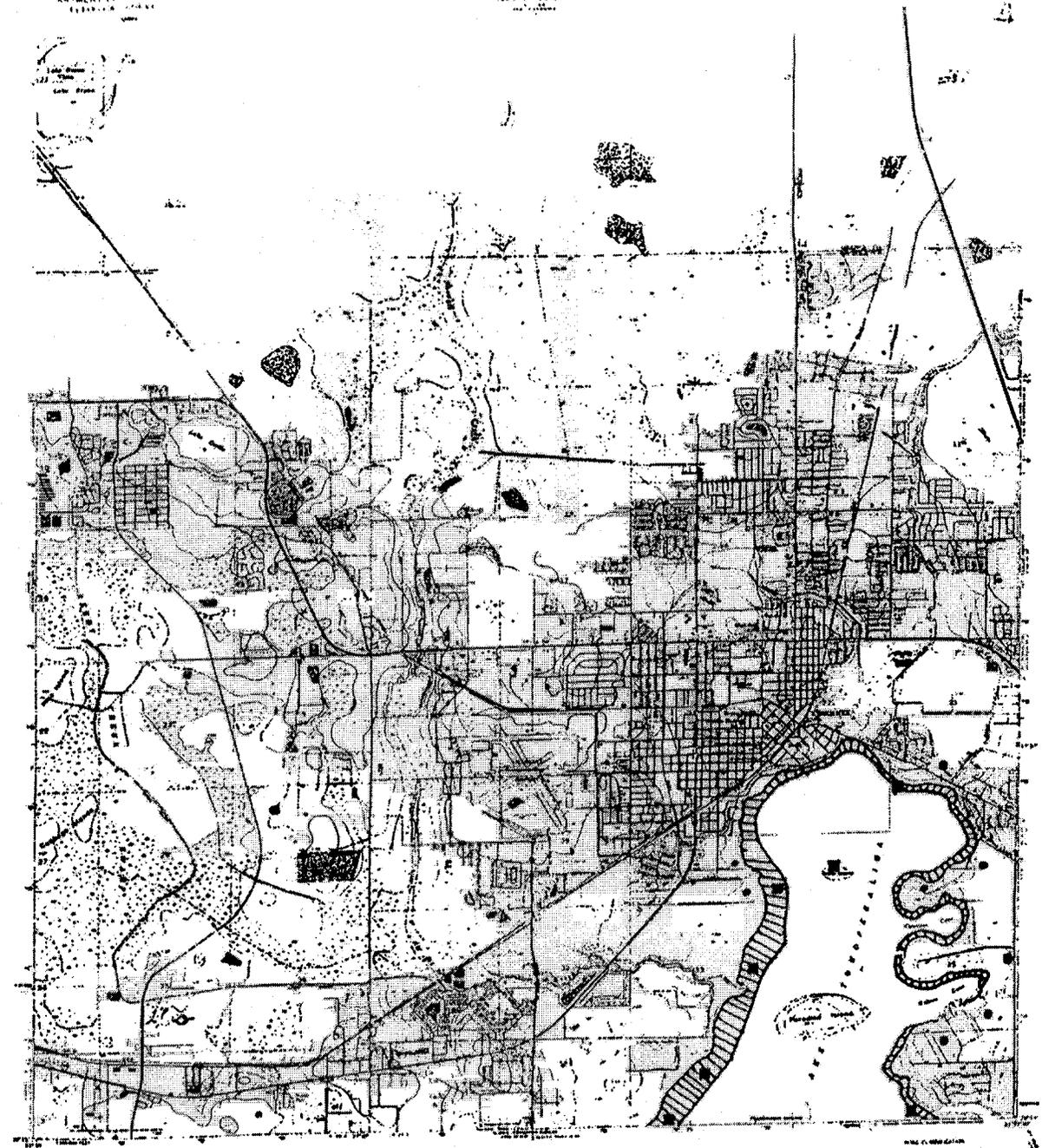
ATTACHMENT 9



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DATE OF LAST
ANNUAL SURVEY
1988

DATE OF SURVEY
1988



Approved by U.S. Corps of Engineers
 and published by the Government Printing Office
 (GPO) : 1988

Scale: 1" = 100'

North Arrow

Legend

1. All work shall be done in accordance with the specifications of the U.S. Army Corps of Engineers, District of Columbia, and the U.S. Army Corps of Engineers, District of Columbia, and the U.S. Army Corps of Engineers, District of Columbia.

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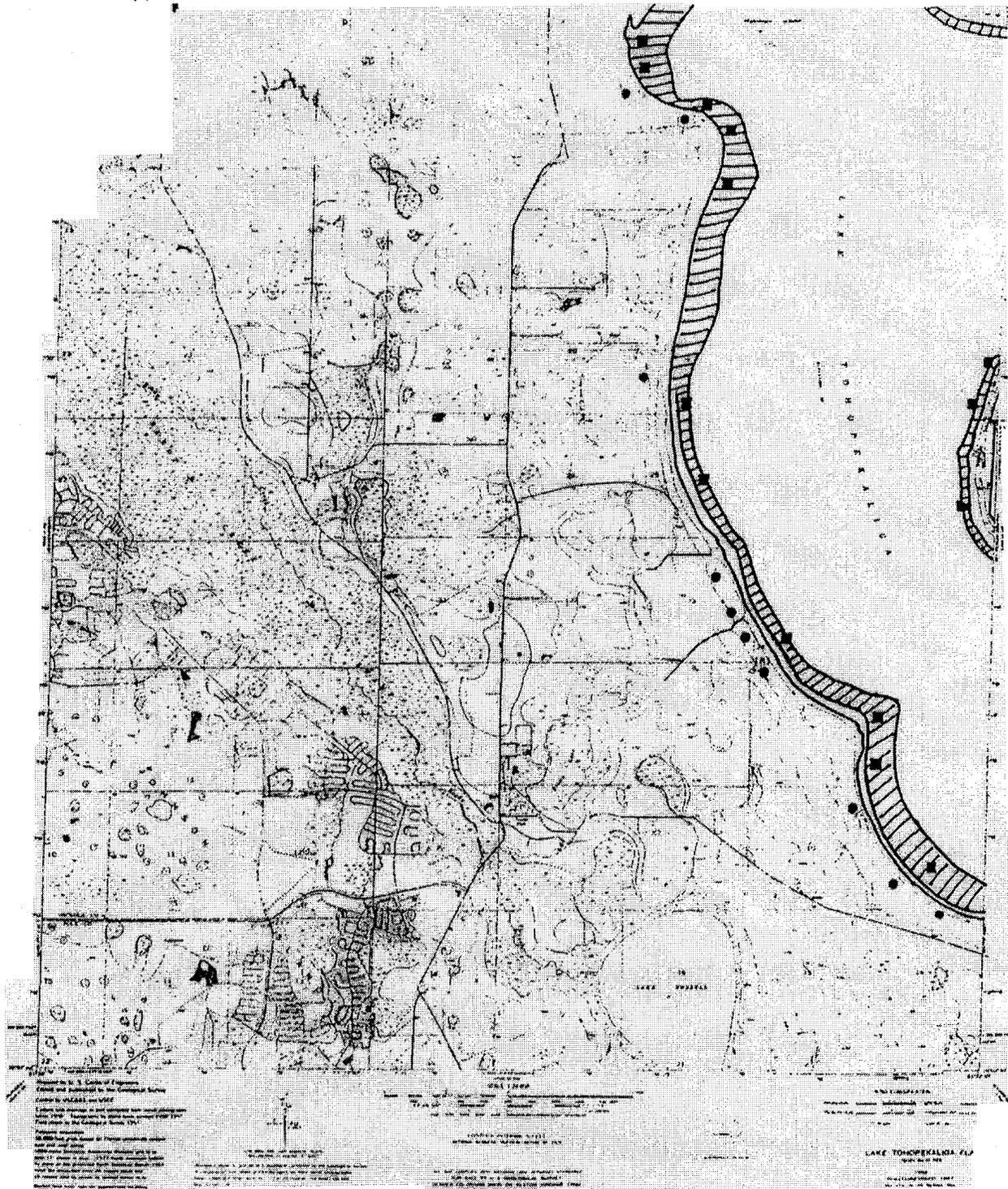
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5. All work shall be done in accordance with the specifications of the U.S. Army Corps of Engineers, District of Columbia, and the U.S. Army Corps of Engineers, District of Columbia, and the U.S. Army Corps of Engineers, District of Columbia.

U. S. Army Corps of Engineers
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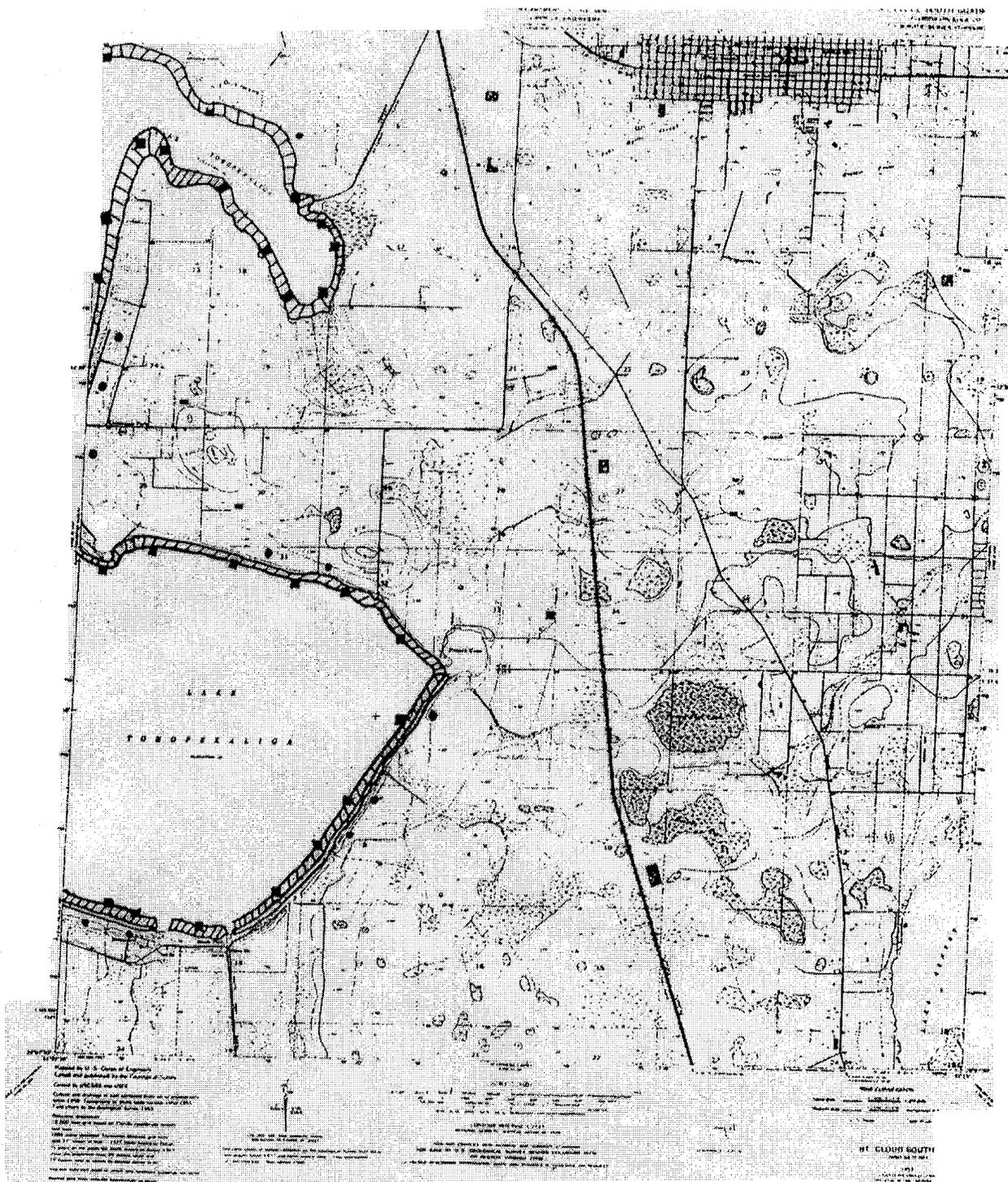
UNIFIED
PLAN OF
CONSTRUCTION



-  MUCK REMOVAL
-  IN-LAKE SPOIL
-  UPLAND DISPOSAL

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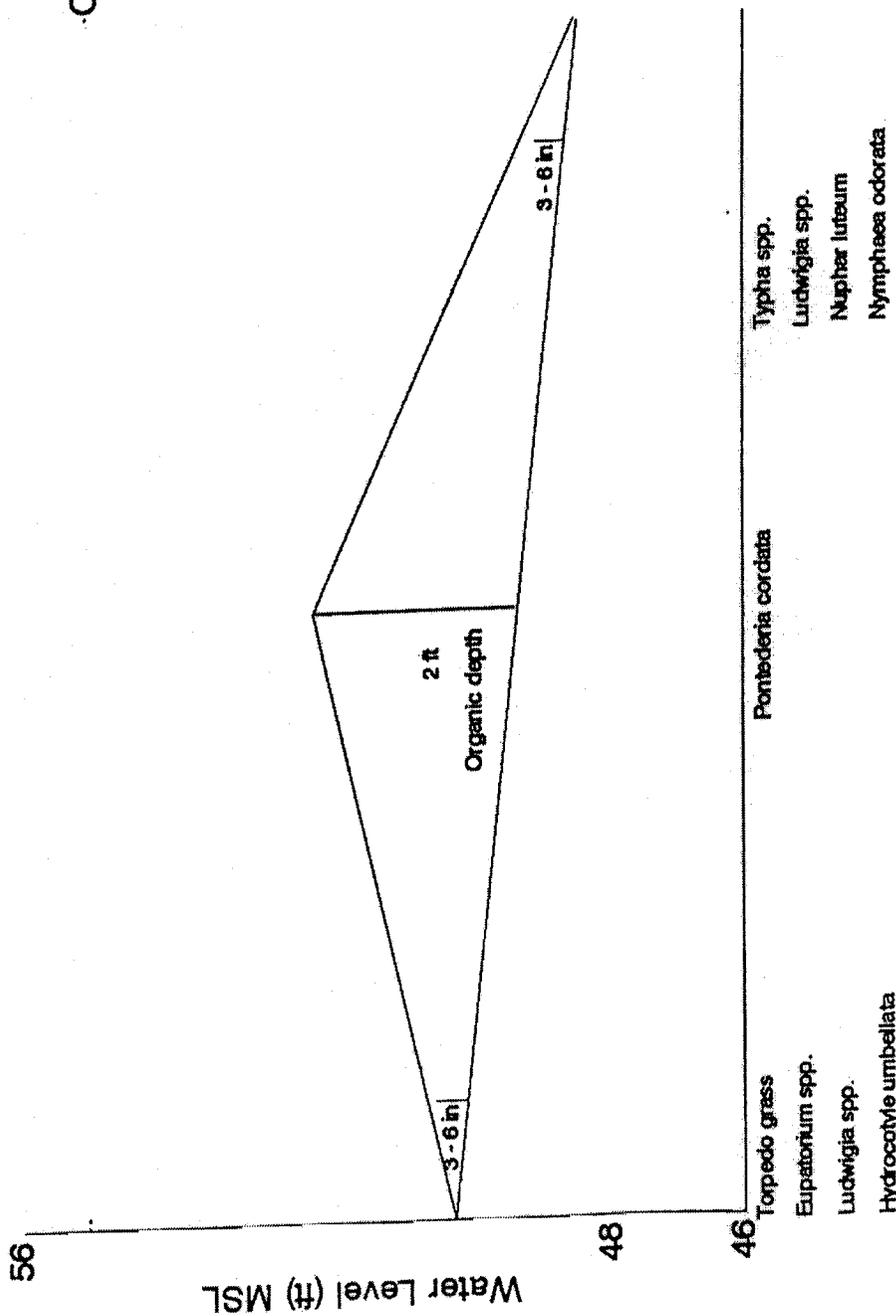
-  MUCK REMOVAL
-  INLAKE SPOIL
-  UPLAND DISPOSAL

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Lake Tohopekaliga Littoral Cross Section

OHW



U. S. Army Corps of Engineers
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ATTACHMENT 2

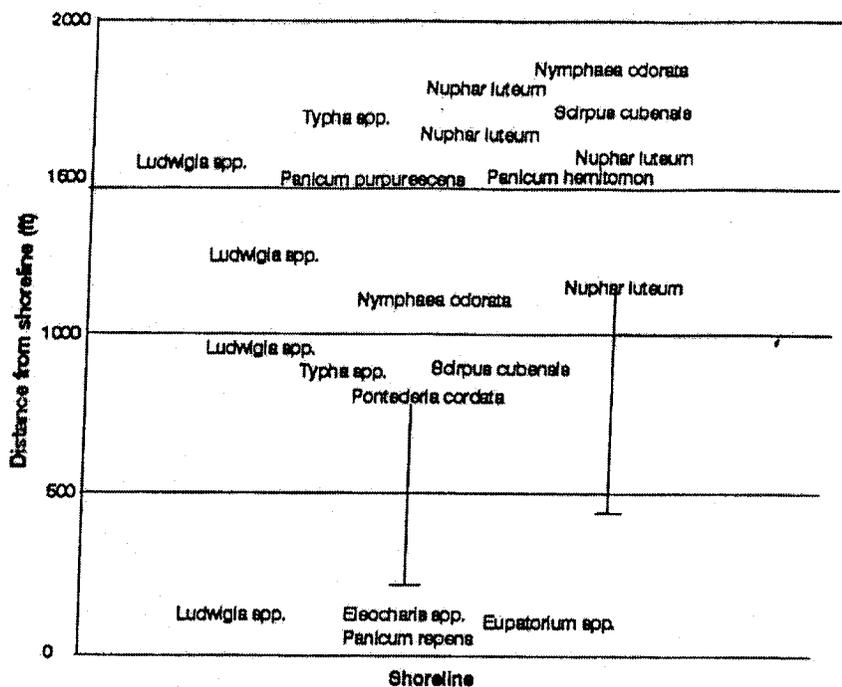


Figure 1. Vegetation profile (top view) on Lake Tohopekaliga, ungrazed area.

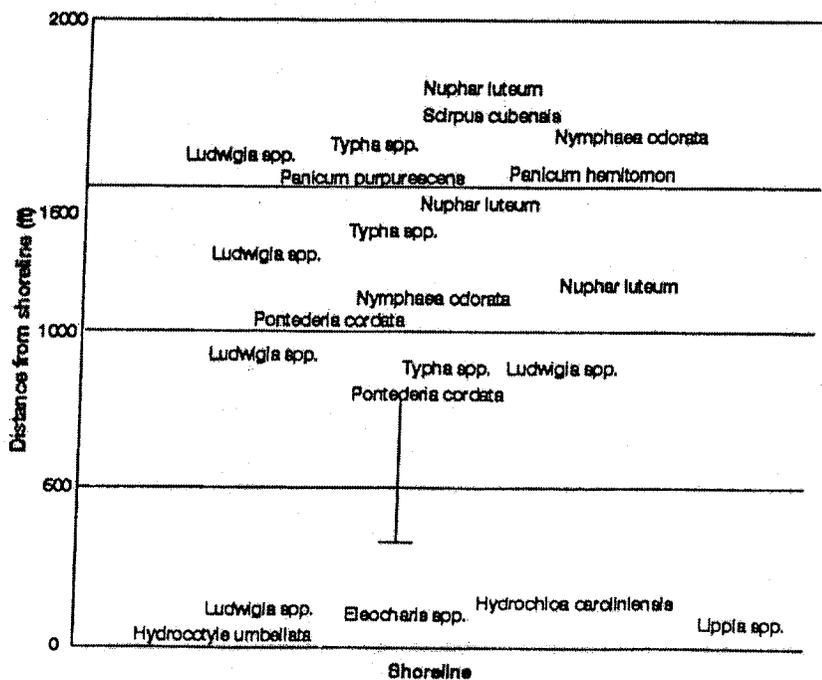
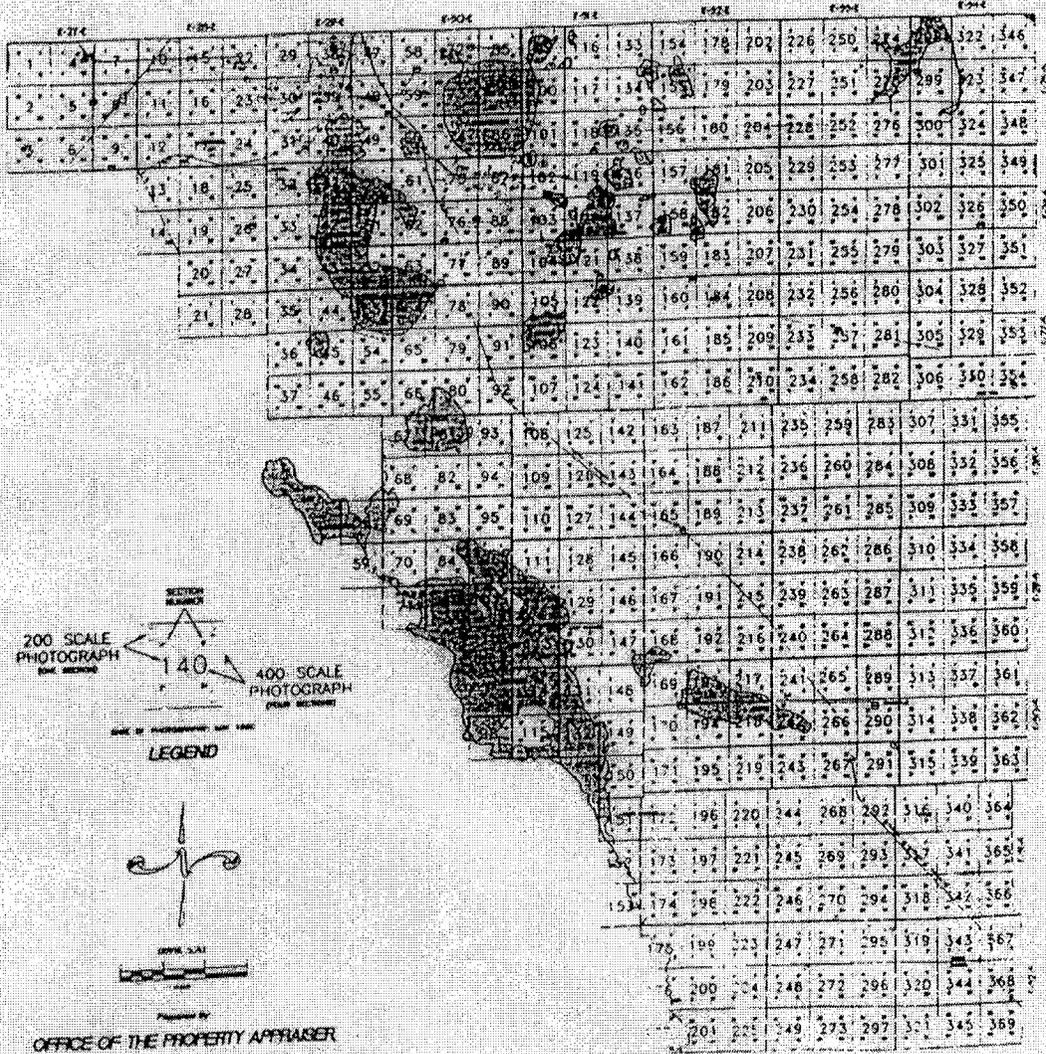


Figure 2. Vegetation profile (top view) on Lake Tohopekaliga, grazed area.

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INDEX OF AERIAL PHOTOGRAPHS OSCEOLA COUNTY, FLORIDA





OSCEOLA COUNTY FLORIDA		Scale	1" = 100'	North Arrow	North	Sheet No.	40-6
PROJECT: MUCK REMOVAL FROM LAKE TOHOPEKALIGA		DATE	12/98	BY	W. J. BROWN	CHECKED BY	W. J. BROWN
DRAWN BY: W. J. BROWN		DATE	12/98	BY	W. J. BROWN	CHECKED BY	W. J. BROWN

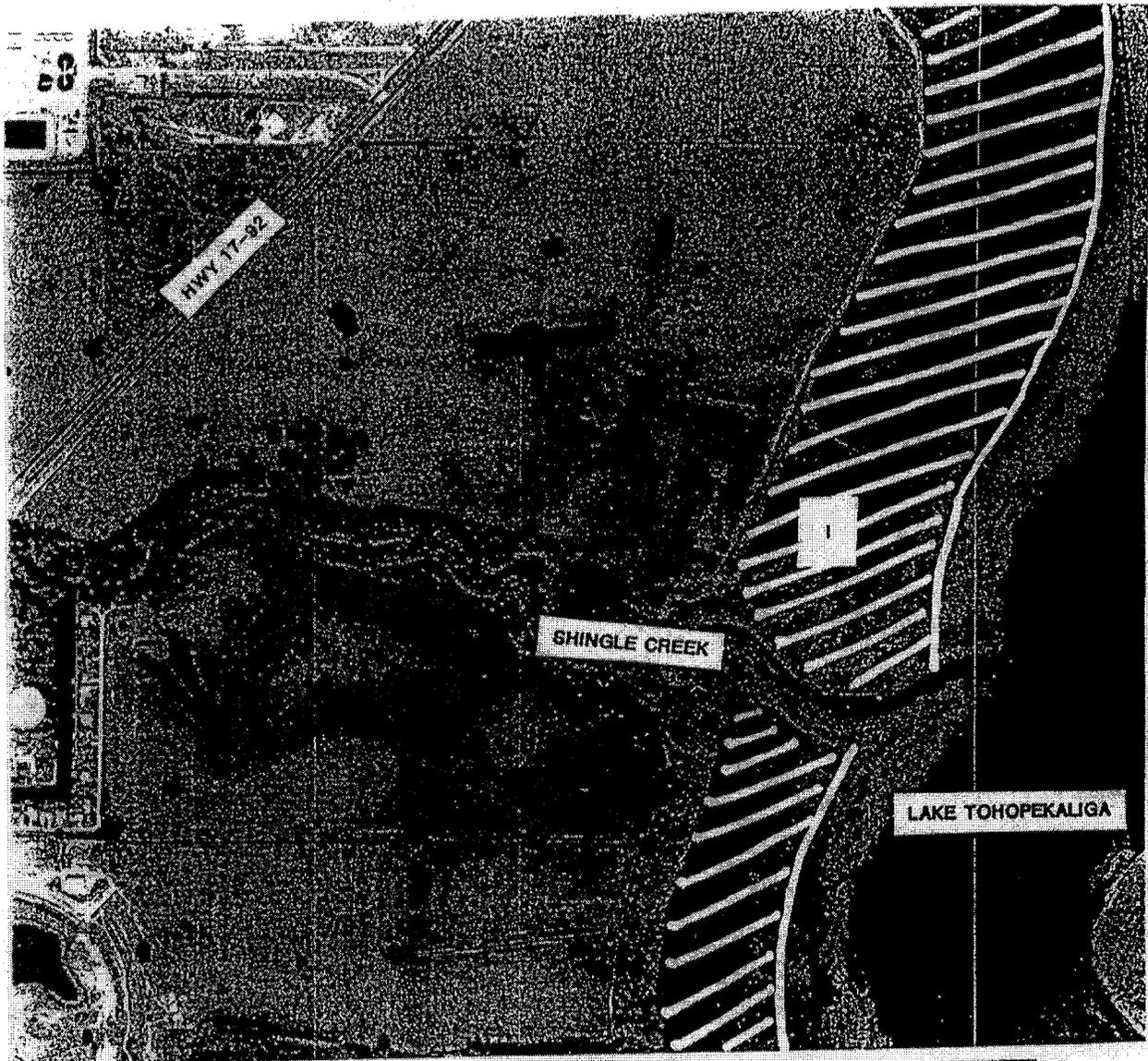


MUCK REMOVAL AREA

I - IN-LAKE SPOIL

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OSCEOLA COUNTY
FLORIDA

Scale	1" = 1000'
North Arrow	True North
Projection	UTM
Zone	18N
Datum	NAD 83
Units	Meters

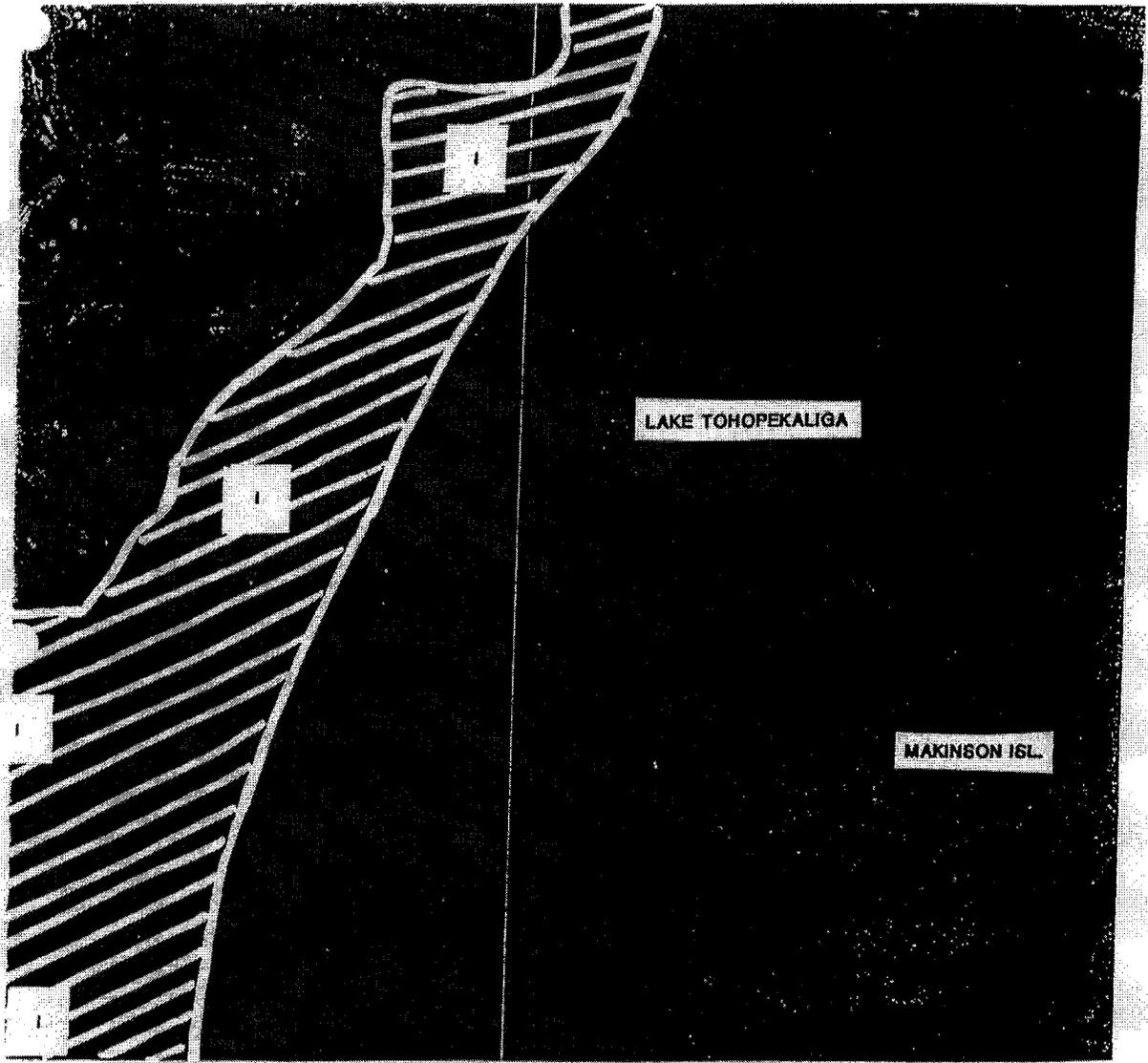


MUCK REMOVAL AREA

1 - IN-LAKE SPOIL

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LAKE TOHOPEKALIGA

MAKINSON ISL.



ENGINEERING & SURVEYING
 2000 N. W. 10th Ave., Suite 100
 Ft. Lauderdale, FL 33309
 (954) 561-1111

OSCEOLA COUNTY
 FLORIDA

DATE: 265 295 40

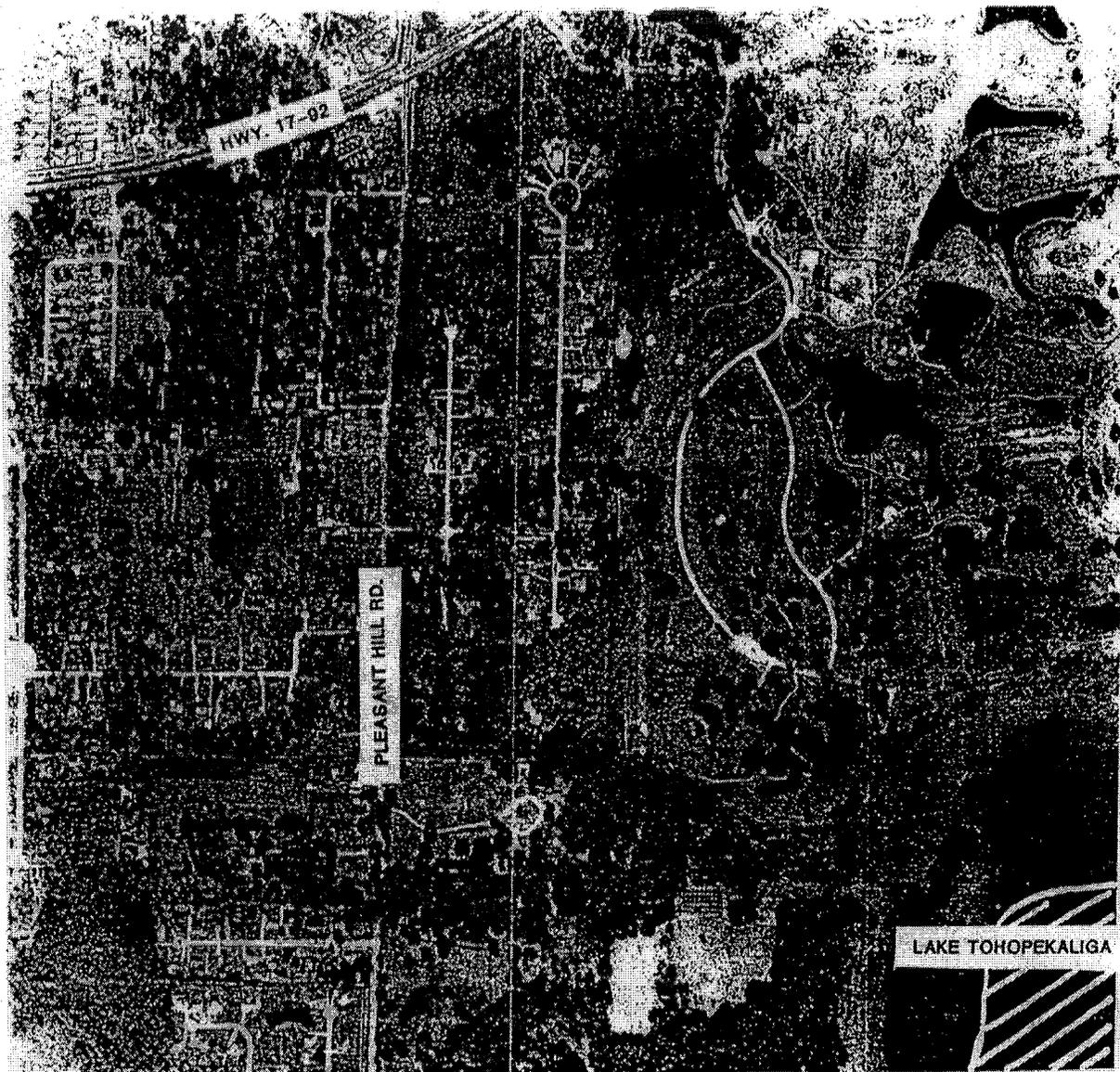


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I - IN-LAKE SPOIL

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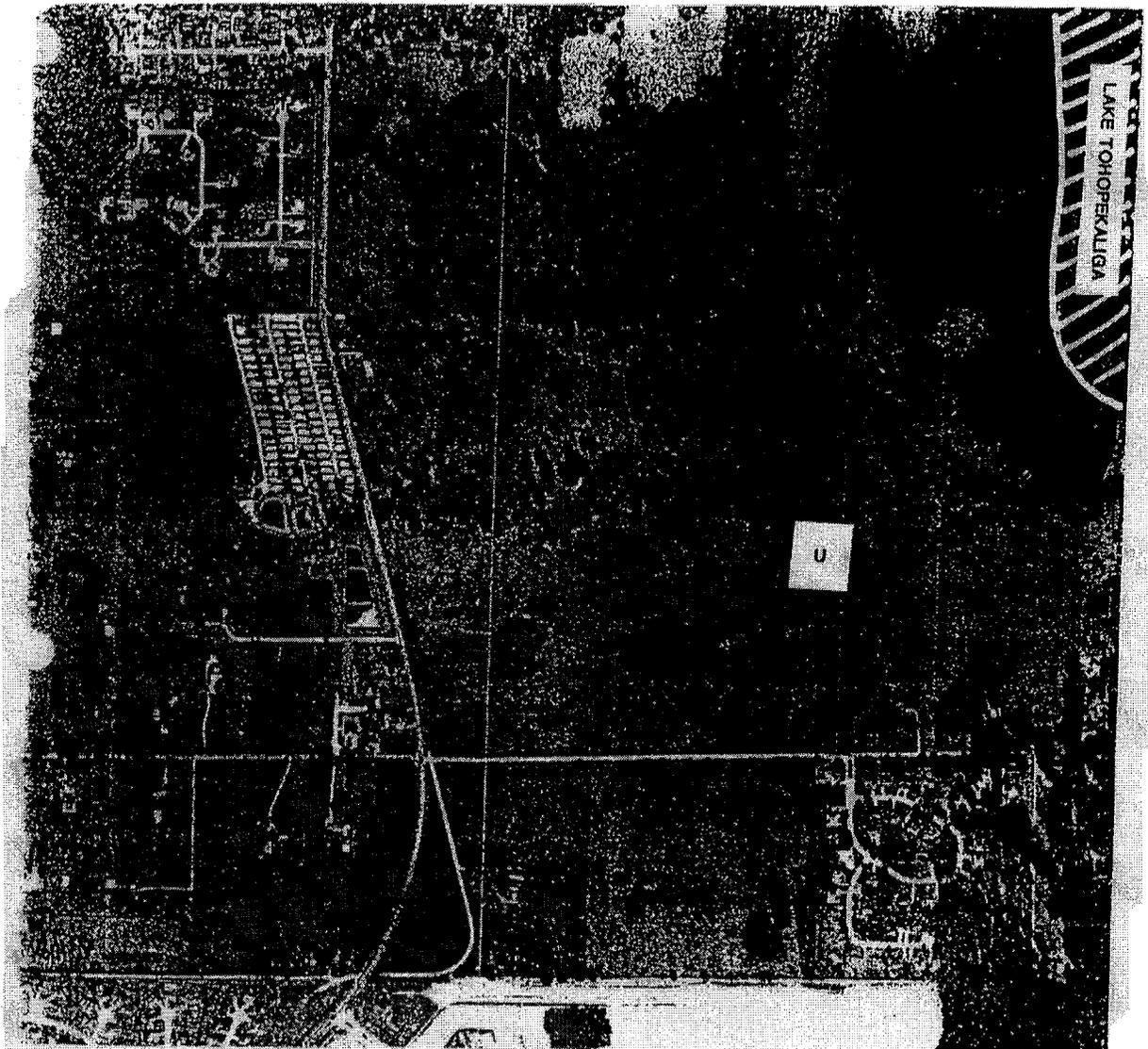
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LAKE TOHOPEKA

U

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FLORIDA

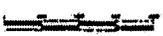
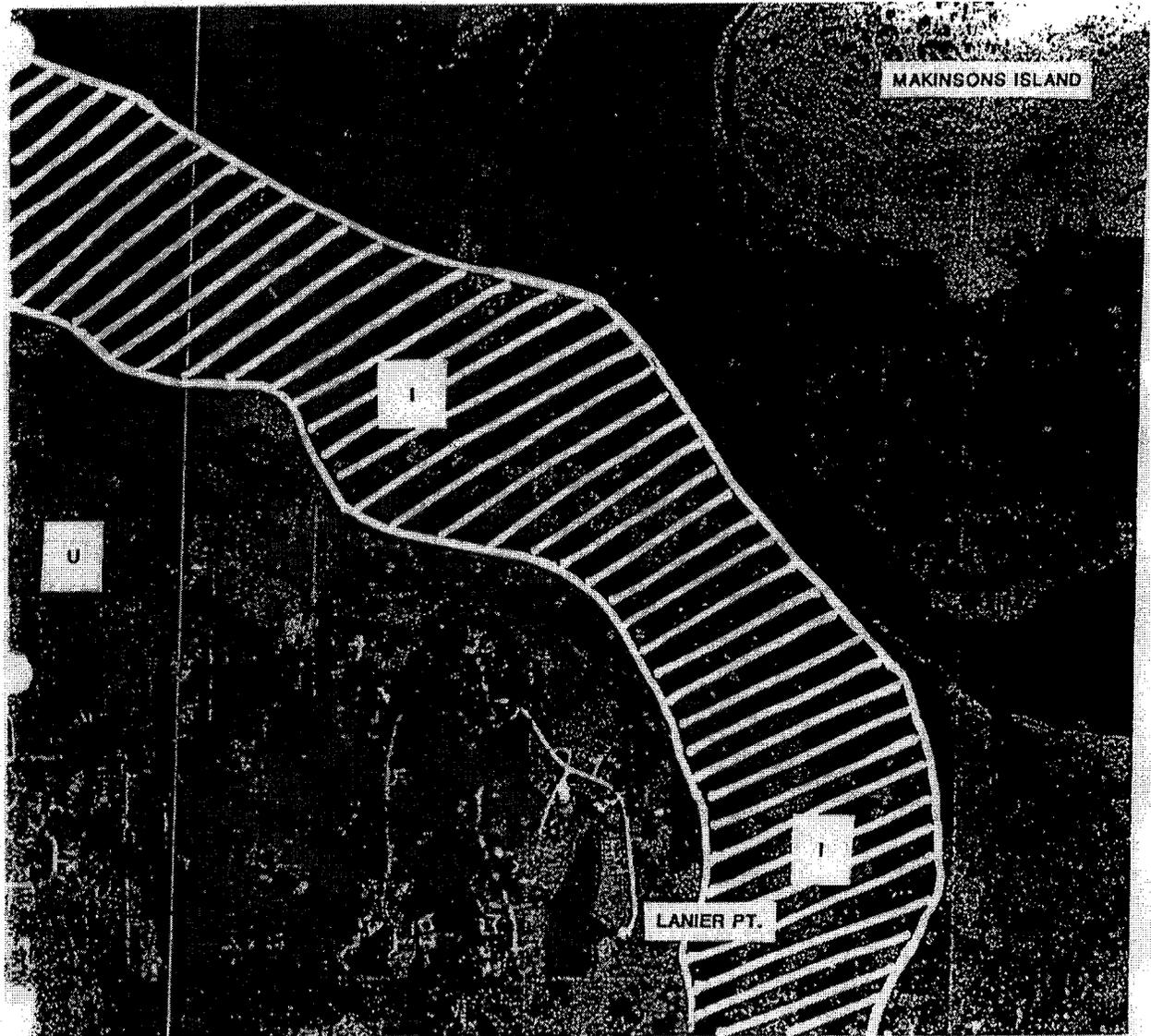


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U- UPLAND DISPOSAL

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OSCEOLA COUNTY
FLORIDA

Scale
1 inch = 1 mile

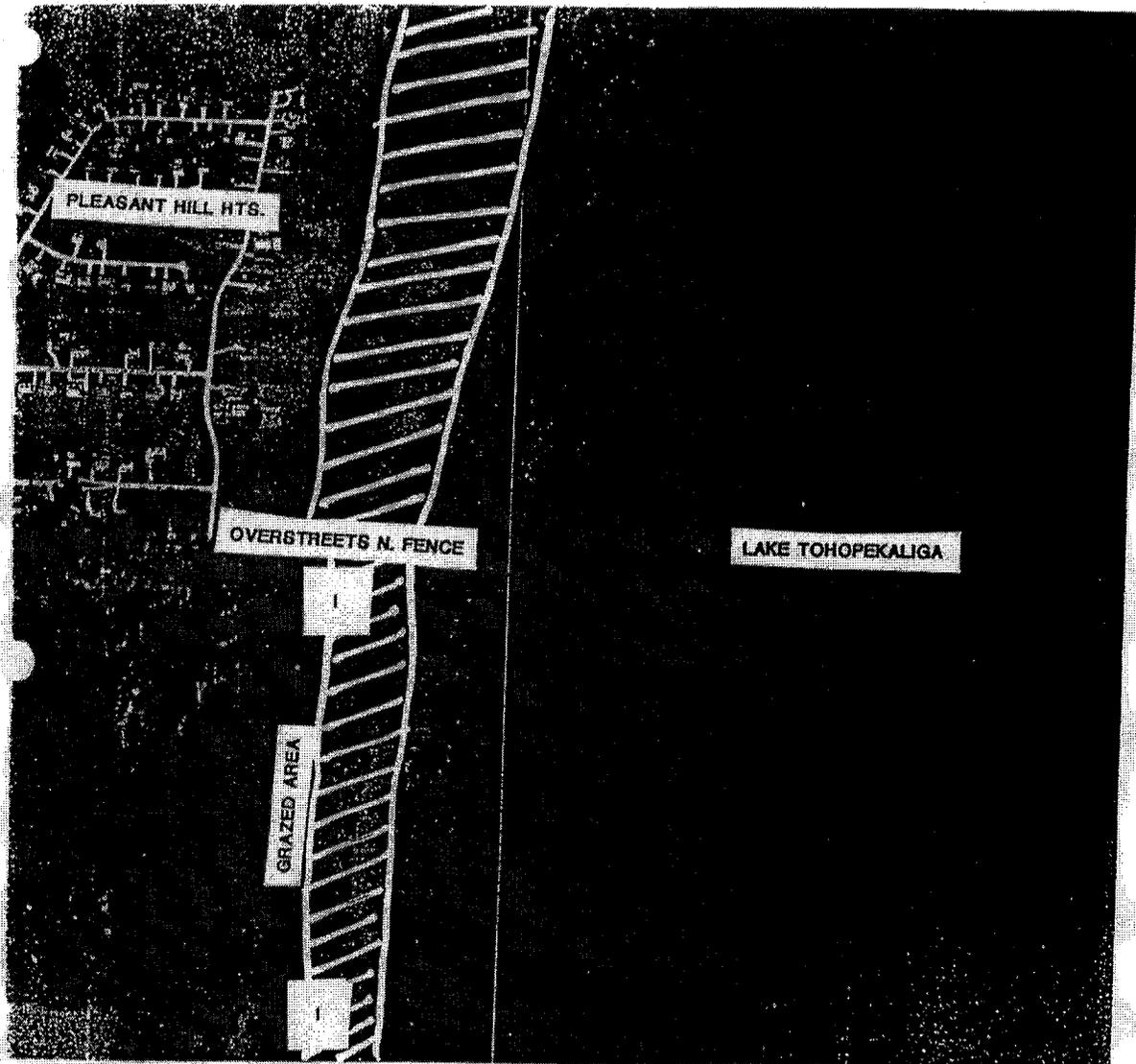
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NO.	265	29	41



MUCK REMOVAL AREA

IN-LAKE SPOIL

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MUCK REMOVAL AREA

W - WILDLIFE ISLAND

OSCEOLA COUNTY
FLORIDA

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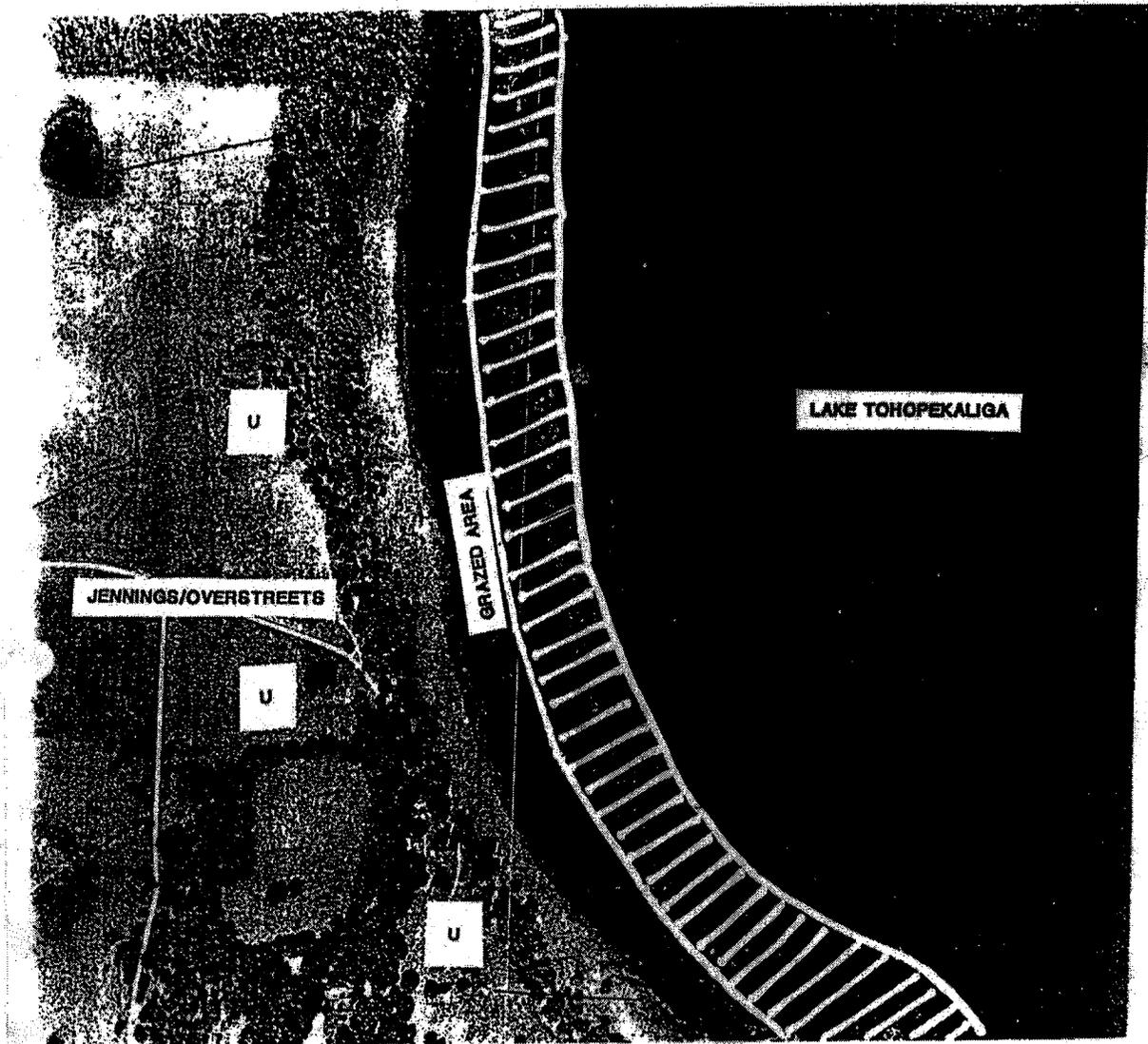
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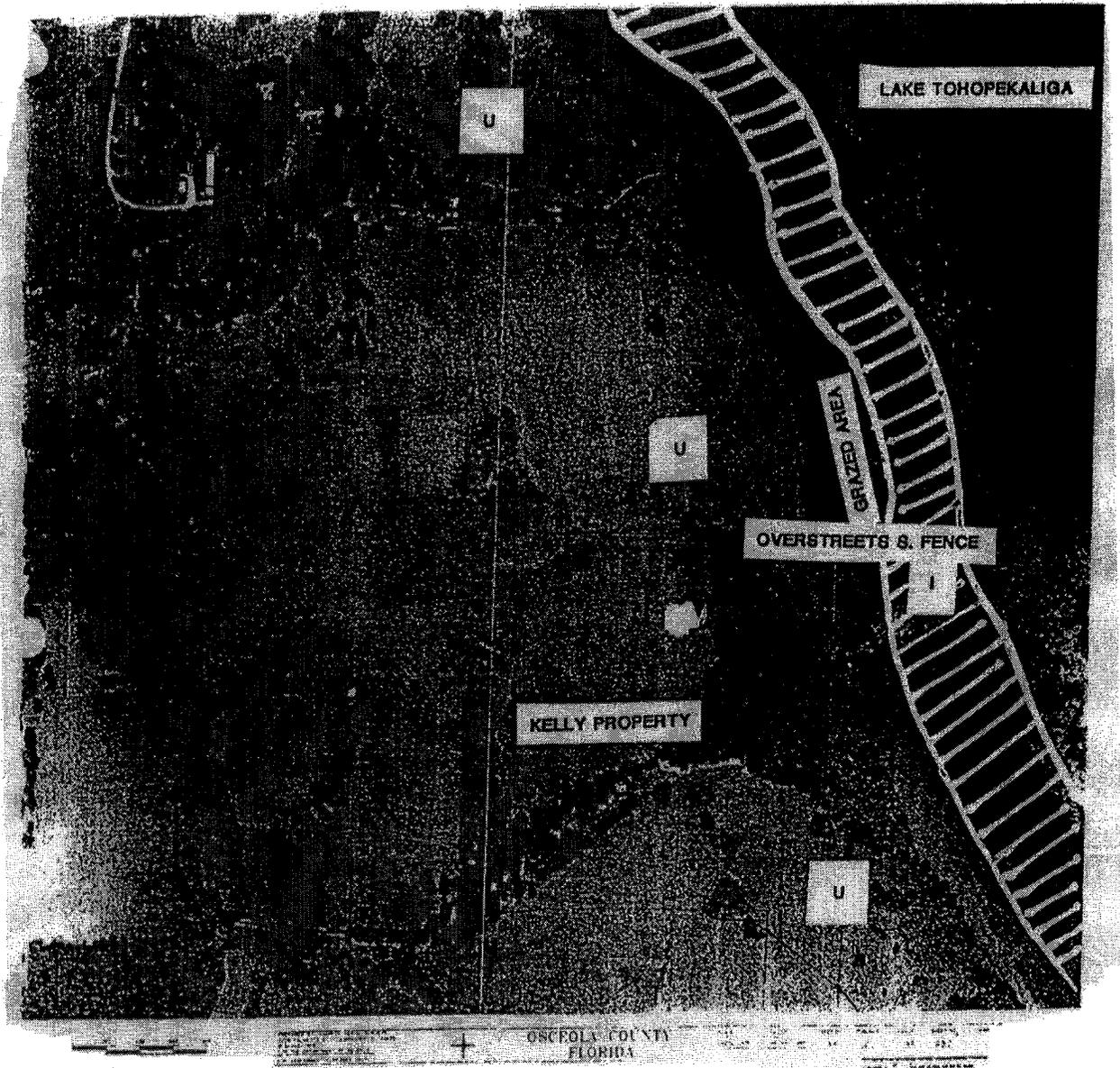
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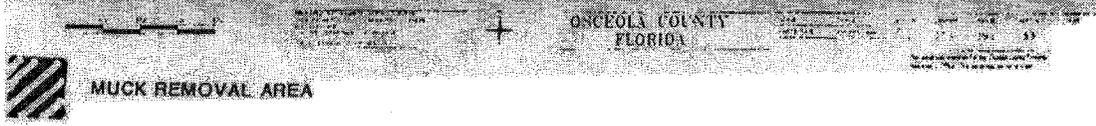
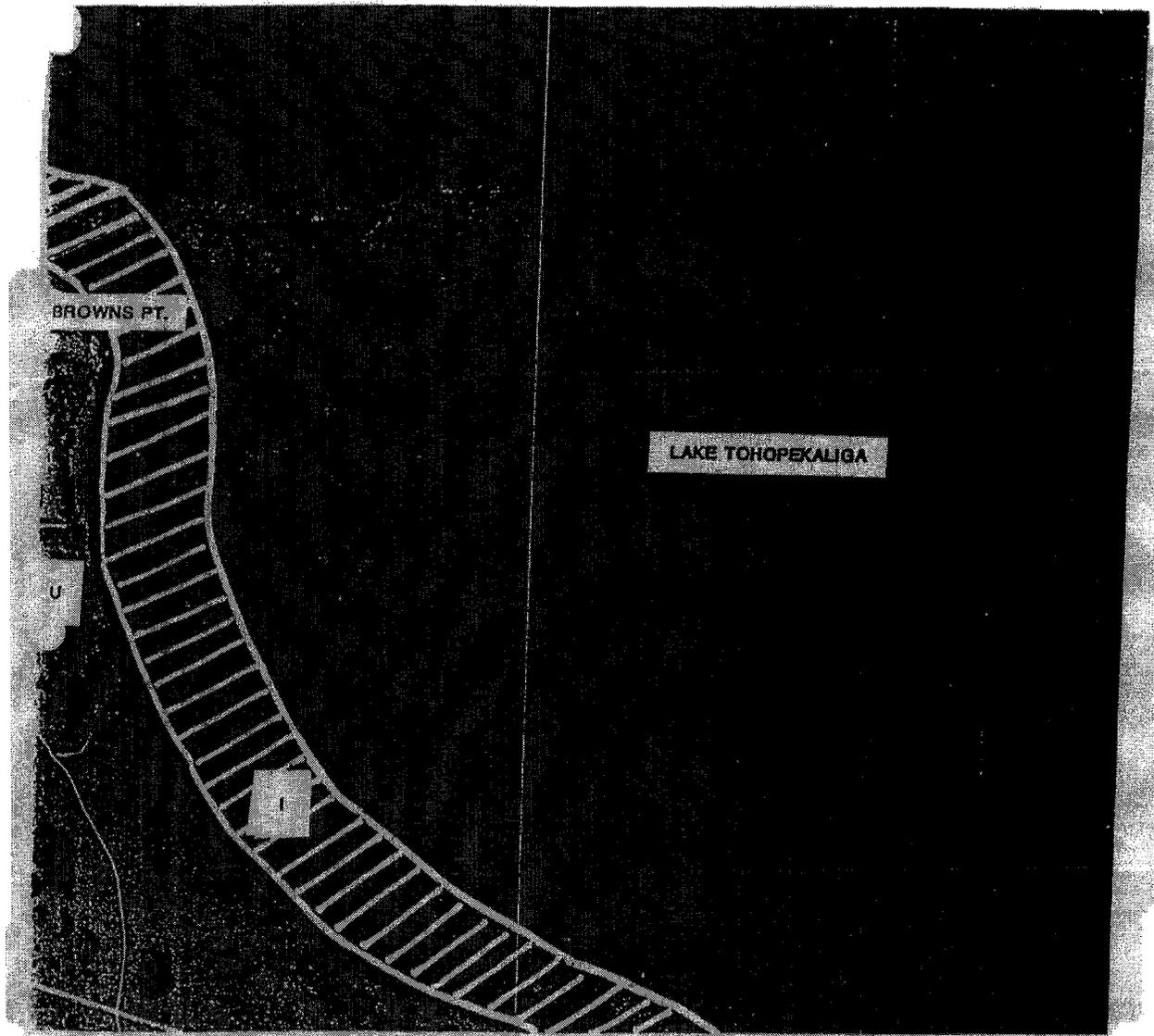
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U - UPLAND DISPOSAL

I - IN-LAKE SPOIL

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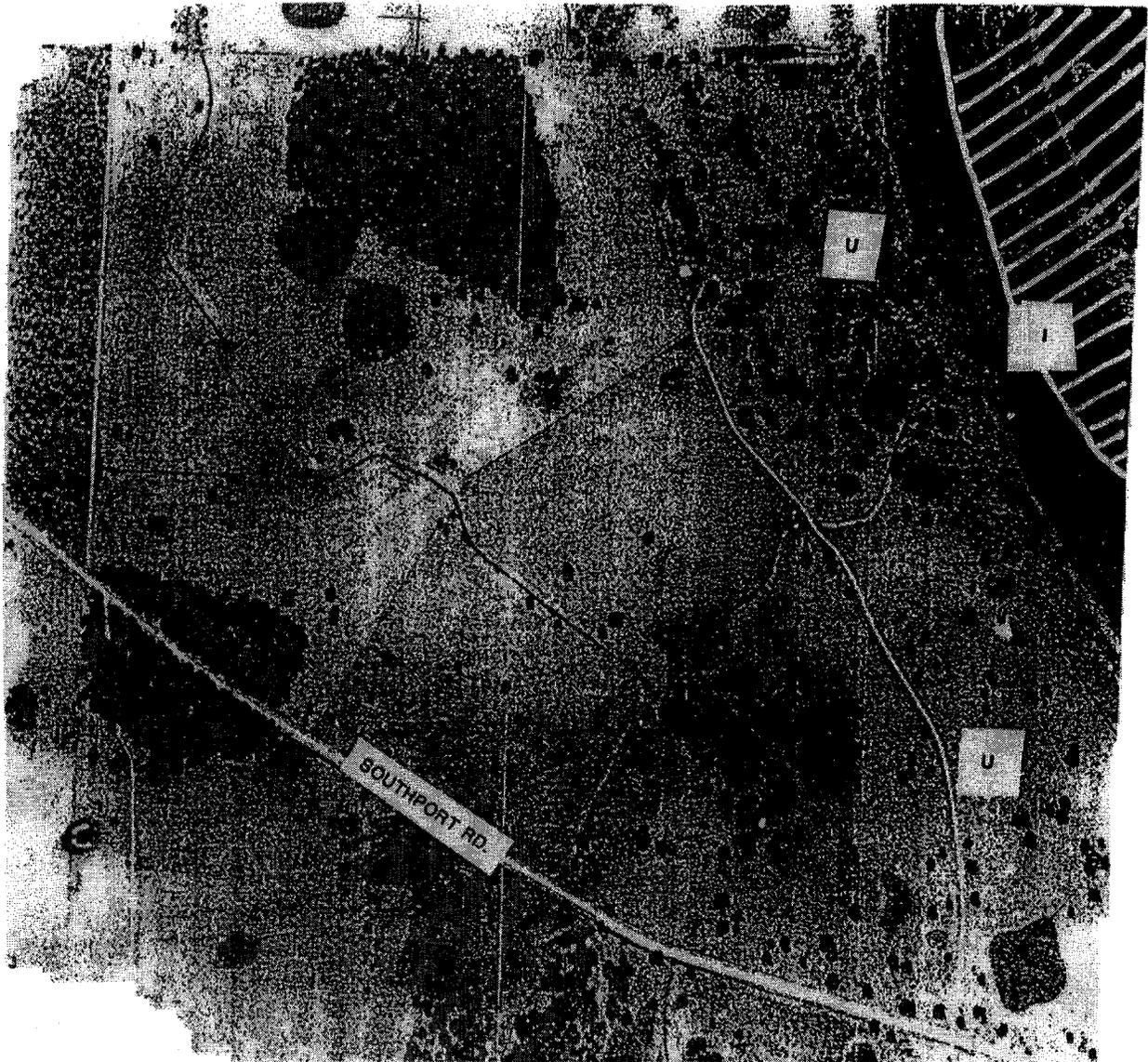
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OSCEOLA COUNTY
FLORIDA



OSCEOLA COUNTY
FLORIDA

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U.S. ARMY CORPS OF ENGINEERS
DISTRICT OFFICE



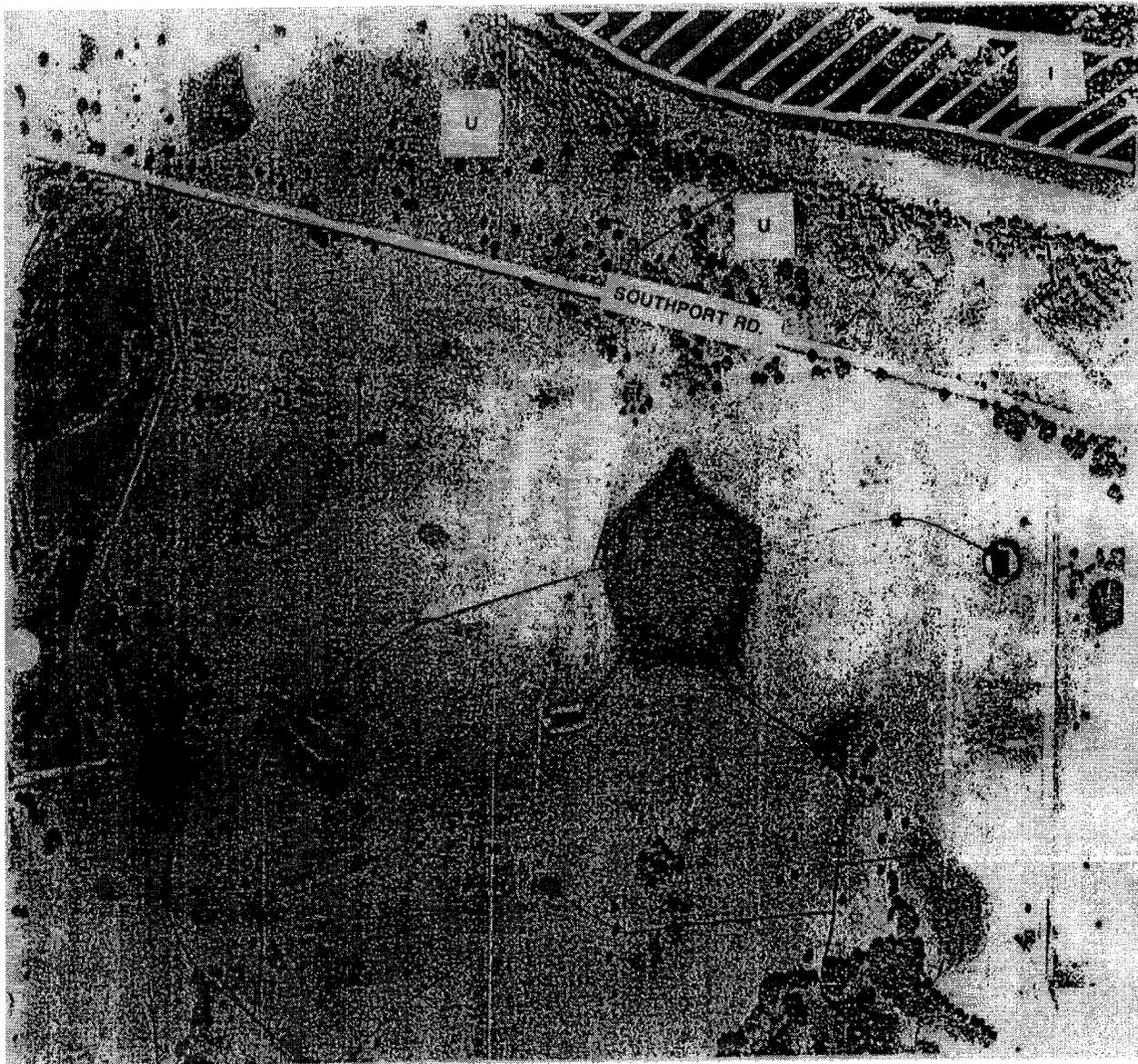
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MUCK REMOV

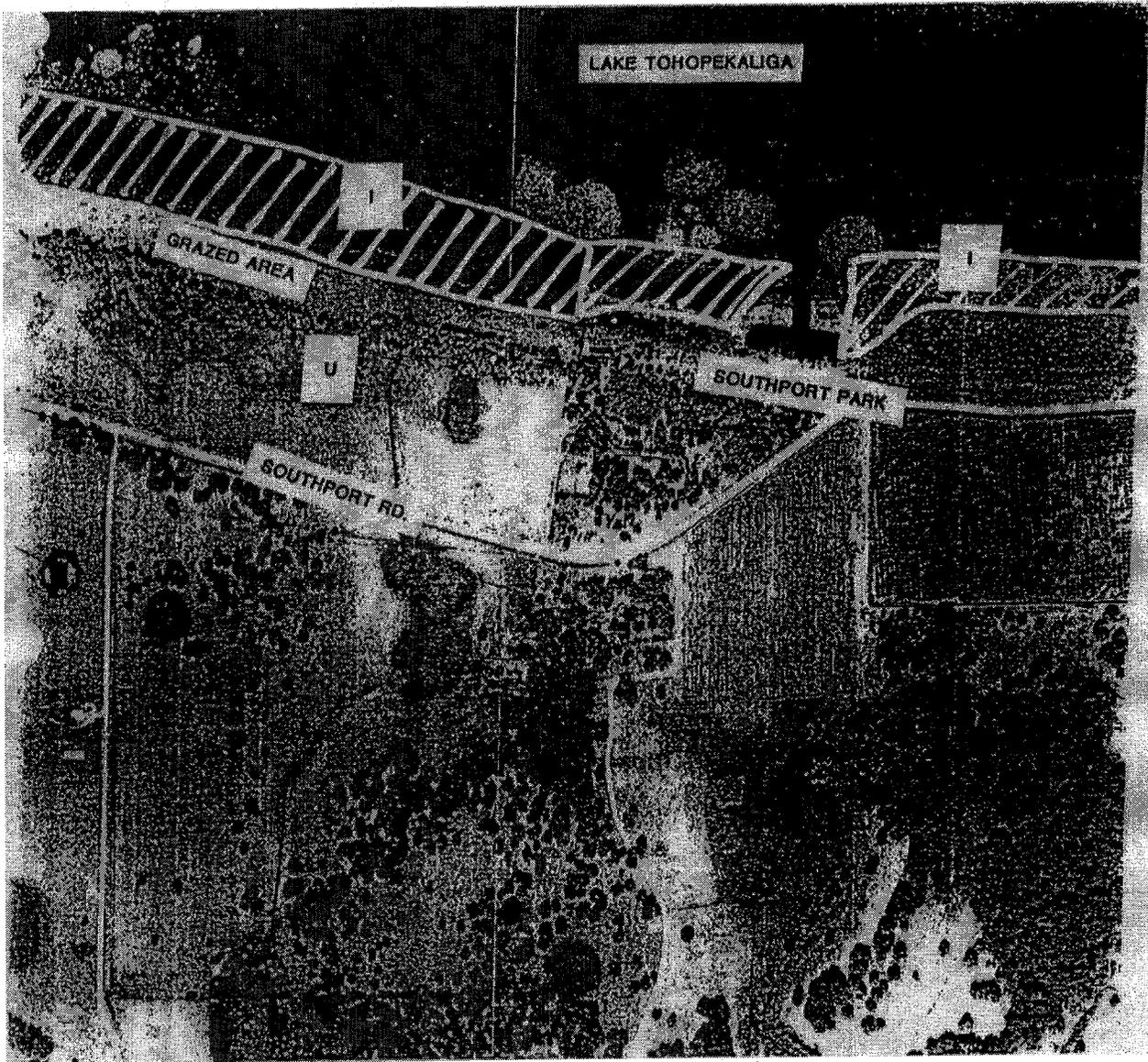
UPLAND DISPO :AL

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LAKE TOHOPEKALIGA

GRAZED AREA

U

SOUTHPORT PARK

SOUTHPORT RD.



INTEGRATED WATER MANAGEMENT DISTRICT OF FLORIDA
12120 W. UNIVERSITY BLVD.
SUITE 200
LAKELAND, FLORIDA 33803



OSCEOLA COUNTY
FLORIDA

DATE	BY	REVISION
12/15/98	J. J. [unclear]	1. INITIAL DESIGN
1/15/99	J. J. [unclear]	2. PERMITTING
2/15/99	J. J. [unclear]	3. [unclear]
3/15/99	J. J. [unclear]	4. [unclear]



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U - UPLAND DISPOSAL

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LAKE TOHOPEKALIGA

SOUTHPORT LOCKS

SOUTHPORT CANAL

OSCEOLA COUNTY
FLORIDA

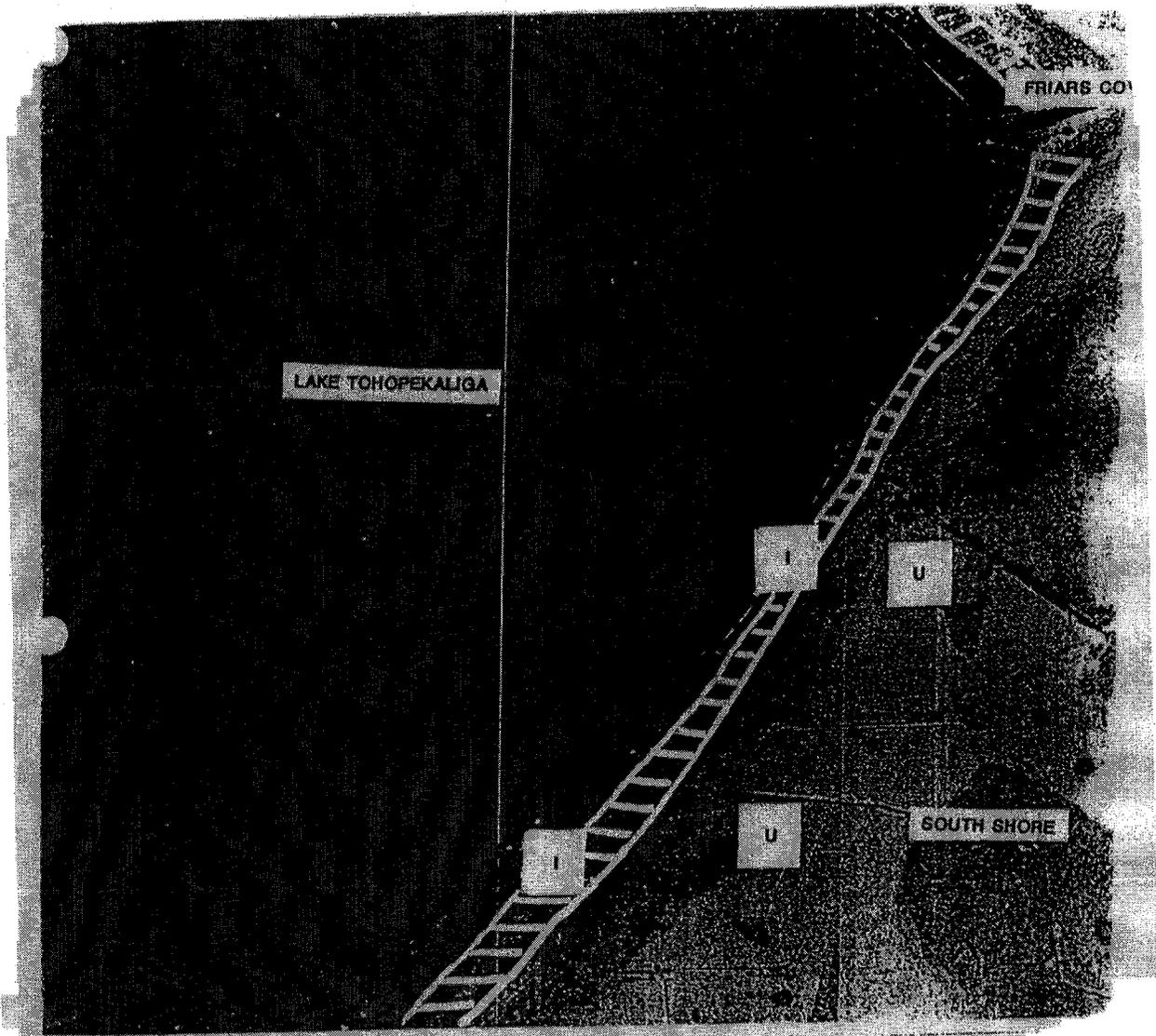


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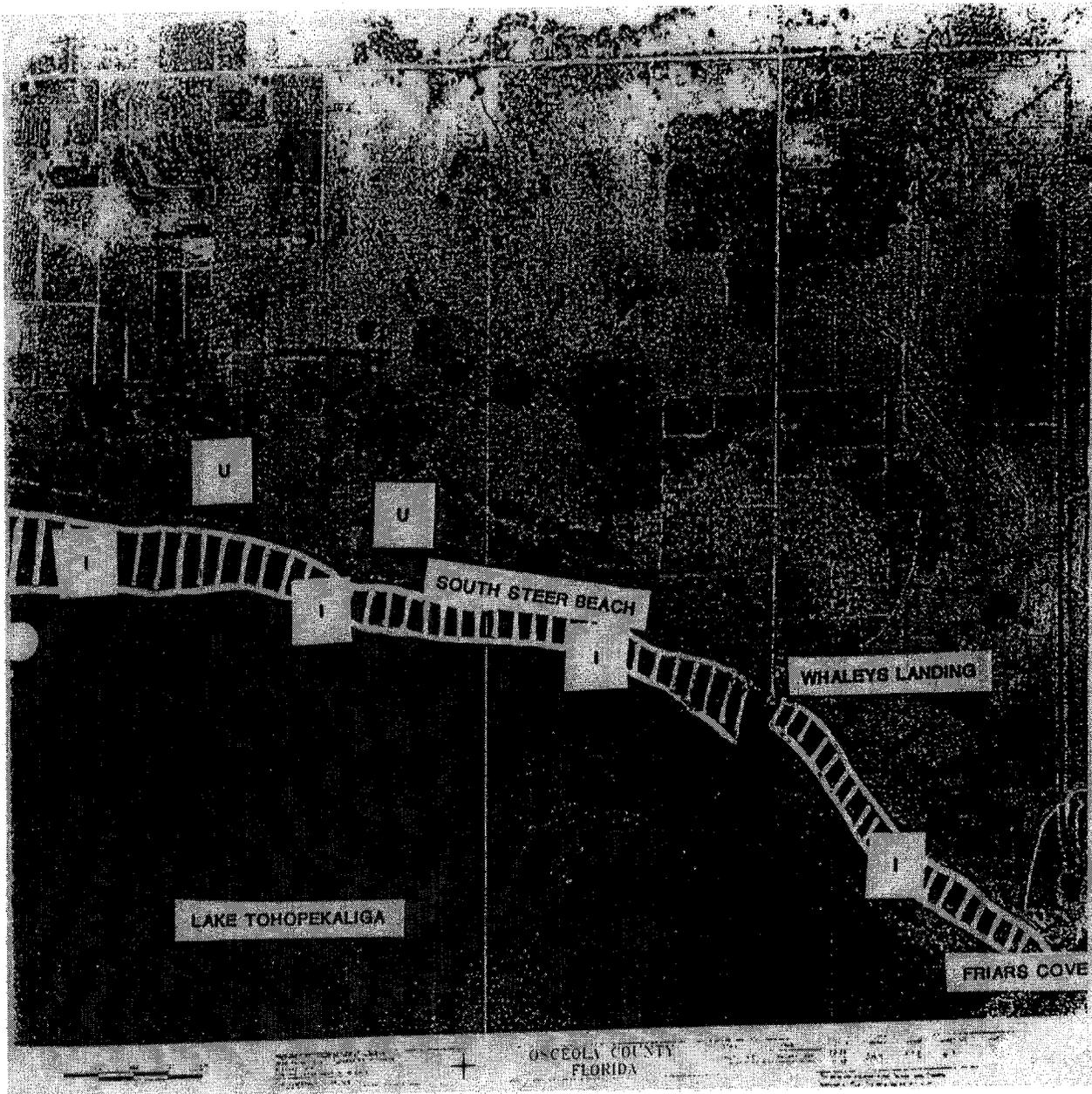
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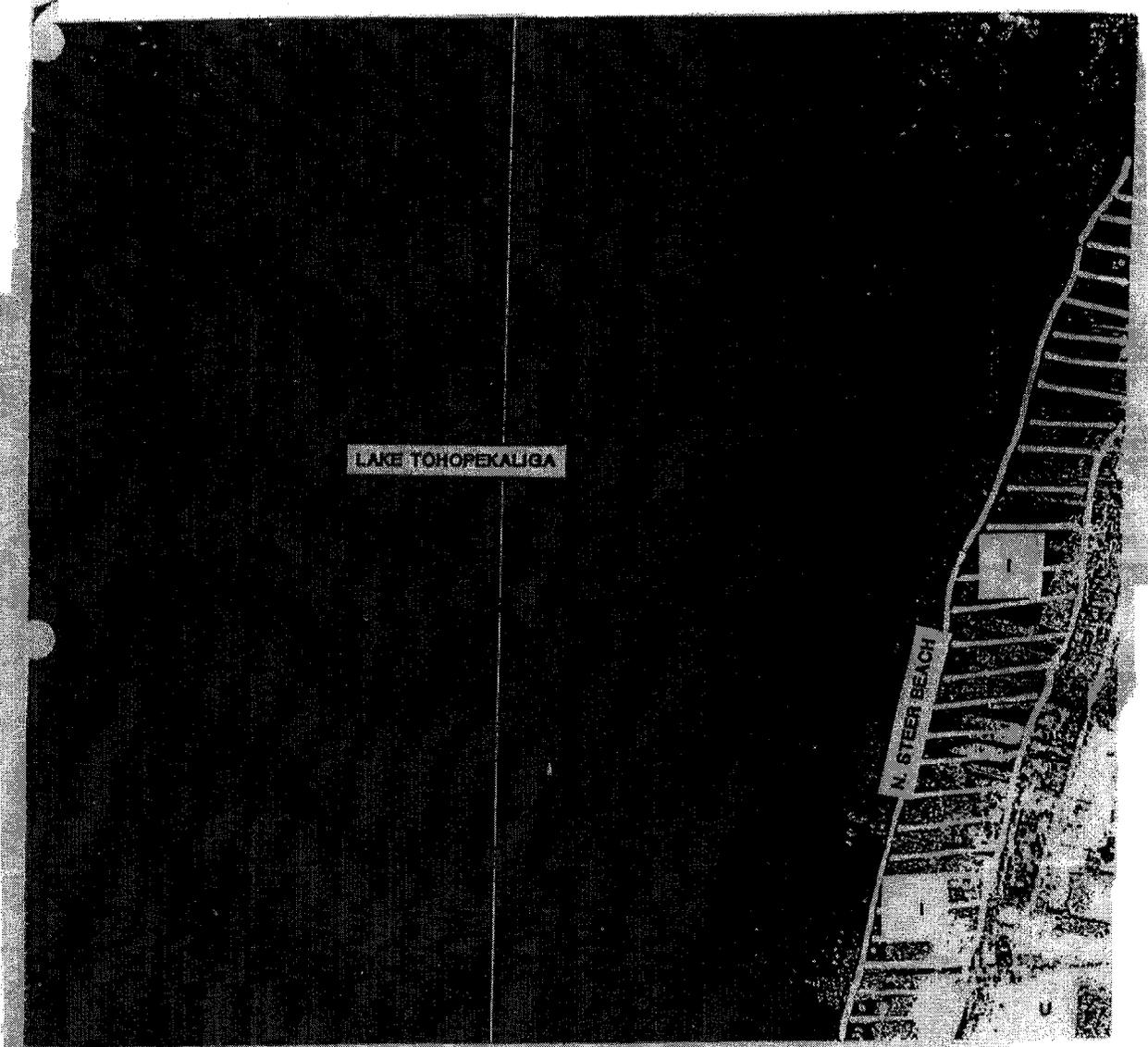
MUCK REMOVAL AREA

I - IN-LAKE SPOIL

U- UPLAND DISPOSAL

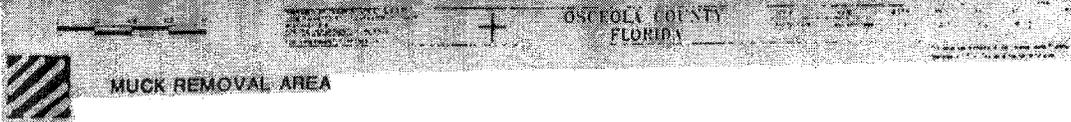
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LAKE TOHOPEKALIGA

N. STEER BEACH



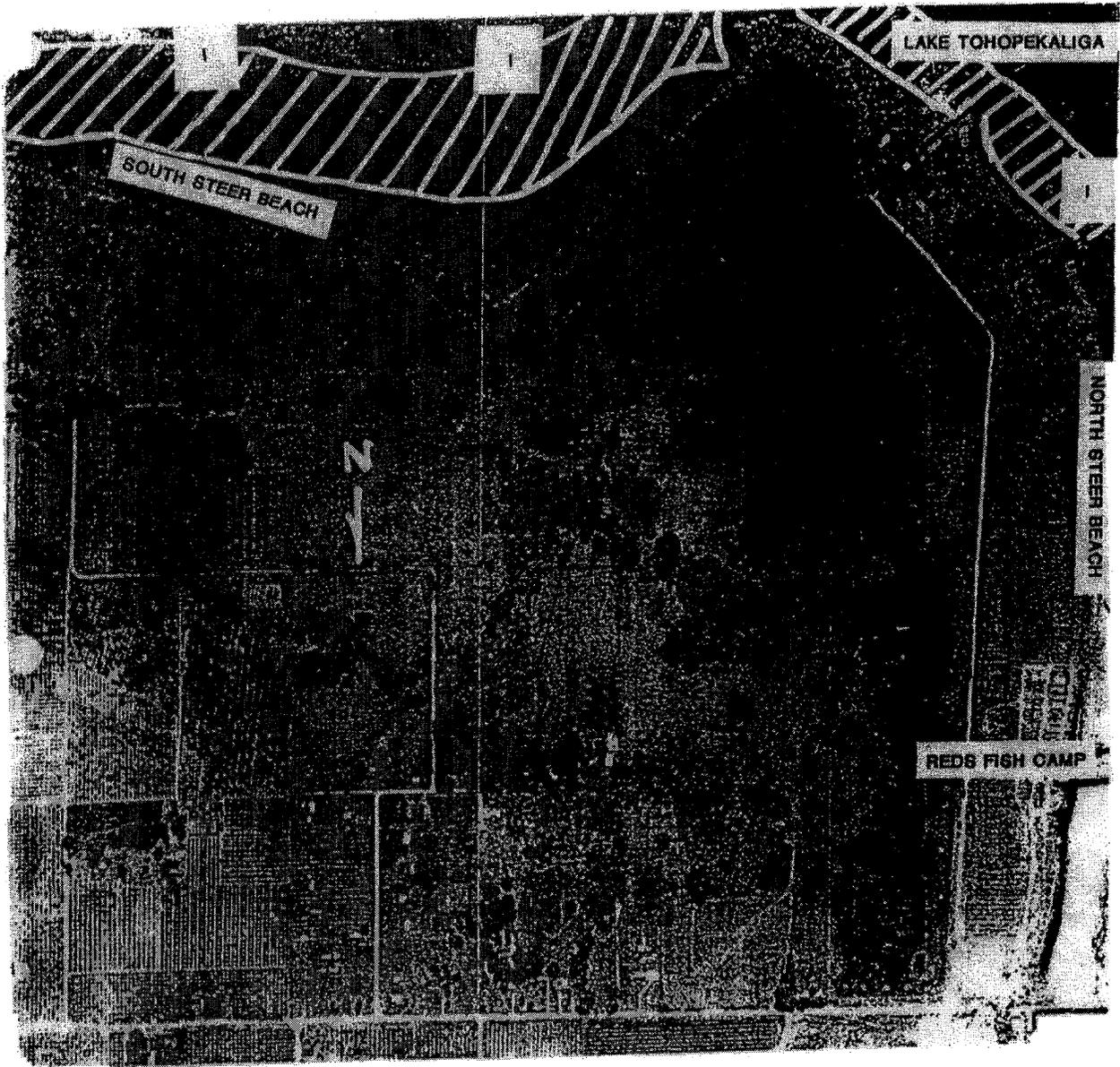
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- IN-LAKE SPOIL

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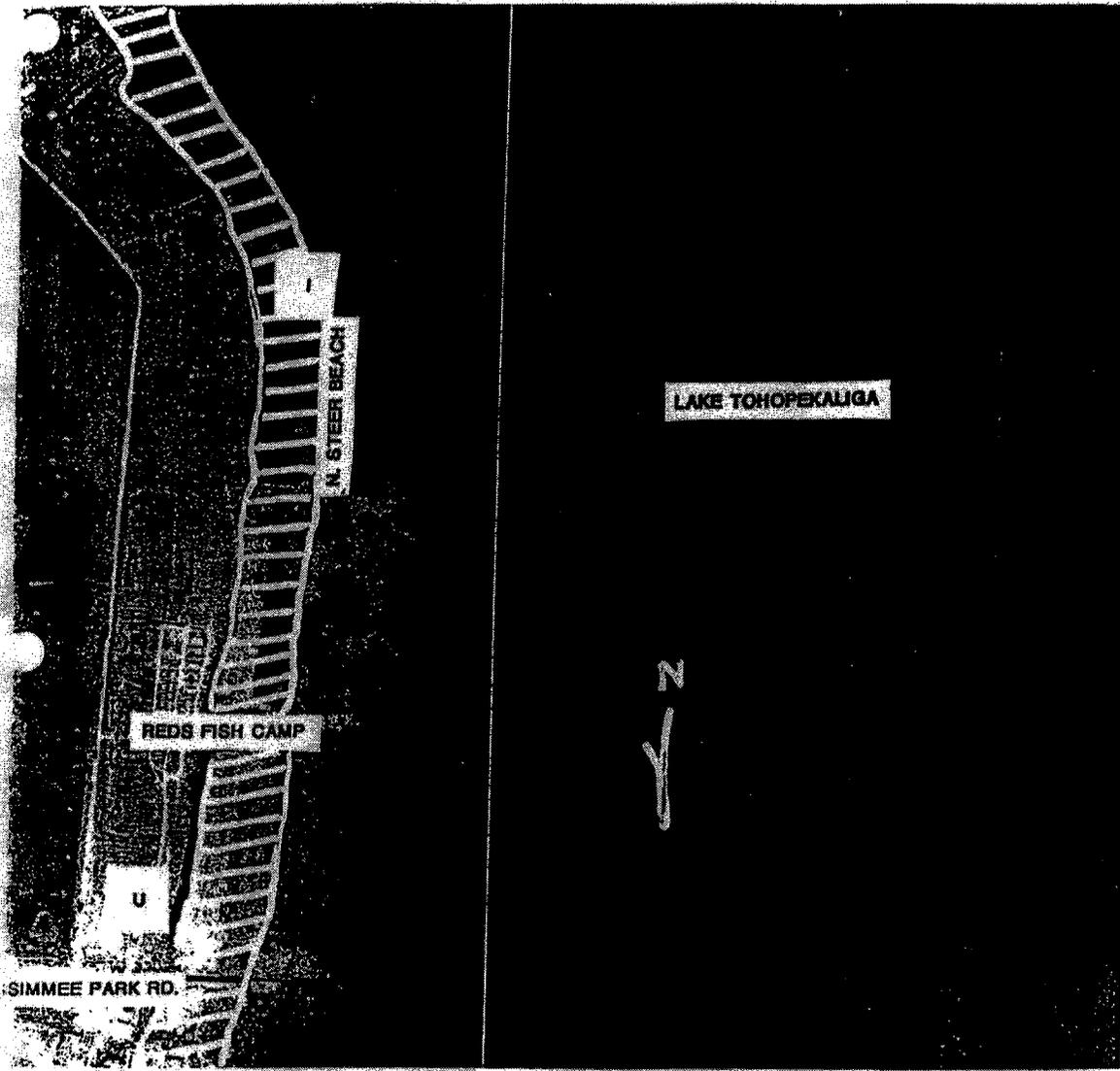


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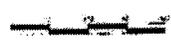
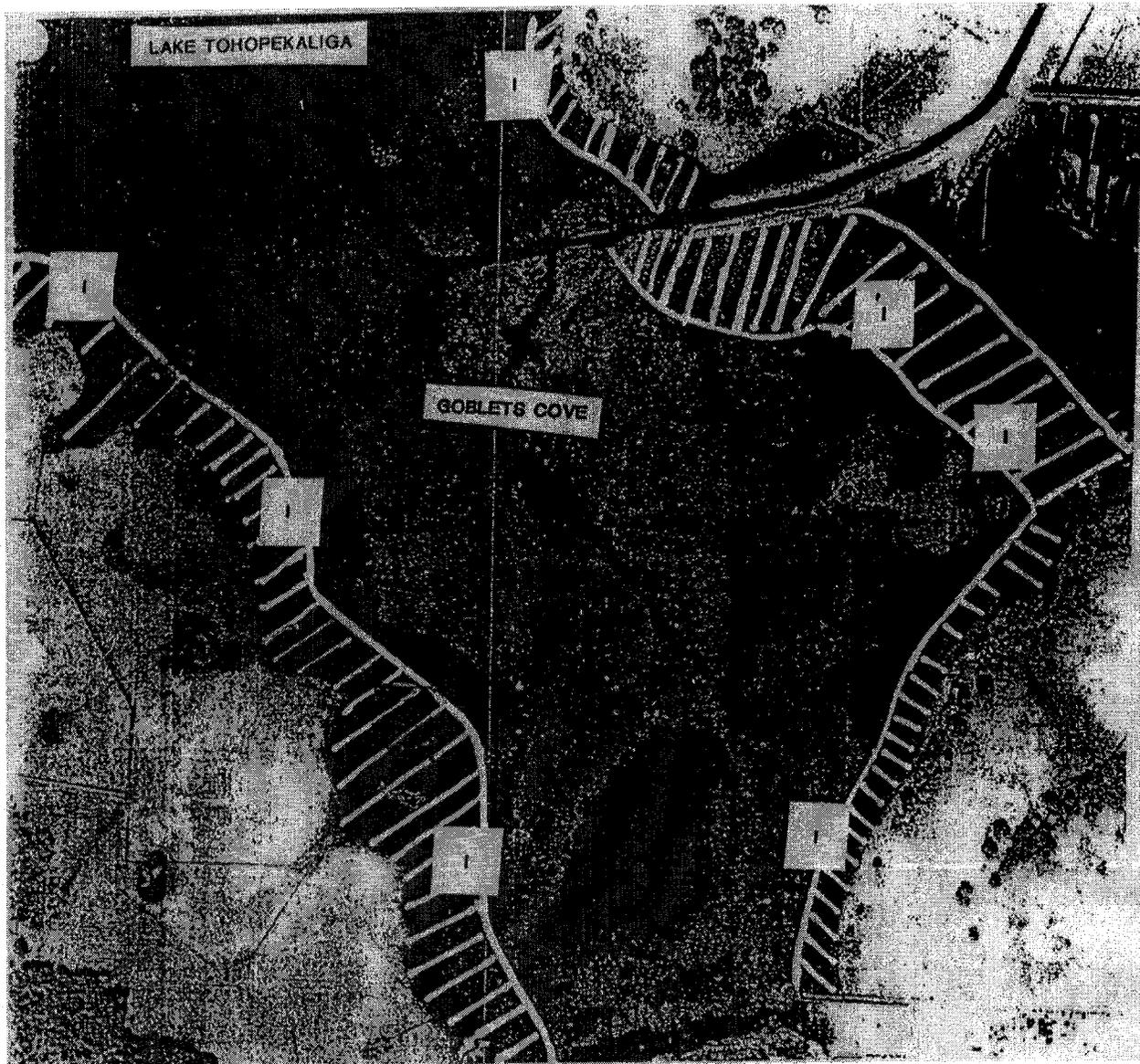
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U.S. Army Corps of Engineers
 Environmental Sciences Laboratory
 3800 Highway 90, New Orleans, LA 70118



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GORLET'S COVE

KISSIMMEE PARK RD.

OSCEOLA COUNTY
FLORIDA

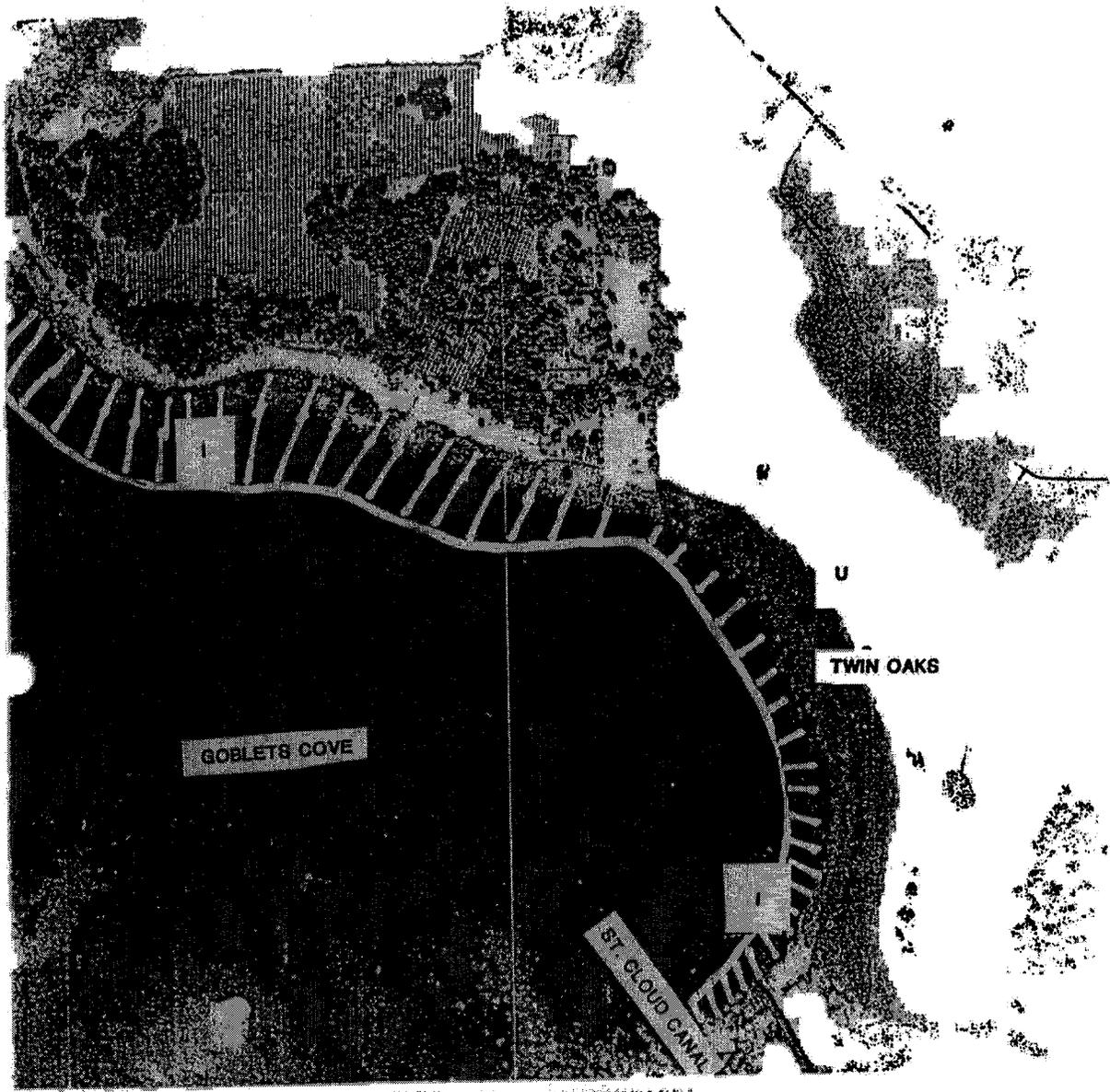


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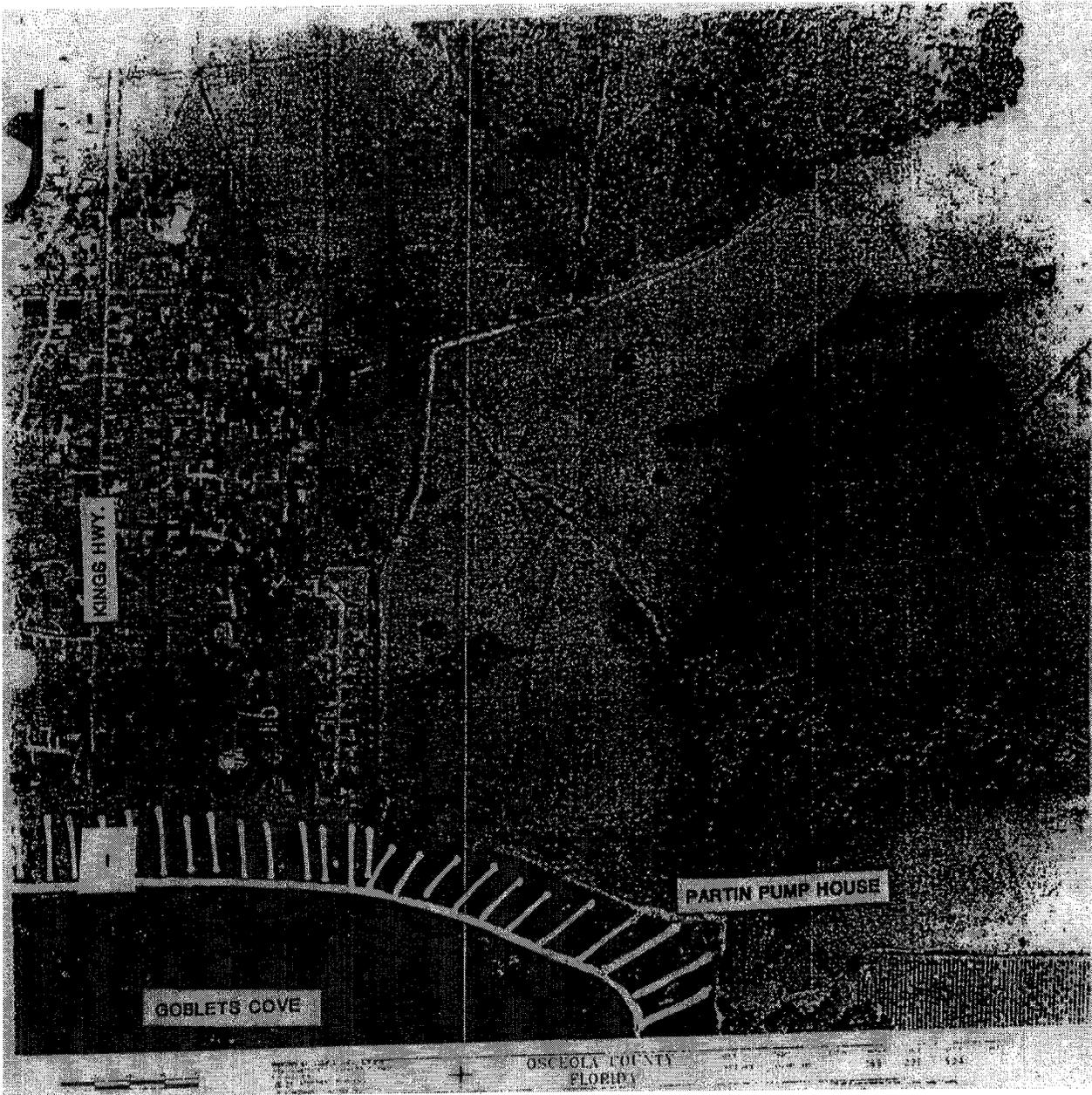
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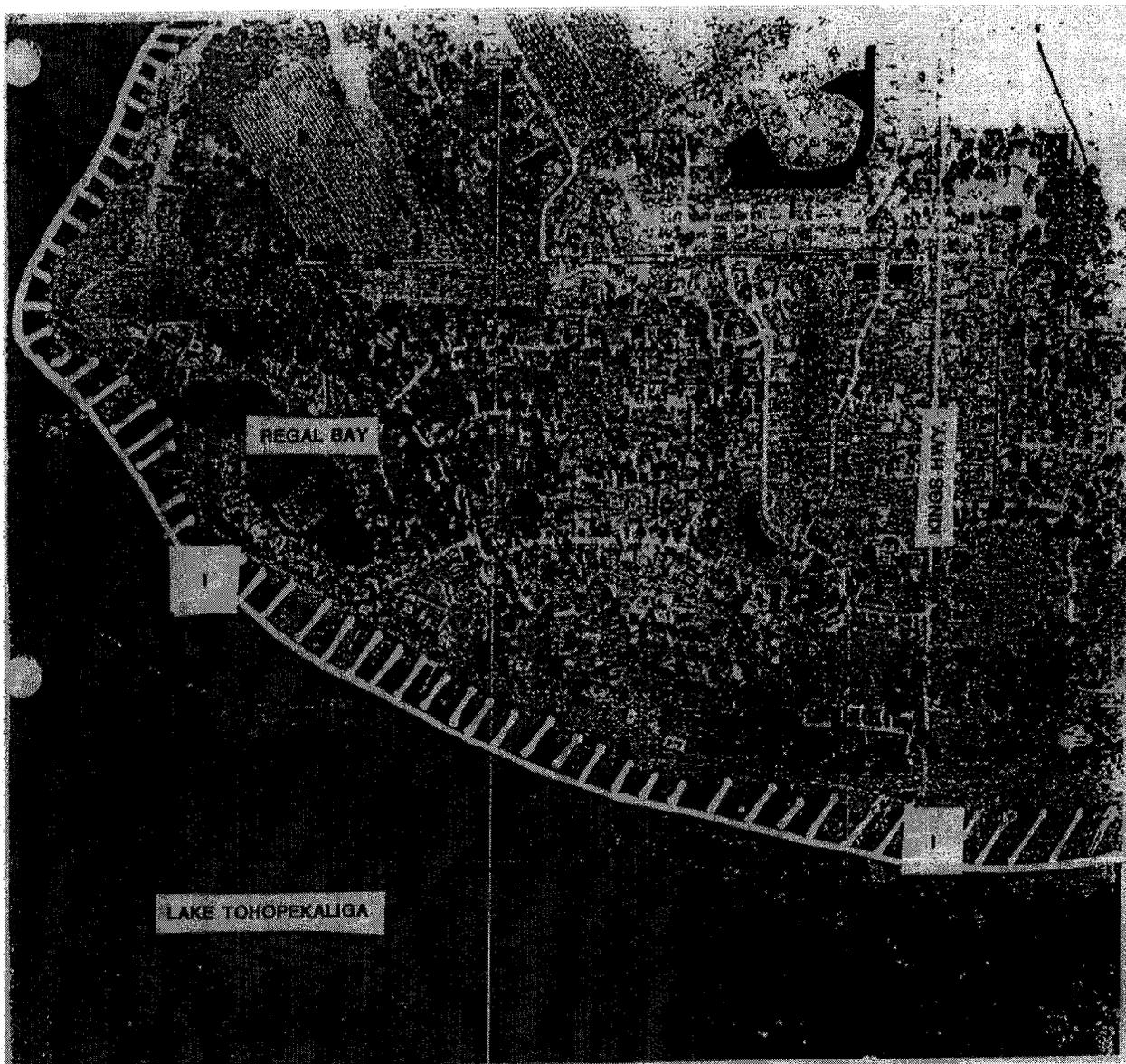


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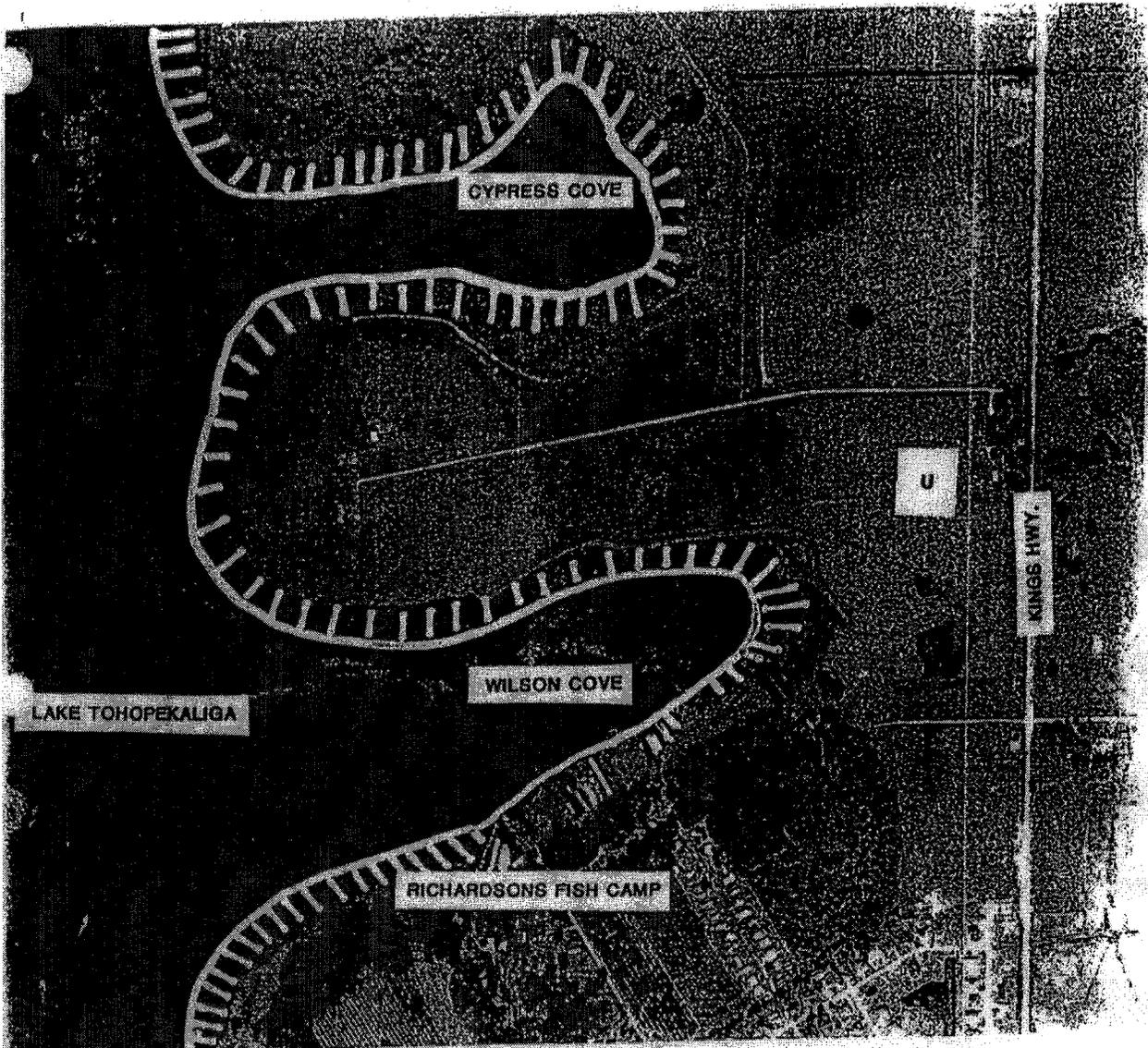


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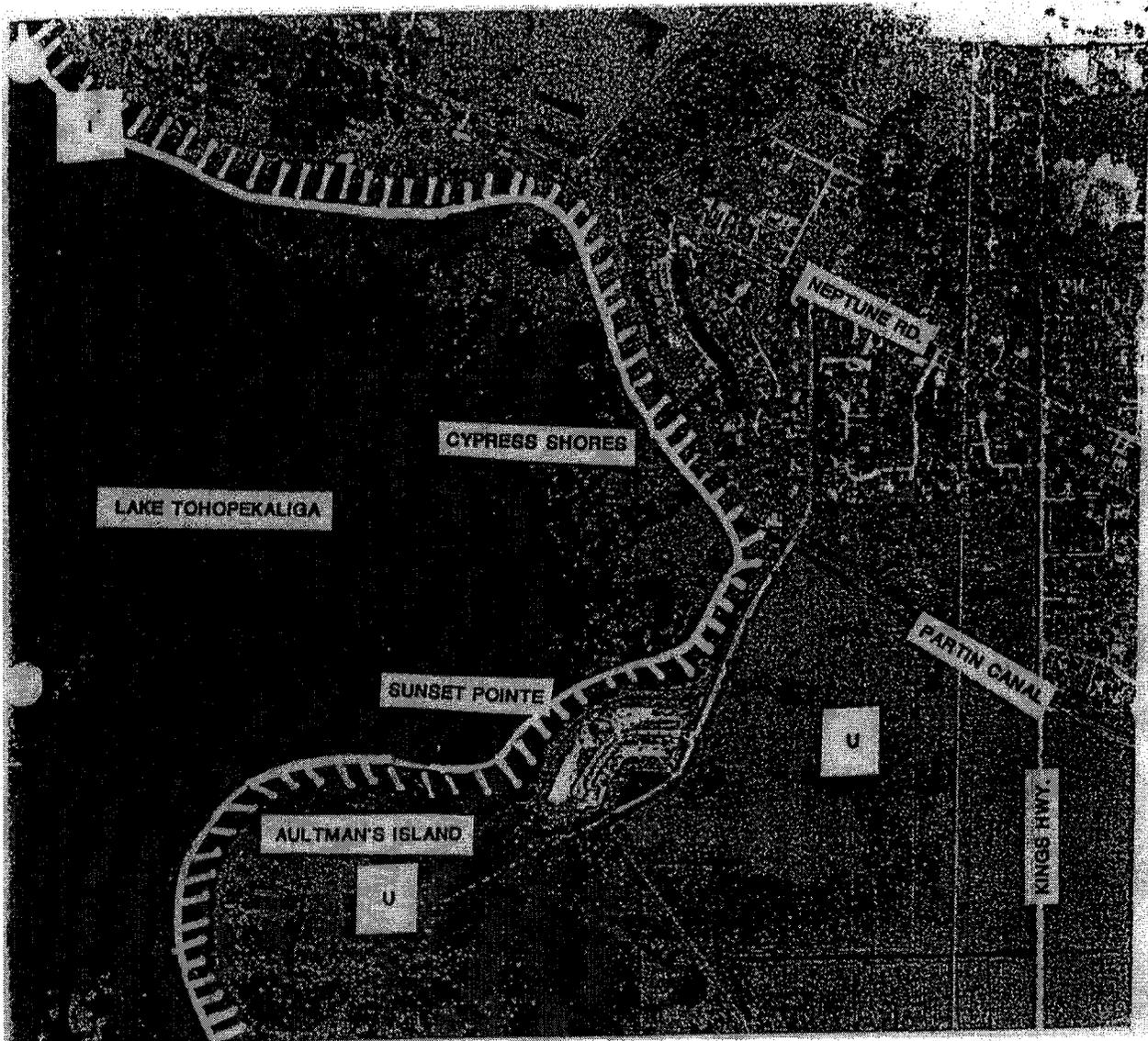


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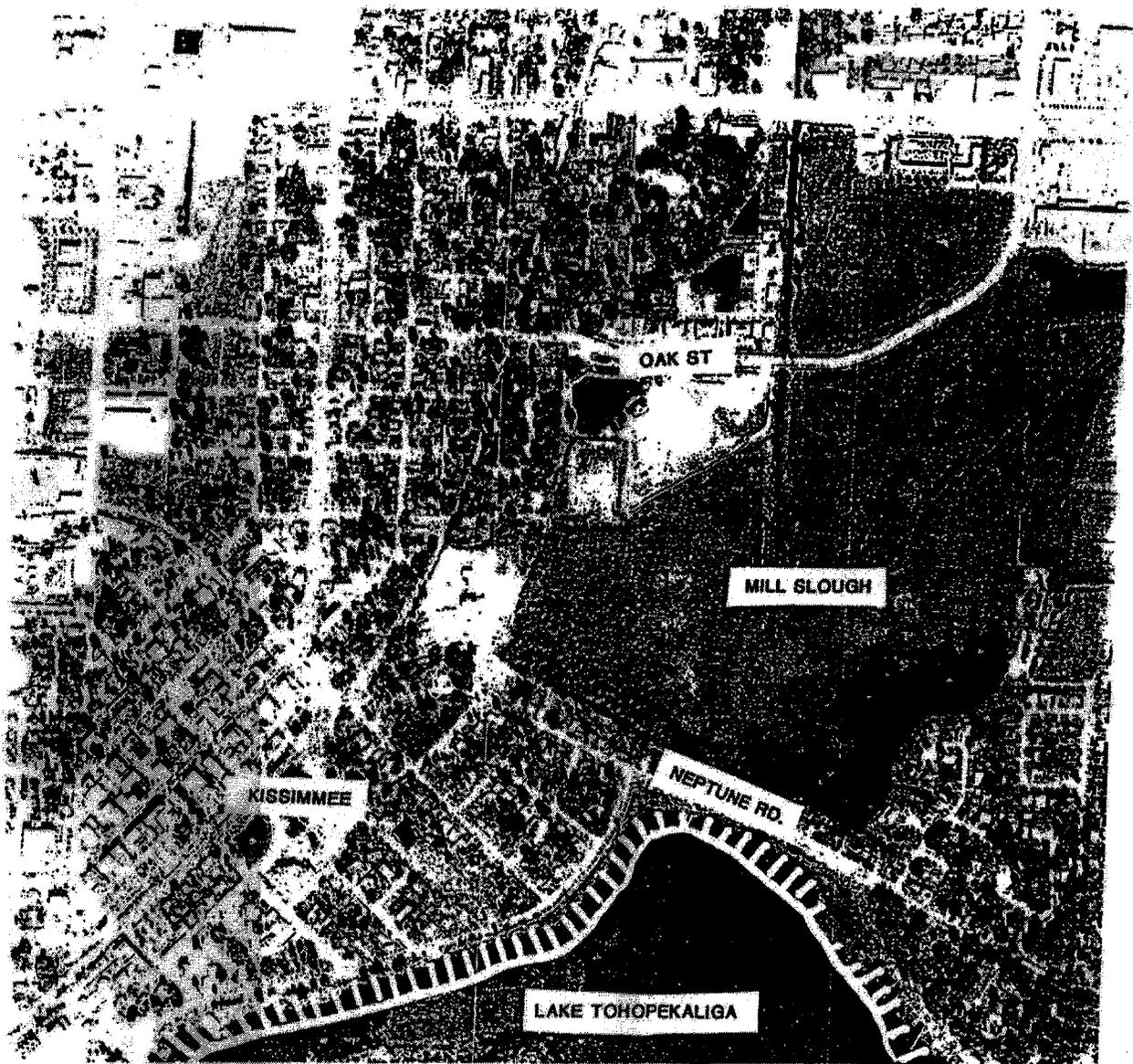
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