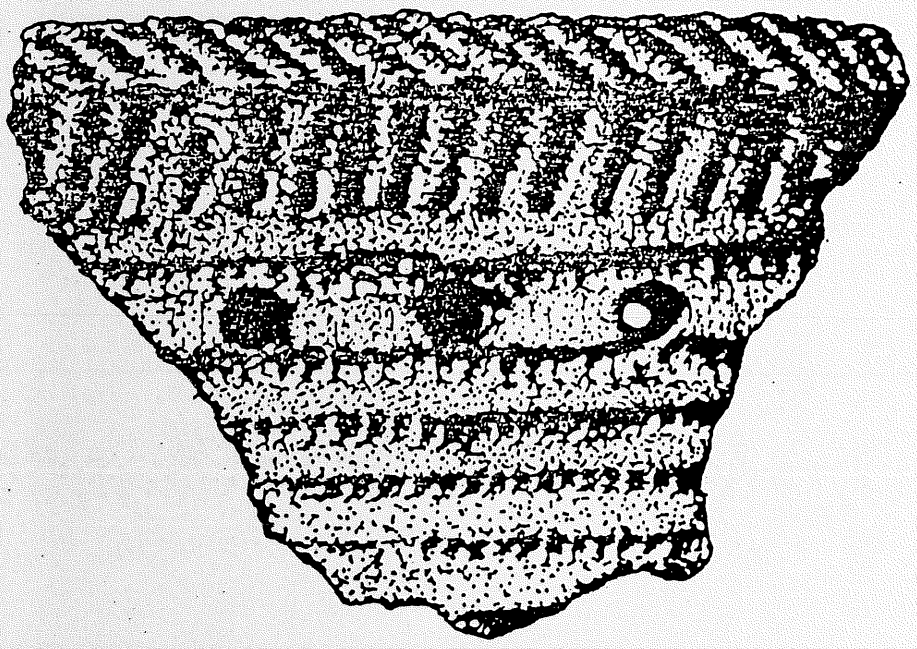
MINNESOTA DEPARTMENT OF NATURAL RESOURCES

WATER ACCESS PROGRAM

ARCHAEOLOGICAL RECONNAISSANCE SURVEY

ANNUAL REPORT - 1987



MARCH 1988

PREPARED BY: PATRICIA M. EMERSON
MINNESOTA HISTORICAL SOCIETY

ITTED IN ACCORDANCE WITH CONTRACT #87C-1755 BETWEEN THE MINNESOTA
ORICAL SOCIETY AND THE MINNESOTA DEPARTMENT OF NATURAL RESOURCES

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
WATER ACCESS PROGRAM
ARCHAEOLOGICAL RECONNAISSANCE SURVEY

ANNUAL REPORT - 1987

March 1988

Prepared by
Patricia M. Emerson
Minnesota Historical Society

SUBMITTED IN ACCORDANCE WITH CONTRACT NO. 87C-1755
BETWEEN THE DEPARTMENT OF NATURAL RESOURCES-TRAILS & WATERWAYS UNIT
AND THE MINNESOTA HISTORICAL SOCIETY

ABSTRACT

This report presents the results of the second full year of operation of the Minnesota Department of Natural Resources Water Access Program Archaeological Reconnaissance Survey. The program operates through the Archaeology Department of the Minnesota Historical Society, with funding provided by the Minnesota Department of Natural Resources-Trails & Waterways Unit. The intent of the program is to conduct cultural resource reviews of projects initiated by the Water Access and River Recreation Programs, which operate under the mandate of Minnesota Statutes Chapter 86A, The Outdoor Recreation Act of 1975. The current objectives, research strategies and operational structure of the Water Access Program Archaeological Survey are explained in the Introduction. The remainder of the report presents the results of specific project reviews completed during the year.

In 1987, information on 59 proposed land acquisition or facility development projects was received from DNR. Record reviews of these project areas resulted in identification of seven known sites that might be affected by proposed undertakings. Field verification and evaluation of these sites will be done as DNR progresses with detailed project planning. Reconnaissance survey of 36 project areas was completed during the year (for 2 of these projects, survey had been initiated in 1986). Three project areas were already known to be adjacent to recorded sites, and three previously unknown sites were recorded as a result of reconnaissance survey. Management recommendations in four cases involved construction restraints or redesign to avoid or lessen adverse impact (21HB21, 21WA46, 21BK33 and 21BE71); additional field research was recommended for the other two sites (21CA10 and 21OT97). Site evaluation was completed in the fall of 1987 at 21CA10, the Sugar Point Site, so that DNR could make a final decision regarding acquisition of the property. Evaluation of 21OT97 should be completed by Summer 1988.

Summary lists of all projects reviewed by this program can be found in the Appendices. These tables are organized both by DNR Region and by county, and include brief indications of review results and management recommendations. Specific project locations are also presented in a separate Appendix. If a project was determined to have the potential to affect a site, the relevant site number is provided.

ACKNOWLEDGEMENTS

Many people contributed to the work completed during 1987 by the Water Access Program Survey. At DNR's Central Office, Steve Kirch and John Steward put forth considerable amounts of time and effort in providing information and resolving a variety of problems. All the personnel in the Regional Offices were willing to help in any way they could. Their patience during the gradual evolution of a workable program is appreciated.

The research that was conducted at 21CA10 could not have been done without the cooperation of a number of people. Ed Fairbanks, Joe Day and Joe Shepherd of Leech Lake Reservation-Division of Resource Management offered every hospitality, and made a complex situation much easier to manage. Enthusiastic field assistance in the face of far from ideal conditions was provided by Jim Harrison, Jim Jones Sr. and Dennis Staples. My thanks to Alan Brew for the information he provided about his work at Sugar Point, and to Grant Goltz, Christy Hohman-Caine and Earl Sargent for providing vital expertise and opinions.

As usual, my colleagues in the MHS Archaeology Department and the State Historic Preservation Office were always willing to provide information, opinions, assistance and fresh perspectives. The contributions of these individuals notwithstanding, the final responsibility for all matters of fact or opinion in this report rests solely with the author.

TABLE OF CONTENTS

Table of Contents, continued

LIST OF FIGURES

List of Figures, continued

I. INTRODUCTION

This report presents the results of work conducted during calendar year 1987 under the auspices of the Minnesota Department of Natural Resources (DNR) Water Access Program Archaeological Reconnaissance Survey Program. This section of the report explains the objectives of the program, its structure and the methods currently used to conduct project reviews. The remainder of the report contains descriptions of all projects for which the review process was completed during the year. Also discussed are projects for which records review and an initial phase of field review were done, even though more work remains to be conducted before these reviews are completed. The individual project descriptions presented here are slightly modified versions of the standard research reports prepared for each review. General location maps are provided for every project area; more detailed maps are included for site areas identified during review. (Those individuals requiring additional information about particular project areas are referred to program files maintained at the offices of the Archaeology Department, Minnesota Historical Society.)

The project descriptions in the remainder of this report are organized first, in order of project type (property acquisition, Water Access Program development project or River Recreation Program development project), second, according to DNR Regional designations, and third, in county order within each region. Appendices provide summary lists of all projects reviewed since the Program was initiated in 1985, arranged in separate tables by DNR Region and Minnesota county. A list of detailed legal descriptions for all projects reviewed since 1985 and a state map showing the approximate locations of the project areas can also be found in the Appendices.

Program Background

The intent of this Program is to provide professional cultural resource management services for recreational development programs operated by the Trails and Waterways Unit, an administrative division of DNR. Specifically, activities of the Water Access and River Recreation Programs are reviewed to determine their potential effect on historic and prehistoric resources. These programs were created under the mandate of Minnesota Statutes Chapter 86A, The Outdoor Recreation Act of 1975 (ORA). The statement of legislative intent contained in Subd. 3 of the ORA authorizes

> establishment of an outdoor recreational system which will 1) preserve an accurate representation of Minnesota's natural and historical heritage for public understanding and enjoyment and 2) provide an adequate supply of scenic, accessible and usable lands and waters to accommodate the outdoor recreational needs of Minnesota's citizens.

As outlined in the ORA,this system is to be composed of a number of discrete types of recreational facilities, each of which provides a particular recreational or educational opportunity to the citizens of the state. "State water access sites"

are one such type of facility, established to provide public access to lakes and rivers deemed suitable for recreational activities.

The mandate of the ORA was translated into more detailed procedures and objectives in 1979, when the official policy on development and management of state water access sites was issued by DNR. At that time, the Water Access and River Recreation Programs were established to coordinate land acquisition, site development and management of lake and river access sites and related facilities throughout the state. (Prior to that time, development and maintenance of such facilities had been handled primarily through DNR's Enforcement Division.)

Funding for the activities of the Water Access/River Recreation Programs comes from several sources. Much of it is dedicated funding, derived from the State's excise tax on fuel for recreational motors. A significant percentage of the annual budget for access development is obtained through Federal sources, including the U.S. Dept. of the Interior-Fish & Wildlife Service Sportfishing Restoration Fund and the U.S. Coast Guard Boating Safety Program.

Because its activities are publicly funded, the Trails & Waterways Unit has a responsibility to consider the effect of those activities on Minnesota's cultural resources. That responsibility is directly apparent in the terms of the Outdoor Recreation Act, as quoted above. DNR operations also fall under the purview of the Field Archaeology Act of 1963 (MN Statutes, Section 138.01 et seq.) and the Private Cemeteries Act (MN Statutes, Chapter 307.08). The former requires that an opportunity be provided for the Director of the MHS, State Archaeologist's Office and Minnesota Indian Affairs Council to review development projects in order to identify those that may potentially affect cultural resources. Chapter 307.08 establishes state policy regarding the treatment of human interments in unplatted cemeteries, and requires consideration of the probability of such interments being located in areas that would be disturbed by construction activities.

Additionally, since the Water Access and River Recreation Programs use Federal funding and perform many activities under Federal permit, they fall under the jurisdiction of Federal Cultural Resource Management (CRM) legislation. Relevant statutes and regulations include the National Historic Preservation Act of 1966 (P.L. 89-665), The National Environmental Protection Act of 1969 (P.L. 91-190), and the Archaeological and Historic Preservation Act of 1974 (P.L. 93-291), among others (see Appendix II for a list of applicable State and Federal statutes and regulations).

Prior to 1985, the Trails & Waterways Unit met its responsibilities under Chaps. 138 and 307.08 by submitting a list of proposed development projects to MHS and SAO for review on a yearly basis. Information about known sites that might be affected by those projects was returned to DNR, and in some cases field review was recommended, but no consistent means of project review was established. Continual expansion of the scope of both the Water Access and River Recreation Programs, due in large part to increased funding levels, eventually resulted in annual development schedules too extensive for adequate review on such an informal basis. The availability of post-development Federal reimbursement increased the need for programmatic compliance with Federal CRM guidelines, which also made a project-by-project approach to the review process cumbersome and inefficient.

In order to establish a mechanism for consistent, timely review of annual

development priorities, the Trails & Waterways Unit entered into an agreement with the Minnesota Historical Society (MHS) in 1985. Under the terms of that agreement, MHS is responsible for providing professional cultural resource review services for all Water Access and River Recreation Program acquisition and development projects. After the first year of the program, the original agreement was renewed with slight modifications.

Review of each year's development schedule for both the Water Access and River Recreation Programs constitutes a sufficiently large body of work to require the services of a full-time Program Archaeologist. That individual, who occupies a project position in the MHS Archaeology Department, has primary responsibility for all aspects of the review process from initial compilation of project data to preparation of individual project reports and an annual technical report. The Program Archaeologist works under the direct supervision of the Head of the Archaeology Department and also reports to a designated Review Coordinator at the Trails & Waterways Unit. (Note that, while this agreement was entered into by the Trails & Waterways Unit, it specified that only Water Access and River Recreation Program projects are to be reviewed. No undertakings of DNR's Trails Program are currently included in this program.)

The initial agreement that created the DNR Water Access Program Archaeological Reconnaissance Survey was based in outline upon several similar programs already in operation: the DNR State Parks Survey, the Minnesota Trunk Highway Archaeological Reconnaissance Survey and the County-Municipal Highway Archaeological Survey. As is the case with those programs, the Water Access Survey must operate within the broad guidelines established by State and Federal regulations for cultural resource review. Within that framework, however, there is considerable room for flexibility in establishing procedures for day-to-day operations. During the first year of this Program, procedures were established for coordination of information flow, project prioritization and documentation, and the general scope of the survey was defined. This second year of work has seen considerable modification and clarification of the original procedures in order to increase efficiency and responsiveness to DNR's operating standards. The current objectives and procedural structure of the Program are explained in detail below.

Research Design

The overriding objective of this Program, as explained above, is to maintain agency compliance with a set of State and Federal laws that require consideration of the potential effect of agency undertakings on cultural resources. During the last two decades, many programs with essentially identical goals have been in operation all over the country. Through the experience of those involved in such programs, the professional archaeological community has reached a consensus on basic elements of the process that must be present in order to insure that compliance-oriented activities maintain an adequate level of conformance to standards for archaeological research in general. Those procedures have been codified to some extent in guidelines issued by the Secretary of the Interior as part of the Historic Preservation and Planning Process. Although it is not mandatory to apply these guidelines in reviewing non-Federal projects, the Secretary's Standards are useful for providing a framework for all CRM activities. Application of these standards

facilitates consistency in program operations and provides a common denominator for the relative judgments that must often be made about appropriate research strategies and site significance. (The Secretary's Standards also mandate development of a comprehensive state preservation plan as the primary framework for designing research and evaluating identified properties. The comprehensive plan for Minnesota has not yet been formulated in its entirety.)

The research phases delineated in the Secretary's Standards are described in broad terms, as they must be in order to be useful for a very wide range of potential applications. Their general scheme reflects a staged research approach:

- selection and definition of the area to be studied, as appropriate given the reasons for which the work is undertaken;
- identification of potentially significant properties (both historic and prehistoric) within the study area;
- evaluation of those properties in terms of established criteria of significance;
- thorough documentation of research in keeping with professional standards and the needs of the historic preservation process.

The Secretary's Standards allow for considerable flexibility in the selection of research methods, but they are clear in emphasizing the need to insure that the chosen methods and levels of investigation are consistent with the overall purpose for which the study was originally undertaken. The general objectives reflected in those guidelines must thus be translated into more detailed goals upon which a program-specific research design can be based.

The research design for the Water Access Program Survey has been formulated by modifying the research scheme presented in the Secretary's Standards with reference to particular aspects of DNR's administrative procedures. Those procedures are set forth in DNR's Water Access Policy Statement of 1979 and related documents; they are summarized here in terms of their relevance to the general structure of the cultural resource review process.

Project Classification and Prioritization

The types of activities undertaken by the Water Access/River Recreation Programs and therefore reviewed through this program fall into three major categories. For each category, there are special considerations that affect the manner in which the review process is implemented and the timeframe within which it is completed.

1) acquisition: the process of acquiring title to a parcel of land upon which a water access facility will eventually be built. This usually involves the outright purchase of the parcel from private owners, but may also involve a long-term lease, special-use permit or cooperative agreement with another unit of government. The actual process of establishing purchase terms is handled through DNR's Land Bureau, after information about potential acquisitions is forwarded from the Trails & Waterways Unit. The specifics of the process are defined by State Statute and administrative rule; standard procedures include obtaining a formal "Option to Purchase" that specifies a time period from two to nine months in length, during which DNR may elect to buy the property at a specified price. This option period allows time for DNR to resolve title questions, survey property boundaries, and solicit public comment on the proposed acquisition.

2) new development: construction of water access facilities in a new location, usually on a recently purchased parcel of land. Project design is handled through

DNR's Engineering Division, which prepares preliminary and final plans according to a set of 'typical' facility layouts of various sizes and configurations. Standard facilities for a new access include a solid concrete or plank ramp 12' to 36' in width, and entry/exit roads, normally 22' wide, as necessary to provide safe access to the parking and launch areas. The sizes and shapes of parking areas are quite variable, dependent on property boundaries, engineering concerns and anticipated levels of usage, but generally are based on allowance of a 12' by 50' space for each car/trailer unit, plus drive lanes. Most of the projects reviewed to date have called for construction of parking areas large enought for 8 to 24 units, totaling roughly 9,000 to 30,000 square feet in size.

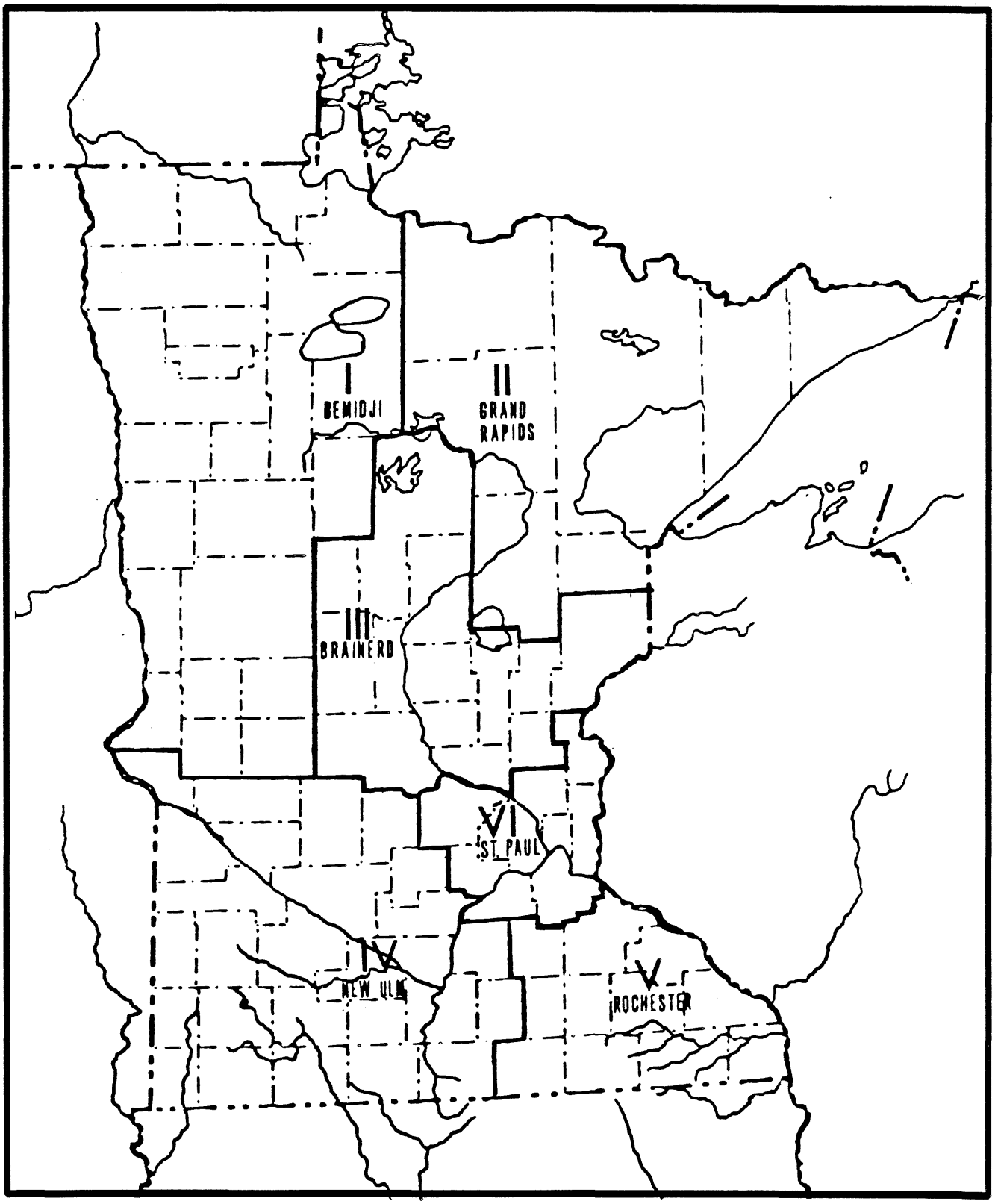
3) access rehabilitation: modification or expansion of an existing water access facility, usually to upgrade its quality, reduce maintenance problems, or expand capacity. Rehabilitation projects are sometimes done in conjunction with acquisition of new land in order to expand the size of a particular water access facility, or may involve enhancement of facilities previously under the jurisdiction of another unit of government or a utility company such as Minnesota Power & Light. Rehabilitation projects are often extensive in scope, and in the majority of cases involve alteration of land areas not previously part of access development. Therefore, they cannot be assumed to have no potential for adversely affecting cultural resources. (Both new development and rehabilitation projects are included on regional development priority lists, and for the purposes of this report both are referred to as "development projects".)

As part of the process of establishing the Water Access and River Recreation Programs, the Trails & Waterway Unit has conducted an assessment of the recreational potential of all of Minnesota's water resources. Each lake, river and stream has been evaluated, first, in terms of its suitability for various types of water recreation activities, and second, according to the adequacy of existing facilities through which the public can pursue such activities. This provided a basis for comparing existing facilities to recreational access objectives for each region of the state. These comparisons identify areas of inadequate or non-existent facilities, which become the focus for program operations.

Although the statewide water access prioritization process establishes general program objectives, the process of selecting specific projects for immediate action is initiated in DNR's six Regional Offices (see Figure 1). Each Region has a Trails & Waterways Coordinator and additional personnel who implement the policies of the Water Access and River Recreation Programs. These individuals are responsible for identifying regional access needs and priorities, subject to overview and concurrence by DNR's Central Office in St. Paul.

Each June, the Water Access and River Recreation Programs compile master lists of development projects - both new construction and rehabilitation - to be undertaken during the coming state fiscal year (July 1 through June 30). This list is based on proposals made by each Regional Office, and is organized in order of priority within each of the six DNR regions. (The exception is the state-wide list of proposed River Recreation Program development projects.) Priority lists are modified during the year as necessary to accommodate engineering complexities, political concerns, changes in allocation of funds and other administrative matters. Although subject to change, these regional priority lists still provide the best starting point for estimating project completion schedules. They therefore are used as the basis for setting project review priorities.

Figure 1. DNR Administrative Regions



A list of land acquisition priorities is maintained separately, on a statewide basis. Regional personnel are responsible for initial identification of suitable properties, following regional priorities whenever possible. Proposals for instituting acquisition proceedings are submitted to the Central Office for review and approval, after which they are forwarded to the Land Bureau, which conducts negotiations with the landowner and handles appraisal, title review and other necessary legalities.

While Regional personnel are responsible for establishing initial project priorities, final determinations of project status are always made in DNR's Central Office. In order to ensure the most realistic response to DNR's acquisition and development timeframes, cultural resource review of upcoming projects is coordinated between the Program Archaeologist and a designated individual in the Trails & Waterways Unit Central Office. Information on proposed undertakings is provided to the Program Archaeologist through that individual, as are changes in regional priority lists and updates on specific project completion schedules.

After yearly development priorities are established for each Region, requisitions for engineering services are prepared and transmitted to DNR's Bureau of Engineering in the St. Paul Office. Topographic/boundary survey and preparation of plans and specifications are handled through this Bureau, with review by Trails & Waterways personnel as work proceeds.

Official State Water Access policy indicates that, whenever possible, the efforts of the Water Access and River Recreation Programs are to be coordinated with other units of government in providing 'free and adequate' public access to Minnesota's water resources. This coordination usually takes the form of reimbursement of a portion of development costs for work performed by a local unit of government or on property owned and managed by a county, city or township. Cooperative agreements, which may involve either new access development or rehabilitation of existing facilities, generally require conformance with all applicable state regulations. Therefore, cooperative projects are reviewed in the same manner as all other development and acquisition projects.

Research Methods

Many of the properties acquired and developed by the Water Access and River Recreation Programs would qualify under both intuitive and empirical models as fairly high potential areas for prehistoric site location. The construction of water access facilities, in turn, certainly has the potential to adversely affect such resources where present. On a program-wide basis, therefore, there is a clear need for review of all proposed projects according to a consistent scheme. During the past 2 years of program operation, a review process tailored to DNR's operational plan has been developed and implemented. The process consists of a set of general procedures that can be modified to accommodate the circumstances of each project while maintaining consistent research standards that meet legal requirements and professional responsibilities.

Project area description

The first step in reviewing any project is evaluation of the physiographic and geomorphic characteristics of the project area, its present condition, land use history and the degree and nature of past disturbance. The basic information compiled about each project comes from Regional personnel: location, legal

description, current condition, ownership, and the general nature of the proposed work are all described on standard information forms forwarded to the Program Archaeologist. In some cases, detailed property maps, aerial photographs, etc. are also available.

The Program Archaeologist then compiles additional data for each project area. USGS Quadrangles from the 7.5-minute series are used as base-line maps (for a few areas of Minnesota, maps of this scale are not yet available, in which case 15-minute maps are used). Topographic, hydrologic and land-use data are taken from these maps. In counties for which USDA-SCS has published detailed soil surveys, the formal soil classification for each project area is also recorded. Occasionally, another public agency has some jurisdiction over or interest in a particular project area. More detailed maps of the area or other specialized information is sometimes available from these sources, and the review process is coordinated with cultural resource specialists from other agencies when appropriate.

Standard physiographic and geomorphic designations are determined for each project area. Physiographic divisions follow those defined in Wright's "Physiography of Minnesota" (in Sims & Morey, Geology of Minnesota, 1972). Each physiographic subdivision represents an area of the state in which topography, drainage, natural vegetation and other surface features are more or less consistent and definable in terms of specific Pleistocene and Holocene land-alteration events and processes. They provide a general characterization of the landscape in a particular locality, which in turn provides insight into that landscape's past potential for human settlement.

More detailed delineations of physiographic characteristics are taken from a set of eleven publications issued between 1969 and 1981 by the "Minnesota Soil Atlas Project", an undertaking of the University of Minnesota Agricultural Experiment Station. Each publication includes a topographic map of a portion of the state upon which 'geomorphic regions' are delineated. These regions are overlapping subdivisions of Wright's physiographic divisions, defined on the basis of local relief, drainage patterns, vegetation and soil types. Accompanying literature defines each geomorphic region and provides summary data about water resources, soil types and land use. Because they are drawn on a much smaller scale than physiographic divisions, geomorphic designations provide more exact data about the environmental nature of each project area. They are useful for determining expected soil types, evaluating potential for locating buried soil horizons, and identifying paleo-topographic features that may require special field research strategies.

Records review

After base-line descriptive data have been compiled for a project area, an examination of existing documentation about cultural resource research in and close to the project area is conducted. This process provides a frame of reference for evaluation of research results, and in some cases allows for immediate identification of resources that may be affected by a proposed undertaking.

The projects reviewed through this program generally involve relatively small parcels of land, averaging no more than 2 acres in size, although larger areas are sometimes acquired or developed. Cultural resources, however, can only be properly interpreted in the context of settlement and resource utilization patterns of larger scale. Data about resources known to be present in the vicinity of a particular project area are therefore considered during records review, even though the

proposed undertaking will not necessarily have any direct effect on those resources.

As a practical matter, it has been necessary to restrict the scope of this aspect of the review process to a level consistent with the magnitude of potential effect for a typical project. Initial records review concentrates, therefore, on resources and research within approximately a one-mile radius of each project area. The aims of this process are to determine, first, if there are any identified or suspected cultural resources in or close to the project area and second, if any formal cultural resource surveys have been conducted in that vicinity. At minimum, the following sources are consulted during records review:

- state site files maintained at Ft. Snelling History Center or SAO, which contain data about officially recorded prehistoric and historic sites;
- Winchell's The Aborigines of Minnesota (1911), which contains descriptions and maps of earthworks and habitation sites throughout the state, not all of which have been assigned official state site numbers;
- unpublished data about observed or suspected site locations that have not been confirmed in recent years, including the field notes of T.H. Lewis, Jacob V. Brower's journals, Lloyd Wilford's 'County Memos', and data received from private landowners, amateur archaeologists and other informants;
- cultural resource survey report files maintained by SHPO;
- the checklist of Minnesota's National Register of Historic Places (NRHP) properties; and
- SHPO historic sites survey files.

Additional sources of information are also consulted as appropriate, including survey index lists for the Trunk Highway and County-Municipal Highway Archaeological Survey Programs, and records of the Minnesota Statewide Archaeological Survey (MnSAS). When appropriate, cultural resource inventory files of public agencies such as the U.S. Forest Service and the U.S. Army Corps of Engineers are checked. Information is frequently solicited from other archaeologists when they are known to have a research interest in or unpublished data about a particular area.

These first steps in the review process are generally completed within two weeks of the date on which the Project Archaeologist first receives information about a proposed project. If a known site is identified that might be affected by DNR's proposed work, Regional and Central Office personnel are notified immediately so that they can take that information into consideration during the planning and design processes.

Reconnaissance survey

The methods applied during this phase of investigation are based upon accepted professional practices, particularly those outlined in "Archaeological Survey Standards for Minnesota" (Council for Minnesota Archaeology, 1977). They are based on the assumption that every project area has some potential for containing unrecorded cultural resources. Reconnaissance survey is therefore considered necessary for all projects, unless specific information about the project area or the nature of the proposed work obviates that need. For instance, a rehabilitation project that involves only placement of new surfacing material within an existing parking area might not require field survey. Before that determination could be made, however, it would be necessary to review detailed project plans and information about previous work in order to verify the project area's lack of potential for containing identifiable resources.

The aim of reconnaissance survey is to examine the project area with a level of scrutiny sufficient to provide reasonable assurance that any resources present would, indeed, be identified. Most of the properties developed as Public Water Access locations have fairly heavy vegetative cover and have not recently been under cultivation, which makes the probability of identifying cultural deposits from surface manifestations very low. Therefore, reconnaissance-level survey is conducted primarily by means of shovel testing, and surface reconnaissance is used as a supplementary source of data when appropriate. Shovel tests are a minimum size of approximately 30 centimeters square. Vertical provenience control is maintained by arbitrary levels no more than 10 centimeters in thickness; in many cases, subsurface provenience is determined to the closest 5-centimeter level. All excavated soil is screened through 1/4" wire mesh, and provenience of recovered cultural materials is recorded by test number and level. Generalized soil profiles are recorded for each shovel test. A test interval of 15 meters is considered standard, but is subject to expansion or contraction when field conditions - verified disturbance, topographic features, standing structures, etc. - warrant such variation. In the project descriptions contained in this report, application of standard field methods can be assumed unless otherwise indicated.

If records review has indicated that there is a known site within or adjacent to a project area and existing documentation about the site is sufficiently detailed, field survey of the project area may not be necessary. In other cases, standard reconnaissance survey may be conducted. Many sites presently in the official state files were initially recorded on the basis of very limited field research. The site forms may have incomplete or incorrect locational data and little or no information about temporal or cultural affiliation. Site area definitions may simply not be detailed enough to allow for a determination of the extent to which a site overlaps with DNR's proposed construction area. In such situations, reconnaissance survey is conducted in order to confirm the existence of the site and define its boundaries in three dimensions.

If, for a particular project, no resources are identified during records review or reconnaissance survey, the final stage of the review process is the production of a research report which includes a description of research methods and a discussion of all information gathered during each stage of the review process. A recommendation is made that the project proceed with no additional review. This completes the review process for most of the projects dealt with through this program.

Site evaluation

If a cultural deposit is identified during records review or reconnaissance survey, an additional level of review is implemented. The first topic that must be addressed at this stage of research is the probable effect of proposed development on the site area. This question can usually be answered by reviewing construction plans or other information provided by the Project Engineer to define the limits of disturbance and the types of land-alteration activities (clearing, cutting, filling, recontouring, landscaping) that will take place. If it is determined that the project as planned will not affect the site area in any way, a recommendation can be made that construction proceed with no additional review. Depending on the size of the property, the type of facility to be built and the configuration of the site area, it is sometimes possible for the Engineer to revise a preliminary design so as to completely avoid impact to a site area identified during reconnaissance survey. When this approach is feasible, it becomes the basis for a recommendation that the

planned construction proceed with no additional review.

If it appears that proposed construction would have an effect on any part of the site area and there are no feasible alternatives that would eliminate that effect, research on a second topic - the nature, extent and significance of the cultural deposit - must be implemented. Occasionally, sufficient data are recovered during reconnaissance survey to allow for detailed assessment of the site's nature, configuration, condition and research potential. In most cases, however, determinations of significance require additional fieldwork beyond the reconnaissance level.

During site evaluation, excavation of formal test units is the primary sampling strategy. These units are normally either 1 meter square or 1 by 2 meters in size. They are excavated in 5 centimeter arbitrary levels, and all excavated soil is screened as for shovel tests. Horizontal provenience is normally maintained by unit quadrant. The total area excavated and the placement of individual units are determined by reference to shovel test results, construction plans and project area topography. Additional field methods are sometimes applied; these may include the use of ground-penetrating radar or metal detectors to 'map' subsurface features, or controlled collection of surface materials in cultivated fields. In cases where human interments are suspected to be present, the SAO soil scientist may be asked to conduct special studies to define probable burial areas.

During both reconnaissance survey and site evaluation, all test locations are mapped in the field with respect to a defined datum, either a permanent benchmark (USGS or DNR) or some other stable structure. When topographic maps of project areas are available, they are used as base field maps and all test locations are tied in to property boundaries, benchmarks and existing surface features. Locational information is transferred to final plans when they become available from Project Engineers.

Data analysis

Cultural materials recovered from sites identified during field review are accessioned into the collections of the MHS. Detailed artifact catalogs are generated for each identified site. Lithic and ceramic artifacts are given taxonomic designations when possible, following classifications in current use in the Upper Midwest. Floral and faunal materials are identified by unaided or low-magnification visual examination to the level of taxonomic detail possible, utilizing standard reference works and a comparative faunal collection housed at Ft. Snelling History Center. Special treatment for preservation of fragile items is applied where appropriate, using acrylic resin solutions or other methods recommended by the Curator of archaeological collections. In general, the scope of this program does not allow for application of specialized analytical techniques; in some cases, samples suitable for soils or radiometric analysis are collected as part of site evaluation research and are maintained in curation for possible future analysis. All materials recovered during reconnaissance survey and site evaluation are curated at Ft. Snelling History Center, along with original field notes, maps and photographs.

Site description

The locations of sites identified during reconnaissance survey are defined using standard legal descriptions, usually to the closest 2.5-acre parcel (quarter-quarter-quarter-quarter section). Universal Transverse Mercator (UTM) coordinates

are also calculated for each site area. The vertical extent of each site is defined, divided into separate occupation components when it is possible to do so. The types, quantities and distributions of recovered artifacts are used as the basis for functional designations, employing generally accepted terms including 'lithic scatter', 'habitation', 'burial', etc.

Temporal and cultural designations for sites identified during project review are drawn from a model of culture history that has been developed on the basis of more than a century of historic and archaeological research in Minnesota and the Upper Midwest. Although the details of the model are in constant revision as new data become available, the general outline of major trends in cultural patterns is useful for providing base-line site definitions. Under this framework, prehistoric sites are classified as belonging to one or more of four major cultural traditions:

1) Paleo-Indian - the earliest period of human occupation of Minnesota, starting just after the last retreat of Pleistocene Epoch glaciers from the region, approximately 12,000 - 7,000 years B.P. (before present). Although Paleo sites in Minnesota are extremely rare, evidence from other parts of the continent suggests a cultural complex characterized by low-density nomadic populations, a subsistence strategy focused on hunting of large game animals, and a distinctive stone tool technology. Tools identifiable as belonging to the Paleo-Indian Tradition have been found in Minnesota, but they have generally not been in association with other data in primary context.

2) Archaic - climatic changes after the end of the Pleistocene created increasingly complex ecological patterns in Minnesota and resulted in some large-scale changes in the composition of biotic communities. The cultural response to this change was a shift in resource utilization strategies to more efficient means of exploiting a wider range of resources, more emphasis on the use of plant resources as dietary staples, and development of regional distinctions in technologies and settlement patterns. This change in adaptive patterns marks the beginning of the Archaic Period, which appears to have at least two geographic subdivisions in Minnesota: Eastern Archaic in the deciduous forest areas and Plains Archaic in the western prairie areas. Although beginning and ending dates for the Archaic period vary in different parts of the state, the general timeframe for this cultural tradition is roughly from 7,000 to 3,000 B.P.

3) Woodland - by the end of the Archaic, the broad climatic and vegetational patterns found in present-day Minnesota were fairly well established, although there continued to be relatively short-term, regional fluctuations in environmental character. The cultural patterns evident in Minnesota during this time period (c. 3,000 - 300 B.P.) reflect a proliferation of localized adaptive strategies, a probable increase in population densities, the appearance of ceramic manufacture as a major new technology, adaptation of mound-building as a primary burial mode, and considerable evidence for cultural interchange between the inhabitants of Minnesota and major cultural complexes in other parts of the continent. The Woodland Tradition can be subdivided into a number of phases with overlapping temporal and geographic boundaries. These phases are generally distinguished from one another on the basis of lithic and ceramic technologies, settlement patterns and subsistence strategies.

4) Mississippian - a major influence on Woodland cultures in Minnesota was the growth, around A.D. 1000, of a complex, state-level agricultural society in the central Mississippi River Valley. The extent to which this influence appears in the archaeological record ranges from local adaptation of specific cultural traits, such as the use of shell temper in pottery, to the apparent migration of small populations from the central Mississippi Valley upstream to Southern Minnesota.

Although Mississippian influence is most directly seen in cultural complexes found in the southern half of the state, it is also reflected to some degree in the technologies and subsistence strategies of Northern Minnesota. (More detailed information about these cultural traditions can be found in Johnson 1978, The Prehistoric Peoples of Minnesota.)

Archaeological data that reflect historic-period Indian occupations or the Euro-American presence in Minnesota are also considered during the review process. Such resources can take many forms, representative of a variety of settlement patterns, subsistence activities and economic strategies practiced by the state's inhabitants over the past 300 years. Because DNR occasionally acquires properties that include buildings, the potential significance of standing structures is also considered during project review, in the light of NRHP criteria for determining historic and/or architectural significance.

When all of the data about a particular site have been synthesized and evaluated, consideration is given to the possibility that the site may qualify for nomination to the National Register of Historic Places under the criteria for evaluation contained in 36 CFR 60. For most archaeological sites, determination of eligibility is based on application of Criterion 'D': significant properties are those 'that have yielded, or may be likely to yield, information important in prehistory or history'. If sufficient evidence has been accumulated to support a determination of eligibility under this Criterion or the other standards of significance defined for Register properties, the procedures for obtaining an official determination of eligibility (as described in 36 CFR 60 and supporting documentation) are followed.

Review Documentation

A research report is written for every project reviewed through this program. As indicated above, if records review and reconnaissance survey are both negative, the preliminary report also constitutes the final review documentation for the project. If a cultural deposit is present in a project area, the initial project report includes a description of the data recovered from the site and the type of construction proposed by DNR. These items form the basis for management recommendations that generally fall into one of three categories. If proposed construction will not affect the site, no additional research is recommended. If, on the basis of data recovered during reconnaissance survey, it is determined that the site is not significant and has no research potential, no additional research is recommended, regardless of the extent to which the site will be affected by proposed construction. When it appears that proposed construction will affect the site, but reconnaissance survey did not provide sufficient data to determine the site's research potential, additional research (as described above) is recommended.

When no additional research is recommended, the initial project report constitutes the final phase of the review process. If site evaluation is conducted, an additional report is prepared that presents the results of that work to support a second set of recommendations. If the results of site evaluation indicate that the site has no research potential, it may be recommended that construction proceed with no additional research. When the evaluation process indicates that a site does have research potential, specific management strategies are formulated in consultation with SHPO, SAO, MIAC and DNR. These strategies may include one or more of the following items:

a) use of an alternative design that will completely avoid disturbance to the

site area as defined by the results of field review;

b) implementation of construction restraints that will reduce the extent of impact to the site area, often coupled with limited excavation to define the nature of cultural deposits that may be made inaccessible for research due to access construction;

c) recovery of site data that would otherwise be destroyed by construction, usually by means of extensive archaeological excavation and application of special research techniques.

Once a proposed management plan is agreed upon by all concerned parties, implementation of necessary activities is coordinated through the Program Archaeologist. This may involve monitoring of all or part of the actual construction process or making arrangements for data recovery research by other archaeologists. If a site has been determined eligible for nomination to the NRHP, review and concurrence by the Advisory Council on Historic Preservation is part of the process.

Documentation of program activities also includes preparation of formal records such as state site forms, National Register nominations and collections accession records. This information becomes part of the permanent files of the program, which are maintained at Ft. Snelling History Center.

II. WATER ACCESS PROGRAM ACQUISITION PROJECTS

REGION III - CENTRAL

Cass County

Leech Lake/Sugar Point (21CA10)

Location

Eastern shore of Sugar Point, on the north side of Leech Lake. The property is adjacent to Boy Bay, about 7 miles southwest of Federal Dam, MN (see Figure 2). (Note: this property is within the boundaries of the Leech Lake Indian Reservation. Field research was done under the terms of Reservation Archaeological Permit No. 87-04.)

Physiographic Province

Bemidji Area (Wright, 1972).

Geomorphic Region

Swatara Plain; Aitkin Lacustrine Plain adjoins to north, Itasca Moraine adjoins to south and west (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

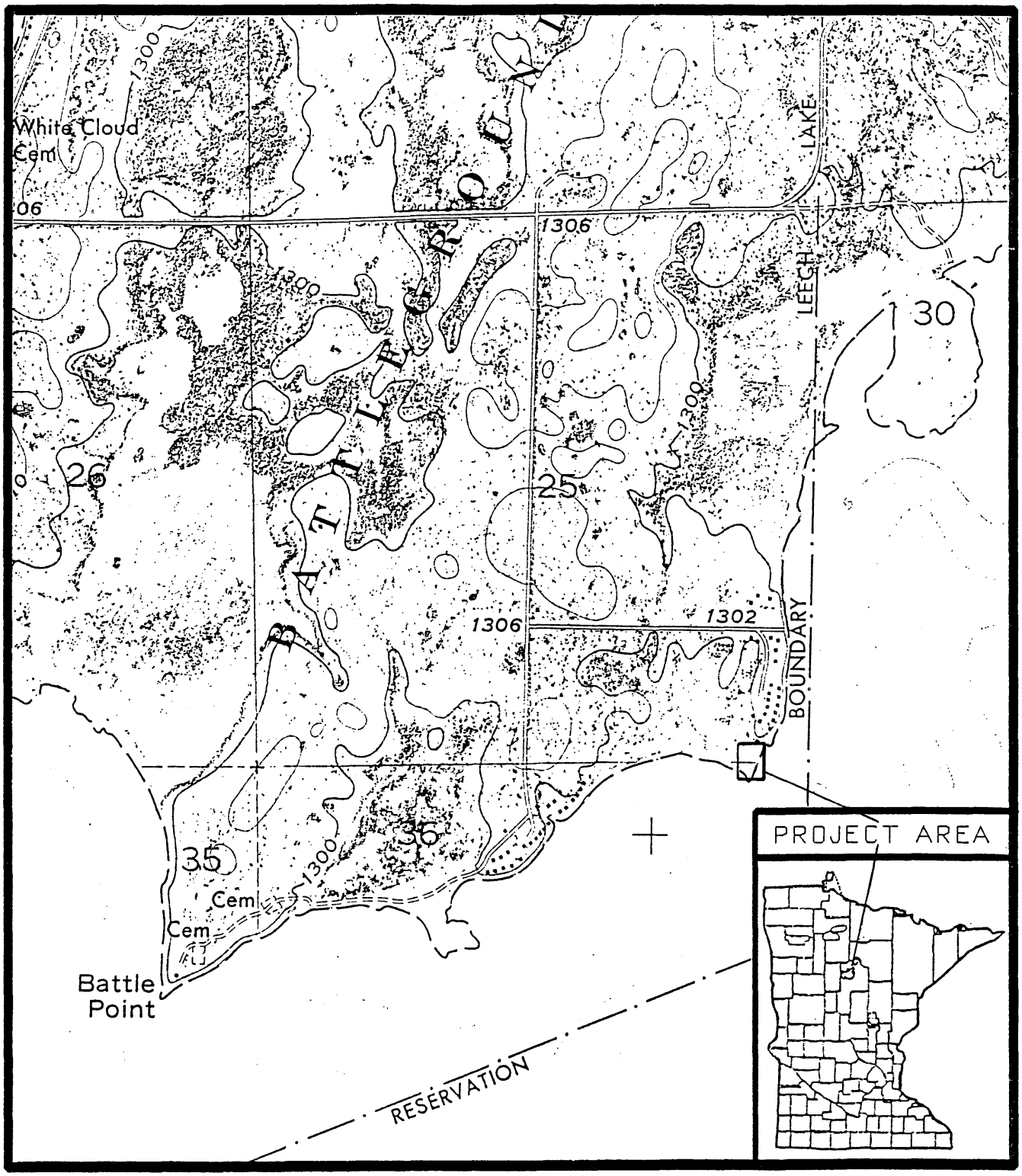
Scope of Project

Acquisition of property for future development of Public Water Access facilities. DNR design objectives include a 24-unit parking lot with a total area approximately 50 m by 88 m, a 22'-wide road entering the property from the west, and two 12'-wide concrete plank launch ramps with a 4'-wide dock between them. An existing dredged harbor on the eastern side of the property would be used as the point of access to the lake; the ramps would be set in the western edge of this harbor.

Description of Project Area

The property that DNR proposes to develop is a level, formerly wooded area in the southeastern corner of a large point on the north shore of Leech Lake. Boy Bay and the mouth of the Boy River lie to the east, Headquarters Bay to the southeast, and Bear Island to the south-southwest. The parcel has an average elevation roughly four to five feet above the Leech Lake Reservoir average pool level of 1294.70' AMSL. Most of the property has little variation in relief, except for the area immediately adjacent to the lake. All of the eastern shore and most of the southern shore are bordered by steep banks and a narrow fringe of lowland at the water's edge. Discontinuous rocky ice-shove berms border the bank top and appear along the waterline in some locations. Wave action on the lake is intense, particularly along the eastern shore. The lake level has been artificially controlled since the 1880s by a dam on the Leech Lake River, operated by the U.S. Army Engineer Corps as part of a series of reservoirs in the Mississippi River headwaters drainage. Pool level fluctuation is normally from 1293' to almost 1297'; the Corps retains flowage rights up to elevation 1301.70'.

Figure 2. Leech Lake/Sugar Point (21CA10) Project Area



USGS Sugar Point Quadrangle, 1972, 7.5′ series (enlarged 1.42X - 1:17,000)

Until it was purchased by DNR, the subject property was part of the Point View Resort, which has been in operation since the 1930s. The northern part of the proposed acquisition includes a dredged harbor about 80' by 100' in size, a boathouse and a concrete shed. The southern portion is undeveloped, and has only been cleared of undergrowth in the last 10 years. It was densely vegetated with mixed elm-ash and maple-basswood communities, but Dutch Elm Disease has resulted in loss of many of the trees on the property in recent years. Dead and diseased tree trunks have been cut down, but most of the stumps have been left in place. Ground cover is a mixture of seeded grass and weeds. The whole property is kept mowed except for a fringe of brush along the shoreline slope and a few small areas along the northwest edge of the parcel. Two rows of cabins belonging to the Point View Resort are situated on the eastern shore to the north of the proposed acquisition area. Beyond the cabins is a line of private residences. To the west of the property along the south shore are two private residences, bordered to the north and west by uncleared woods. This area has been subdivided and lots are currently being sold.

Records Review

Previous surveys: When information was first received from DNR in May of 1986 regarding the proposed acquisition of this property, a check of state site files revealed that it lies within the recorded boundaries of 21CA10, a multi-component burial and habitation site. Official site designation was originally based on the presence of a burial mound on the property, as reported in the Historic Markers, Monuments and Mounds Survey conducted by the WPA. A habitation component was identified during the Leech Lake Reservoir Shoreline Survey conducted by the University of Minnesota in 1978 under contract with the Corps of Engineers. During that survey, large quantities of cultural materials were found in the shallows and on the shoreline from the west side of the small point in Sec. 36, around the tip of that point and up the eastern shore in Sec. 25 for almost one mile. Recovered artifacts included Ogechie, Sandy Lake and Blackduck ceramics. Residents of the area also reported finding "enormous amounts" of pottery in their gardens. No evidence of the reported mound was observed, and it was concluded that it had probably been destroyed by erosion. (The site form completed after the survey notes that material from a mound was given to the Cass Lake Museum, but does not indicate the source of that information. The director of the Cass Lake Museum was contacted, but denies having any knowledge of skeletal remains or artifacts from Sugar Point in the museum's collections.) The site area was defined as extending inland from the shore no more than about 25 meters, even though no subsurface testing was conducted as part of the survey. The estimate of site area was apparently based solely on the distribution of surface material. Possible NRHP eligibility was suggested; however, the site was described as being "mostly underwater" and undergoing active erosional damage to the non-inundated portion (Johnson 1979-I:64-66).

In 1979, the owner of the Point View Resort applied for a permit from the Corps of Engineers for harbor construction. Because that work would potentially destroy a portion of 21CA10, the Corps required testing of the proposed harbor area as a condition of the permit. This testing was conducted by Alan Brew of Bemidji State University as part of a summer field school. Most of the work consisted of excavation of 50-centimeter-square units at 3-meter intervals within the proposed harbor location, with a limited amount of additional testing just to the west of the harbor area. Materials recovered included some historic Chippewa items, rim segments from large Blackduck cord-and-punctate motif vessels, and some ceramics that appear to be transitional between Laurel and Blackduck Wares. The ceramic

assemblage also included a few smooth-surfaced body sherds suggestive of a Middle Woodland occupation. Overall, artifact distribution was densest in and adjacent to the ice ridge at the shoreline, and diminished rapidly to the landward side of the ridge. Tests at the western edge of the harbor area yielded only a few prehistoric artifacts from mixed and disturbed soil strata. Vertical stratigraphy in the denser deposit was not definable, due to mixing of components by wave action and ice shove (Brew n.d.).

Other sites in vicinity: A number of other prehistoric and historic sites are known to exist on Sugar Point and nearby areas of Leech Lake. Directly east across Boy Bay on Blackduck Point is the only site examined during the 1978 survey that yielded definite Laurel Ware ceramics. Bear Island, which is directly south of the Sugar Point peninsula, is known to contain historic village and burial sites as well as at least one prehistoric habitation area. On the west side of Sugar Point itself are several prehistoric occupation areas, mostly dating from the Late Prehistoric period, early historic sites, and a number of cemeteries and individual burial sites of both prehistoric and historic vintages. Several previously unknown prehistoric burials have been recently uncovered on Sugar Point during various construction activities.

Field Review

Reconnaissance: DNR was notified in 1986 that their proposed development had the potential to adversely affect a possibly significant prehistoric site, and plans were made to conduct site testing during that year. However, protracted negotiations between the landowner and DNR's Land Bureau resulted in field research being delayed until the summer of 1987, after DNR had secured an "Option to Purchase", obligating them to make a final decision on acquisition no later than December 30, 1987.

The only detailed examination of 21CA10 prior to 1987 had been confined to the harbor area, leaving the nature and extent of the rest of the cultural deposit very vaguely defined. The 1978 survey report had set site boundaries at 25 meters inland from the lakeshore, but there was no reliable field data to support that estimate. A preliminary phase of field review was therefore deemed necessary, the intent of which would be to define horizontal and vertical site boundaries, as well as to provide a general assessment of the current condition of the site. Application was made to the Leech Lake Reservation Business Committee for a permit to conduct this initial phase of work according to standard reconnaissance survey methods: shovel testing of the entire parcel at a 15-meter interval, with vertical artifact provenience defined to within at least 10 cm and excavated soil screened through 1/4" wire mesh. Because a mound was known to have been present somewhere in the area at least until the 1930s, and due to the recognized use of other portions of Sugar Point as burial grounds both prehistorically and historically, it was assumed that there is some probability of one or more human interments being present within the proposed acquisition area. The terms of the Reservation Archaeological Permit therefore included a stipulation that any observable surface features suggestive of human burials were to be avoided during shovel testing. Alternate, minimal-disturbance means of evaluation were to be applied in those areas.

Preliminary survey of the property was conducted by the Program Archaeologist between July 29 and August 19, 1987. A total of 45 shovel tests were done in a 15-meter grid, except where interrupted by obstructions such as roadways and buildings. The area within about 20 meters of the harbor, having been examined during the 1979

excavations, was not further tested during the current phase of work. Examination of bank exposures and beachlines was also conducted in all areas that provided a reasonable level of surface visibility (see Fig. 3).

The results of shovel testing indicated the presence of a consistent subsurface deposit of occupation debris over a substantial portion of the subject property (see Fig. 4). Prehistoric ceramics were the most frequently recovered items, including body sherds exhibiting a variety of surface treatments (cord-roughened, smoothed-over-cord-roughed, fabric-impressed, smooth, combed), combed and cord-roughened neck sherds and a small combed rim sherd decorated with horizontal rows of indentations. The ceramic assemblage includes materials that can be identified as varieties of Sandy Lake and Blackduck Wares, and a few artifacts suggestive of an earlier (Laurel?) occupation. A few lithic artifacts, all small waste flakes, were also recovered, as were a few pieces of mammal and fish bone that appeared to be in association with the prehistoric cultural materials.

The density of the cultural deposit varied with distance from the lakeshore, being greatest within about 40 meters of the eastern or southern shore and diminishing rapidly beyond that distance. Vertical artifact provenience ranged from just below the current ground surface to a maximum depth of about 25 cm. The major concentration of material appeared to be between 10 and 20 cm below the surface. Although materials of several different cultural affiliations were recovered, no clear separation of components was observable in the shovel tests. Nothing indicative of a human interment was encountered in any of the shovel tests.

Soil stratigraphy in shovel tests throughout the project area was silty to silty clay loams over light-colored, fine sandy clay loams and reddish-brown pebbly clays. This is consistent with the geomorphic description of this area as a till plain created during recession of the Rainy Sub-lobe of the Des Moines Lobe, Late Wisconsin glaciation. A few till boulders are visible at the ground surface within the parcel, and substantial amounts of cobble-sized till, much of it fractured, were found in shovel tests. Some of this material may be of cultural significance (i.e. fire-cracked rock), but it was not possible to clearly define association with the cultural deposit.

Several sources of disturbance to the integrity of the cultural deposit were noted during preliminary survey. It is assumed that the horizontal dimension of the original occupation area has been reduced to an undetermined extent by shoreline erosion, resulting in creation of the "lag deposit" of artifacts recovered along the shoreline in 1978. The very rocky character of the shoreline in this area, however, has probably protected it from suffering erosional damage to the extent observable at other nearby reservoirs such as Lake Winnibigoshish.

Obvious disturbance to the subsurface deposit further inland included inversion of normal soil stratigraphy apparently caused by removal of tree stumps, and localized disruption due to recent disposal of fish remains. Buried fish were found in three shovel tests (in one case accompanied by an aluminum can); however, in all cases the shovel tests intersected adjacent undisturbed areas in which prehistoric ceramics were found. Other types of recent debris were also found in subsurface context, most commonly in the northern portion of the property, close to the harbor and existing structures. Most of this debris (shards of window glass, nails, tarpaper, shingling material) is confined to the upper 10 cm, and was accompanied in several cases by prehistoric ceramics at the same level and below it.

Figure 3. 21CA10 - Site Area

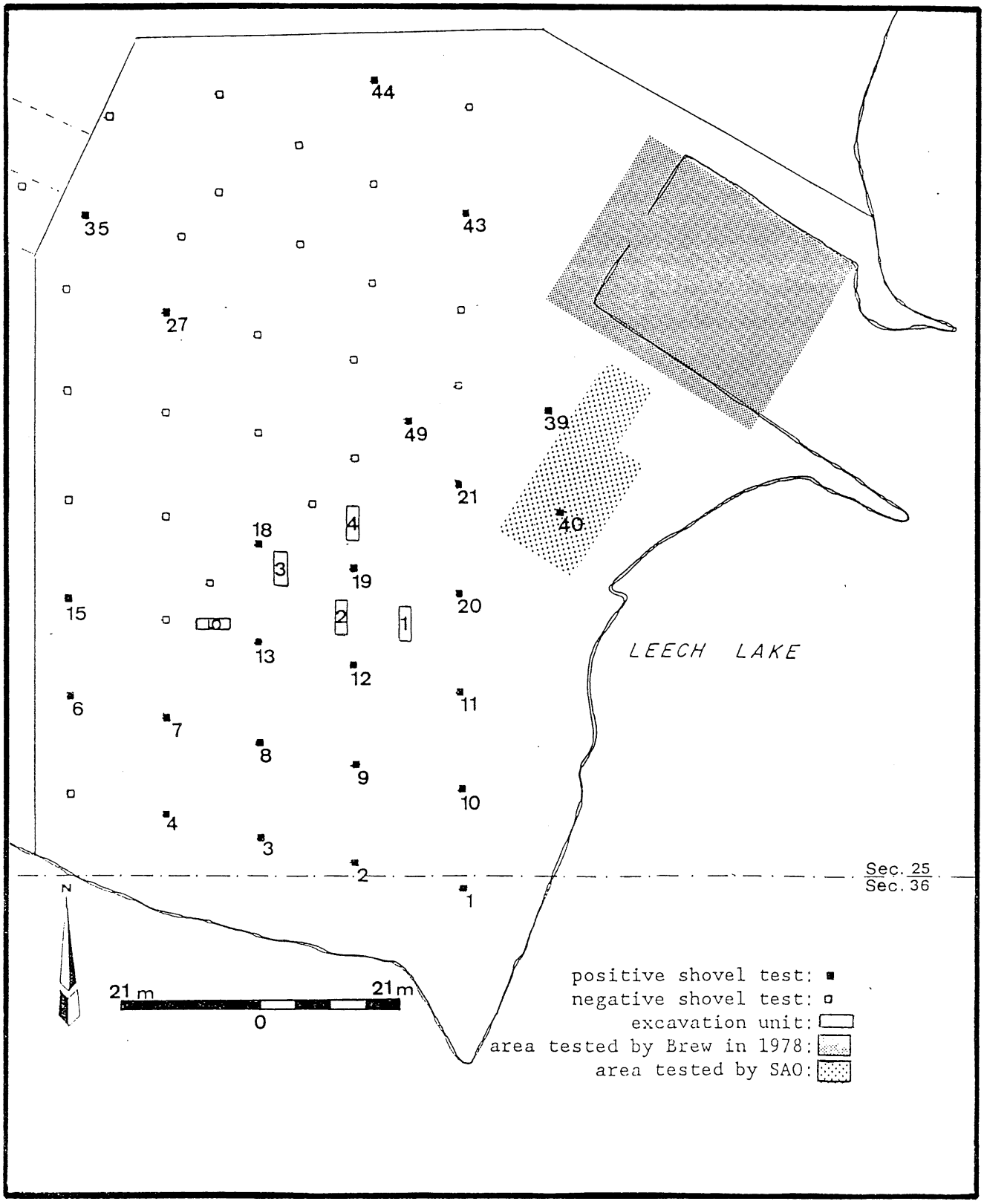


Figure 4. 21CA10 - Artifact Summary

Shovel Tests

ST 1,	5-10 cm:	1 quartz secondary flake
		2 quartz tertiary flakes
		6 grit body sherds, cr
	10-15 cm:	1 quartz tertiary flake
		5 grit body sherds, cr
		2 grit body sherds, exfoliated
		ceramic crumbs
	15-20 cm:	1 siltstone tertiary flake
		3 grit body sherds, cr
		ceramic crumbs
	20-25 cm:	1 grit body sherd, exfoliated
ST 2,	0-5 cm:	2 grit body sherds, cr
		2 bone fragments (mammal)
	5-10 cm:	1 quartz tertiary flake
		4 grit body sherds, cr
		2 bone fragments (mammal)
		2 bone fragments (fish)
	10-15 cm:	1 quartzite tertiary flake
ST 3,	5-10 cm:	2 shell body sherds, cr
		2 grit body sherds, fabric-impressed
		3 nutcase fragments, burned
		1 bone fragment, burned (mammal)
ST 4,	0-5 cm:	5 sand body sherds, cr
		1 sand body sherd, exfoliated
		2 bone fragments (fish)
		ceramic crumbs
	5-10 cm:	1 siltstone secondary flake
		1 grit body sherd, fabric-impressed
		3 grit body sherds, cr
		ceramic crumbs
	10-15 cm:	1 grit body sherd, cr
ST 6,	5-10 cm:	1 grit body sherd, cr
		1 Swan River Chert tertiary flake
	10-15 cm:	1 grit body sherd, fabric-impressed
	15-20 cm:	1 sand body sherd, cr
		charcoal fragments
ST 7,	5-10 cm:	1 grit body sherd, smooth
	10-15 cm:	1 grit rim sherd, flattened lip, punctates, combed surface
		ceramic crumbs
ST 8,	10-15 cm:	1 grit body sherd, cr
ST 9,	0-5 cm:	1 grit body sherd, cr
		1 grit body sherd, exfoliated
	5-10 cm:	1 grit body sherd, fabric-impressed
		1 grit body sherd, cr
		1 shell body sherd, exfoliated
		2 grit body sherds, exfoliated
	10-15 cm:	4 grit neck sherds, combed
		1 grit body sherd, cr
		1 shell body sherd, cr
		16 grit body sherds, cr
		1 nutcase fragment, burned
	15-20 cm:	1 shell body sherd, cr
ST 10,	5-10 cm:	2 fired clay fragments
	10-15 cm:	3 grit body sherds, cr
		charcoal fragments
	15-20 cm:	6 grit body sherds, cr
ST 11,	5-10 cm:	1 chert primary flake
		1 quartz tertiary flake
		1 grit body sherd, smooth
		4 grit body sherds, exfoliated
	10-15 cm:	1 fired clay fragment
ST 12,	10-15 cm:	1 quartz secondary flake
ST 13,	10-15 cm:	2 grit body sherds, cr
		1 grit body sherd, exfoliated
	15-20 cm:	9 grit body sherds, cr
		ceramic crumbs
	20-25 cm:	1 grit body sherd, cr
ST 15,	5-10 cm:	2 sand body sherds, cr
ST 18,	5-10 cm:	2 grit body sherds, cr
ST 19,	10-15 cm:	1 grit body sherd, cr
	15-20 cm:	2 grit body sherds, cr
ST 20,	10-15 cm:	2 grit body sherds, cr
ST 21,	15-20 cm:	1 quartz secondary flake
		5 grit body sherds, cr
ST 27,	15-20 cm:	1 shell body sherd, cr
ST 35,	15-20 cm:	1 quartz shatter
		2 quartz secondary flakes
ST 39,	15-20 cm:	6 grit body sherds, cr
		historic debris (wood screws)
	20-25 cm:	1 sand body sherd, cr
ST 40,	0-5 cm:	1 sand body sherd, fabric-impressed
		3 sand body sherds, cr
	5-10 cm:	3 grit body sherds, cr
		1 sand body sherd, cr
		1 grit body sherd, exfoliated
	10-15 cm:	6 grit body sherds, cr
		2 sand body sherds, cr
		1 grit body sherd, exfoliated
	15-20 cm:	5 grit body sherds, cr
		4 sand body sherds, cr
		1 grit body sherd, exfoliated
ST 43,	20-25 cm:	1 quartz primary flake
ST 44,	10-15 cm:	1 grit body sherd, exfoliated
		historic debris (nail, screw)
ST 49,	15-20 cm:	1 sand body sherd, cr

Figure 4, continued

EXCAVATION UNITS

Unit 1

5-10 cm, NE: 2 grit body sherds, cr
NW: 1 sand body sherd, cr
SE: 1 sand body sherd, cr
10-15 cm, NE: 1 grit rim sherd, oval punctates, cwsi (lip missing)
9 grit body sherds, cr
1 grit body sherd, fabric-impressed
1 grit body sherd, exfoliated
NW: 2 glass fragments, clear
5 grit body sherds, cr
SE: 6 grit body sherds, cr
historic debris (wood screw)
SW: 1 grit rim sherd, rounded lip w/oblique cwsi, punctates, combed surface (Vessel A)
1 grit neck sherd, cwsi
1 grit body sherd, cr
1 grit body sherd, smooth
historic debris (painted wood)
15-20 cm, NE: 1 grit neck sherd, combed (Vessel A)
6 grit body sherds, cr
11 grit body sherds, cr
8 grit body sherds, exfoliated
NW: 1 Tongue River Silica primary flake, thermally altered
18 grit body sherds, cr
9 grit body sherds, exfoliated
1 bone fragment (fish)
charcoal fragments
SE: 30 grit body sherds, cr
3 grit body sherds, exfoliated
2 bone fragments, burned (mammal)
feature: 10 grit body sherds, cr
4 grit body sherds, exfoliated
SW: 31 grit body sherds, cr
3 grit body sherds, fabric-impressed
1 grit body sherd, smooth
4 grit body sherds, exfoliated
charcoal fragments
20-25 cm, NE: 1 shist secondary flake
1 grit rim sherd (Vessel A)
1 grit rim sherd, lip missing
2 grit body sherds, fabric-impressed
21 grit body sherds, cr
20-25 cm, NW: 1 grit neck sherd, combed (Vessel A)
42 grit body sherds, cr
5 grit body sherds, fabric-impressed
2 grit body sherds, smooth
9 grit body sherds, exfoliated
charcoal fragments
SE: 1 grit rim sherd, rounded lip, oblique cwsi (lip only)
35 grit body sherds, cr
9 grit body sherds, exfoliated
SW: 1 grit rim sherd (Vessel A)
1 grit neck sherd, combed (Vessel A)
1 grit neck/shoulder sherd (Vessel A)
113 grit body sherds, cr
8 grit body sherds, fabric-impressed
5 grit body sherds, smooth
ceramic crumbs
feature: 1 chert projectile point, small side-notch, convex base
1 Swan River Chert secondary flake, thermally altered
7 grit rim sherds (Vessel A)
6 grit neck sherds (Vessel A)
4 grit neck/shoulder sherds (Vessel A)
12 grit body sherds, smooth
5 grit body sherds, fabric-impressed
235 grit body sherds, cr
7 grit body sherds, exfoliated
ceramic crumbs
charcoal fragments
25-30 cm, SE: 9 grit body sherds, cr
1 grit body sherd, exfoliated
SW: 2 grit neck sherds (Vessel A)
40 grit body sherds, cr
2 grit body sherds, fabric-impressed
7 grit body sherds, exfoliated
30-35 cm, SE: 1 grit body sherd, cr
SW: 1 grit rim sherd (Vessel A)
5 grit body sherds, cr
2 grit body sherds, smooth
charcoal fragments
35-40 cm, SE: 2 grit body sherds, cr
1 grit body sherd, fabric-impressed
1 grit body sherd, smooth

Unit 2

5-10 cm, NE: 2 grit body sherds, cr
1 grit body sherd, fabric-impressed
1 sand body sherd, smooth
10-15 cm, SE: 1 grit rim sherd, cwsi (lip only)
1 grit neck sherd, cr
8 grit body sherds, cr
NW: 9 grit body sherds, cr
2 grit body sherds, fabric-impressed
SW: 3 grit body sherds, cr
1 grit body sherd, fabric-impressed
NE: 1 chert tertiary flake
1 grit rim sherd, flat lip, oblique cwsi
7 grit body sherds, cr
10-15 cm, NE: 3 grit body sherds, simple-stamped
3 grit body sherds, fabric-impressed
4 grit body sherds, cord-impressed
1 grit body sherd, exfoliated
15-20 cm, NE: 3 grit body sherds, cr
1 grit body sherd, exfoliated
NW: 1 grit body sherd, cr
SE: 1 grit neck sherd, cwsi
7 grit body sherds, cr
4 grit body sherds, fabric-impressed
1 grit body sherd, smooth
ceramic crumbs
SW: 1 grit rim sherd, flat lip, cwsi
2 grit body sherds, cr

Figure 4, continued

Unit 3

5-10 cm, NE: 1 grit body sherd, cr
1 grit body sherd, fabric-impressed
1 grit body sherd, indistinct
SE: 1 Tongue River Silica tertiary flake thermally altered
2 grit body sherds, exfoliated
SW: 1 Gunflint Silica tertiary flake
1 grit body sherd, cr
1 grit body sherd, exfoliated
10-15 cm, NE: 1 grit body sherd, cr
SW: 2 grit body sherds, cr
1 grit body sherd, fabric-impressed
NW: 2 Swan River Chert tertiary flakes (1 thermally altered)
1 Gunflint Silica tertiary flake
2 grit body sherds, cr
2 grit body sherds, fabric-impressed
2 grit body sherds, simple-stamped
1 grit body sherd, exfoliated
SE: 1 Gunflint Silica tertiary flake
1 grit body sherd, cr
1 grit body sherd, exfoliated
15-20 cm, NE: 1 Tongue River Silica tertiary flake, thermally altered

Unit 4

10-15 cm, NE: 1 grit body sherd, cr
NW: 1 Swan River Chert projectile point base, straight, retouched
SE: 2 grit rim sherds, crimped (lip only)
5 grit body sherds, cr
1 grit body sherd, fabric-impressed
charcoal fragments
SW: 1 Tongue River Silica scraper, thermally altered
1 grit rim sherd, cord & puncatate
3 grit body sherds, cr
1 grit body sherd, fabric-impressed
1 bone fragment
charcoal fragment
15-20 cm, NE: 1 grit body sherd, cr
1 grit body sherd, exfoliated
ceramic crumbs
charcoal fragments
15-20 cm, NW: 10 grit body sherds, cr
1 rhyolite grindstone/pestle
SE: 2 grit body sherds, exfoliated
charcoal fragments
20-25 cm, NE: 1 chert primary flake
1 Tongue River Silica tertiary flake, thermally altered
NW: 1 Tongue River Silica primary flake, thermally altered
ceramic crumbs
30-35 cm, NE: 2 Tongue River Silica primary flakes, thermally altered
17 tooth fragments (deer)
35-40 cm, NE: 1 grit body sherd, fabric-impressed, incised
3 tooth fragments (deer)

Unit 5

5-10 cm, NE: 3 grit body sherds, cr
NW: 1 ceramic crumb
SW: 1 grit body sherd, cr
1 grit body sherd, exfoliated
1 ceramic crumb
1 bone fragment (fish)
12 bone fragments (bird)
10-15 cm, NW: 1 quartz secondary flake
1 Knife River Flint tertiary flake
3 grit body sherds, cr
2 ceramic crumbs
SW: 3 grit body sherds, fabric-impressed

Surface

Garden area: 1 quartz flake tool, utilized
1 Swan River Chert secondary flake, thermally altered
1 Hudson Bay Lowland Chert tertiary flake
1 grit body sherd, fabric-impressed

Shoreline: 1 sandstone pipe bowl (historic)

Harbor area: 1 Tongue River Silica primary flake, thermally altered
1 grit neck sherd, zoned circular punctates over cr surface
3 grit body sherds, cr

Overall, the southern portion of the site appeared to be in rather good condition; the northern part of the property has been disrupted by a variety of recent human activities, but still appears to include some essentially undisturbed remnants of the original cultural deposit.

Information was obtained from the landowner, Arnold Bertelson, about the former presence of a burial mound on the resort property. The previous owners, both of whom are now deceased had told Bertelson that a mound was bulldozed in the 1930s when the resort cabins were built. The mound was in what is now the location of Cabin #8, at the north end of the line of resort buildings. Skeletal material recovered from the mound fill was supposedly turned over to the University of Minnesota. The owners of the property at that time were Bert and Blanche Rounds, one of whom is listed as a source of information in the WPA mound survey documentation. It seems probable that the Cabin #8 mound is the same mound referred to in the WPA report, although it is not possible to verify that they are one and the same.

The initial phase of work at 21CA10 clearly demonstrated the presence of a substantially intact prehistoric cultural deposit within the boundaries of the property proposed for acquisition and development by DNR. Normal construction activities employed to develop a Public Water Access facility in this location would undoubtedly have an adverse effect on portions of that deposit: road rehabilitation might require subgrade cutting and filling beyond the limits of the existing road; clearing of the parking lot area would normally involve grubbing of stumps which would disrupt subsurface stratigraphy, and a large part of the site would be made inaccessible by placement of fill material in the parking lot area. Although no evidence of human interments was discovered during preliminary survey, there was still a possibility that such interments are present on the property and would be disturbed during one or more of these construction activities.

Based on the information recovered during preliminary survey of 21CA10, it was recommended to DNR that more intensive evaluation of this site be conducted before proceeding with plans for development of Public Water Access facilities. Initial discussions were held with Trails & Waterways personnel regarding the feasibility of certain construction restraints and design alterations that would reduce the magnitude of adverse effect. The State Archaeologist's Office, the Minnesota Indian Affairs Council and the State Historic Preservation Office were consulted for initial opinions regarding identification and protection of possible human interments, site significance and appropriate mitigative actions. As a result of these preliminary discussions, a set of specific recommendations for additional research at 21CA10 was formulated, agreed upon and implemented in the Fall of 1987.

Four stages of research were specified, two of which were field-oriented and two of which dealt with development of appropriate construction and maintenance plans. The first two stages were to be limited formal excavation to better define the nature of the cultural deposit within areas to be disturbed by construction, and studies by the SAO soil scientist to investigate the possibility of human interments located somewhere on the property. Documentary evidence about reported burials in the area was also reviewed in light of data received from informants during reconnaissance survey. While these aspects of the site evaluation process were being carried out, further discussions were held with DNR personnel regarding desired construction plans and possible alternatives that would reduce the extent of disturbance to the site.

The field portion of the work was conducted between September 15 and October 23, 1987. During that time, additional inquiries were made among local residents regarding burials on the property. The information gathered during site evaluation included a statement made by a member of the family that homesteaded the subject property in 1912. As indicated to the Program Archaeologist by Mr. Bertelson, this individual had a distinct recollection of identifiable graves somewhere along the eastern shoreline. Because there had been many changes to the property since he was last there in the 1920s, he was not able to pinpoint the exact location of the graves. Several other informants, all long-term residents of the area, also had specific memories of spirit houses visible along the eastern shore of the point at least until the mid-1930s. In two cases, informants indicated the area immediately south of the boathouse as the location of the graves. Although the present boathouse was not built until the 1950s, one informant said that there had previously been a similar structure in the same general location.

A re-examination of the information obtained from the WPA survey suggests further confirmation of the presence of burials on the property. One entry describes four graves with spirit houses on the shore of Leech Lake, and includes the legal description "Lot 12, Section 24, T. 143, R. 28". However, since no part of Section 24 is adjacent to the lake, one may assume a minor error during either initial recording or transcription of this entry, which was based on information provided by Bert Rounds, previous owner of the Point View Resort. If 'Section 24' is corrected to read 'Section 25', the reference becomes a description of graves on the Point View Resort property and is consistent with descriptions provided from memory by local informants.

This information was used to select an area within the property boundaries upon which SAO studies could focus. Close-interval soil coring was conducted by the SAO soil scientist in an area roughly 8 by 30 meters in size, just south of the existing boathouse and fish-cleaning shed. (This is a minimal-disturbance technique developed by SAO as a means of identifying mound fill, burial pits and other evidence of human interments. Interpretation of changes in subsurface stratigraphy may allow for identification of burials where there are no longer any detectable surface indications of interment.) During this investigation, a probable hearth feature was identified just south of Shovel Test #40. Successive soil cores along a north-south transect struck rock, then a layer of sherds, ash and charcoal, then rock, all at consistent depths below the surface. Ceramic fragments were recovered from a number of other core samples, as were portions of numerous recently buried fish carcasses - a by-product of intensive utilization of the property by recreational anglers.

Soil coring also identified what appeared to be an historic burial pit, in a location consistent with informant descriptions. The dimensions and orientation of the disturbed area are similar to those of known historic Ojibwa graves around Leech Lake. Since this property was homesteaded in 1912, after which time it is unlikely it would have been used as a cemetery by the Ojibwa, and assuming that the reports of spirit houses still visible during the 1930s are correct, a burial date between roughly 1880 and 1912 has been tentatively assigned.

The boundaries of the disturbed area were mapped and flagged in the field, and DNR was informed that the SAO study had confirmed the presence of at least one burial on the property. Access to areas adjacent to the identified grave was restricted due to the presence of concrete slab building foundations, so the

possibility remained that there are additional, undetected interments partly or entirely covered by the boathouse and bait shed. DNR has no plans for utilization of the area in which the burial is located, except for possible demolition of the standing structures if no in-place use can be found for them. It was agreed that access construction and operation could be undertaken with no disturbance to the gravesite. The area can be allowed to re-vegetate, which will prevent pedestrian or vehicular traffic that might accelerate erosional damage.

Site evaluation fieldwork consisted of excavation of five 1x2-meter units, located along the edge of the area that DNR proposes to cover with fill in order to create a parking area. (Locations of excavation units are shown in Figure 3; artifacts recovered are listed in Figure 4.) Minimal amounts of archaeological materials were recovered from Units 2 through 5. The only substantial cultural deposit was encountered in Unit #1, which was closer to the eastern and southern shores than were the other units. The overall artifact frequency in this unit was much higher than in the rest of the excavation areas, and the vertical distribution of artifacts extended to somewhat greater depths in Unit #1 than in the other units. Additionally, a ceramic midden was encountered in Unit #1, between 15 and 30 cm below the surface. This midden consisted of a concentration of cobble-sized rock fragments surrounding a dense layer of sherds, most of which appear to be from a single vessel. A rim segment - perhaps 1/4 to 1/3 of the complete rim - was reconstructed from sherds recovered from the midden, as were several small portions of the vessel body.

Based on the reconstructed portions, the vessel appears to be a Blackduck Ware variant. The rim is short and everted, forming about a 20-degree angle with the vertical. The lip, which is very slightly flattened, is decorated by cord-wrapped-stick impressions evenly spaced on a diagonal to the exterior surface. Intermittent cord-wrapped-stick impressions are visible on the interior, just below the lip; lower portions of the interior surface have very clear brush marks. Exterior decoration consists of a horizontal line of rectangular punctates created with a tool held at an oblique angle to the vessel surface. Below the punctates, the neck was combed with a small-toothed tool. Combing extends just to the top of the shoulder, below which the vessel surface has been cord-roughened. The cord impressions were not applied in a consistent direction, and in some places have been almost entirely obliterated by wear or intentional smoothing. Although very little of the overall vessel form can be defined, the reconstructed body portions suggest a strongly globular shape. For the upper portion of the vessel, sherd thickness is about 0.04 cm. A few sherds assumed to be from the vicinity of the vessel base were recovered; these approach 1.20 cm in thickness. Interior vessel diameter at the most constricted point of the neck is estimated at 23 cm, and interior diameter at the lip is about 28 cm. Circumference at the lip is approximately 88 cm.

Several other decorated sherds were recovered from excavation units, including a few from outside the midden area of Unit #1. These are all rim or near-rim segments of Blackduck vessels with circular punctates over rows of horizontal cord-wrapped-stick impressions. Tempering material in all the sherds is predominantly crushed granite, with generous sand inclusions apparent in some sherds. The lithic assemblage from the excavation units is quite limited, consisting primarily of isolated secondary or tertiary decortication flakes. A projectile point was recovered from the midden in Unit #1, where it was found 'encased' between two body sherds. This point is a small, asymmetrical side-notched point made from a fine-grained, grayish-white chert. In Unit #4 between 10 and 15 cm, the base of another

point made from Swan River Chert was recovered. The base itself is straight, about 1.5 cm long, and thinned with fine retouching, and the sides are almost perpendicular to the base.

The same types of disturbance to the cultural deposit that had been noted during reconnaissance survey were encountered during site evaluation. Pockets of recent debris were seen in every excavation unit, with the greatest density of intrusive materials found in the upper 15 cm of the units. Although organic materials - primarily fish bone, bird bone, and charcoal - were found in all units, their association with the prehistoric habitation is questionable. Several more buried fish were uncovered, including one that was immediately adjacent to the ceramic midden in Unit #1, and actually extended to a greater depth than did the occupation strata.

Management Recommendations

Reconnaissance survey and site evaluation at 21CA10 resulted in reliable definition of site boundaries, as shown in Figure 3, which formed the basis for discussion of alternative access design plans with DNR staff. It also provided evidence that the cultural deposit, while it has suffered some disturbance, still retains considerable research potential. (The eligibility of this site for nomination to the NRHP is currently under consideration.) The overall recommendation provided to DNR in late 1987 was that it would be possible to construct a usable access facility on this property without causing any further disturbance to the site. Accordingly, DNR proceeded with acquisition of the parcel at the end of the year. Formal recommendations regarding design and management of access facilities will be formulated in the coming year, in consultation with DNR and other concerned agencies.

A number of design alternatives and construction restraints have already been identified that will reduce or eliminate adverse effect to the site; additional strategies may be incorporated into the final project plan. The items that have been tentatively agreed upon include the following:

- most of the necessary design elements will be built on fill that will be placed on the existing ground surface. Tree stumps will be chipped out instead of grubbed; no other subsurface disturbance will occur in the fill area. Cuts will be restricted to the minimum necessary for installation of double ramps at the western end of the harbor.
- the parking area and access road will be oriented as far to the northwestern side of the property as possible. This will reduce adverse effect caused by burial of part of the cultural deposit under fill.
- construction activities will be confined to specific parts of the property. No heavy equipment traffic, staging, etc. will be allowed on the southeastern side of the property (the densest and most intact portion of the site).
- if standing structures on the property are demolished, that work will be done in a manner so as to minimize accidental disturbance of areas outside the construction zone; controlled demolition will be implemented to reduce the potential for disturbance of human interments possibly present below the structures.
- specific construction restraints will be incorporated into contract documents and explained to the Contractor at the pre-construction meeting. The Program Archaeologist will have the opportunity to attend that meeting and to monitor construction activities as they take place.

Another aspect of site management will involve formulation of an agreement that incorporates cultural resource management concerns into DNR's overall plan for long-term facility maintenance. It will focus on the need for proper treatment of the entire site, including areas not directly affected by construction. Items that will be addressed will include at least the following:

- limitations on the scope of maintenance activities that can be undertaken by DNR in the future;
- consultation requirements before major facility rehabilitation work can be done;
- circumstances under which future field research can be undertaken at the site, specifying respective financial and logistic responsibilities;
- responsibilities for mitigation of cumulative adverse effects, should they become apparent during future site inspection by the Program Archaeologist or other qualified personnel.

III. WATER ACCESS PROGRAM DEVELOPMENT PROJECTS

REGION I - NORTHWEST

Becker County

Big Floyd Lake

Location

South end of the lake, adjacent to County Road 31, about 1 mile north of Detroit Lakes, MN (see Figure 5).

Physiographic Province

Alexandria Moraine Complex (Wright, 1972)

Geomorphic Region

Detroit Lakes Pitted Outwash Plain (Minnesota Soil Atlas Project, Brainerd Sheet, 1969).

Scope of Project

Development of new Public Water Access facilities. Construction elements will include a 20-unit parking area and concrete plank ramp. Most of the work will be done at or near existing grade, except for a small cut in the northeastern corner of the property for ramp installation.

Description of Project Area

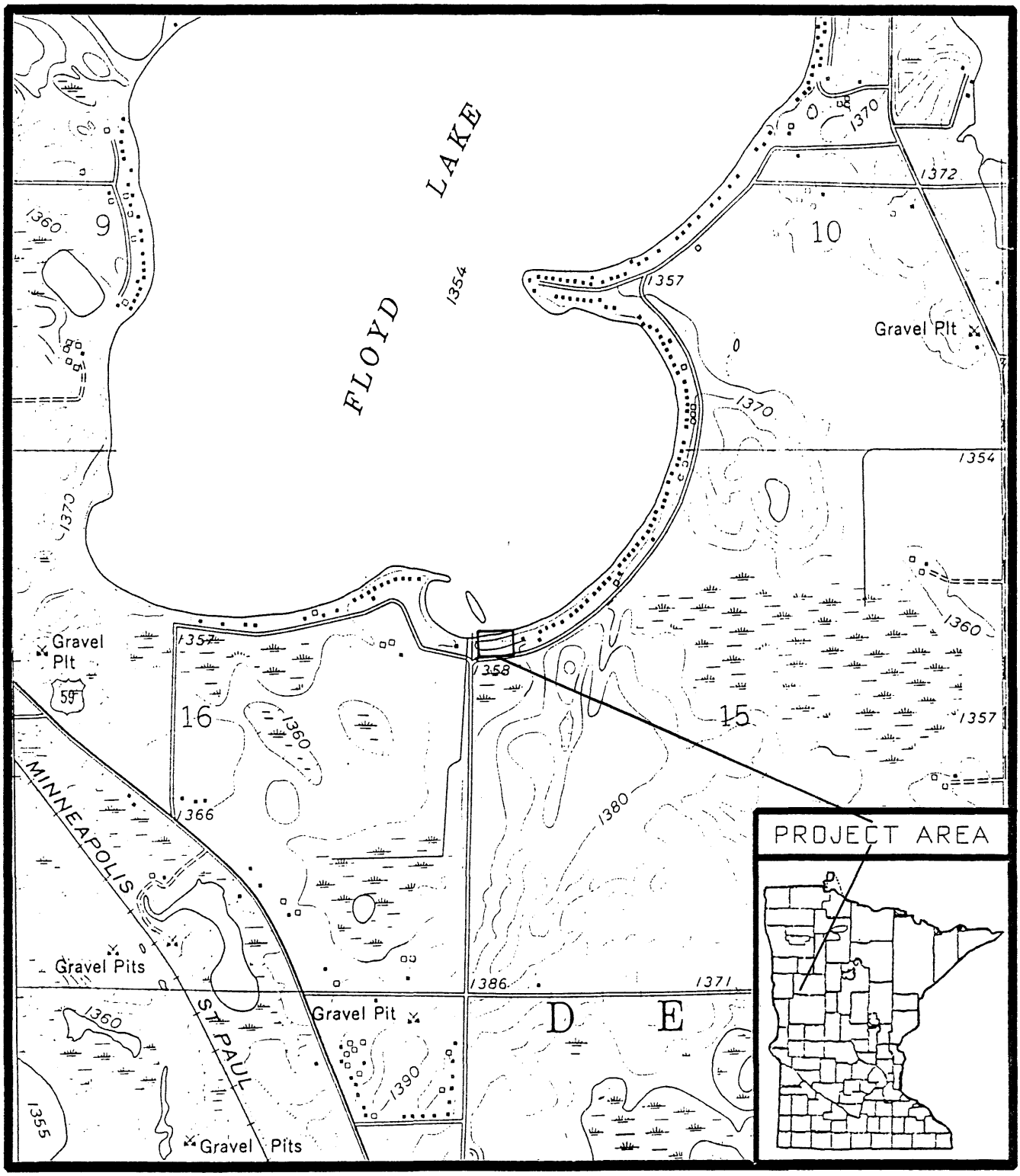
Level, wooded parcel bounded on the south by County Road 31 and on the east and west by developed residential lots. There is a series of low (< 1 m) ice ridges running parallel to the shoreline across the northern half of the property, from which the ground slopes gradually down towards the county road ditch. Average elevation of the property is about 3 feet above the current lake level. Piles of recent debris (lawn furniture, wooden dock segments, old tires) were noted in various locations; the property has apparently has been used by nearby residents as a trash dump for a number of years, but there has been no other disturbance to the property.

Records Review

Previous surveys: A review of state survey records indicated that there have been two formal cultural resource surveys in the vicinity of the project area: survey of a portion of TH #59, 1/2 mile west of DNR's property, and survey of a county road bridge replacement at the northeast end of the lake. Both surveys had negative results (Anfinson 1979:26; Peterson & Pfutzenreuter 1979:57).

Known sites in vicinity: The only known sites near Big Floyd Lake are 21BK3 and 21BK10, mound groups on the shores of Long Lake, about 4 miles southwest of the project area. Both are noted in Winchell (1911:360).

Figure 5. Big Floyd Lake Project Area



USGS Detroit Lakes Quadrangle, 1959, 7.5′ series (enlarged 1.42X - 1:17,000)

Field Review
Methods: Surface examination of exposures on the ice ridge at the shoreline; shovel testing of the remainder of the parcel.

Results: Soils were uniformly very sandy loams over sand and coarse beach sediments. On the higher areas (ice ridges), interlayered clean sand and loamy sand strata were encountered in the top 25 cm of several shovel tests. No cultural materials were found on surface or in any shovel test.

Management Recommendations
It appeared that the proposed access development would not affect any significant historic or prehistoric resources. It was recommended that the project proceed with no additional review (SHPO Ref. No. 88-0864).

Long Lake

Location
East shore of the lake, just south of TH #10, about 2 miles west of Detroit Lakes, MN (see Figure 6).

Physiographic Province
Alexandria Moraine Area (Wright 1972).

Geomorphic Region
Detroit Lakes Pitted Outwash Plain on east side of lake; Fergus Falls (Young Gray Drift) Till Plain on west; Alexandria Moraine Complex at north end (Minnesota Soil Atlas Project, Brainerd Sheet, 1969).

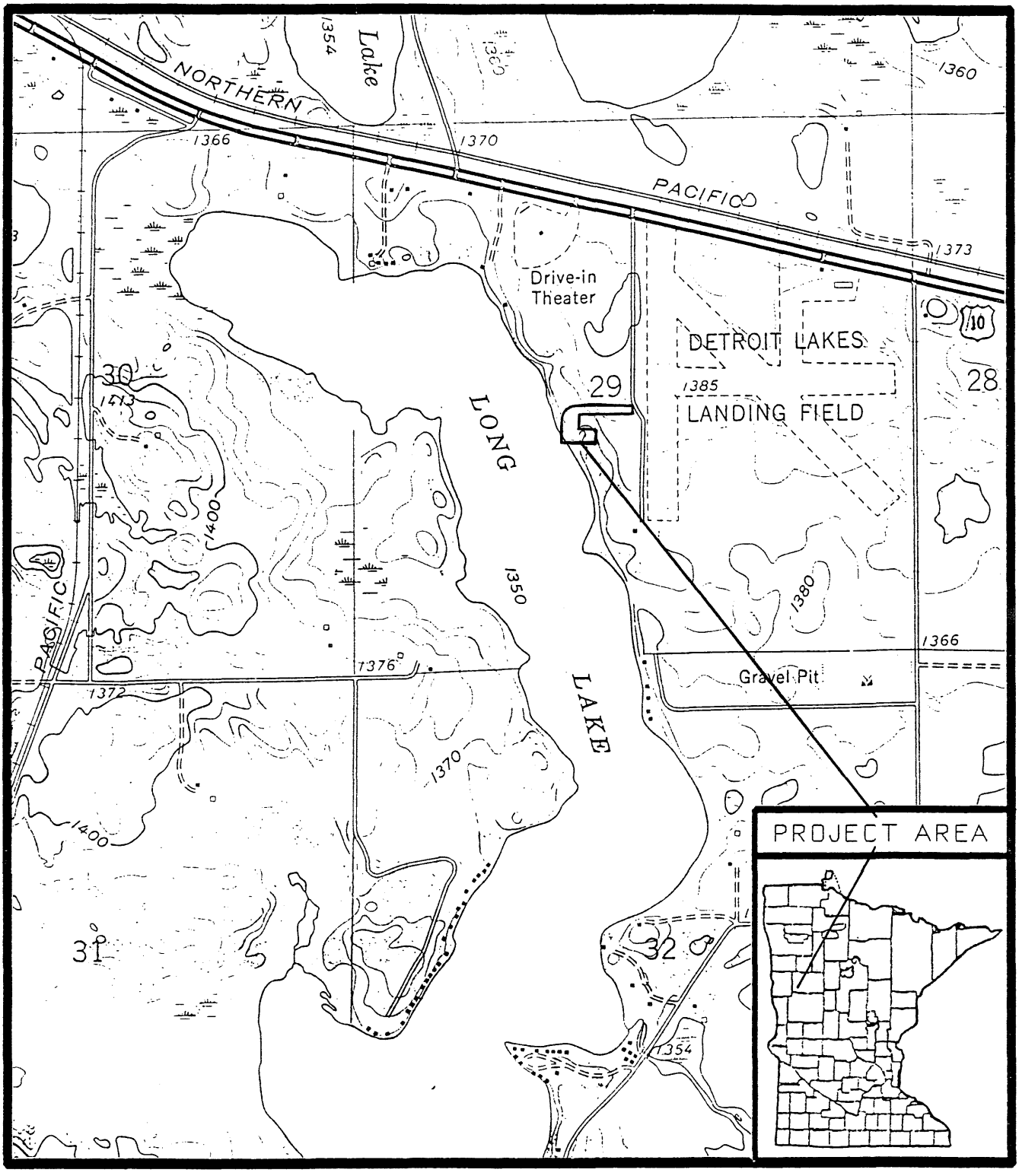
Scope of Project
Development of a new Public Water Access. Facilities will include an 8-unit parking area and concrete ramp. A new entry road about 750' long will be constructed to the north of the parking area. The parking lot will be situated in a small, steep-sided swale, and will require a substantial amount of cutting and filling to create an acceptable grade.

Description of Project Area
The project area is located within Airport Park, which is operated by the City of Detroit Lakes. The City is allowing DNR to develop access facilities adjacent to an existing picnic area. Part of the construction area is maintained lawn with scattered large hardwoods; the area across which the new entry road will run is overgrowth with grass, brush and some small trees. The terrain is rolling, with a steep cutbank about 7' high at the shoreline.

Records Review
Previous surveys: A review of state survey files indicated that there have been no formal cultural resource surveys close to the project area. The Trunk Highway Survey reviewed a project along TH #10 in the vicinity of Detroit Lakes, but the survey area was more than 4 miles from Long Lake (Peterson 1978: 55).

Known sites in vicinity: The only recorded sites near the project area are 21BK3 and 21BK10, both mound groups overlooking Long Lake. They are described by Winchell (1911:360), who noted that the 4 mounds in the 21BK10 group had been partially obliterated by cultivation. Neither site has been field-checked in recent years; the

Figure 6. Long Lake Project Area



USGS Audobon Quadrangle, 1959, 7.5′ series (enlarged 1.42X - 1:17,000)

areas in which they are supposed to have been located are both heavily developed at present.

Field Review
Methods: Shovel testing along new road alignment, in ramp and parking lot areas. There was some surface visibility along the edges of an existing rutted dirt road to the north of the parking lot area. Exposures along the side cuts and on the surface of this road were examined for surface artifacts.

Results: Soils throughout the project area were sandy loams over coarse sandy clay and glacial materials. Portions of the proposed parking area close to the existing entry road appeared to have been graded and filled. Along the road alignment, in the grassy area, the A horizon was thicker and appeared less disturbed than in the open areas. A few items of recent debris - bottle caps, glass, metal fragments - were found in the upper 15 cm adjacent to the existing access road. No other cultural materials were found on surface or in any shovel test.

Management Recommendations
It appeared that the proposed project would not affect any significant historic or prehistoric resources. It was recommended that construction proceed as planned with no additional review (SHPO Ref. No. 88-0863).

Lake Sallie (21BK33)

Location
North shore of the lake, 2 miles southwest of Detroit Lakes, MN (see Figure 7).

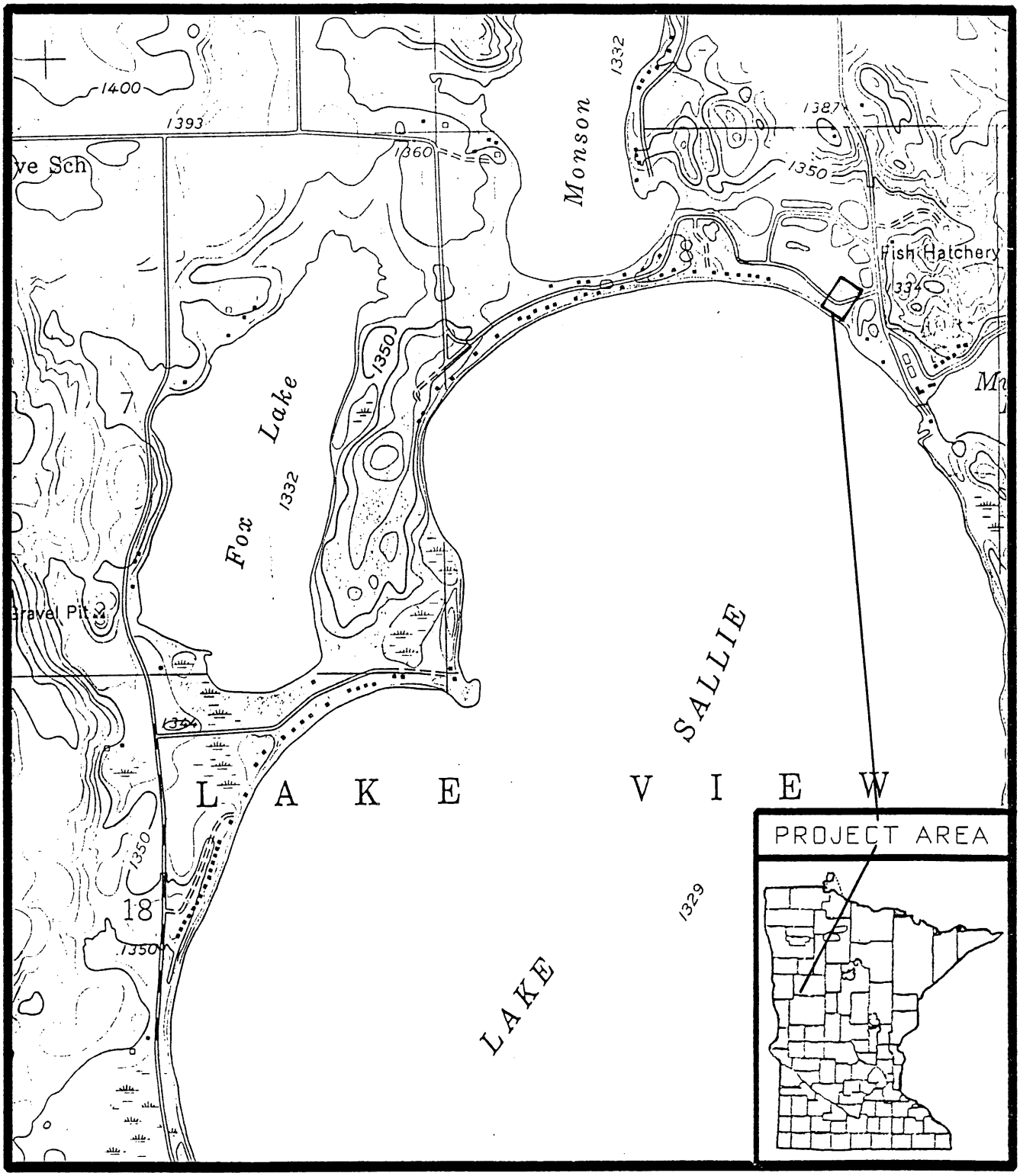
Geomorphic Region
Detroit Lakes Pitted Outwash Plain (MN Soil Atlas Project, Bemidji Sheet, 1980).

Physiographic Province
Wadena Drumlin Area (Wright, 1972).

Status of Project
DNR has operated a Public Water Access facility on the north shore of Lake Sallie for a number of years. (The property is actually owned by DNR's Fisheries Division as part of a large hatchery that has been in operation since 1915.) A proposed rehabilitation of existing facilities was reviewed during the 1986 field season (Emerson 1987:21-24). A prehistoric site was already known to be located within the project area, and DNR agreed to limit all construction to an area determined to be outside the boundaries of the cultural deposit. Work on the rehab project did not actually begin until late spring of 1987.

Site Description
21BK33 was initially recorded by a Moorhead State University Anthropology major who is a resident of the Detroit Lakes area. He found prehistoric artifacts on the surface of a small ridge in the northeastern corner of the Public Water Access property. No subsurface testing of the site was done at that time. Cultural affiliation was tentatively identified as "Fox Lake", apparently on the basis of ceramics recovered from the ridge. When DNR's proposed rehabilitation project appeared on Trails & Waterways development schedule, the Regional Engineer was informed of the presence of the site within the construction area. Limited reconnaissance survey was done, which resulted in the recovery of ceramic and lithic

Figure 7. Lake Sallie (21BK33) Project Area



USGS Audobon Quadrangle, 1959, 7.5′ series (enlarged 1.42X - 1:17,000)

artifacts from the surface of the ridge and the vertical cuts on both sides of the township road that bisects the ridge. After discussions with the Project Engineer, it was determined that it was possible to upgrade the parking lot and launch ramps without disturbing any portion of the site area. Final project plans specified that the contractor was not to do any work above elevation 94' (arbitrary), which is at the base of the ridge upon which the site is located.

During the summer of 1987, the Program Archaeologist was notified that the former student at Moorhead State who had originally recorded the site had discovered evidence of disturbance during the access rehab project. A fieldcheck of the site confirmed that there was a fresh blade cut in the western side of the site area, adjacent to the existing road cut. In addition, a 20' wide path running along the long axis of the ridge had been cleared of vegetation. Numerous ceramic and lithic artifacts and a quantity of bone were retrieved from the surfaces of these two areas. DNR was notified of the disturbance and an on-site meeting with Engineering personnel was arranged.

At the same time that these communications were taking place, the township board informed DNR that they believed the road alignment change made as part of the access rehab work had created an unsafe traffic situation. The township board requested that DNR remove one corner of the ridge upon which the site is located in order to improve sight lines along the road. Two representatives of the township were invited to meet with DNR's Engineer and the Program Archaeologist to discuss the problem.

At that meeting, it was determined that the Project Contractor had not complied with the Engineer's instructions to avoid the site area and had caused the blade cut while moving fill onto the new road alignment. The cleared trail was discovered to be part of a snowmobile trail being established by Becker County with the approval of the Fisheries Division. Personnel at Fisheries were immediately informed of the site's existence, and they agreed not to conduct any further clearing activities without appropriate notification to the Program Archaeologist. The site's existence and potential significance were explained to the Township Engineer. He was told that no cutting of the ridge could be done until appropriate site evaluation and, potentially, data recovery operations were conducted.

At this point, the subsurface extent of the site had not been determined. In order to estimate the time and cost involved in site evaluation, if it should become necessary, a single shovel test was dug close to the portion of the ridge that the township was proposing for removal. This shovel test yielded considerable quantities of prehistoric artifacts and faunal remains in what appeared to be essentially undisturbed context (see Figures 8 and 9).

Based on test results, both Sandy Lake and Blackduck components appear to be present at this site. An earlier component is suggested by the presence of sand-tempered, fabric-impressed sherds, although these were mixed with other types of ceramics throughout the shovel test. The size and location of the site area, along with the types of artifacts recovered, indicate that occupation of this area was probably directed towards utilization of nearby lake and wetland resources, rather than as a primary habitation locus. This estimation of site function is supported by the large quantities of organic materials recovered from the shovel tests. The cultural deposit was continuous from the ground surface down to the subsoil, with the highest artifact densities being encountered between 5 and 20 cm below surface.

Figure 8. 21BK33 - Site Area

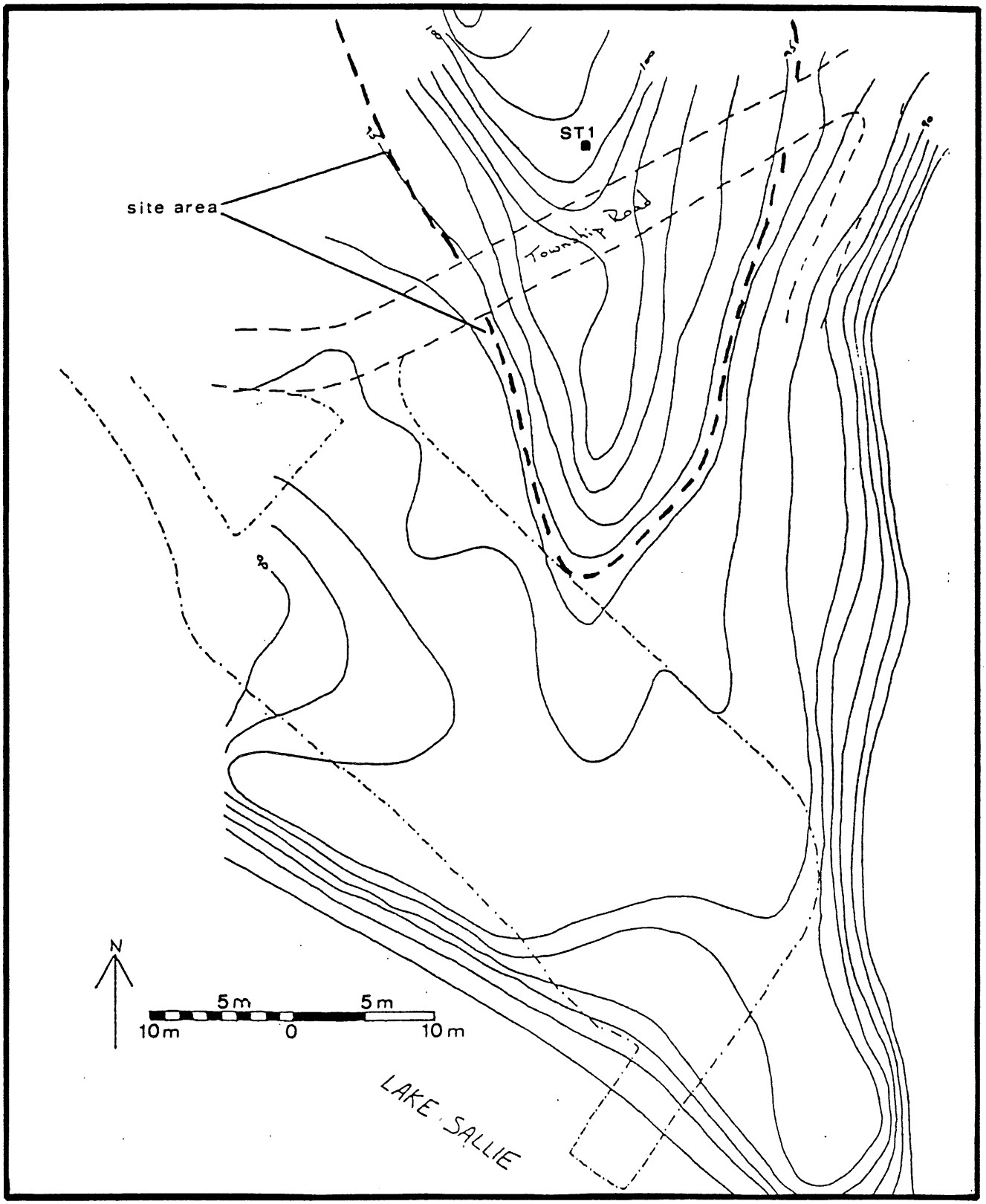


Figure 9. 21BK33 - Artifact Summary

Surface

1 Tongue River Silica shatter, thermally altered
1 quartz shatter
1 Swan River Chert core fragment
1 quartz core fragment
8 Swan River Chert primary flakes (3 thermally altered)
1 Hudson Bay Lowland Chert primary flake, utilized
2 quartz primary flakes
1 chert primary flake
1 chalcedony primary flake
2 Swan River Chert secondary flakes
2 quartz secondary flakes
1 chert secondary flake, utilized
1 chalcedony secondary flake, utilized
1 Tongue River Silica tertiary flake, utilized
1 grit rim sherd, smooth, flattened lip
1 grit rim sherd, oblique & horizontal cwsi
1 grit neck sherd, horizontal cwsi
5 grit body sherds, smooth
2 grit body sherds, smoothed-over cr
1 grit body sherd, indistinct
5 sand/grit body sherds, cr
2 sand/grit body sherds, indistinct
7 sand body sherds, cr
2 sand body sherds, net-impressed
1 sand body sherd, exfoliated
24 bone fragments (17 turtle, 7 mammal; 2 burned)

Shovel Test

0-5 cm:
1 chalcedony secondary flake, utilized
1 granite grinding stone, charred
1 sand/grit body sherd, cr
2 bone fragments (mammal)

5-10 cm:
2 Swan River Chert secondary flakes
1 Tongue River Silica secondary flake
1 Gunflint Silica secondary flake
2 quartz secondary flakes
1 chalcedony secondary flake
1 Swan River Chert retouch flake
3 shell body sherds, fabric-impressed
2 grit body sherds, cr
3 sand body sherds, smoothed-over cr
1 sand body sherd, fabric-impressed
1 sand body sherd, split
1 fired clay fragment
20 bone fragments (8 mammal, 6 fish, 6 turtle; 2 burned)

10-15 cm:
1 Swan River Chert core fragment
1 Swan River Chert primary flake, thermally altered
1 Knife River Flint primary flake
2 chert primary flakes
2 Swan River Chert secondary flakes, thermally altered
1 Knife River Flint secondary flake, utilized
1 quartz secondary flake
1 chert secondary flake, utilized
1 agate secondary flake
1 Gunflint Silica tertiary flake
3 Swan River Chert tertiary flakes, thermally altered
1 quartz tertiary flake
2 shell body sherds, fabric-impressed
5 shell body sherds, split
1 grit near-rim sherd, cwsi, interior stick impressions
5 grit body sherds, cr
2 grit body sherds, fabric-impressed
2 grit body sherds, split
14 fish vertebra
63 bone fragments (41 mammal, 12 fish, 8 turtle, 1 bison, 1 bird; 4 burned)

15-20 cm:
1 Swan River Chert core fragment
3 Swan River Chert primary flakes
1 jasper primary flake
2 Tongue River Silica secondary flakes
2 Swan River Chert secondary flakes
2 chert secondary flakes (1 utilized)
1 quartzite secondary flake
1 Knife River Flint tertiary flake
5 Swan River Chert tertiary flakes (1 utilized)
1 grit neck sherd, cr
4 grit body sherds, fabric-impressed
1 grit body sherd, split
2 sand body sherds, fabric-impressed
1 bird claw fragment
58 bone fragments (28 mammal, 18 fish, 8 turtle; 4 burned)
13 fish vertebrae
3 fish scales
1 nutcase fragment

20-25 cm:
1 Swan River Chert scraper, thermally altered
1 Knife River Flint flake tool, utilized
1 Swan River Chert secondary flake
2 Gunflint Silica secondary flakes
1 chalcedony secondary flake
1 Swan River Chert tertiary flake, thermally altered
1 grit body sherd, split
1 polished bone fragment (mammal)
63 bone fragments (47 fish, 7 mammal, 7 turtle, 2 bird; 3 burned)
5 fish vertebrae
4 fish scales

25-30 cm:
2 Tongue River Silica secondary flakes
1 quartz secondary flake
1 Knife River Flint tertiary flake
1 grit neck sherd, horizontal cwsi
6 grit body sherds, cr
3 grit body sherds, split
42 bone fragments (17 fish, 16 turtle, 8 mammal, 1 bird; 1 burned, 1 polished)
1 fish vertebra
1 fish scale

Figure 9, continued

30-35 cm:
- 1 Swan River Chert secondary flake, thermally altered
- 1 quartz secondary flake
- 1 argillite secondary flake
- 1 Tongue River Silica tertiary flake
- 2 sand body sherds, cr
- 1 fired clay fragment
- 28 bone fragments (19 fish, 8 turtle, 1 bird)
- 5 fish vertebrae
- 4 fish scales
- 4 clamshell fragments
- 1 charcoal fragment

35-40 cm:
- 2 Knife River Flint secondary flakes, utilized
- 3 Swan River Chert secondary flakes (2 thermally altered)
- 2 Tongue River Silica secondary flakes
- 1 Gunflint Silica tertiary flake

35-40 cm:
- 2 chalcedony secondary flakes (1 utilized)
- 1 sand body sherd, fabric-impressed
- 29 bone fragments (16 fish, 9 mammal, 4 turtle)
- 7 fish vertebrae
- 2 fish scales
- 1 mammal vertebra

40-45 cm:
- 2 Swan River Chert secondary flakes, thermally altered
- 1 Knife River Flint secondary flake, utilized
- 1 chert secondary flake
- 1 sand body sherd, cr
- 2 sand body sherds, fabric-impressed
- 24 bone fragments (16 fish, 5 turtle, 3 mammal)
- 10 fish vertebrae
- 1 fish scale

Some temporal stratigraphy is suggested by the fact that no shell-tempered sherds were found below 15 cm, and only sand-tempered ceramics were recovered from 30 to 45 cm below the surface.

Management Recommendations
Both Trails & Waterways and Fisheries personnel were informed that any contemplated work within the site area should not take place until the Program Archaeologist had been consulted and appropriate site evaluation research had been conducted. No further discussions have been held with the township regarding changing the road alignment. At present, it appears that the township has decided not to make any changes to the present road alignment, so the site area will not be further disturbed.

Beltrami County

Campbell Lake

Location
South shore of the lake, about 10 miles north of Bemidji, MN (see Figure 10).

Physiographic Province
Bemidji Area (Wright, 1972).

Geomorphic Region
Bemidji Sand Plain (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

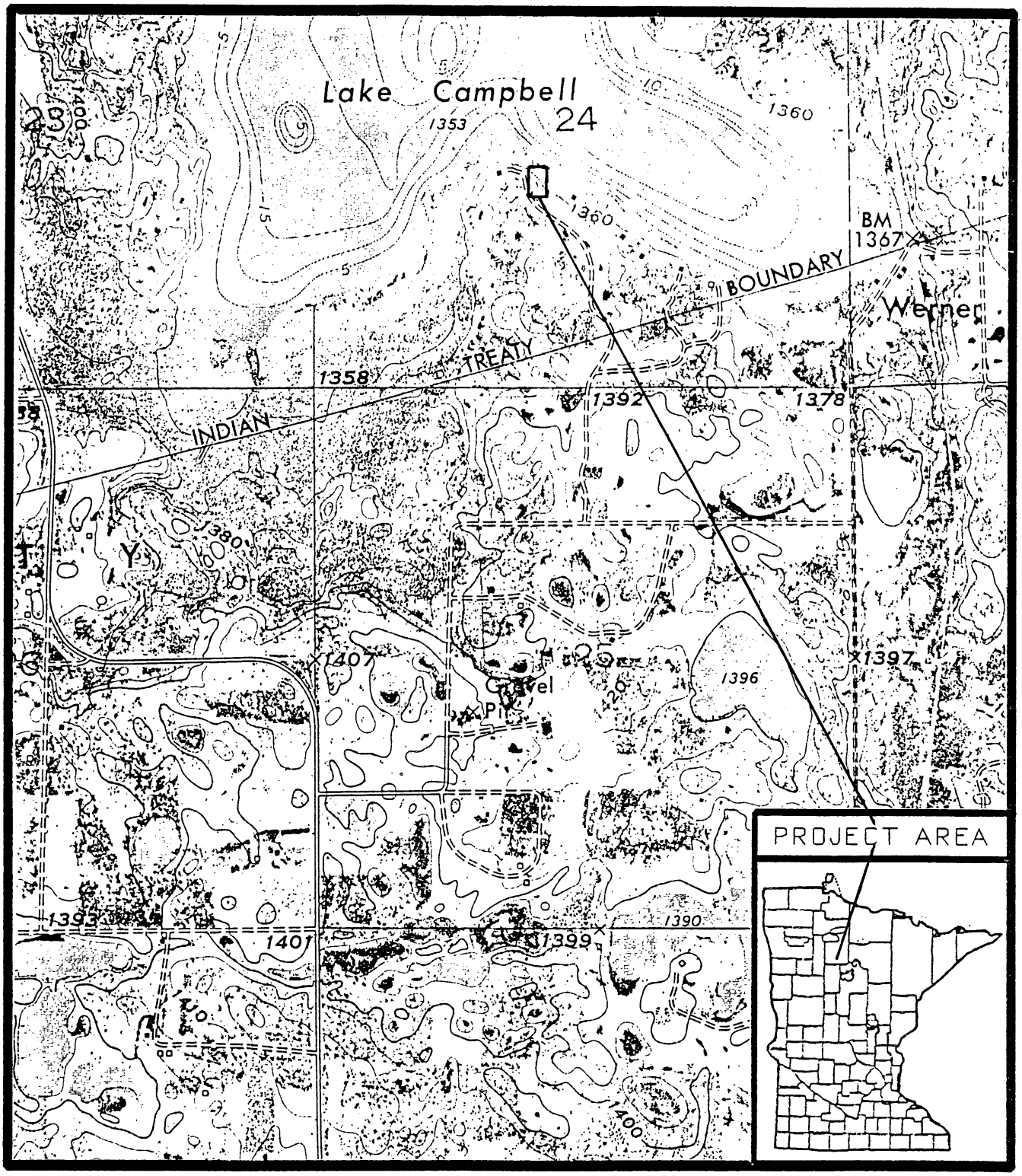
Scope of Project
Development of a new Public Water Access. Facilities to be constructed include a 10-unit parking area and concrete ramp. Most of the construction area will be cleared and topsoil will be stripped before granular fill is added. The northern-most part of the parking area will be close-cut, and fill will be placed over filter fabric.

Description of Project Area
Campbell Lake is part of the Turtle River chain; the river enters the lake in the northwest corner and flows out on the northeast side, across the lake from DNR's property. The surveyed parcel is within a recently platted subdivision. A few nearby lots are being developed as private residences, but most of the lakeshore is not yet developed. The project area is entirely wooded (white pine, spruce, birch), except for a cleared access road. The southern part of the parcel is a low bench, possible an old beachline, and the northern half is very swampy. There is an ice ridge about 1.5 m high along the shoreline. Two small structures, apparently hunting shacks, were previously present; one had already been demolished at the time of survey.

Records Review
Previous surveys: A review of state survey files indicated that there have been no formal cultural resource surveys within 1 mile of the project area.

Known sites: There are no recorded prehistoric or historic sites in the vicinity of Campbell Lake. The closest known sites are on the shores of Lake Bemidji, about 6

Figure 10. Campbell Lake Project Area



USGS Peterson Lake Quadrangle, 1972, 7.5′ series (enlarged 1.42X - 1:17,000)

miles southeast of the project area.

Field Review
Methods: Surface reconnaissance of open areas along shoreline; shovel tests along road alignment and in proposed parking area.

Results: The lakeward side of the ice ridge had very good exposure; it is composed of medium to coarse sand and beach sediments. Some fill had been placed along the existing road, but soil profiles appeared to be essentially intact below that. On the higher portion of the property, soils were coarse sandy loam and sandy clay. The lower-lying part of the property was very mucky, with pockets of standing water. Soil profiles in this area were variable, and seemed to reflect fluctuations of the lake level over time. They were primarily sandy clay loams, with some discontinuous strata of peat, coarse beach sediments, and bluish-gray fine sandy clays. No cultural materials were found on surface or in shovel tests.

Management Recommendations
The one structure that was still standing on the property at the time of survey does not appear to be of any particular historic or architectural significance. No evidence was found that the proposed work will affect any significant historic or prehistoric resources. It was recommended that the project proceed as planned with no additional review (SHPO Ref. No. EE-641).

Hubbard County

Big Sand Lake

Location
South shore of the lake, adjacent to CSAH #87, about 6 miles northeast of Park Rapids, MN (see Figure 11).

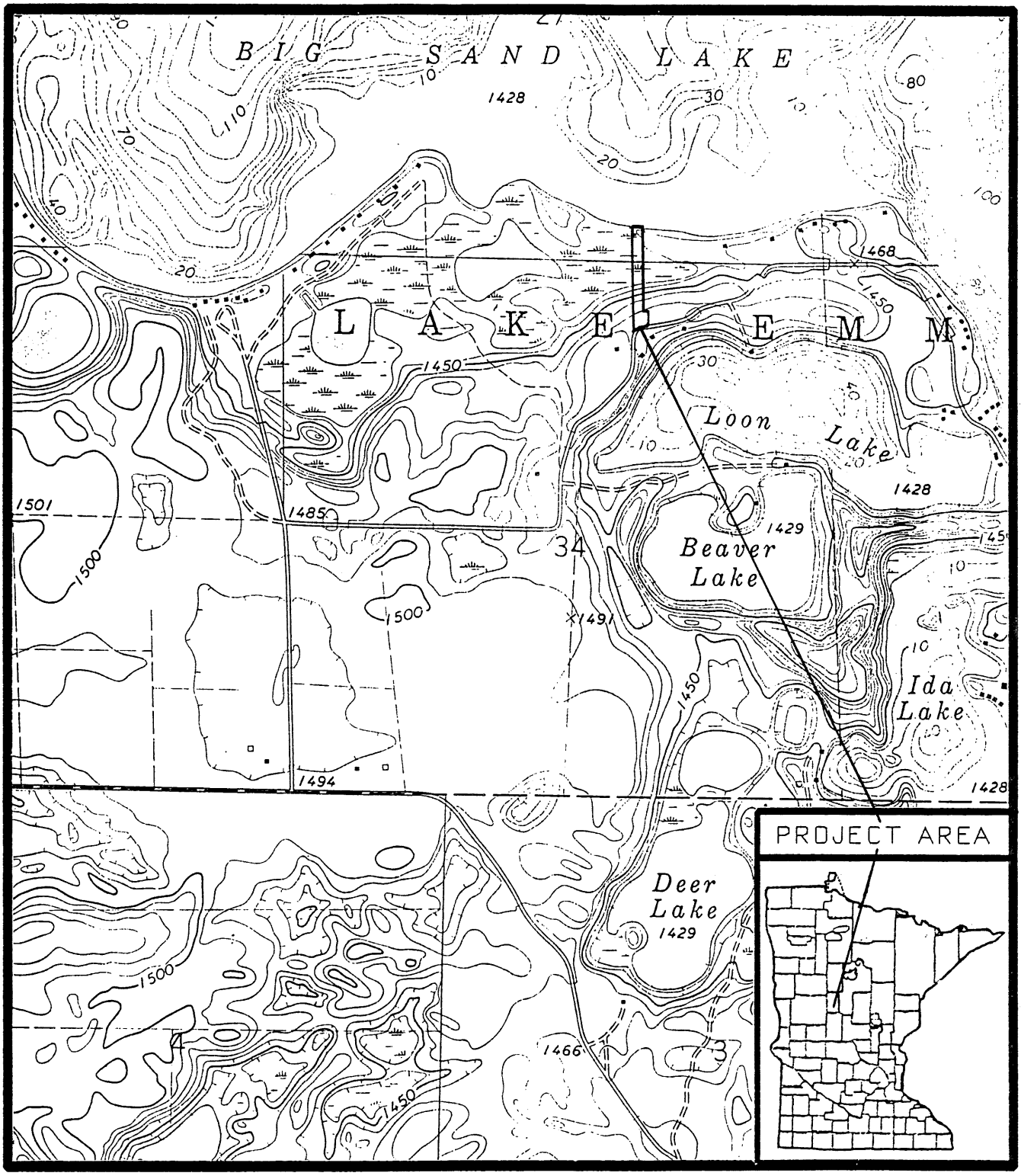
Physiographic Province
Wadena Drumlin Area (Wright, 1972)

Geomorphic Region
Park Rapids-Staples Outwash Plain (Minnesota Soil Atlas Project, Brainerd Sheet, 1969)

Scope of Project
Construction of a new Public Water Access to Big Sand Lake. Facilities will include approximately 600 feet of new bituminous-surfaced entry road, a 15-unit parking area and concrete plank ramp. The parking lot will be built on fill in a wetland area near the lakeshore; the entry road will drop approximately 45′ from the county road to the wetland, and will require a substantial cut at its southern end.

Description of Project Area
The southern portion of this property (adjacent to CSAH #87) is a level bench situated about 45′ above the current lake level. It is bordered on the north by a steep slope that drops into a large wetland that is no more than 2′ above the lake level. The only developments on the property are a mobile home and a small shed built by the previous owners. Most of the upper portion of the property, around the

Figure 11. Big Sand Lake Project Area



USGS Dorset Quadrangle, 1970, 7.5′ series (enlarged 1.42X - 1:17,000)

mobile home, has been cleared and sodded.

Records Review
Previous surveys: A review of state survey files indicated that there have been no formal cultural resource surveys within 1 mile of the project area.

Known sites: The only known sites near the project area are 21HB5, a Blackduck habitation site on Eagle Lake, about 5 miles west of Big Sand Lake, and 21HB4, a mound group at the outlet of Fish Hook Lake, about 5 miles southwest. 21HB4 is noted in Winchell (1911:357) and 21HB5 was recorded in 1965 on the basis of information received from the landowner. Neither site has been formally investigated; the MnSAS crew tried to relocate 21HB4 in 1978 but was unable to find it due to recent road and house construction in the area.

Field Review
Methods: Shovel testing of upper part of property and along ice ridge at shoreline; surface examination of exposures along existing dirt entry road. A few shovel tests were done along the edges of the wetland area; the rest of this portion of the property was covered with standing water.

Results: Soils in the upper part of the property were coarse sandy loams over poorly sorted glacial materials. The organic horizon was very thin, and in some places appeared to have been entirely graded off. Recent debris (glass, metal, tarpaper) was found in the upper 10 cm of several shovel tests close to the mobile home. The ice ridge at the shoreline was composed of very coarse sandy materials; behind the ridge, soils were saturated humic gleys and peat. Other than the recent debris, no cultural materials were found on surface or in any shovel test.

Management Recommendations
It appeared that this project would not affect any significant prehistoric or historic resources. It was recommended that construction proceed with no additional review (SHPO Ref. No. pending).

Eagle Lake

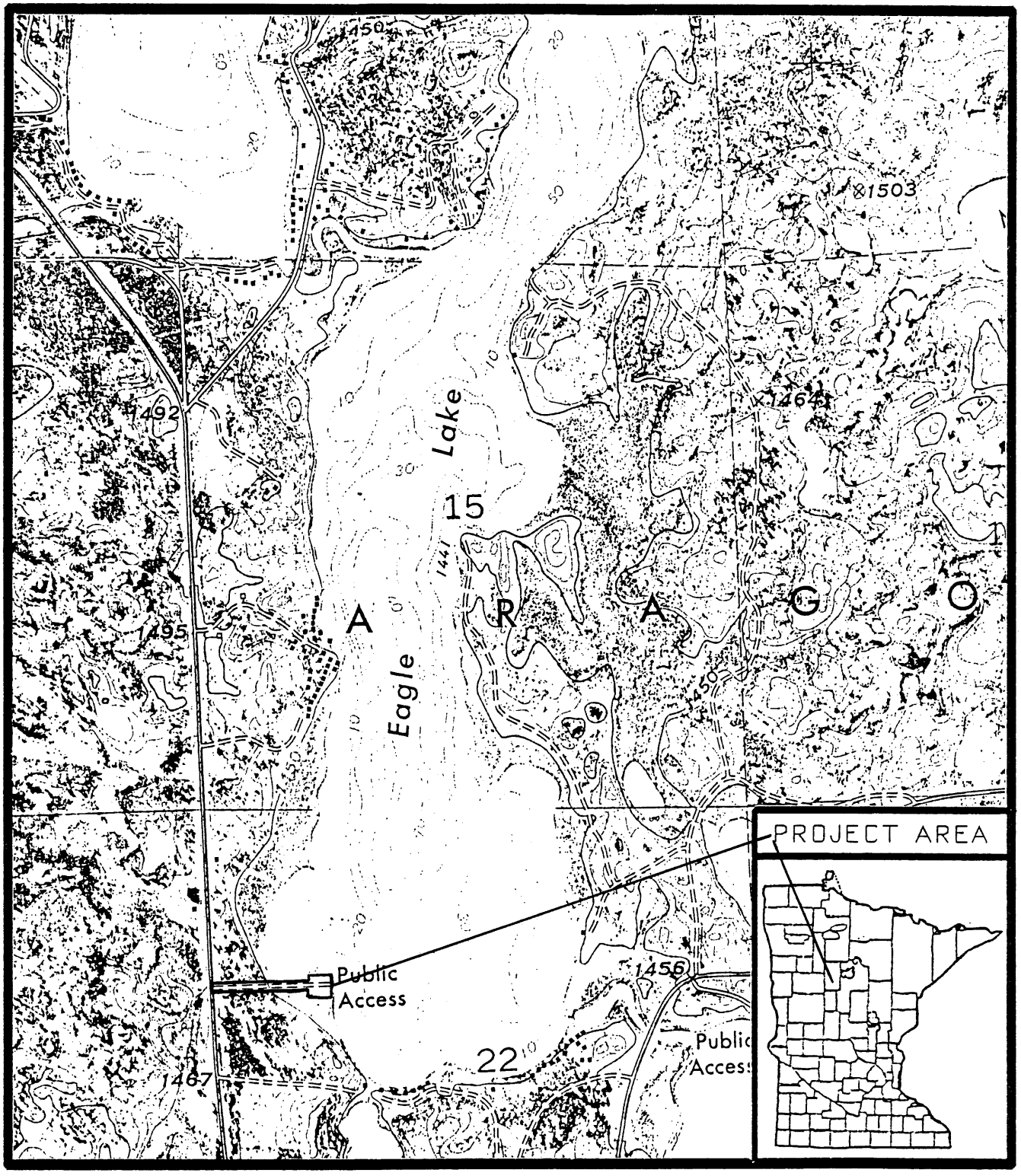
Location
West shore of the lake, just off TH #71, 4 miles north of Park Rapids, MN (see Figure 12).

Physiographic Province
Itasca Moraine to east; Wadena Drumlin Area to west (Wright, 1972).

Geomorphic Region
Park Rapids-Staples Outwash Plain on west side of lake; Itasca Moraine Complex on east side of lake (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

Scope of Project
Rehabilitation and expansion of existing access facilities. The existing access road will be graded and additional fill will be placed on it. Ditch cuts will be made on either side of the road where it crosses an old beach ridge. The existing parking area will be expanded by closecutting and placement of fill over filter fabric on both sides of the present lot and entry road.

Figure 12. Eagle Lake Project Area



USGS Skunk Lake Quadrangle, 1972, 7.5′ series (enlarged 1.42X - 1:17,000)

Description of Project Area
Existing Public Water Access; facilities include a dirt access road and cleared dirt parking area at the shoreline. The area closest to the lakeshore is very level and low-lying; vegetation is lowland brush and some softwoods. About 1/8 mile west of the current shoreline, an old beach ridge rises to a height of about 10 feet above the lake elevation. The existing entry road for the access cuts across this ridge.

Records Review
Previous surveys: There is no record of any formal cultural resource surveys in the vicinity.

Known sites: There is one recorded prehistoric site within a 1-mile radius of the project area: 21HB5, a habitation area across the lake (east) from DNR's property. The site was recorded on the basis of information from the landowner and has never had any formal testing. Winchell (1911:357) also reports a mound at the outlet of Island Lake, about 1-1/4 miles north of the project area.

Field Review
Methods: Shovel testing over the proposed parking area and in the ditch cut area where the entry road crosses the old beach ridge.

Results: On the low-lying part of the property, medium to coarse loamy sands overlie a layer of peat, under which there are lakebed sediments. On the ridge, soils were very sandy loams over fine to medium sand. No cultural materials were found in any shovel test.

Management Recommendations
It appeared that the proposed access rehabilitation would not affect any significant historic or prehistoric resources. A recommendation was made that construction proceed as planned with no additional review (SHPO Ref. No. DD-934).

East Crooked Lake

Location
Northwest corner of the lake, just off County Road #2, about 5.5 miles north of Nevis, MN (see Figure 13).

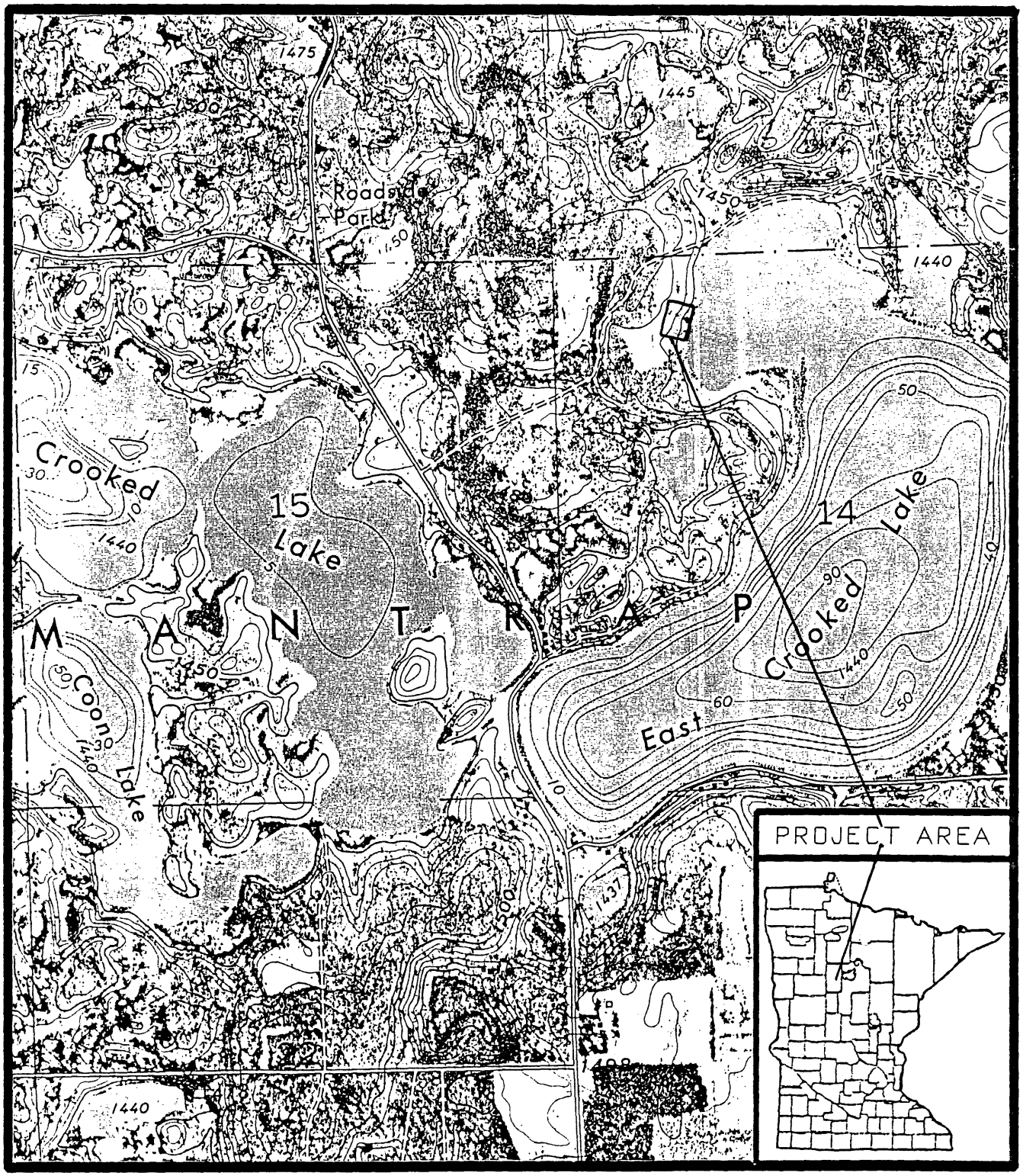
Physiographic Province
Itasca Moraine (Wright, 1972).

Geomorphic Region
Itasca Moraine Complex (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

Scope of Project
Development of a new Public Water Access. Construction plans include a 12-unit parking area, lake approach road and concrete plank ramp. About 300' of the existing township road adjacent to the property will be upgraded. The parking area will be built on a gently sloping terrace that is located about 20' above the present lake level.

Description of Project Area
The property is part of a recently platted subdivision; none of the adjacent lots have been developed yet. Most of the property has been cleared and is covered by a

Figure 13. East Crooked Lake Project Area



USGS East Crooked Lake Quadrangle, 1972, 7.5′ series (enlarged 1.42X - 1:17,000)

thick growth of grass and brush; the slope to the lake and the shoreline are wooded.

Records Review
Previous surveys: A review of state survey files indicated that there have been no formal cultural resource surveys in the vicinity of the project area.

Known sites: There are no recorded historic or prehistoric sites less than 5 miles from the project area.

Field Review
Methods: Shovel test grid across proposed parking area and in the ramp cut location at the shoreline.

Results: In the upper part of the property, soils were very sandy silt loams over sandy clays. Along the shoreline, soils were somewhat coarser and very mucky. No cultural materials were found in any shovel test. (Note: after survey of this project had been completed, the Program Archaeologist was notified that construction plans were being revised in order to avoid disturbance of a bald eagle perch located on DNR's property. Additional shovel tests were then done based on information received from the Regional Engineer about changes in the placement of proposed access facilities. This additional review also had negative results.)

Management Recommendations
It appeared that the proposed project, as revised, would not affect any significant prehistoric or historic resources. It was recommended that work proceed with no additional review (SHPO Ref. No. EE-723).

Lake Hattie (21HB21)

Location
East shore of the lake, off County Road 44, about 10 miles north-northwest of Lake George, MN (see Figure 14).

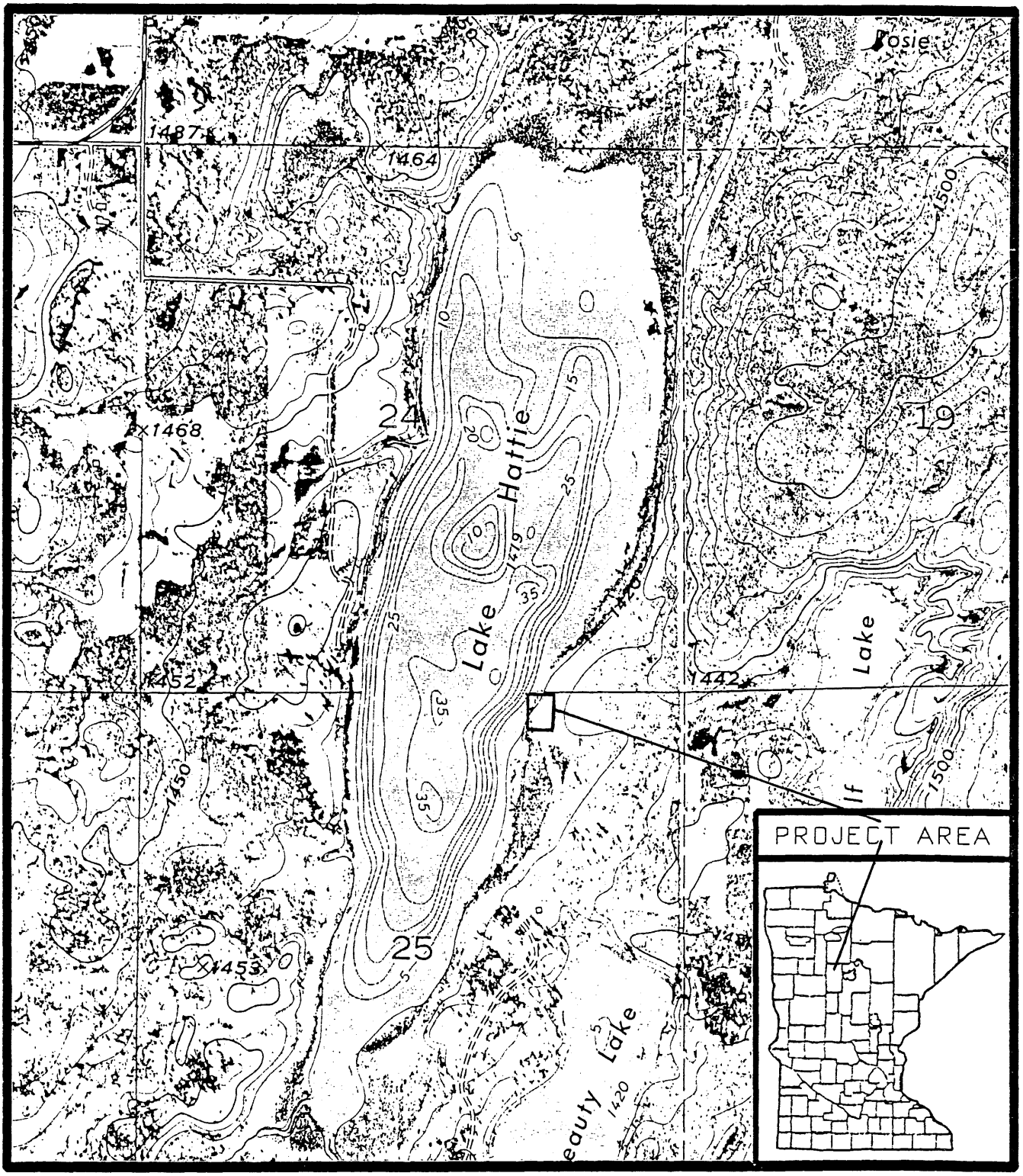
Physiographic Province
Itasca Moraine (Wright, 1972).

Geomorphic Region
Itasca Moraine Complex; Bagley Outwash Plain adjoins to south (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

Scope of Project
Construction of an 7-unit parking area, concrete launch ramp and entry road. Surfacing material will be placed at existing grade after vegetation is cleared. A small cut will be made at the shoreline for ramp placement.

Description of Project Area
This property is part of a county-owned quarter-section (tax-forfeit); DNR has made arrangements with Hubbard County to use a portion of the parcel for development of a Public Water Access. The entire parcel is birch-aspen forest with a sparse understory, apparently never cleared. Elevation of most of the property is about 6' above the current lake level; there is a sharp drop at the shoreline to a narrow strip of marsh grass and reeds. The privately-owned property just north of the section line has been subdivided, and lots are currently for sale. The only other

Figure 14. Lake Hattie (21HB21) Project Area



USGS Lake Hattie Quadrangle, 1972, 7.5′ series (enlarged 1.42X - 1:17,000)

development on the eastern side of the lake is a small cabin about 1/4 mile north of DNR's project area and several residences at the very north end of the lake. A gravel township road parallels the lakeshore about 1/8 mile east of it. This road will be used for entry to the access facilities after re-surfacing.

Records Review

Previous surveys: No evidence was found that there have been any formal cultural resource surveys in the vicinity of the project area.

Known sites: A review of state site files indicated that there are two recorded prehistoric sites near Lake Hattie. 21HB16 is directly across the lake from DNR's project area. It was recorded on the basis of landowner information about artifacts found when the land was cleared. The other site, 21HB15, is near the north end of the lake, and also was recorded as a result of landowner information. Neither of these sites has had any formal testing.

Field Review

Methods: After DNR made arrangements with Hubbard County for access construction, they had a maintenance crew start work on clearing the parcel. All of the large trees within the construction area were cut with chain saws and left lying on the ground. Because it was done very early in the spring while the ground was still frozen, this work caused no subsurface disturbance. However, the brush had not been cleared at the time of survey, and the presence of large felled trees made it impossible to apply a consistent shovel-test interval. Test locations therefore were chosen primarily according to the accessibility of various parts of the construction area. Because of the sparse undergrowth, there was moderately good surface visibility. However, the apparent lack of disturbance of the area made surface reconnaissance as a means of site identification impractical.

Results: During the first day of survey, prehistoric artifacts were recovered from 4 of 6 shovel tests (see Figures 15 & 16). The artifacts were found within a shallow habitation deposit which, based on the recovered ceramics, dates to the Terminal Woodland period, with a possible earlier component represented by a few net-impressed, sand tempered body sherds. Although soil stratigraphy was somewhat variable, most of the subsurface disturbance seemed to have arisen from natural sources such as root growth and rodent activity. In general, the site area appeared to be relatively intact. There was no clear vertical separation of artifact strata that suggested cultural stratigraphy.

Shovel test results indicated that the cultural deposit might extend to the north across the section line, onto private property. The owner of the adjoining parcel (in Section 24) was contacted, and his permission was obtained to conduct shovel testing on his property in order to define the northern limit of the site. This work was conducted in October; it showed that the site area extends roughly another 60 meters north of the section line. Artifacts recovered in this area were generally consistent with the types of materials found on county property.

DNR Regional personnel were notified of the existence of the site within their proposed construction area. After an on-site meeting with Engineering staff, it was determined that the initial project design could be easily modified to move the proposed parking area to the south, beyond the site area. Additional shovel tests were then dug to delineate the site boundary as precisely as possible, and to check for additional cultural material in the alternative construction area. On the basis

Figure 15. 21HB21 - Site Area

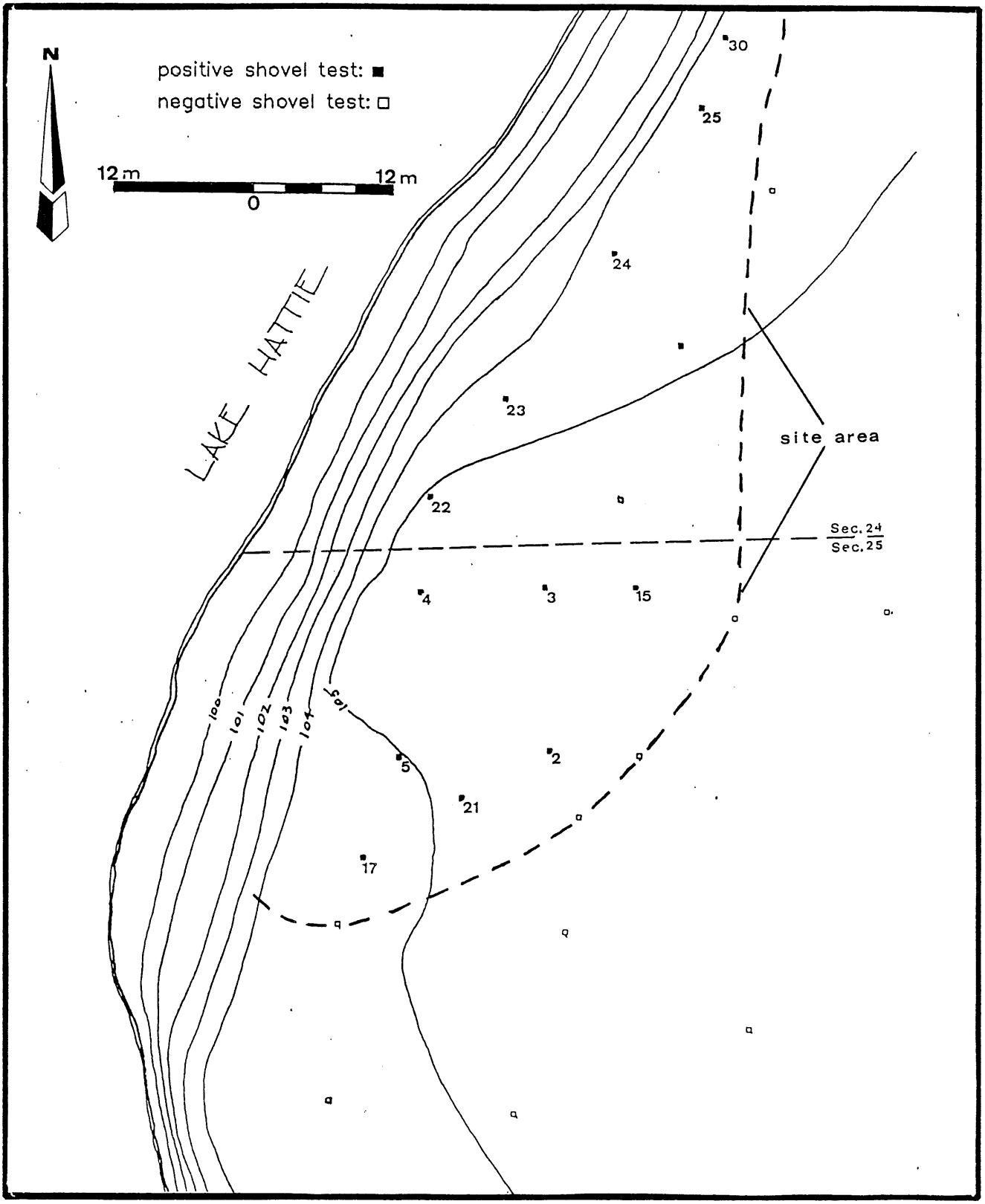


Figure 16. 21HB21 - Artifact Summary

Shovel Tests, Sec. 25 (County Property)

ST 2,	5-10 cm:	1 siltstone primary flake, utilized
	10-15 cm:	1 Tongue River Silica preform
		1 Tongue River Silica flake tool
		1 Knife River Flint tertiary flake
		1 Tongue River Silica tertiary flake
ST 3,	20-25 cm:	1 Tongue River Silica primary flake
		1 grit body sherd, cr
ST 4,	10-15 cm:	1 siltstone core fragment
		1 grit rim sherd, oblique cwsi, punctates, oblique cwsi on lip
		1 grit neck sherd, cr
		4 grit body sherds, cr
		1 ceramic crumb
	15-20 cm:	1 quartz secondary flake
		5 grit body sherds, cr
	20-25 cm:	1 sand body sherd, net-impressed
		2 grit body sherds, cr
ST 5,	10-15 cm:	2 quartz secondary flakes
		1 Swan River Chert tertiary flake, thermally altered
		2 sand body sherds, indistinct
ST 15,	10-15 cm:	1 sand body sherd, net-impressed
		2 sand boyd sherds, exfoliated
ST 17,	10-15 cm:	1 grit body sherd, cr
		1 grit body sherd, exfoliated
	15-20 cm:	1 Swan River Chert tool, utilized
		1 quartz tertiary flake
ST 21,	10-15 cm:	1 Tongue River Silica secondary flake
		2 bone fragments, burned (mammal)

Shovel Tests, Sec. 24 (Jindra Property)

ST 22,	5-10 cm:	3 clamshell fragments
	10-15 cm:	1 quartz primary flake
		1 quartz tertiary flake
		1 sand body sherd, net-impressed
		1 ceramic crumb
		1 bone fragment (mammal)
	15-20 cm:	1 Knife River Flint secondary flake, utilized
		1 Swan River Chert tertiary flake
		1 grit body sherd, cr
		1 grit body sherd, indistinct
		1 sand body sherd, exfoliated
ST 23,	5-10 cm:	2 chert tertiary flakes
	15-20 cm:	1 chert secondary flake
ST 24,	5-10 cm:	1 grit body sherd, indistinct
ST 25,	5-10 cm:	1 quartz secondary flake
		1 sand body sherd, exfoliated
		1 bone fragment (mammal)
	10-15 cm:	1 sand body sherd, net-impressed
	15-20 cm:	1 Knife River Flint secondary flake, retouched
		2 sand body sherds, net-impressed
		1 charcoal fragment
	20-25 cm:	1 sand body sherd, net-impressed
ST 28,	5-10 cm:	1 chert secondary flake
ST 30,	5-10 cm:	1 grit body sherd, cr
	10-15 cm:	2 sand body sherds, cr
	15-20 cm:	1 grit rim sherd, oblique cwsi, cwsi on lip
		2 grit rim sherds, cwsi on lip
		1 grit neck sherd, cwsi
		1 grit body sherd, cr
		1 grit body sherd, smoothed-over cr, incised
		1 grit body sherd, indistinct
		1 grit body sherd, exfoliated
		1 ceramic crumb
		1 bone fragment, burned (mammal)
	20-25 cm:	1 grit body sherd, exfoliated
		1 Gunflint Silica secondary flake, utilized

of these tests, an area to be avoided during construction was defined in the field and its location was mapped on project plans.

Management Recommendations
Preliminary survey of this project area revealed the existence of a potentially significant prehistoric habitation site within the area proposed for construction. When informed of the site's existence, DNR personnel were told that site evaluation would be necessary before work could proceed on the project. Rather than retain the existing design and wait for that research to be completed, the Project Engineer determined that revising project plans to use a different portion of the property was a feasible alternative that would be more consistent with DNR's project priorities and funding schedule. Accordingly, plans were revised so that the site would be completely outside the construction zone. Final plans and specs include specific instructions for the contractor to leave the site area completely undisturbed. The facility maintenance plan will allow natural re-vegetation of the site and will not allow any future facility modification to affect the site area. It was recommended that the project proceed according to these conditions, with no additional review (SHPO Ref. No. 88-0653).

Island Lake

Location
West shore of the lake, just off TH #71, about 12 miles north of Park Rapids, MN (see Figure 17).

Physiographic Province
Itasca Moraine to north and east, Wadena Drumlin Area to south and west (Wright, 1972).

Geomorphic Region
Park Rapids-Staples Outwash Plain; Itasca Moraine Complex to north and east (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

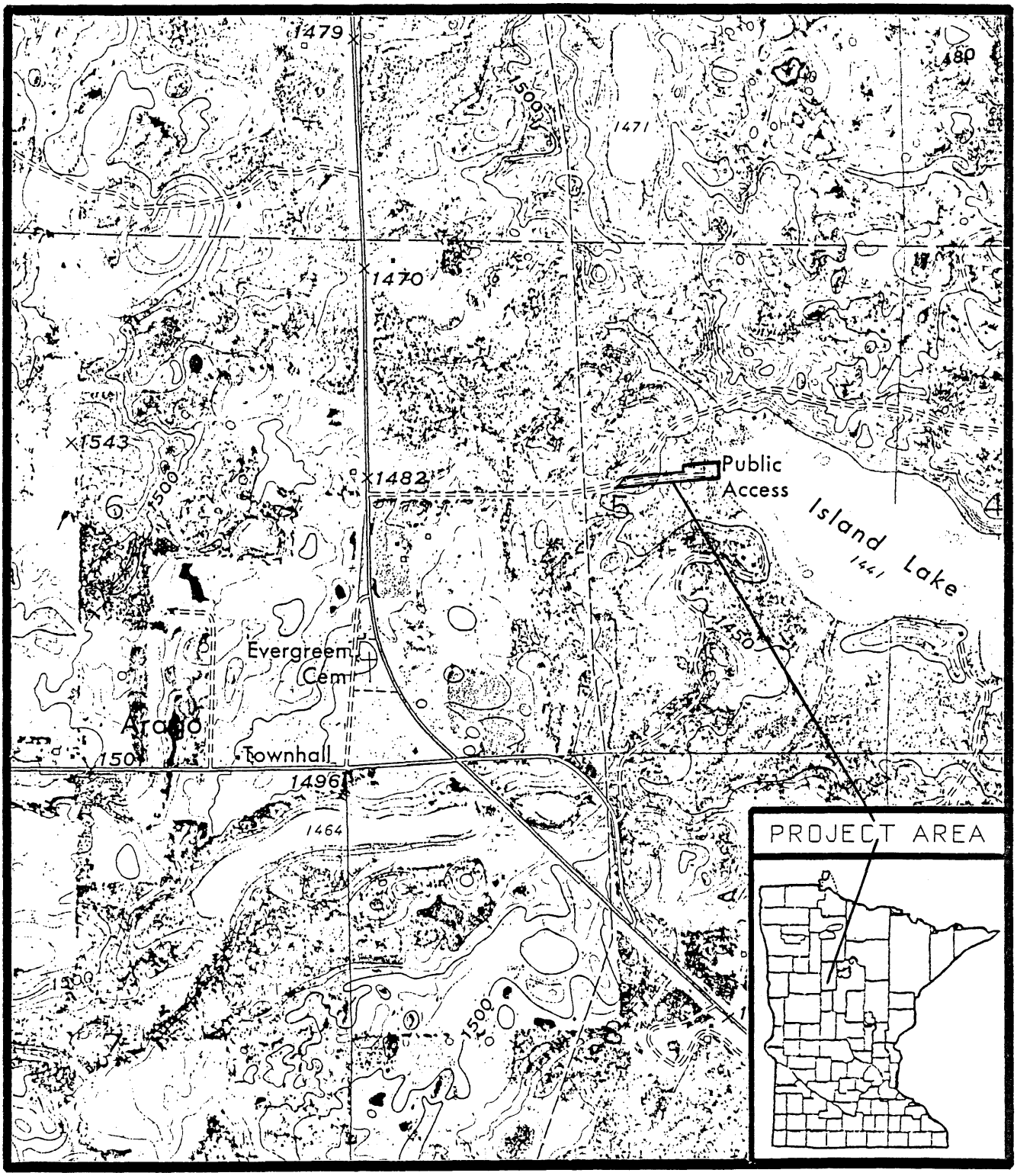
Scope of Project
Rehabilitation and expansion of existing Public Water Access facilities. Construction will include closecutting of vegetation in a wetland to the north of the existing lot and fill placement over filter fabric. The entry road will be widened and filled. At the time of survey, most of the entry road had already been graded to the new width by the township.

Description of Project Area
Existing access facilities consist of a dirt entrance road that branches off of a township road, a grassed parking area and a dirt ramp. The entry road runs down off an old beach ridge into a low-lying area at the lakeshore. Most of this portion of the property is very mucky, with standing water and swamp grass in a strip about 25 m wide at the shoreline.

Records Review
Previous surveys: A review of state survey files indicated that there have been no formal cultural resource surveys in the vicinity of the project area.

Known sites: The only known site near Island Lake is a mound noted by Winchell (1911:357) at the outlet of the lake, about 1-1/2 miles southeast of DNR's property.

Figure 17. Island Lake Project Area



USGS Two Inlets Quadrangle, 1972, 7.5′ series (enlarged 1.42X - 1:17,000)

Field Review
Methods: Surface reconnaissance of open areas along the launching area; shovel tests in the existing lot and proposed expansion area.

Results: An average of 30 cm of fill overlies peat and coarse beach sediments in the existing parking lot and launch area. In the proposed expansion area, soils were intermittent layers of peat, lakebed sediments and coarse outwash sediments. No cultural materials were found on surface or in shovel tests.

Management Recommendations
It appeared that the proposed access rehabilitation would not affect any significant historic or prehistoric resources. It was recommended that construction proceed as planned with no additional review (SHPO Ref. No. EE-722).

Otter Tail County

Lake Marion (21OT97)

Location
Southeastern corner of the lake, adjacent to CSAH #49, about 10 miles south-southwest of Perham, MN (see Figure 18).

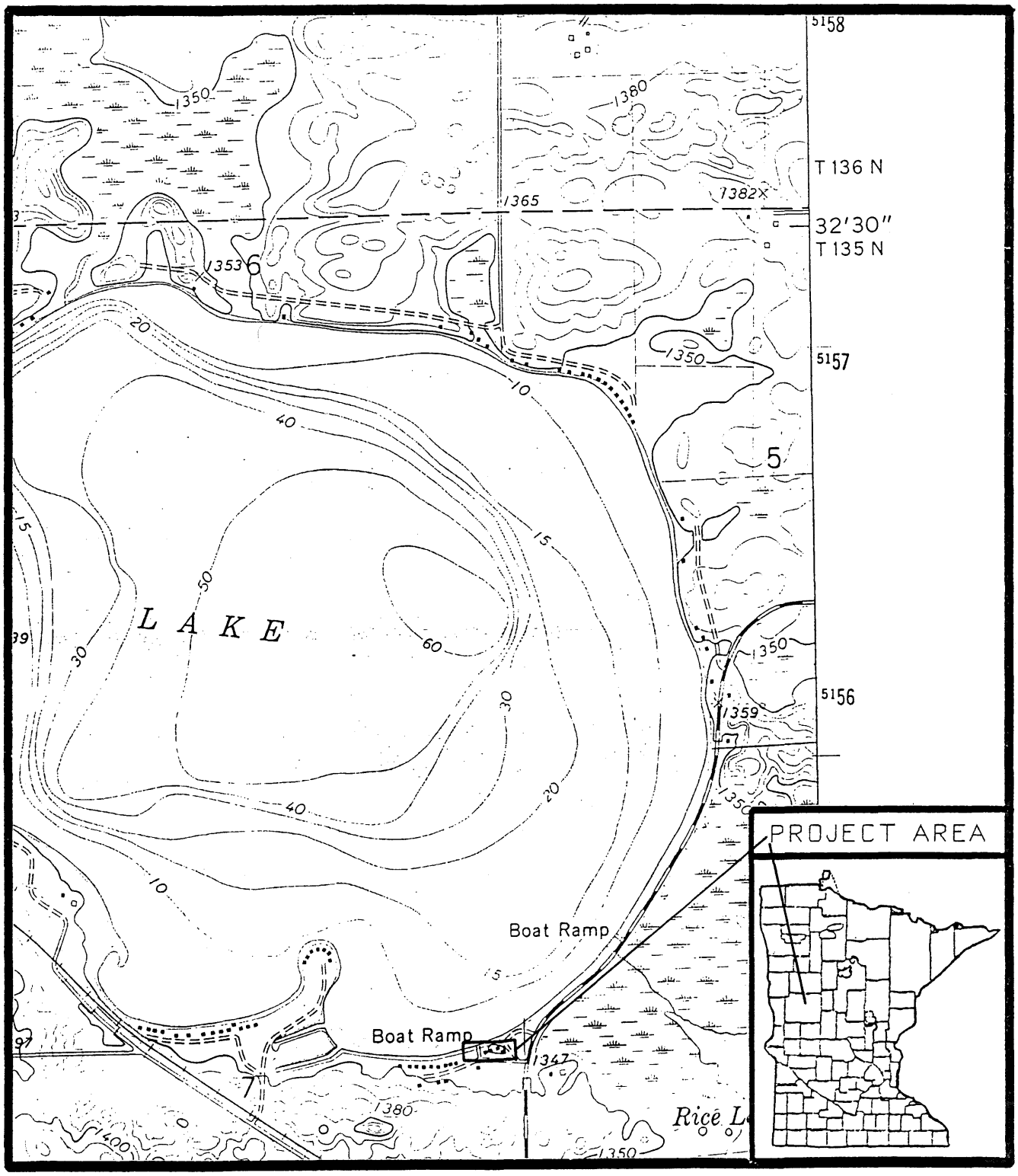
Physiographic Province
Alexandria Moraine Area (Wright, 1972).

Geomorphic Region
Alexandria Moraine Complex on south side of lake; Detroit Lakes Pitted Outwash Plain to north (Minnesota Soil Atlas Project, Brainerd Sheet, 1969).

Scope of Project
Development of a 20-unit parking area and replacement of existing launch facility with new ramp. According to information received from the Project Engineer, design concepts call for excavation of a substantial portion of the property in order to create a parking area. The project is tentatively scheduled for construction in the first half of 1988.

Description of Project Area
The property was formerly Klein's Resort; the land, seven buildings and a boat launching ramp and entry road were purchased by DNR in 1984. The parcel contains two distinct topographic areas. The western half is very level and lies only about 2' above the current lake level, while the eastern part is a southeast-northwest trending hill - possibly an ice-contact feature - the crest of which is approximately 12' above the lake level. Four resort cabins and a bath house were located on this hill. DNR has had all of the buildings demolished (cf. SHPO Ref. No. AA-466). The bath house slab remains in place, as do the well and septic tanks; the concrete block foundations of the cabins have been removed, but their placement is readily identified by vegetative patterns. Although natural drainage has been interrupted by County Road 49, the resort access road and recent residential construction, it appears that, at one time, a substantial part of the terrain surrounding the hill was wetland, only a small portion of which remains to the south of DNR's property.

Figure 18. Lake Marion (21OT97) Project Area



USGS Dent Quadrangle, 1973, 7.5′ series (enlarged 1.42x - 1:17,000)

Records Review
Previous surveys: No evidence was found that any formal cultural resource surveys have been done in the vicinity of Marion Lake.

Known sites: A review of state site files indicated that there are no known historic or prehistoric sites within a 1-mile radius of the project area. The closest recorded sites are on the Otter Tail River and Otter Tail Lake, about 10 miles south of Lake Marion.

Field Review
Methods: A 15-meter grid of shovel tests was dug over the western, low-lying portion of the property, interrupted in some areas by structural remnants and roads. Surface examination of exposures along the lakeshore was also conducted. On the hilltop, exposed ground in the former cabin locations and along roadcuts and eroded sideslopes were visually examined. Because of the small size of the hilltop (c. 30 x 60 m) and the presence of gravel roads and septic systems, it was not feasible to adhere to a strict shovel test interval. Shovel tests were dug on the hilltop in a pattern designed to maximize horizontal coverage.

Results: No cultural materials were found in the lower portion of the property. In this and soils consisted of a uniformly shallow humic horizon (probably fill) over coarse lakebed and beach sediments. A fairly dense scatter of prehistoric lithic artifacts (debitage and tools), along with some mammal bone fragments, was discovered in exposed areas on the hilltop. Additional artifacts were found in the southern face of a road cut that runs along the lakeward sideslope. All but two of the shovel tests on the hilltop also yielded cultural materials (see Figures 19 and 20). Recent debris was found in several of the positive shovel tests, mixed with prehistoric materials to depths of approximately 10 cm. In ST #13, one of the negative tests, soil strata were very mixed and had obviously been disturbed. Based on the relationship between soil strata and artifact distribution, the concentration of ceramic artifacts found in ST #14 appears not to represent primary deposition, but was probably created by earth-moving activities associated with cabin construction.

Management Recommendations
Reconnaissance survey of this project area revealed the presence of a prehistoric habitation area, which can be assigned a temporal designation of Terminal Woodland (Sandy Lake and possible Blackduck components) on the basis of recovered ceramic and lithic artifacts. The cultural deposit appears to be confined to the top of a small hill on the eastern side of the property, and is relatively shallow. Although it obviously has been damaged to an undetermined extent by development of resort facilities in the recent past, there may be areas within the site where the original deposit remains intact and essentially undisturbed. Development of access facilities, as currently proposed by DNR, would undoubtedly destroy at least a portion of the site area.

It was recommended that additional research be conducted in order to more clearly define the nature of this site and provide a basis for evaluation of its current condition and scientific significance. The following items were suggested for inclusion in this next phase of work:

a) definition of the locations of all underground facilities (water lines and septic tanks) in order to calculate the spatial extent of subsurface disturbance;

b) limited additional shovel testing along the southeastern side of the hill,

Figure 19. 21OT97 - Site Area

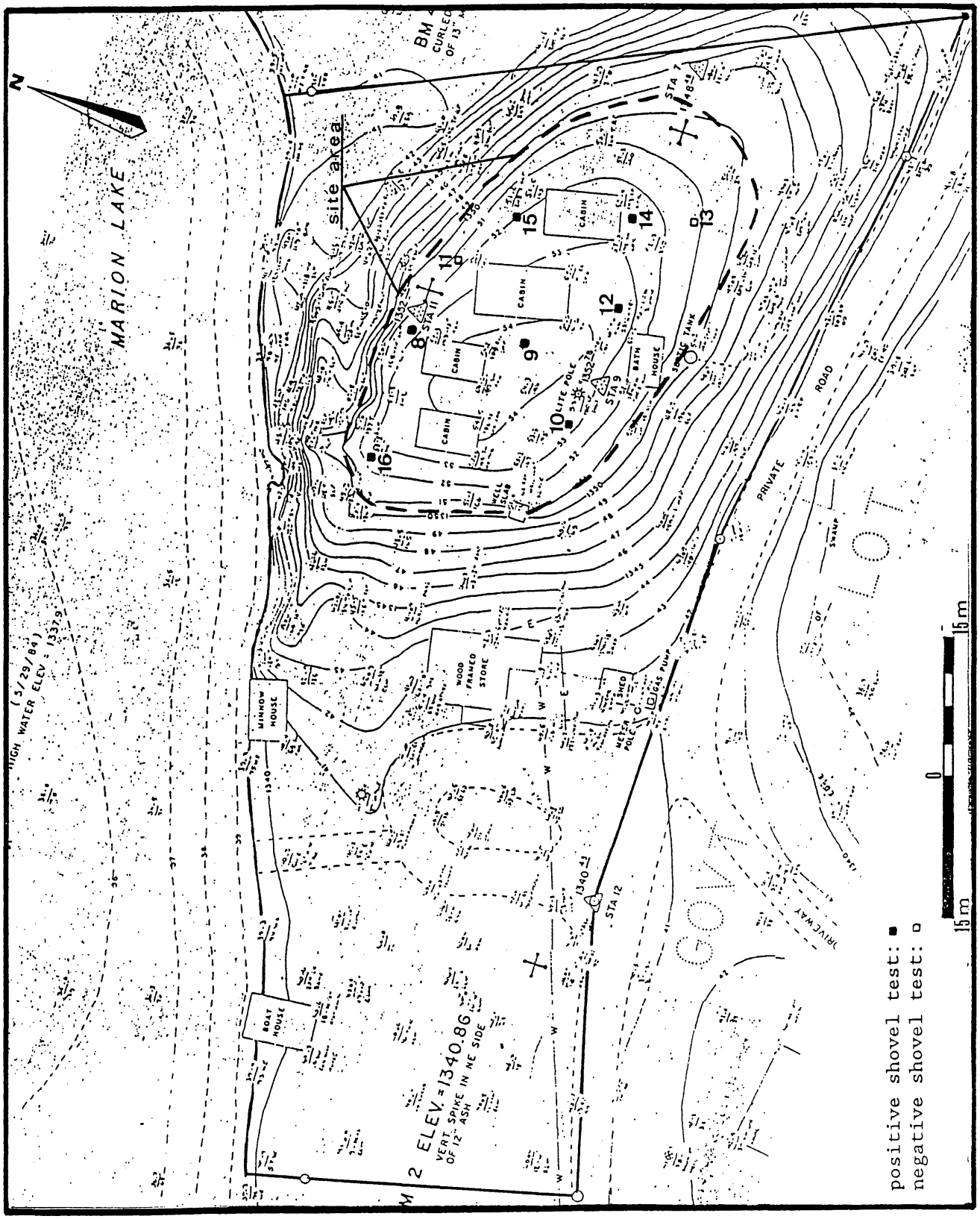


Figure 20. 21OT97 - Artifact Summary

Surface

1 quartz core fragment
2 quartz primary flakes
5 Swan River Chert primary flakes
(1 thermally altered)
3 Swan River Chert secondary flakes
(1 thermally altered)
1 Hudson Bay Lowland Chert secondary flake
2 Tongue River Silica secondary flakes
(1 thermally altered)

Shovel Tests

ST 8, 20-25 cm: 1 quartz secondary flake
1 Swan River Chert secondary flake, thermally altered

ST 9, 5-10 cm: 1 Knife River Flint primary flake

ST 10, 5-10 cm: 1 Swan River Chert projectile point, small side-notch, thermally altered
10-15 cm: 1 Swan River Chert tertiary flake
15-20 cm: 2 quartz primary flakes
1 quartz tertiary flake

ST 12, 0-5 cm: 1 Swan River Chert flake tool, utilized
10-15 cm: 1 chert tertiary flake
4 bone fragments (mammal)
15-20 cm: 1 Swan River Chert tertiary flake
1 bone fragment (mammal)

ST 14, 5-10 cm: 1 glass fragment, clear
5 whitewear fragments
1 Knife River Flint projectile point, small side-notch
3 sand body sherds, smooth
20 shell body sherds, cr
10 bone fragments
ceramic crumbs
10-15 cm: 3 Swan River Chert primary flakes, thermally altered
1 siltstone secondary flake
1 Knife River Flint tertiary flake, utilized
1 sand rim sherd, smooth, straight
2 sand body sherds, smooth
5 sand body sherds, exfoliated
13 shell body sherds, cr
4 bone fragments, burned (mammal)
ceramic crumbs
charcoal fragments

ST 14, 15-20 cm: 1 Hudson Bay Lowland Chert secondary flake, retouched, utilized
1 Swan River Chert secondary flake
1 Gunflint Silica tertiary flake
4 shell body sherds, cr
2 bone fragments
ceramic crumbs
20-25 cm: 1 Swan River Chert primary flake, thermally altered, utilized
1 Gunflint Silica secondary flake
4 shell body sherds, cr
25-30 cm: 1 Swan River Chert shatter
1 Swan River chert primary flake
1 shell body sherd, cr

ST 15, 5-10 cm: 1 Hudson Bay Lowland Chert primary flake, utilized
1 Hudson Bay Lowland Chert tertiary flake
1 shell body sherd, indistinct
2 bone fragments
10-15 cm: 1 Tongue River Silica tertiary flake
1 Swan River Chert tertiary flake

ST 16, 15-20 cm: 2 quartz secondary flakes
1 quartzite secondary flake

to more clearly define the site boundary in that direction;

c) intensive, controlled surface reconnaissance of the hilltop and sideslopes early in the year, before vegetation obscures surface visibility;

d) excavation of no less than 6 square meters in blocks dispersed over the hilltop, placed so as to avoid areas known to be disturbed by water lines, etc.;

e) discussion of construction design alternatives with DNR Engineering personnel. Preliminary conversations with DNR staff suggest that there are no feasible design alternatives that would completely avoid the site area and still provide an appropriate facility. Discussion will therefore focus on strategies for mitigating as much of the potential impact as possible.

This research will be conducted before DNR proceeds with scheduling of formal project design and construction. The results of the work should provide sufficient data to determine the extent to which the cultural deposit has already been disturbed, assess the site's research potential and evaluate its eligibility for nomination to the NRHP. DNR will be kept informed of the status of research as it is conducted, so that all alternative strategies for acceptable facility development can be given consideration.

Pope County

Leven Lake

Location

East shore of the lake, about 1 mile north of Villard, MN (see Figure 21).

Physiographic Province

Wadena Drumlin Area (Wright, 1972).

Geomorphic Region

Osakis Till Plain east of lake; Belgrade-Glenwood Outwash Plain west of lake (Minnesota Soil Atlas Project, St. Cloud Sheet, 1979).

Scope of Project

Development of new Public Water Access facilities. Construction plans include a 12-unit parking area, new entry drive and concrete plank ramp. The work will involve leveling of part of the ridge near the lakeshore; fill from this area will be placed in the parking lot at the eastern side of the property.

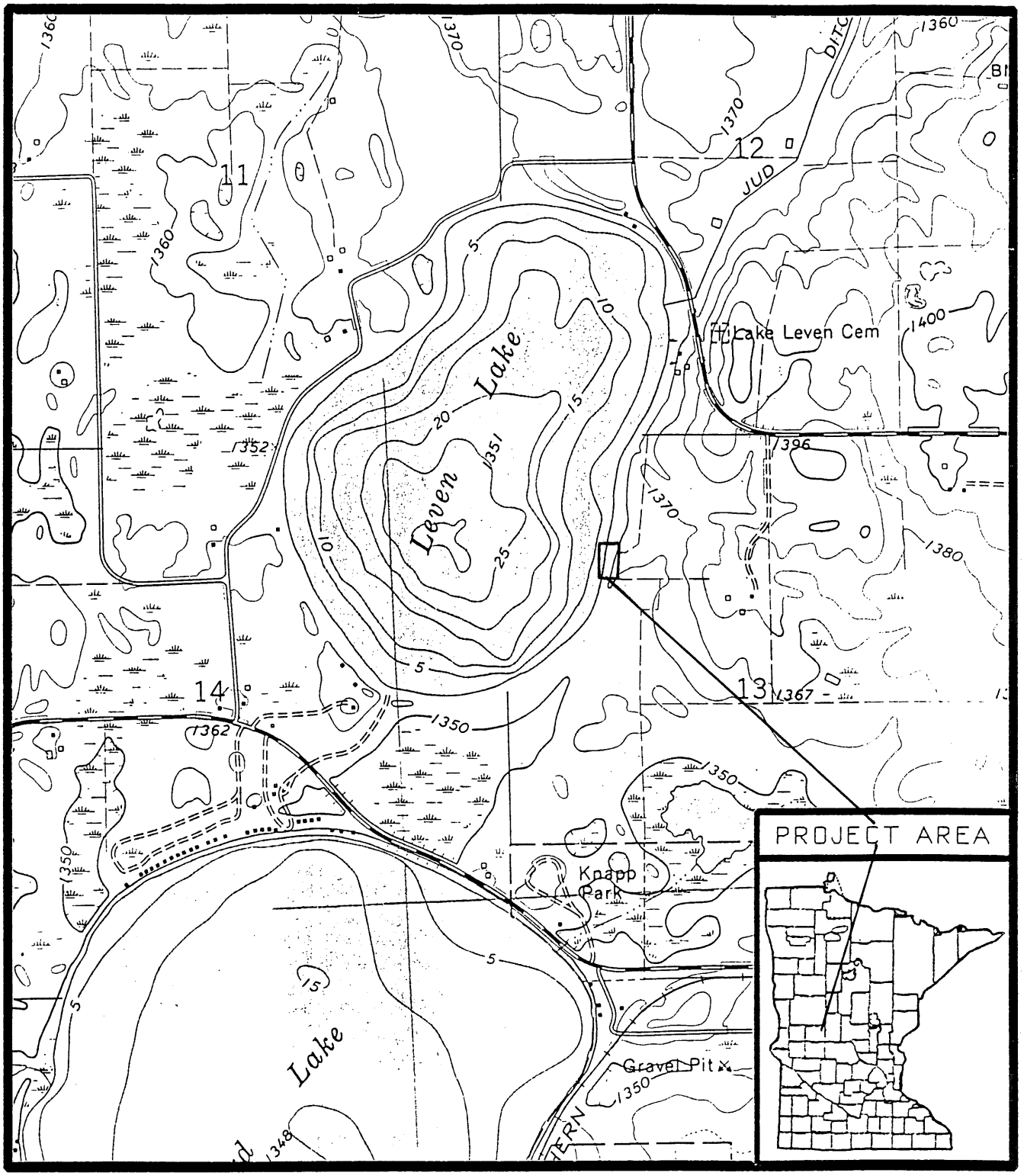
Description of Project Area

Former agricultural land (pasture), within a recently platted subdivision. Lots to the north are being developed as private residences; the land to the south and east is still in pasture. At the time of survey, most of the project area was covered with thick vegetation (grasses). The northwestern part of the property is wooded and there are scattered hardwoods along the lakeshore. A prominent ice ridge or old beachline is situated about 12 feet above the current lake level. From there, the parcel slopes gradually down towards the township road that forms the eastern property line.

Records Review

Previous surveys: No evidence was found that there have been any formal cultural

Figure 21. Leven Lake Project Area



USGS Villard Quadrangle, 1968, 7.5′ series (enlarged 1.42X - 1:17,000)

resource surveys in the area.

Known sites: A review of state site files indicated that there are four known prehistoric sites in the vicinity of the project area. 21PO10 and 21PO12 are small mound groups on the west side of Villard Lake, about 1.5 miles south-southwest of DNR's property; 21PO10 is described in Winchell (1911:299) and 21PO12 is noted in a Wilford memo on Pope County (Wilford, 6/1/40). Two other sites that have never been formally recorded are described by Wilford in the same memo: a mound group located on what was the south shore of Rice Lake prior to agricultural drainage of that basin, and a habitation area located about 1.5 miles northeast of the project area, on the north shore of Ellen Lake.

Field Review
Methods: Surface reconnaissance of open areas along shoreline and western side of ridge; shovel testing in 15-meter grid over construction area.

Results: Most of the project area had no surface visibility due to heavy vegetation, but there was moderate to good visibility on the lakeward side of the ridge and along the sandy beach. Soils in shovel tests were very sandy silt and clay loams over sandy clay and coarse outwash materials, and showed a consistent profile throughout the project area. In the lower-lying portions of the property, close to the access road, soils were saturated below about 40 cm. No cultural materials were found on surface or in shovel tests.

Management Recommendations
The results of reconnaissance survey indicated that the proposed project would not affect any significant prehistoric or historic resources. It was recommended that work proceed with no additional review (SHPO Ref. No. EE-357).

REGION II - NORTHEAST

Aitkin County

Esquagamah Lake

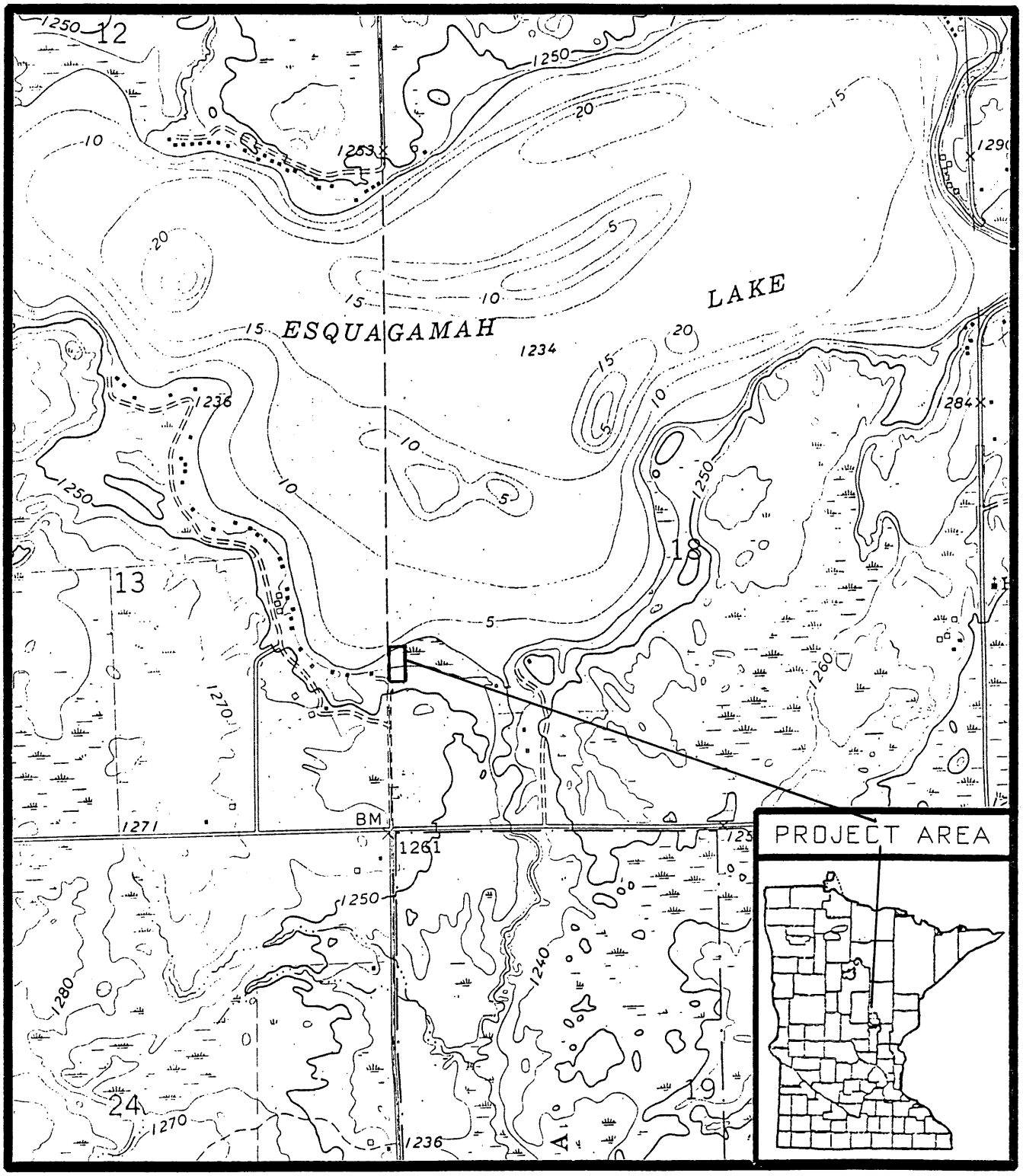
Location
South shore of the lake, just off County Road #3, about 15 miles north of Aitkin, MN (see Figure 22).

Physiographic Province
Sugar Hills-Mille Lacs Moraine Area (Wright, 1972).

Geomorphic Region
Swatara Plain (Minnesota Soil Atlas Project, Duluth Sheet, 1977).

Scope of Project
Construction of a 20-unit parking lot on the higher portion of the property with a blacktop access road and concrete plank ramp on the lower part. The parking lot will be built at or just above existing grade. Work in the lower-lying part of the

Figure 22. Esquagamah Lake Project Area



USGS Esquagamah Lake Quadrangle, 1973, 7.5′ series (enlarged 1.42x - 1:17,000)

property will involve placement of fill over filter fabric. An existing township road will be used for access to the parking area.

Description of Project Area
The property, recently purchased by DNR, is undeveloped forest - mainly spruce, with a few hardwoods and a thin understory. It is about 1/4 mile west of the lake outlet. The northern (lakeward) portion of the property is very low and swampy; it rises to the south up to a fairly level bench about 13 feet above the current lake elevation.

Records Review
Previous surveys: No formal cultural resource surveys are known to have taken place in the area.

Known sites: A review of state site files indicated that there are no recorded prehistoric or historic sites in the vicinity of the project area.

Field Review
Methods: Most of the lower-lying part of the property was not accessible for survey due to large areas of standing water dammed behind a narrow, two- to three-foot-high ice ridge at the lakeshore. A line of shovel tests was done along the ice ridge and in a few dry areas at the edges of the water, and surface exposures on the ice ridge were visually examined. A grid of shovel tests was dug over the upper portion of the proposed construction area. There was very little surface exposure in this area due to a thick duff layer.

Results: On the upland, soils were very sandy loams over sand and till. The same types of materials were found on the ice ridge; the swampy area appeared to be mostly peat. No cultural materials were found anywhere on the property.

Management Recommendations
It appeared that the proposed construction would not affect any significant prehistoric or historic resources. It was recommended that work proceed with no additional review (SHPO Ref. No. 88-0906).

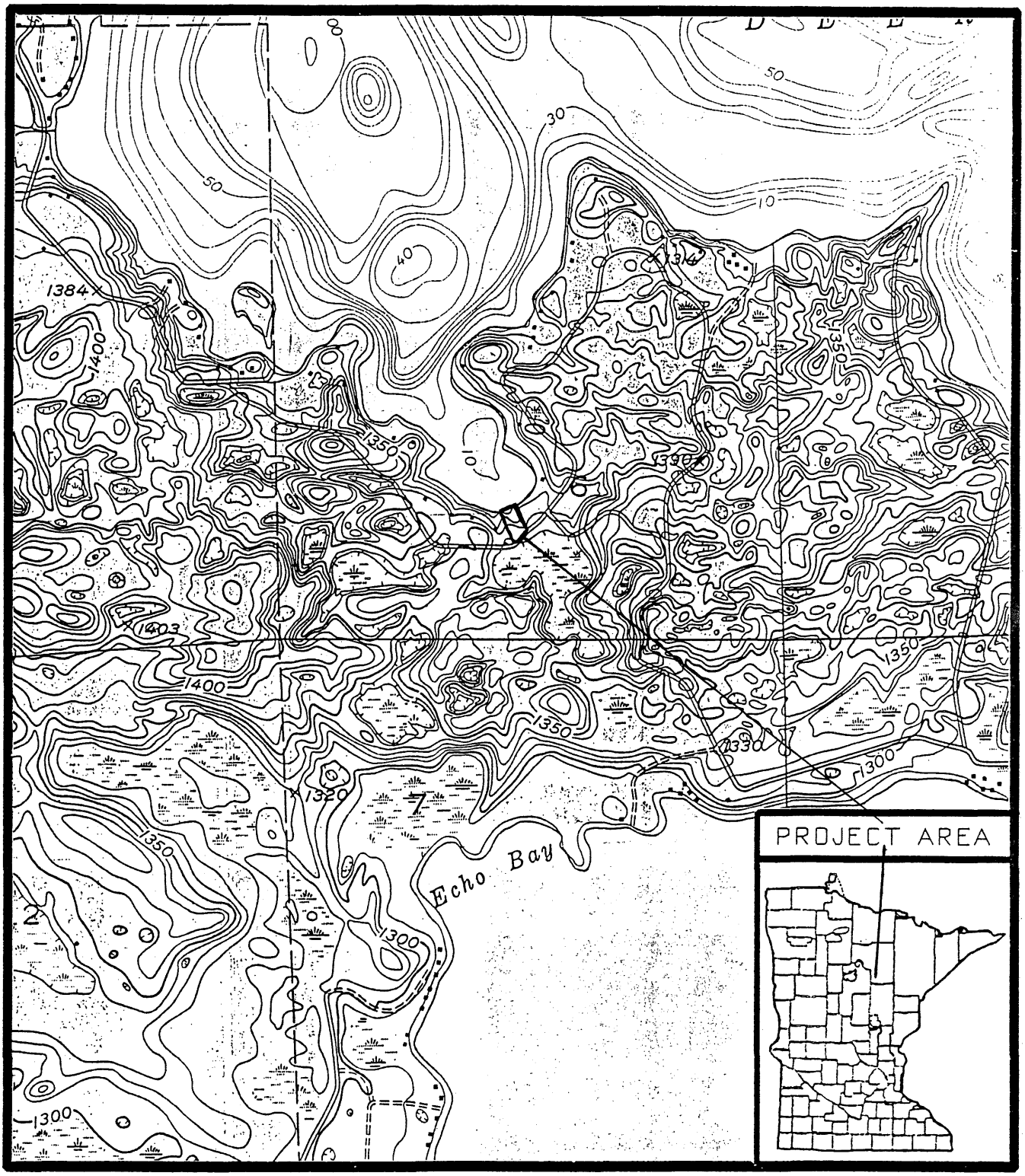
Itasca County

Deer Lake
Location
South shore of the lake, adjacent to Robinson Road, about 12 miles northwest of Grand Rapids, MN (see Figure 23).

Physiographic Province
Chisholm-Embarrass Area (Wright, 1972).

Geomorphic Region
Nashwauk-Warba Moraine; Marcell Moraine Complex adjoins to north (Minnesota Soil Atlas Project, Hibbing Sheet, 1971).

Figure 23. Deer Lake Project Area



USGS Cohasset West Quadrangle, 1953, 7.5′ series (enlarged 1.42X - 1:17,000)

Scope of Project
Rehabilitation/expansion of existing Public Water Access facilities. The present grass parking area will be expanded and graveled; additional parking will be provided on the eastern side of the access, and a new ramp will be installed. The work will involve clearing and filling along the eastern side of the property.

Description of Project Area
The project area is an existing Public Water Access. It consists of a small gravel turnaround loop and parking area, with additional parking space on a grassed area adjacent to the road right-of-way. The remainder of DNR's property is wooded between the lake and the township road ditch.

Records Review
Previous surveys: A review of state survey files indicated that there have been no formal cultural resource surveys within a 1-mile radius of the project area. The closest survey area are Chippewa National Forest lands about 6 miles north of Deer Lake.

Known sites: No sites have been recorded in the vicinity of Deer Lake; the closest known sites are on the shores of Lake Pokegama, about 10 miles to the southeast.

Field Review
Methods: Surface reconnaissance of open areas along shoreline slope; shovel tests in existing parking lot and expansion area.

Results: The existing lot is covered with up to 20 cm of granular fill and gravel. Below this, it appears that part of the original A horizon was graded off prior to filling. Soils were silty and sandy loams over coarse outwash sediments. Some intermittent strata of fine sandy clays that appear to be old lakebed sediments were seen in shovel tests close to the present shoreline. No cultural materials were found on surface or in shovel tests.

Management Recommendations
The results of reconnaissance survey indicated that the proposed access development would not affect any significant historic or prehistoric resources. It was recommended that construction proceed as planned with no additional review (SHPO Ref. No. EE-642).

Johnson Lake

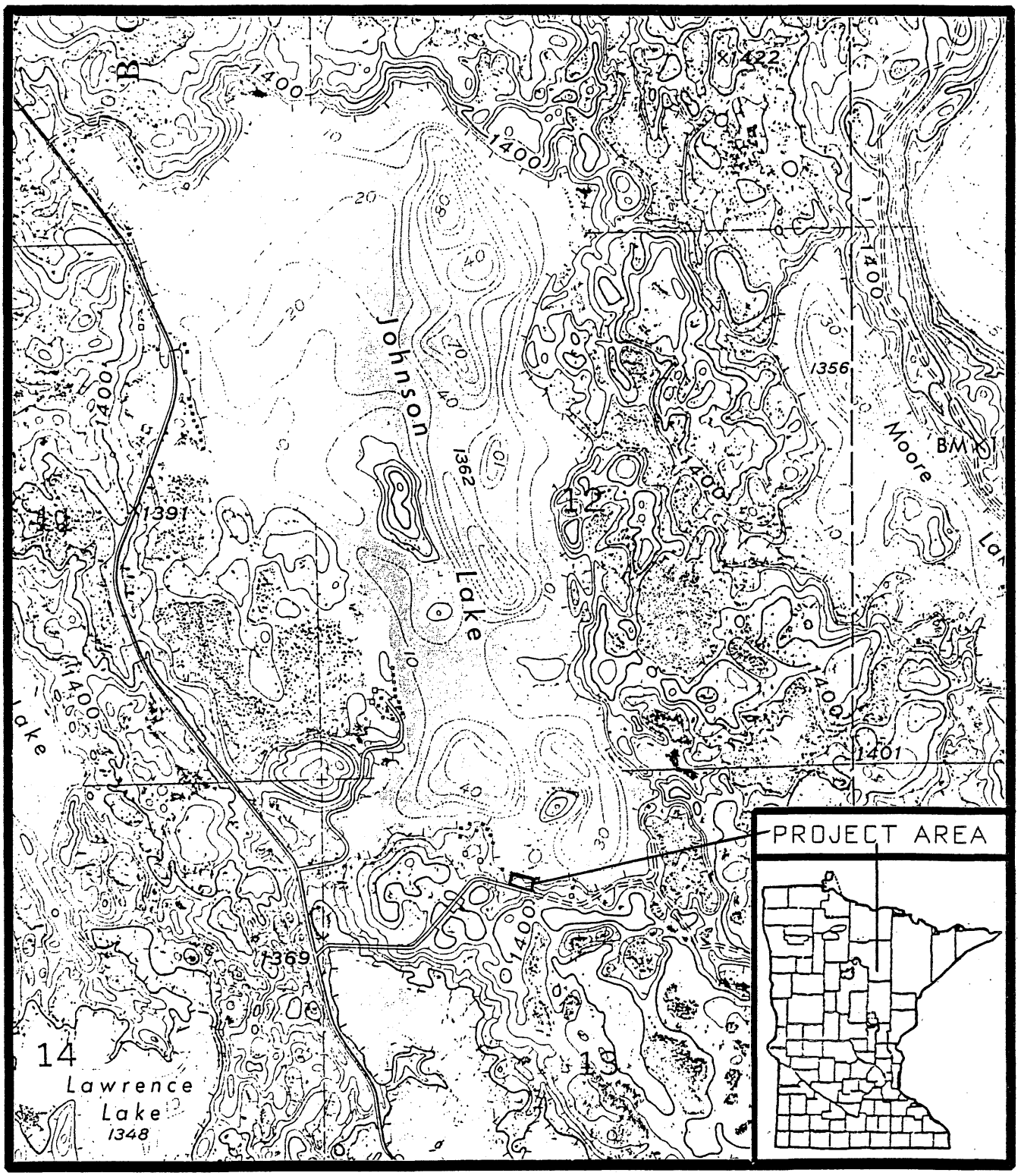
Location
South shore of the lake, just off TH #38, about 14 miles north of Grand Rapids, MN (see Figure 24).

Physiographic Province
Chisholm-Embarrass Area (Wright, 1972).

Geomorphic Region
Nashwauk-Warba Moraine (Minnesota Soil Atlas Project, Hibbing Sheet, 1971).

Scope of Project
Development of a new Public Water Access. No detailed construction plans are yet available, but information obtained from Regional staff indicates that facilities

Figure 24. Johnson Lake Project Area



USGS Wabana Lake Quadrangle, 1970, 7.5′ series (enlarged 1.42X - 1:17,000)

will include parking for 8 to 12 cars, a short gravel entry road and a single concrete launch ramp. The work will include some recontouring of existing elevations.

Description of Project Area
The project area is one lot in a residential subdivision, most of which has been developed. Prior to purchase by DNR, a summer cabin and outbuildings were present on the property. The only structure still standing is a small outhouse, but remnants of concrete block and slab foundations and a stone chimney are still visible. Areas adjacent to the structures have been cleared, and the remainder of the property is pine forest. The southern half has a steep slope from the adjacent township road grade down to a narrow, level bench about 5' above the current lake level. The western property line borders a small, intermittent stream channel.

Records Review
Previous surveys: No evidence was found that there have been any formal cultural resource surveys within 1 mile of Johnson Lake.

Known sites: A review of state site files indicated that there are no known historic or prehistoric sites in the vicinity of the project area. The closest recorded sites are on Wabana and Little Trout Lakes, 2 miles or more to the east (Chippewa National Forest 1985).

Field Review
Methods: Surface examination of open areas along the shoreline and existing entry road; shovel testing of the remainder of the property, except on the steeper slopes close to the township road.

Results: Soils were uniformly medium-grained to coarse sandy loams over dense sandy clay. Evidence of mixing of soil strata, probably due to cabin and road construction, was encountered in several shovel tests. Soils appeared to be mostly undisturbed along the western edge of the property, just above the stream channel. Except for recent debris associated with the structural remnants, no cultural materials were found anywhere on the property.

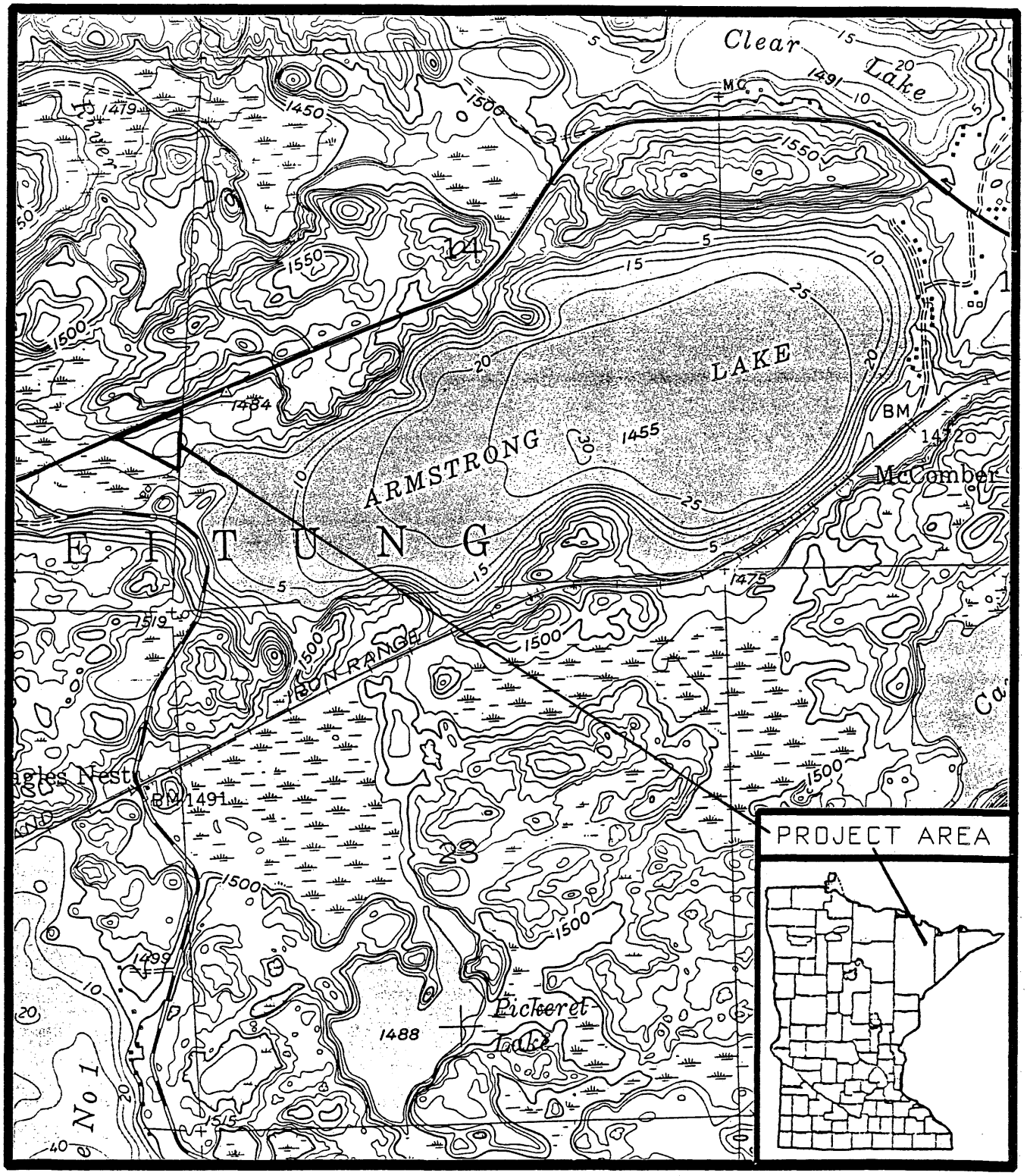
Management Recommendations
The structural remnants on the property did not appear to be of any architectural or historic significance. No other evidence of historic or prehistoric resources was found anywhere in the project area. It was recommended that the project proceed as planned with no additional review (SHPO Ref. No. pending).

St. Louis County

Armstrong Lake
Location
Northwestern corner of the lake, adjacent to TH #169, about 10 miles northeast of Tower, MN (see Figure 25).

Physiographic Province
Border Lakes Area (Wright, 1972).

Figure 25. Armstrong Lake Project Area



USGS Eagles Nest Quadrangle, 1956, 7.5′ series (enlarged 1.42X - 1:17,000)

Geomorphic Region
Tower-Ely Glacial Drift & Bedrock Complex (Minnesota Soil Atlas Project, Hibbing Sheet, 1971).

Scope of Project
DNR is negotiating a long-term lease agreement with St. Louis County for development of a new Public Water Access on this property. Facilities to be constructed will include approximately 200 meters of entrance road, a 10-unit parking area and a concrete plank ramp. The new road will be built on several feet of fill; the parking area is to be located in a higher area, and may require removal of some bedrock. Clearing will be restricted to the construction area. The new road alignment and ramp location had been staked by the Project Engineer prior to the time of survey.

Description of Project Area
The property lies just east of the point at which the Armstrong River enters the lake. The entire parcel is forested. The western portion, which is very swampy, is predominantly tamarack and black spruce; the eastern part, which is at a slightly higher elevation, is mainly white pine. An old raised roadbed runs roughly north-south through the parcel on the eastern side.

Records Review
Previous surveys: Several surveys have been done along TH #169 in the past (Peterson & Pfutzenreuter 1979: 39,51; Peterson & Yourd 1983: 62) but the closest survey area is about 10 miles southwest of Armstrong Lake. Some areas within Bear Head Lake State Park, about 3 miles south, have also been surveyed, with negative results. There is no record of any other cultural resource surveys in the vicinity.

Known sites: There are no recorded historic or prehistoric resources within a 1-mile radius of the project area.

Field Review
Methods: Shovel testing along road alignment and in proposed parking area.

Results: Along the road alignment, up to 30 cm of very mucky silt loam or peat overlays bedrock and boulder-sized drift; in the parking lot area, bedrock and glacial erratics are exposed at surface in many locations. Some very shallow soils were found in a few spots between bedrock exposures. No cultural materials were found in any shovel test.

Management Recommendations
It appeared that the proposed project would not affect any significant historic or prehistoric resources. It was recommended that the project proceed with no additional review (SHPO Ref. No. EE-643).

REGION III - CENTRAL

Cass County

Long/Pickeral Lake

Location
Eastern shore of the lake, adjacent to Twp. Road #119, about 4 miles northwest of Pontoria, MN (see Figure 26).

Physiographic Province
Brainerd-Automba Drumlin Area; Western St. Croix Moraine adjoins to west (Wright, 1972).

Geomorphic Region
Stewart Lake Till Plain (Minnesota Soil Atlas Project, Brainerd Sheet, 1969).

Scope of Project
Development of new Public Water Access facilities. An 8-unit parking area and concrete plank ramp will be built on a low terrace next to the lakeshore. A gravel entry road will be constructed to connect the parking area with the township road on the eastern border of the property.

Description of Project Area
The project area is a narrow rectangular strip of land between the township road on the east and the lake on the west. From the road right-of-way to the west, the property cuts across a narrow upland ridge, then descends a steep slope to a small bench just above the lakeshore. An old road cut runs diagonally through the property, which is entirely wooded. To the north and south are private residences.

Records Review
Previous surveys: No indication was found that there have been any formal cultural resource surveys in the vicinity of the project area.

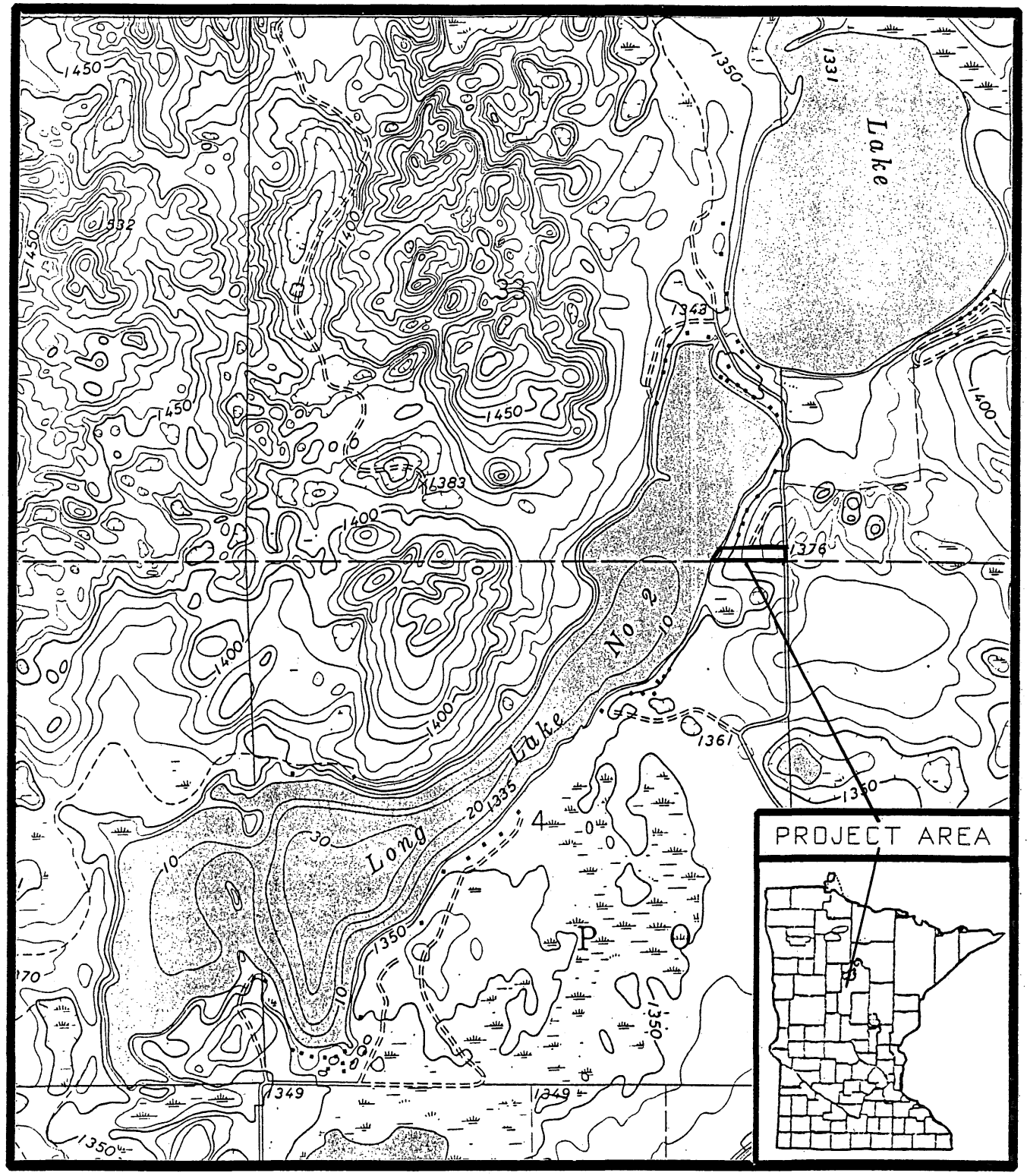
Known sites: A review of state site files indicated that there are no recorded historic or prehistoric sites within a 1-mile radius of the project area.

Field Review
Methods: Surface reconnaissance along shoreline and sides of existing road cut (maximum height 1 m); shovel tests along new road corridor and in proposed parking area.

Results: Soils were uniform very sandy loams and sandy clay loams over sand and coarse till and outwash materials in the upland area, and silty clays close to the lakeshore. No cultural materials were found on surface or in shovel tests.

Management Recommendations
It appeared that the proposed project would not affect any significant prehistoric or historic resources. It was recommended that work proceed with no additional review (SHPO Ref. No. EE-354).

Figure 26. Long/Pickeral Project Area



USGS Woman Lake Quadrangle, 1970, 7.5′ series (enlarged 1.42X - 1:17,000)

Wadena County

Stocking Lake

Location
Eastern shore of the lake, just off County Road 17, about 2 miles east of Menahga, MN (see Figure 27).

Physiographic Province
Alexandria Moraine Area (Wright 1972)

Geomorphic Region
Park Rapids-Staples Outwash Plain (Minnesota Soil Atlas Project, Bemidji Sheet, 1980).

Scope of Project
Development of new Public Water Access facilities. DNR plans to construct a 15-unit parking area and concrete launch ramp. Because the property is quite level, it is anticipated that most of the work will be done at grade. The major items of construction will be a cut at the shoreline for ramp installation, and filling of an old cabin foundation. An existing dirt road will be widened and used as the entry road to the access.

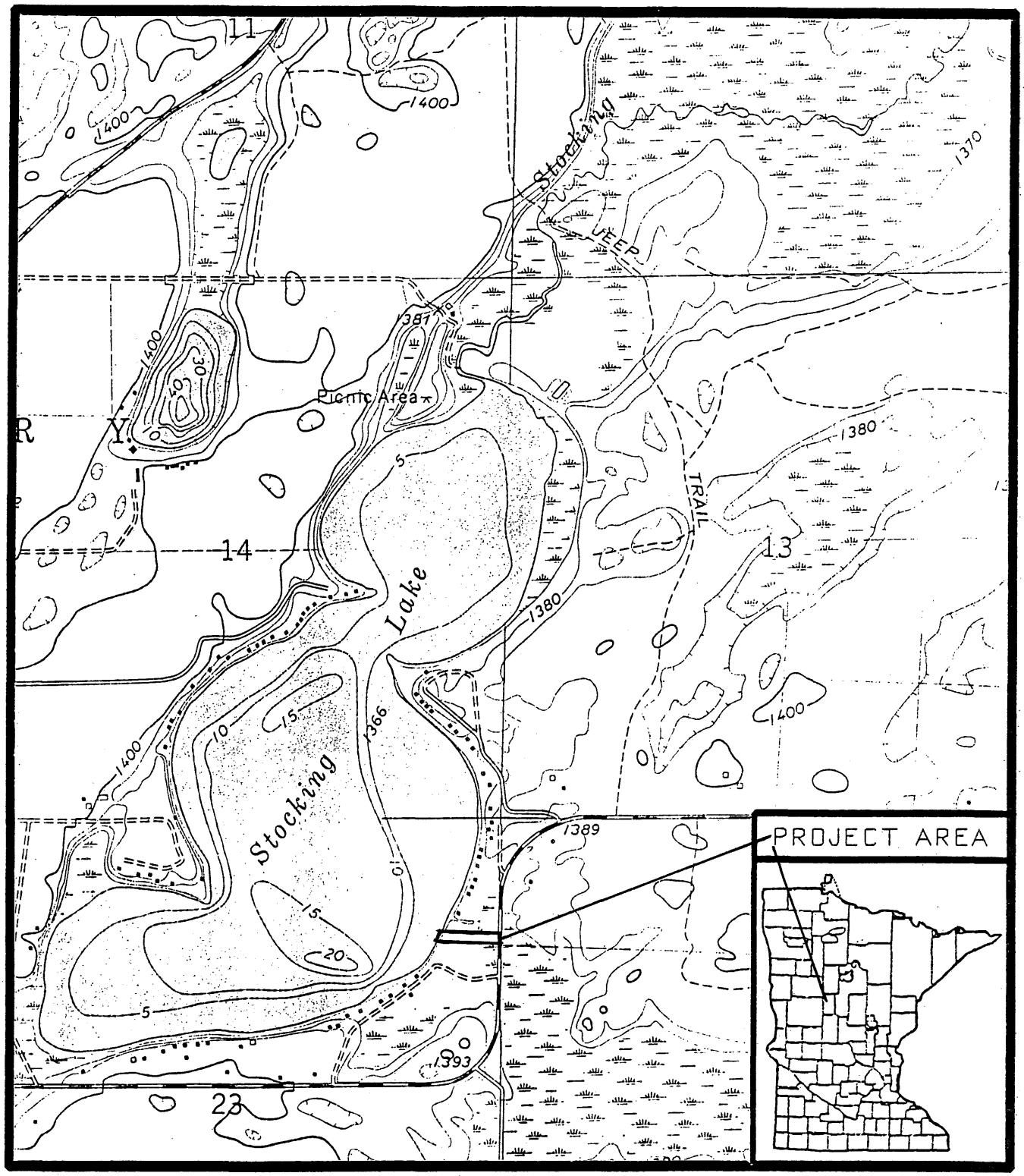
Description of Project Area
Level bench about four feet above the normal lake level. The eastern two-thirds of the project area is pine forest; the shoreline area has been partially cleared for construction of a summer cabin. The concrete block foundation of the cabin and a small wooden outbuilding are all that remain of previous improvements to the property. A dirt road connects the cabin with the county road to the east; the easternmost part of this road is built on fill over a lowland area that is somewhat swampy.

Records Review
Previous surveys: The only formal cultural resource survey in the vicinity of DNR's property was the MnSAS Wadena County Survey, conducted in 1978. This work included field-checking of several previously recorded sites on or close to Stocking Lake.

Known sites: There are several recorded prehistoric sites near this project area: 21WD3, located at the north end of Stocking Lake, was initially recorded by Wilford (8/17/45) as a single mound. A MnSAS crew visited the site area in 1978; they did not relocate the mound, but did observe habitation material in the same area. 21WD4, noted by Wilford in the same memo, is a habitation area located close to the outlet of Stocking Lake. The best known site in the vicinity is 21WD6, the Blueberry Lake Village site, at the east end of Blueberry Lake about 5 miles north-northwest of DNR's property. This site was determined eligible for the National Register in 1973, but has been extensively disturbed by the county road that cuts across it and construction of Public Water Access facilities on the east side of the lake outlet.

Field Review
Methods: Surface reconnaissance along cutbank at shoreline and in other open areas; shovel tests along road expansion alignment and in proposed parking lot area.

Figure 27. Stocking Lake Project Area



USGS Menahga Quadrangle, 1969, 7.5′ series (enlarged 1.42X - 1:17,000)

Results: Soils observed in shovel tests were fairly uniform fine yellowish-red loamy sands over clean, well-sorted sand. Disturbance in the form of rodent burrows and root molds was readily identifiable and rather common. The cutbank, which was about 1 m high, exhibited a consistent soil profile along the entire length of the property frontage. Except for recent debris associated with the cabin and outbuilding, no cultural materials were found anywhere on the property.

Management Recommendations
It appeared that development of Public Water Access facilities on this property would not affect any significant historic or prehistoric cultural resources. A recommendation was made that the proposed work proceed with no additional review (SHPO Ref. No. pending).

REGION IV - SOUTHWEST

Blue Earth County

Loon Lake (21BE71)

Location
South shore of the lake, adjacent to CSAH #9, about 2 miles west of Lake Crystal, MN (see Figure 28).

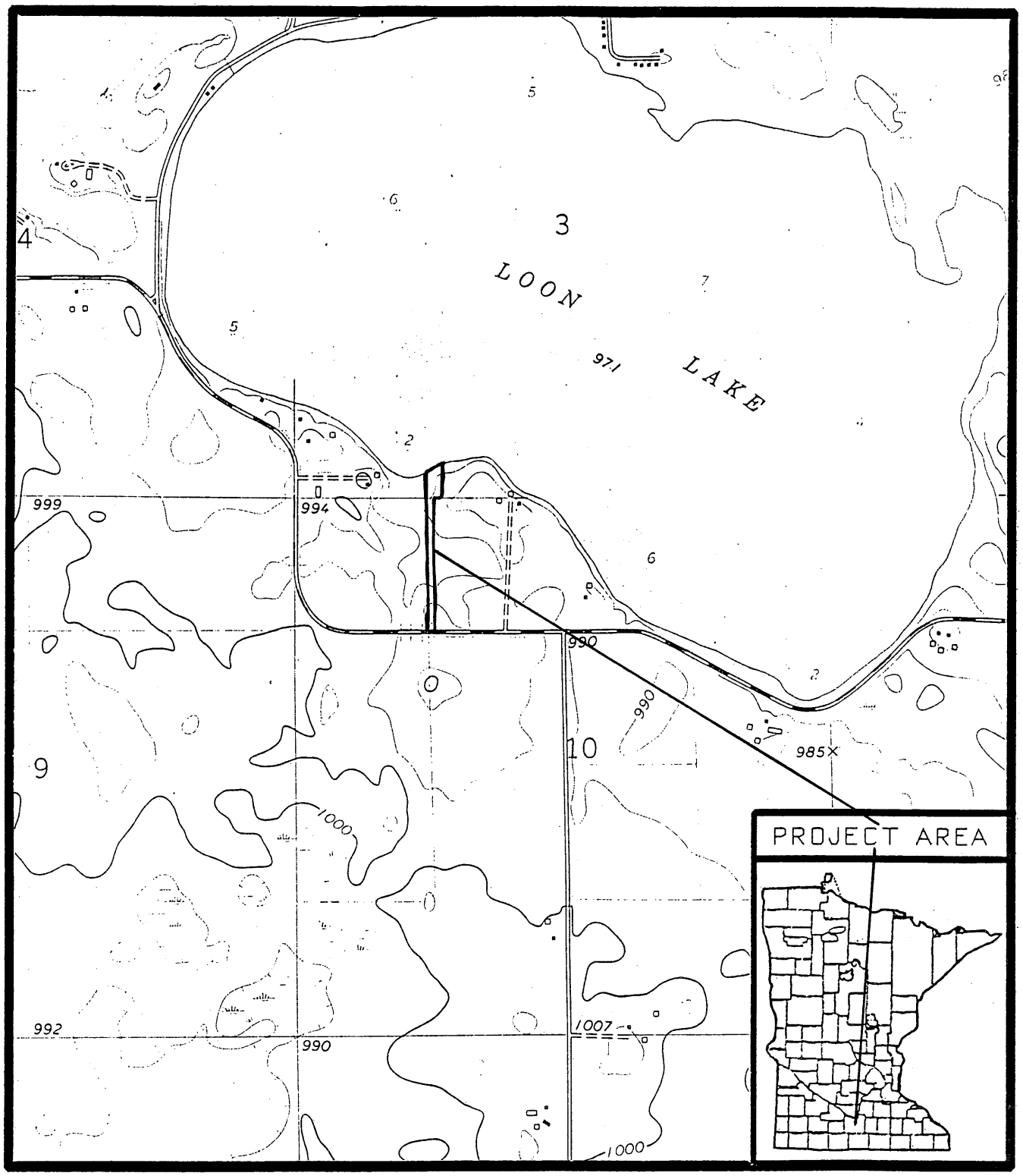
Physiographic Province
Blue Earth Till Plain (Wright, 1972).

Geomorphic Region
Blue Earth Till Plain; Minnesota Valley Outwash to south (Minnesota Soil Atlas Project, New Ulm Sheet, 1981).

Scope of Project
Construction of new Public Access facilities. Design elements will include about 400 meters of new entry road connecting the access area to County Road 9; a 15 to 20-unit parking area and double concrete plank ramps. Due to a steep slope, construction will include recontouring of a portion of the eastern half of the property.

Description of Project Area
The property purchased by DNR includes a rectangular parcel at the lakeshore that was formerly pasture and a narrow strip for a new road that runs along the edge of a cultivated field. The lakeshore parcel includes a level upland area along the eastern property line that sits about 12' above the current lake level. From that point, it slopes down into what appears to have previously been a small bay or drainage channel. The western property line is just beyond this channel. Most of the property is covered with tall grass, although there are some large standing hardwoods. The presence of scattered historic debris - metal scraps and machinery - indicates that this area was probably associated with the adjacent farmstead.

Figure 28. Loon Lake (21BE71) Project Area



USGS Lake Crystal Quadrangle, 1974, 7.5′ series (enlarged 1.42X - 1:17,000)

Records Review

Previous surveys: The only formal cultural resource research in the vicinity of Loon Lake was the MnSAS Blue Earth County survey conducted in 1979. The closest survey units examined by MnSAS crew are 2 to 4 miles from Loon Lake.

Known sites: There is only one recorded site within 1 mile of the project area: 21BE11, a multi-component prehistoric habitation site on the north shore of Lake Crystal, about 1-1/2 miles northwest of DNR's property. This site was noted in Winchell (1911:100) and later visited by Wilford (Memos 5/20/41; 5/16/56), but has never been formally tested. Two other prehistoric sites, 21BE52 and 21BE58, are located close to the Blue Earth River, 2 miles or more to the east of Loon Lake.

Field Review

Methods: Shovel test grid over entire lakeshore parcel except sideslope of drainage channel; surface reconnaissance along top of cutbank at lakeshore and along entire road alignment. This corridor is entirely within a cultivated field; at the time of survey, the entire road alignment was planted in beans. It was walked in 5-meter transects on four occasions, two of which were immediately after fairly heavy rains.

Results: No cultural materials were found along the new road alignment, although surface visibility was very good in most portions of the field. Large quantities of glacial drift were visible on the surface, and it was evident that cultivation had extended into the subsoil. No shovel tests were dug along this corridor, since conditions were such that any cultural deposit present in this area would have been identifiable from surface manifestations.

Shovel tests in the northeastern portion of the proposed parking area yielded a small assemblage of lithic waste flakes at depths ranging from 10 to 40 cm below the surface (see Figures 29 and 30). Distribution of artifacts was discontinuous in both vertical and horizontal dimensions. Some evidence of disturbance was noted, mainly in the form of rodent burrows and root molds, which may have caused some of the inconsistency in vertical distribution of artifacts. ST #3 and ST #7 were both on moderate slopes; downslope movement may account for some of the artifacts recovered from those tests. All of the recovered materials are small flakes produced during later stages of the core reduction process. Most of the assemblage is oolitic chert from the Prairie du Chien Formation, which is exposed in several locations along the Minnesota River Valley. All of this material exhibited evidence of thermal alteration.

DNR personnel were notified of the presence of this site, which has been designated 21BE71. An on-site meeting was held with the Regional Trails & Waterways Coordinator, who indicated that it might be possible to avoid any impact to the site area during construction of the desired access facilities. The Program Archaeologist provided a map of the project area with site boundaries, as defined by shovel test results, outlined for the use of the Project Engineer.

Management Recommendations

The preliminary plan formulated for construction of the new Loon Lake Access placed all major construction elements outside the boundaries of the site, as defined on the basis of shovel test results. However, ramp placement will require backsloping which will cut into the site area. DNR was informed that alternative designs that would eliminate this effect should be considered. The Project Engineer then indicated that a steeper angle could be used for backslopes, which would reduce

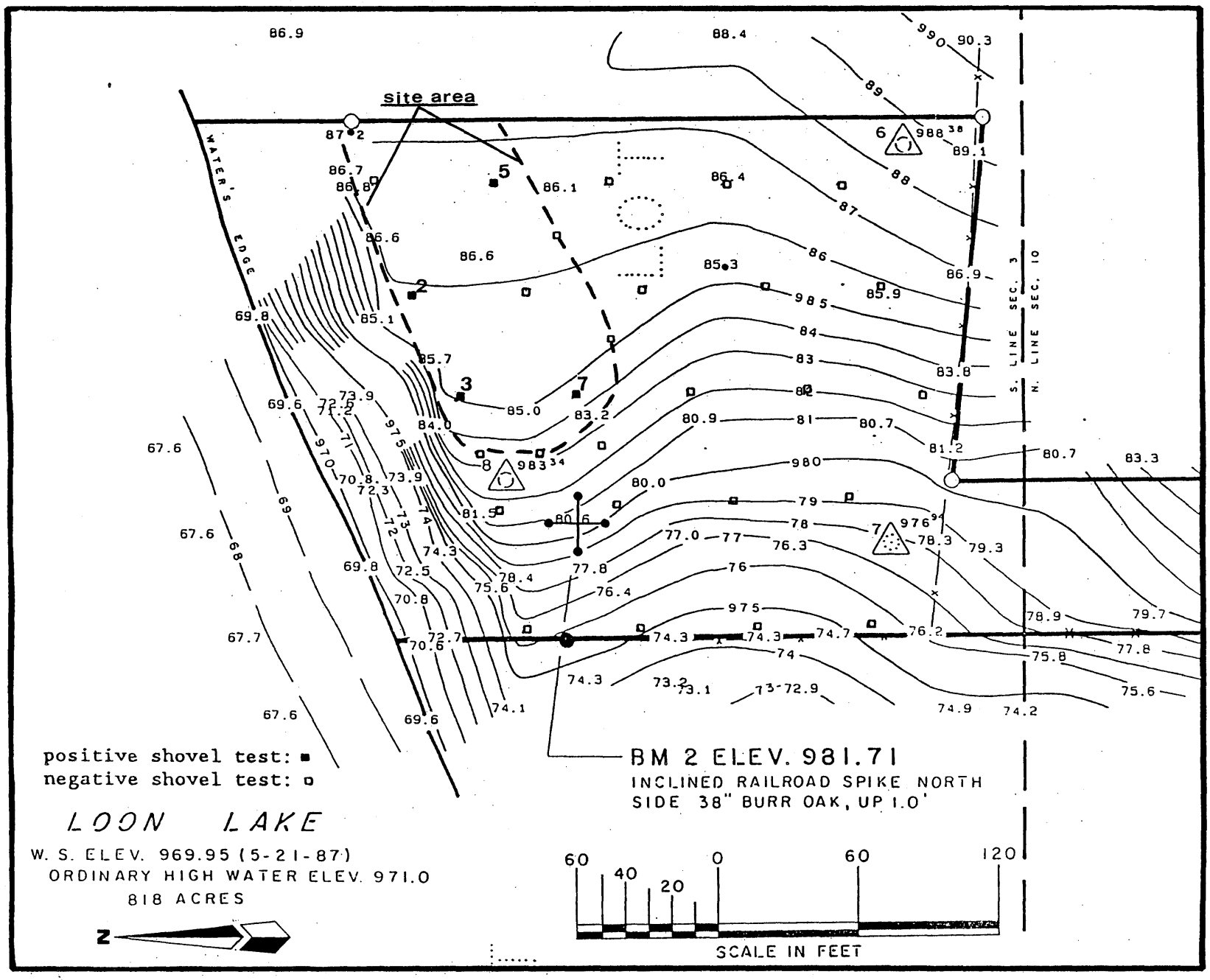


Figure 29. 21BE71 - Site Area

Figure 30. 21BE71 - Artifact Summary

Shovel Tests

(Note: Unless otherwise indicated, all flakes are Prairie du Chien [oolitic] Chert, and all show evidence of thermal pre-treatment.)

ST 2,	10-15 cm:	1 tertiary flake
	15-20 cm:	1 secondary flake, utilized
		1 tertiary flake
	20-25 cm:	1 tertiary flake
	25-30 cm:	4 secondary flakes
		4 tertiary flakes
		1 chalcedony tertiary flake
	30-35 cm:	2 primary flakes
		4 secondary flakes
		2 tertiary flakes
	35-40 cm:	2 primary flakes
		1 quartz secondary flake
ST 3,	15-20 cm:	1 secondary flake, utilized
	20-25 cm:	1 primary flake
	25-30 cm:	1 tertiary flake
	35-40 cm:	2 secondary flakes
ST 5,	20-25 cm:	1 chalcedony secondary flake
ST 7,	25-30 cm:	1 primary flake
		3 secondary flakes, utilized
	30-35 cm:	2 primary flakes
		3 tertiary flakes
	35-40 cm:	3 secondary flakes, utilized

the size of the cut into the site area (see Figure 29).

The evidence recovered during reconnaissance survey indicates that 21BE71 is a very small site with a limited artifact assemblage that may not be entirely in primary context. No materials indicative of cultural affiliation were recovered, nor was any evidence of features encountered during shovel testing. It appeared probable that the recovered artifacts constitute a representative sample of the cultural deposit. Overall, the site did not appear to have the potential to yield unique or otherwise significant scientific data. Therefore, the damage to the site that would result from construction of Public Water Access facilities would not constitute a sufficiently large loss of data to make further research at the site necessary. A recommendation was made that construction proceed according to the revised plan with no additional review (SHPO Ref. No. pending).

Madison Lake

Location

North shore of a point that extends into the lake from the eastern side, about 1 mile southeast of the town of Madison Lake, MN (see Figure 31).

Physiographic Province

Blue Earth Till Plain (Wright, 1972).

Geomorphic Region

Lonsdale-Lerdal Till Region (Minnesota Soil Atlas Project, St. Paul Sheet, 1973).

Scope of Project

Rehabilitation of existing access facilities, which will include expansion of the parking lot, including clearing of part of the wooded area along the eastern side, and resurfacing of the new lot. Most of the work will be done at existing grade; a little fill may be added along the eastern edge of the new lot.

Description of Project Area

Existing access on a large peninsula that extends northwestward from the eastern shore of Madison Lake. Current facilities include a gravel entry road, gravel parking area and concrete ramp. The access lies in a low area (mapped in the 1972 Blue Earth County Soil Survey as "lake beaches") surrounded on three sides by high knolls. An area larger than the existing parking lot was cleared when the access was originally built; the cleared area, which is used for overflow parking and presently covered with grass, is bordered by marshy wooded areas.

Records Review

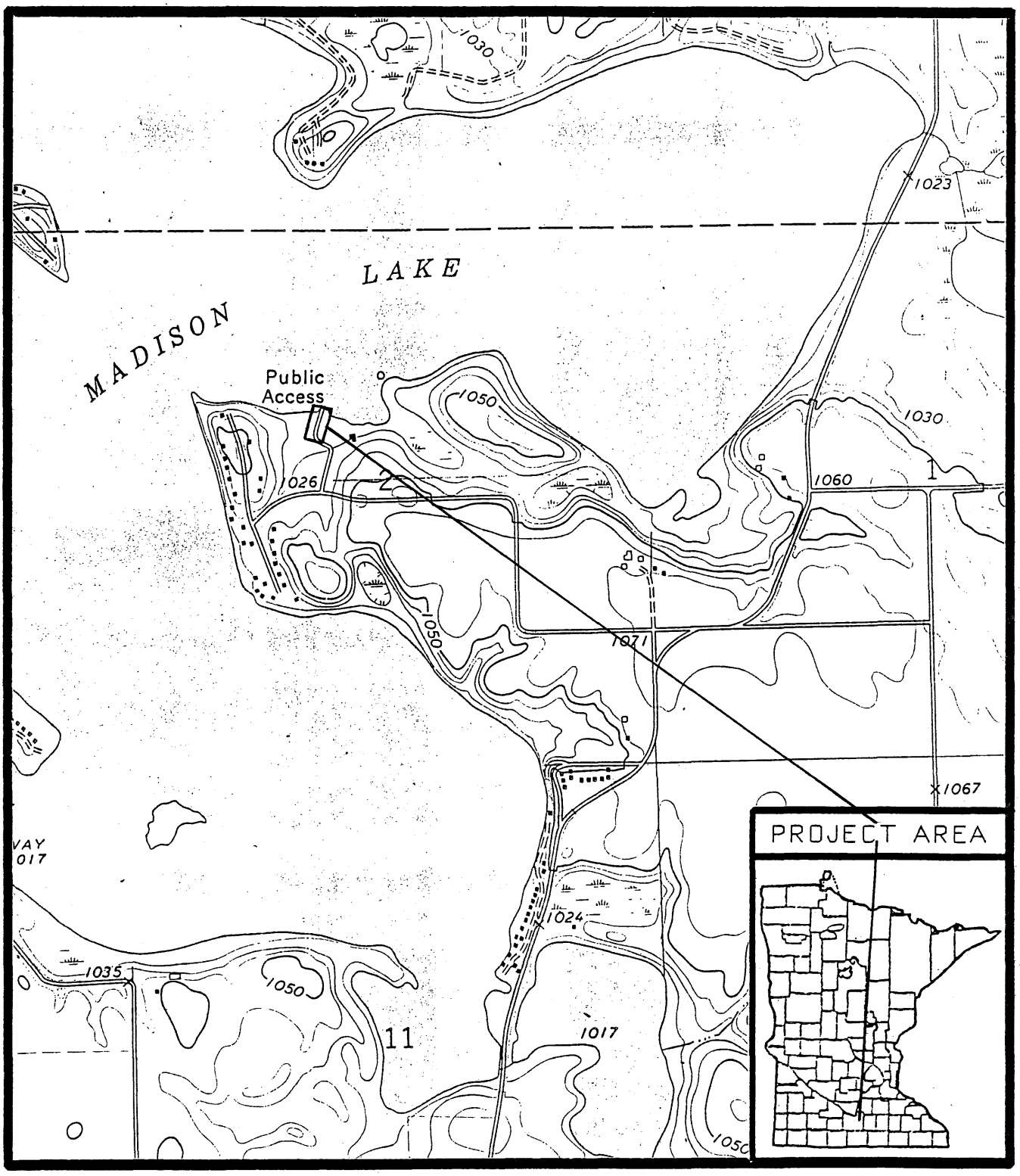
Previous surveys: There are no formal cultural resource surveys known to have been done in the vicinity of the project area. The MnSAS Blue Earth County Survey conducted in 1979 did not include examination of any sample units in the Madison Lake area.

Known sites: A review of state site files indicated that there are no recorded cultural resources within a 1-mile radius of the project area.

Field Review

Methods: Surface reconnaissance in open areas along the edges of the existing lot and in the woods; shovel tests in parking lot expansion area.

Figure 31. Madison Lake Project Area



USGS Madison Lake Quadrangle, 1974, 7.5′ series (enlarged 1.42X - 1:17,000)

Results: Soils were predominantly sandy clay loams over beach sediments. In some shovel tests, very sandy clays were interlayered with discontinuous pockets of medium to coarse beach sediments. Soils in the wooded area on the eastern edge of the property appeared to have developed primarily under wetland conditions. No cultural materials were found on surface or in shovel tests.

Management Recommendations
It appeared that the proposed access development would not affect any significant historic or prehistoric resources. A recommendation was made that construction proceed as planned with no additional review (SHPO Ref. No. EE-359).

Lincoln County

Hendricks Lake

Location
South shore of the lake, adjacent to County Road 31, just outside of the City of Hendricks, MN, 1/4 mile east of the Minnesota-South Dakota border (see Figure 32).

Physiographic Province
Coteau des Prairies, Outer Part (Wright 1972)

Geomorphic Region
Ivanhoe-Worthington Coteau (Minnesota Soil Atlas Project, New Ulm Sheet, 1981)

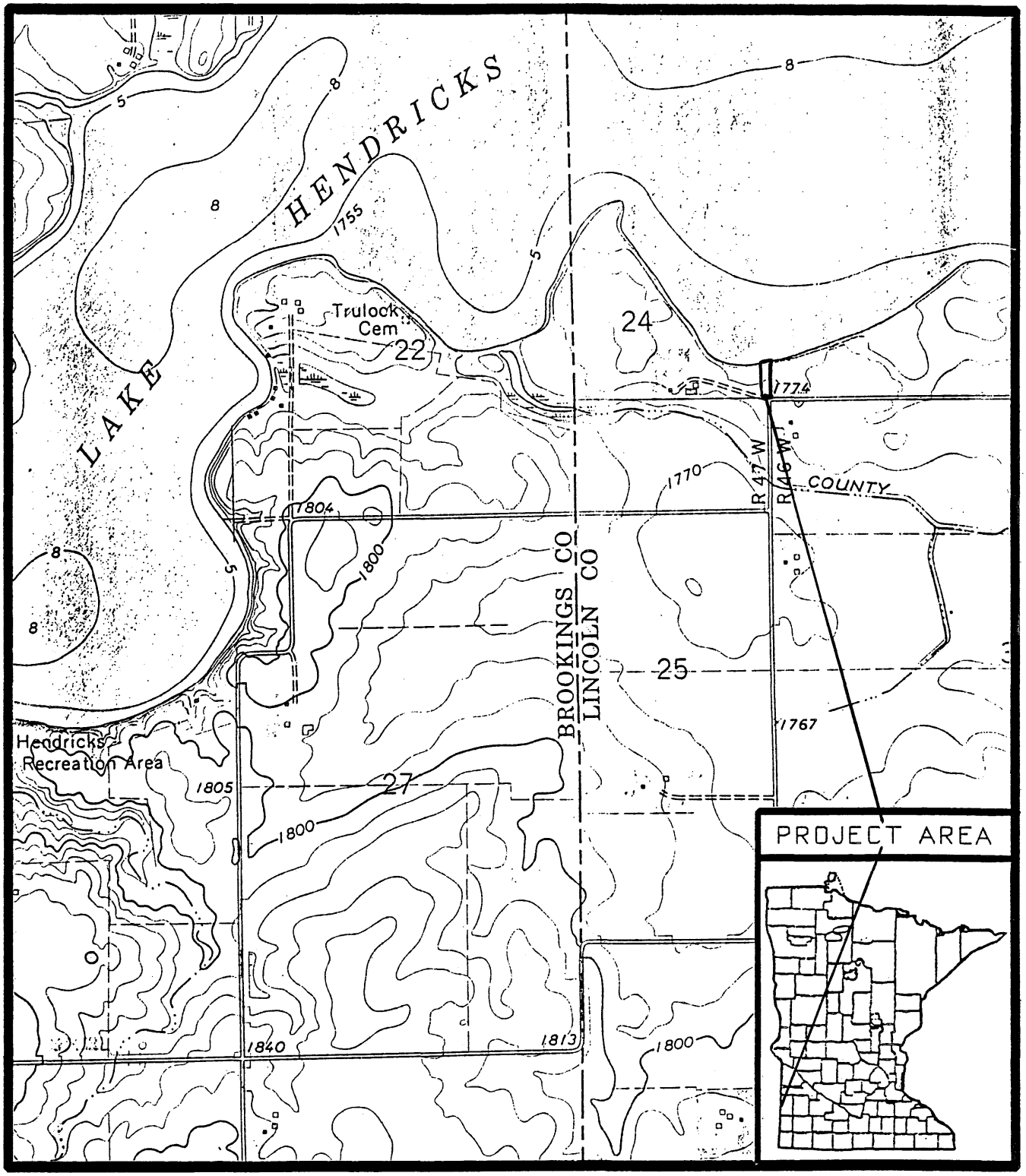
Scope of Project
Development of Public Water Access facilities in a 'traditional-use' access location. Design elements will include an 8-unit parking area, new entry road and concrete plank ramp. Most of the work will be done at or near existing grade.

Description of Project Area
The project area is a level, rectangular parcel at the shoreline, situated about 6 feet above the current lake level. An almost vertical cutbank borders that lake. Most of the property has been graveled in the past; a small cut at the shoreline was used as a boat launching point. Until recently, the average elevation of Hendricks Lake was about 3 feet higher than it is presently. The drop in water level made this location unusable as a launching site without installation of a concrete ramp.

Records Review
Previous surveys: A review of state survey files indicated that the only formal cultural resource survey in the vicinity of Hendricks Lake was a survey of a city park on the north shore, done by Cliff Watson in 1978.

Known sites: There are two recorded sites on the Minnesota portion of Hendricks Lake. (Several available sources were checked, but no indication was found that there are recorded sites on the South Dakota part of the lake. Watson's 1978 survey resulted in identification of 21LN10, a multi-component habitation site on a high knoll on the north shore of the lake. This site has been determined eligible for nomination to the NRHP. The other site, 21LN9, is located on a knoll at the southeast end of the lake, about 1-1/4 miles from DNR's project area.

Figure 32. Hendricks Lake Project Area



USGS Lake Benton Northwest Quadrangle, 1967, 7.5′ series (enlarged 1.42X - 1:17,000)

Field Review
Methods: Surface reconnaissance along cutbank and open areas in remainder of property; shovel tests in proposed parking lot area.

Results: Soil exposures in the cutbank, which ranged in height from 1 to 1-1/2 meters, showed silty clay loams over silty to sandy clays with considerable amounts of cobble to boulder-sized glacial till. This profile was also encountered in shovel tests, a few of which were very shallow because of the presence of large rocks. Some of the A horizon appeared to have been graded off along the edges of the existing gravel entry road. No cultural materials were found anywhere on the property.

Management Recommendations
It appeared that the proposed work would not affect any significant historic or prehistoric resources. A recommendation was made that construction proceed as planned with no additional review (SHPO Ref. No. pending).

Meeker County

Belle Lake

Location
Northeast corner of the lake, just east of TH #4, about 10 miles south of Litchfield, MN (see Figure 33).

Physiographic Province
Owatonna Moraine Area (Wright, 1972).

Geomorphic Region
Waconia-Waseca Moraine (Minnesota Soil Atlas Project, St. Cloud Sheet, 1979).

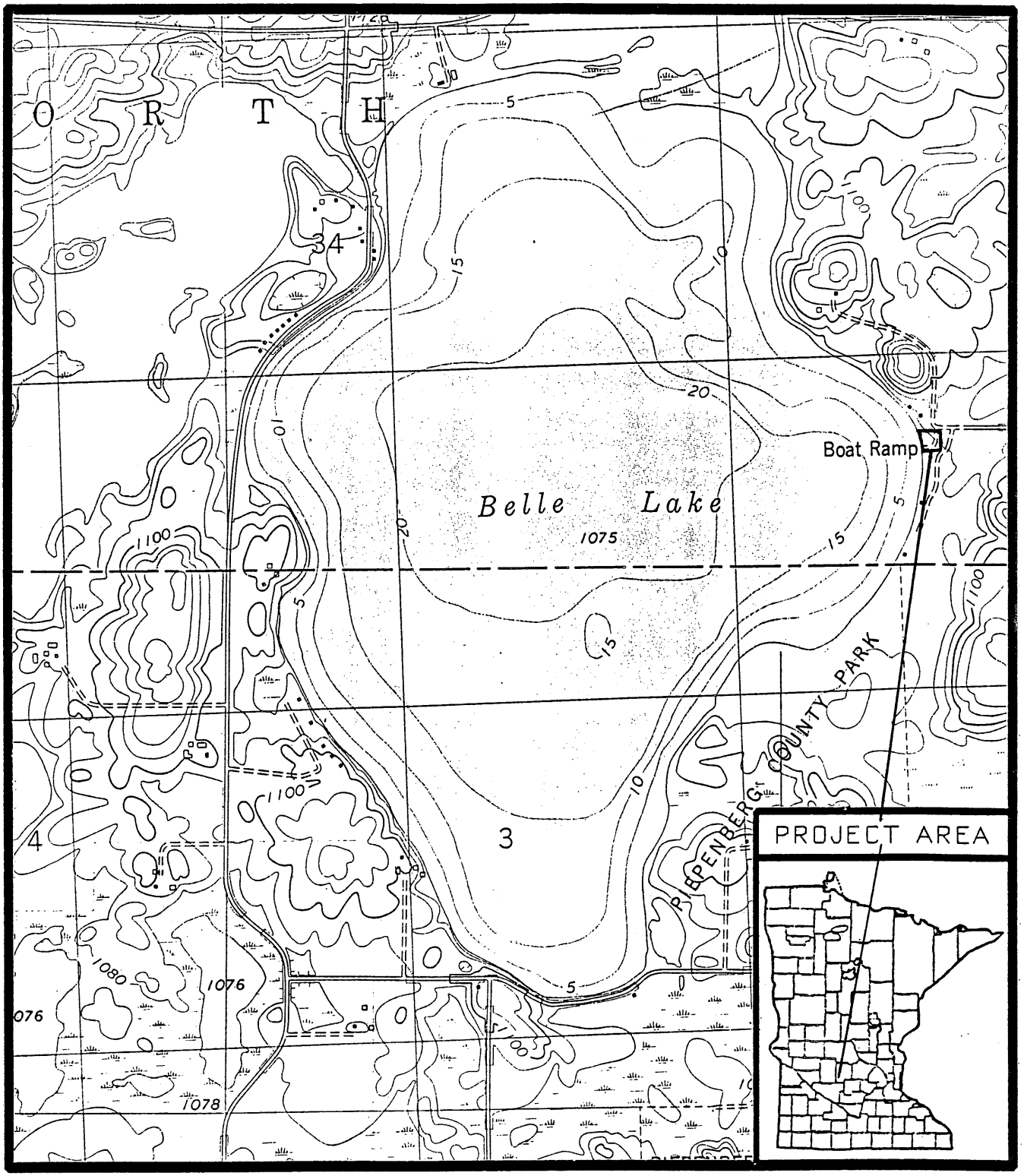
Scope of Project
Rehabilitation of existing Public Water Access facilities. The current entryway will be relocated, the parking area will be expanded into what is presently an overflow parking area and resurfaced, and a new ramp will be installed. Most of the work will be at or near existing grade.

Description of Project Area
Existing facilities include a gravel entry road off the adjacent township road, a gravel parking area ditched along the western edge and one concrete plank ramp. The property slopes down from the northeastern corner towards the lakeshore; on the east, a grass overflow parking area is bordered by a private road that leads to year-round residences on the lakeshore.

Records Review
Previous surveys: There is no record of any formal cultural resource survey in the vicinity of DNR's property.

Known sites: A review of state site files indicated that the only known cultural resources within a 1-mile radius of the project area are three "find spots" identified by Brew during his 1981 survey of Peipenburg County Park, which is on the

Figure 33. Belle Lake Project Area



USGS Hutchinson West Quadrangle, 1982, 7.5' series (enlarged 1.42X - 1:17,000)

shore of Belle Lake in McLeod County, about 1/2 mile south of the project area (Brew 1981). This Phase I survey of proposed park development area recovered prehistoric artifacts (debitage and a 3/4-grooved ax) and burned and cut mammal bone from surface and shovel tests in three separate locations along the lakeshore. No additional testing was done at any of these locations.

Field Review
Methods: Open areas along the lakeshore and the edge of the parking area were visually examined. Shovel tests were done over the parking lot expansion area.

Results: Soils were silty clays and clay loams with some pockets of coarser materials. Overall, soil profiles appeared to reflect prior disturbance of the entire property; it is likely that the whole parcel was graded and leveled when the existing facilities were built. No cultural materials were found on surface or in shovel tests.

Management Recommendations
It appeared that the proposed access rehabilitation would not affect any significant historic or prehistoric resources. It was recommended that construction proceed as planned with no additional review (SHPO Ref. No. EE-360).

Little Mud Lake

Location
West shore of the lake, adjacent to CSAH #2, about 3 miles south of Watkins, MN (see Figure 34).

Physiographic Province
Alexandria Moraine Area (Wright, 1972).

Geomorphic Region
Alexandria Moraine Complex (Minnesota Soil Atlas Project, St. Cloud Sheet, 1979).

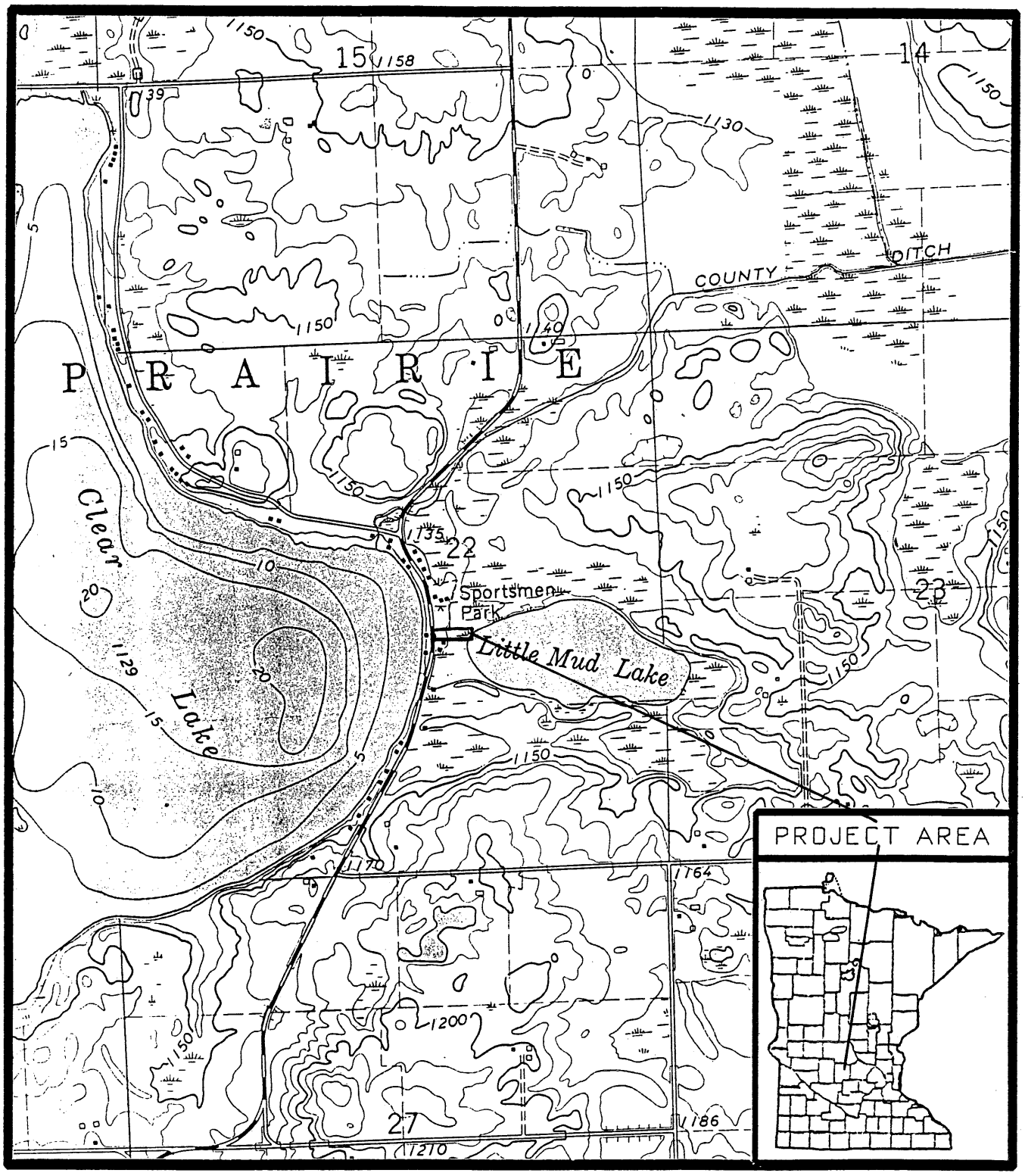
Scope of Project
Rehabilitation of existing access facilities, currently maintained by the Watkins Sportsmens' Club. A new entrance from CSAH #2 will be constructed and the two existing entries will be obliterated. The parking area will be expanded, relocated and resurfaced, and a concrete plank ramp will be installed. The margins of the property (on the north, south and east) will be landscaped.

Description of Project Area
Existing facilities include two bituminous surfaced entries from the CSAH #2 grade, which is about 2 meters high, on the western side of the property, a gravel parking area and a dirt launching ramp. The northern edge of the project area is currently grassed; the southeastern portion is brush and marsh vegetation. Most of the proposed work will be confined to the area of existing developments; however, landscaping may affect portions of the property that are not currently developed.

Records Review
Previous surveys: There was no evidence that any formal cultural resource surveys have been conducted in the vicinity of this project area.

Known sites: A review of state site files indicated that there is one recorded site

Figure 34. Little Mud Lake Project Area



USGS Watkins Quadrangle, 1967, 7.5′ series (enlarged 1.42X - 1:17,000)

near the project area: 21ME3, a habitation area and single mound, recorded by Wilford (Memo, 10/1/49), at the north end of Clear Lake, about 1-1/4 miles north-northwest of Little Mud Lake. A MnSAS crew examined the area in 1978, and concluded that the site had been destroyed by road construction.

Field Review
Methods: Open areas along the edges of the existing parking area and the cutbank at the ramp (c. 1/2 m high) were examined for cultural materials. Shovel tests were dug along the northern, southern and eastern boundaries of the property, in areas that may be affected by landscaping.

Results: Along the northern and southern boundaries of the project area, soils were sandy clay loams over sandy clay and beach sediments; some of the A horizon appeared to have been removed in these areas. In the eastern portion of the property, the soil profile reflected addition of recent fill, probably from the original construction of the access parking area. No cultural materials were found on surface or in shovel tests.

Management Recommendations
It appeared that the proposed access rehabilitation would not affect any significant historic or prehistoric resources. A recommendation was made that construction proceed as planned with no additional review (SHPO Ref. No. EE-362).

Lake Manuella

Location
East shore of the lake, adjacent to CSAH #19, about 4 miles southeast of Darwin, MN (see Figure 35).

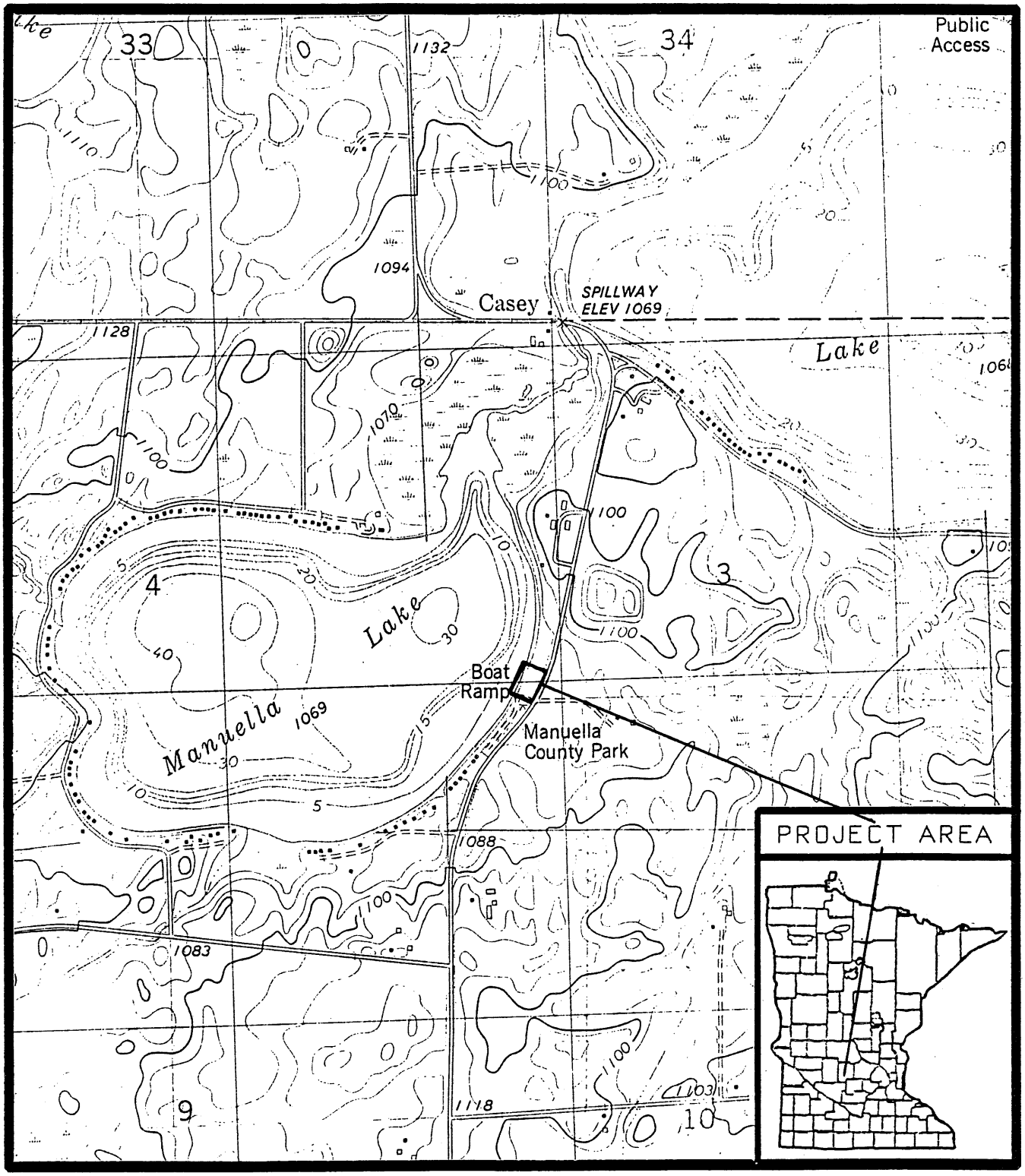
Physiographic Province
Alexandria Moraine Area to northwest; Owatonna Moraine Area to southeast (Wright, 1972).

Geomorphic Region
Waconia-Waseca Moraine along east side of lake; Alexandria Moraine at west end (Minnesota Soil Atlas Project, St. Cloud Sheet, 1979).

Scope of Project
Expansion of existing Public Water Access facilities, currently being operated by the County as part of Manuella County Park. Design elements include a 15-unit parking area, new driveway from CSAH #19 and relocated concrete ramp.

Description of Project Area
This project area is adjacent to a county park that includes a public boat launching area. DNR will develop a new access facility at the far end of the property from the current launching area in order to resolve a safety problem caused by proximity of boat launching to a public swimming beach. The property was formerly cultivated land; plow furrows were readily apparent at the time of survey. At the time of survey, it had lain fallow for a year and was covered with scattered patches of thistle, quackgrass, amaranth and other weeds. The entire parcel lies below the county road grade, and is only about 3 feet above the lake level.

Figure 35. Lake Manuella Project Area



USGS Darwin Quadrangle, 1982, 7.5′ series (enlarged 1.42X - 1:17,000)

Records Review
Previous surveys: The only cultural resource surveys done in the vicinity of Manuella Lake were surveys of areas around nearby lakes, done by Anthropology students from St. Cloud State University as part of a class project.

Known sites: The closest recorded sites are two find spots on the shores of Lake Stella, between 2 and 2-1/2 miles north-northeast of DNR's property. Both were recorded by students from St. Cloud.

Field Review
Methods: Surface examination of exposed areas; shovel tests over entire parcel. Surface visibility was poor in most of the parcel, due to heavy vegetative growth, but a few areas had good exposure.

Results: Soils were uniformly silty clay loams over silty clay and pebbly till. In all shovel tests, the plow zone appeared to extend into the subsoil. No cultural materials were found on surface or in shovel tests.

Management Recommendations
It appeared that the proposed access development would not affect any significant historic or prehistoric resources. It was recommended that construction proceed as planned with no additional review (SHPO Ref. No. pending).

Round Lake

Location
West shore of the lake, adjacent to TH #22, about 4 miles south of Litchfield, MN (see Figure 36).

Physiographic Province
Alexandria Moraine Area (Wright, 1972).

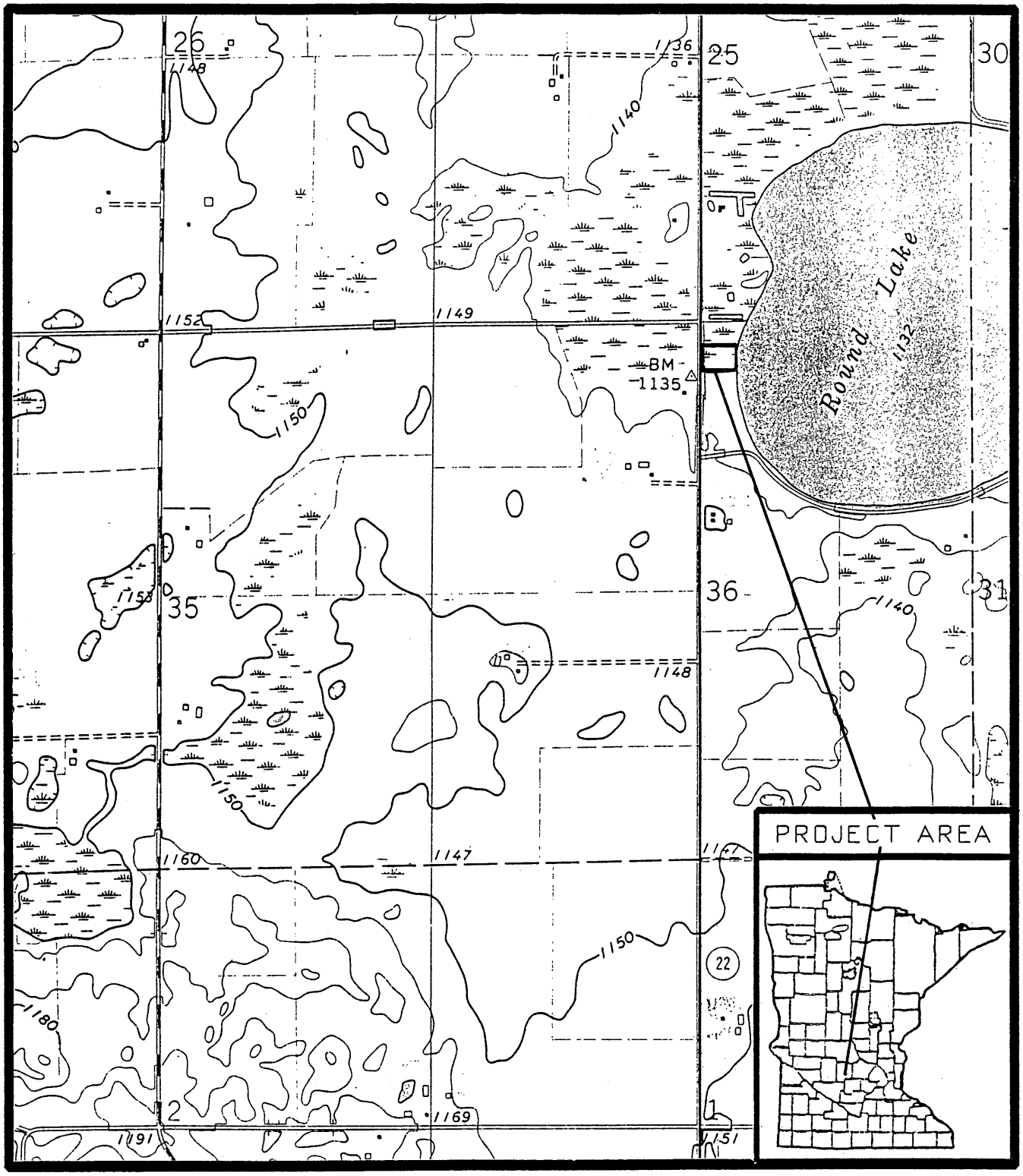
Geomorphic Region
Alexandria Moraine Complex (Minnesota Soil Atlas Project, St. Cloud Sheet, 1979).

Scope of Project
Development of new Public Water Access facilities. Project plans call for construction of a 15-unit parking area in the center of the property, a new entry road (following the existing entrance) and placement of a concrete plank ramp. The work will include removal of about 1 foot of fill from the east-central part of the property, which will be placed in a lower area close to the shoreline.

Description of Project Area
The property is former agricultural land, bounded on the west by TH #22, on the south by pasture and a farmstead, and on the north by a swampy area and drainage ditch. At the time of survey, the property was covered by thick brush and grasses, with a few trees along a low ice ridge at the shoreline. A farm road runs from the highway into the approximate center of the property; a thin layer of gravel remains visible along the path of this road.

Records Review
Previous surveys: No evidence was found that there have been any formal cultural resource surveys in the vicinity of the project area.

Figure 36. Round Lake Project Area



USGS Litchfield South Quadrangle, 1967, 7.5′ series (enlarged 1.42X - 1:17,000)

Known sites: A review of state site files indicated that there are no recorded cultural resources within a 1-mile radius of Round Lake.

Field Review
Methods: Shovel tests over the entire construction area. There was no surface visibility in the project area, except along a narrow strip of beach at the lakeshore. This area and the small cutbank at the shoreline were visually examined.

Results: A consistent soil profile was noted throughout the property, consisting of sandy clay loams over coarse beach sediments. An apparent plow zone was discernible down to depths of 20 to 30 cm below the surface. No cultural materials were found on surface or in any shovel test.

Management Recommendations
It appeared that the proposed access development would not affect any significant historic or prehistoric resources. It was recommended that the construction proceed as planned with no additional review (SHPO Ref. No. EE-361).

REGION V - SOUTHEAST

Rice County

Horseshoe Lake

Location
Eastern shore of the lake, just off CSAH #14, about 5 miles northwest of Morristown, MN, on the Rice-Le Sueur County border (see Figure 37).

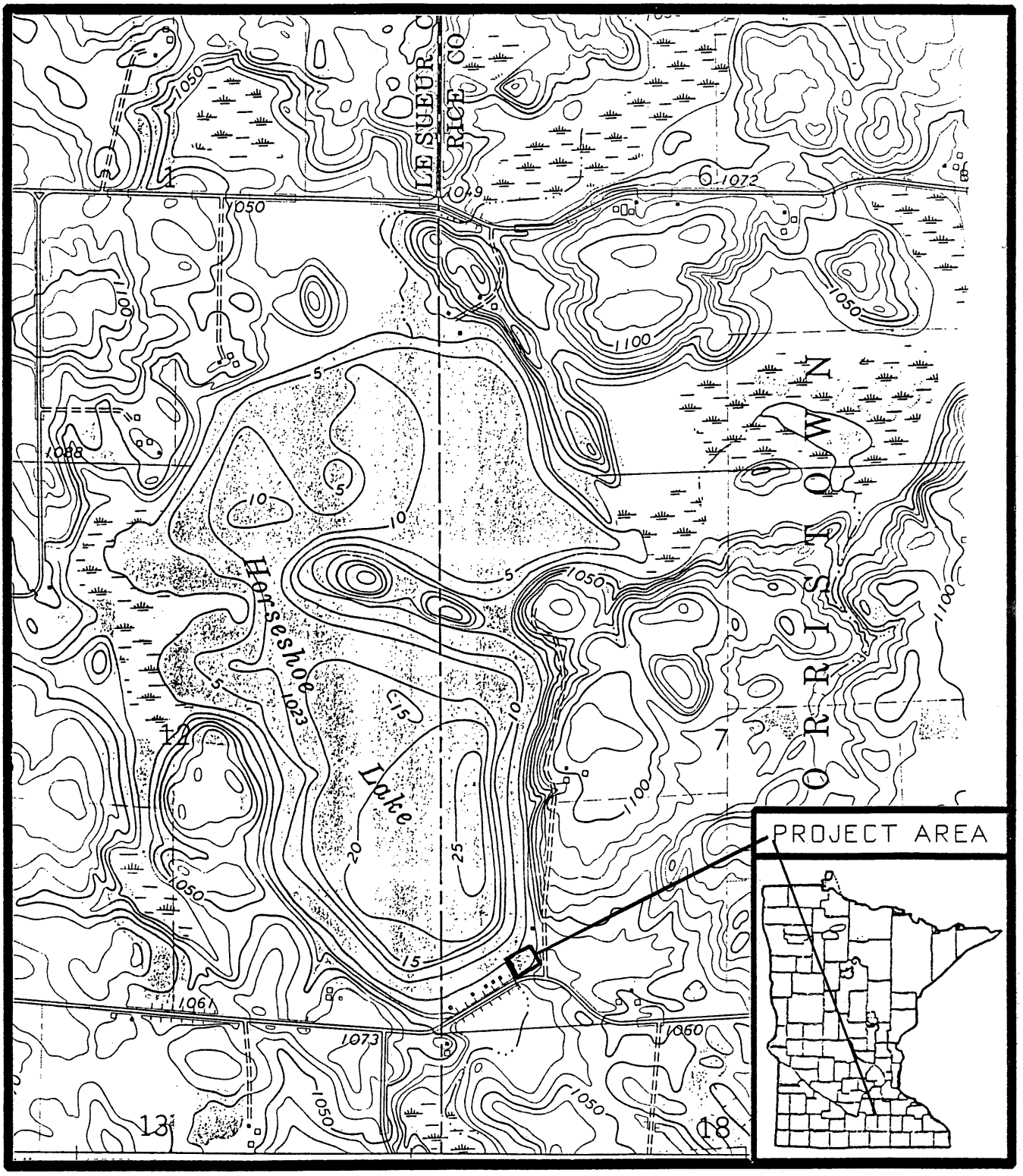
Physiographic Province
Owatonna Moraine Area (Wright, 1972).

Geomorphic Region
Emmons-Faribault Moraine; Prior Lake Moraine adjoins to northwest (Minnesota Soil Atlas Project, St. Paul Sheet, 1973).

Scope of Project
Rehabilitation of existing Public Water Access facilities. Upgrading of this access began in the spring of 1985, when the existing grass overflow parking area was graded off and temporarily graveled to prepare it for use during the Governor's Fishing Opener. Future work will involve regrading of the overflow lot and placement of additional gravel in that area.

Description of Project Area
Current access facilities include a gravel entry from the adjoining township road grade, which is about 3 meters high, a small gravel parking area, graded and grassed overflow parking area and concrete ramp. The access is located in a low-lying swale bordered by higher land on both sides. A year-round residence is located immediately to the north and a small trailer park is adjacent to the south.

Figure 37. Horseshoe Lake Project Area



USGS Kilkenney Quadrangle, 1966, 7.5′ series (enlarged 1.42X - 1:17,000)

Records Review
Previous surveys: No formal cultural resource surveys have been conducted in the vicinity of the project area.

Known sites: A review of state site files indicated that there are two known prehistoric sites close to the project area. 21RC9 was recorded on the basis of informant data received by Lloyd Wilford (Memos, 11/1/41) regarding an area from which local inhabitants had collected artifacts. 21LE11 was recorded by the University of Minnesota in 1966, also on the basis of information received from a local resident. Both of these sites are located on a narrow peninsula that extends into the lake from the eastern shore, about 1/2 mile north of the project area. (The LeSueur-Rice County boundary bisects this peninsula.) Neither site has ever been formally tested, and the available locational information is very vague. As presently defined, the two sites are adjacent to one another, and it is possible that the two site numbers actually refer to a single habitation area. No other prehistoric or historic resources are known to be located near the project area.

Field Review
Methods: Open areas along the edge of the parking area, in road ditches and at the shoreline were visually inspected for cultural materials. Because all proposed work would be confined to the area that was previously graded and graveled, no additional field survey was conducted.

Results: The entire property appeared to have been extensively disturbed by previous construction and rehabilitation of access facilities. No cultural materials were found during surface inspection.

Management Recommendations
It appeared that the proposed access rehabilitation would not affect any significant historic or prehistoric resources. It was recommended that construction proceed as planned with no additional review (SHPO Ref. No. EE-358).

REGION VI - METRO

Chisago County

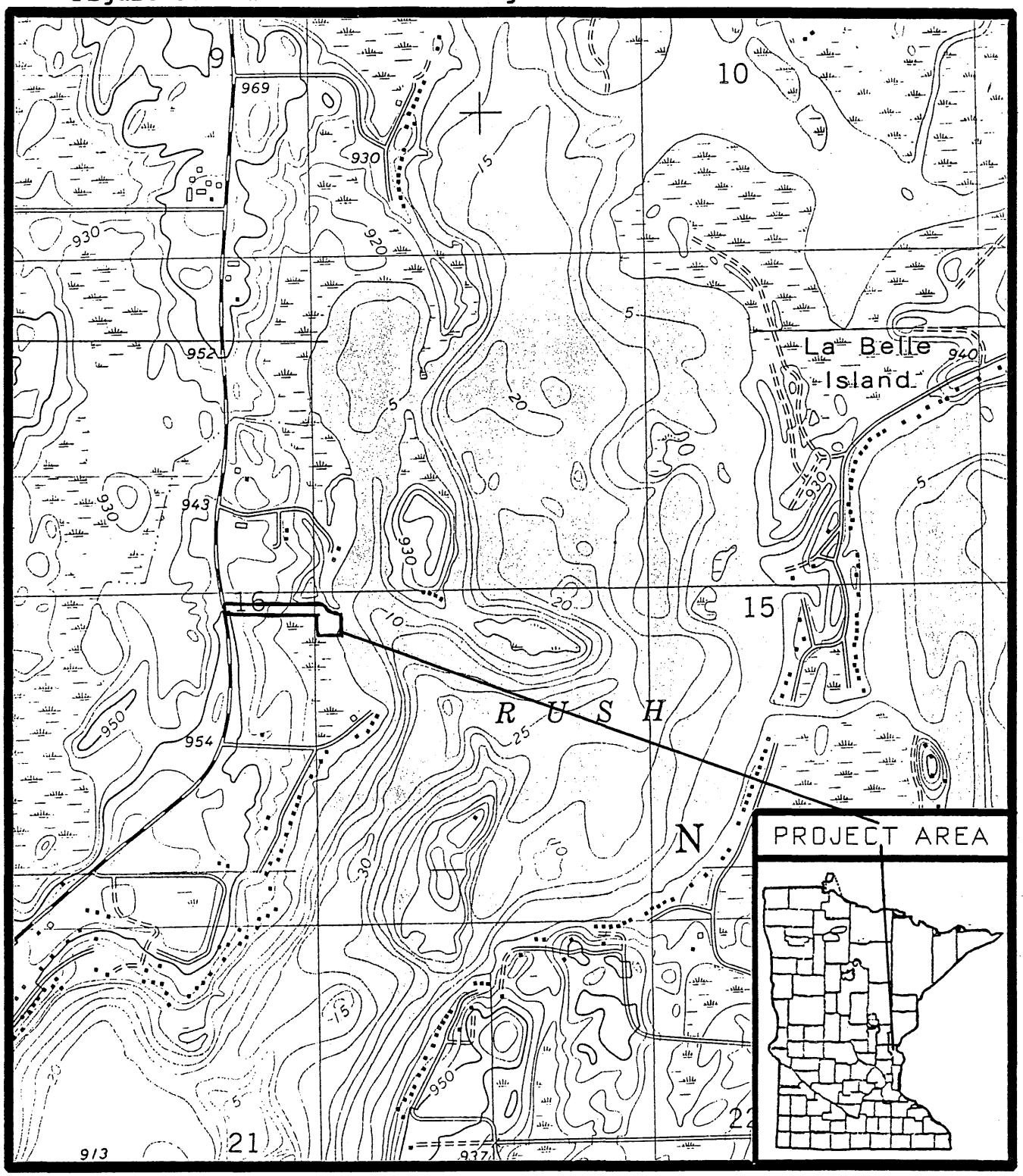
West Rush Lake

Location
West shore of Rush Lake, adjacent to County Road 4, about 7 miles west of Rush City, MN (see Figure 38).

Physiographic Province
Brainerd-Automba Drumlin Area to north; Anoka Sand Plain Area to south (Wright, 1972).

Geomorphic Region
McGrath Till Plain (Minnesota Soil Atlas Project, Stillwater Sheet, 1980).

Figure 38. West Rush Lake Project Area



USGS Rush Lake Quadrangle, 1983, 7.5′ series (enlarged 1.42X - 1:17,000)

Scope of Project

Construction of new Public Water Access facilities. DNR plans to construct two parking areas with a total capacity of 32 parking spaces, and install double concrete plank ramps just south of a dredged channel on the north side of the property. An existing dirt road will be upgraded with no alignment change for access to the launch area. Both parking lots will be built on fill over filter fabric.

Description of Project Area

The property consists of two lots in a recently platted subdivision, and an easement over the existing gravel road that runs from County Road 4 to the lakeshore. This road drops 38 feet in elevation from the county road down to the proposed parking areas, which are 2 to 3 feet above the current lake level. The property was apparently agricultural land before it was subdivided; at the time of survey it was thickly vegetated with brush, with some stands of willow, ash and alder. (The 1961 Cambridge 15' quadrangle shows the lake elevation as 915', which is the average elevation of most of DNR's proposed construction area.) The northern border of the property is formed by a artificial channel that was dredged by a former owner to provide access to the lake.

Records Review

Previous surveys: MnSAS work in Chisago County included survey of several parcels around Rush Lake, all of which are some distance from the proposed construction area. No other formal cultural resource surveys have been done near the project area.

Known sites: A review of state site files indicated that there are no recorded prehistoric or historic sites on the western arm of Rush Lake. There are, however, a number of sites on the eastern arm of the lake, 5 miles or more from DNR's property: 21CH17, CH18, CH19, CH20 and CH22 are all mound groups or single mounds initially recorded in Winchell (1911:282-4); 21CH41 is a multi-component habitation area recorded by MnSAS in 1978.

Field Review

Methods: There was some surface visibility at the time of survey in scattered open areas along the northern side of the project area. These areas were examined for surface materials, as was the length of the shoreline within the property boundaries. Shovel tests were dug in the two parking lot areas.

Results: Soils were mostly thin organic horizons and/or peat over very coarse sandy clay. In some spots, the soil was saturated within 20 cm of the surface. There appeared to have been some disturbance of natural soil stratigraphy, especially in the northern parking lot area, possibly as a result of channel dredging operations. No cultural materials were found anywhere on the property.

Management Recommendations

It appeared that the proposed construction will not affect any significant prehistoric or historic resources. It was recommended that the project proceed with no additional review (SHPO Ref. No. 88-0907).

Washington County

Big Carnelian Lake

Location
West shore of the lake, adjacent to County Road #11, about 10 miles north-northwest of Stillwater, MN (see Figure 39).

Physiographic Province
Eastern St. Croix Moraine (Wright, 1972).

Geomorphic Region
Twin Cities Formation (Minnesota Soil Atlas Project, Twin Cities-Metro Area Sheet, 1975).

Scope of Project
Repair of existing Public Water Access facility by replacement of sand blanket and concrete plank ramp damaged by ice shove during the past several years. DNR does not plan to do any expansion or modification of the existing parking area or entry roads at this time. All work will be confined to the previous construction area.

Description of Project Area
Current facilities include bituminous entry drives and parking lot and a concrete plank ramp. The ramp is placed on a sand blanket in the lakebed.

Records Review
Previous surveys: There was no record of any formal cultural resource surveys in the vicinity of DNR's property.

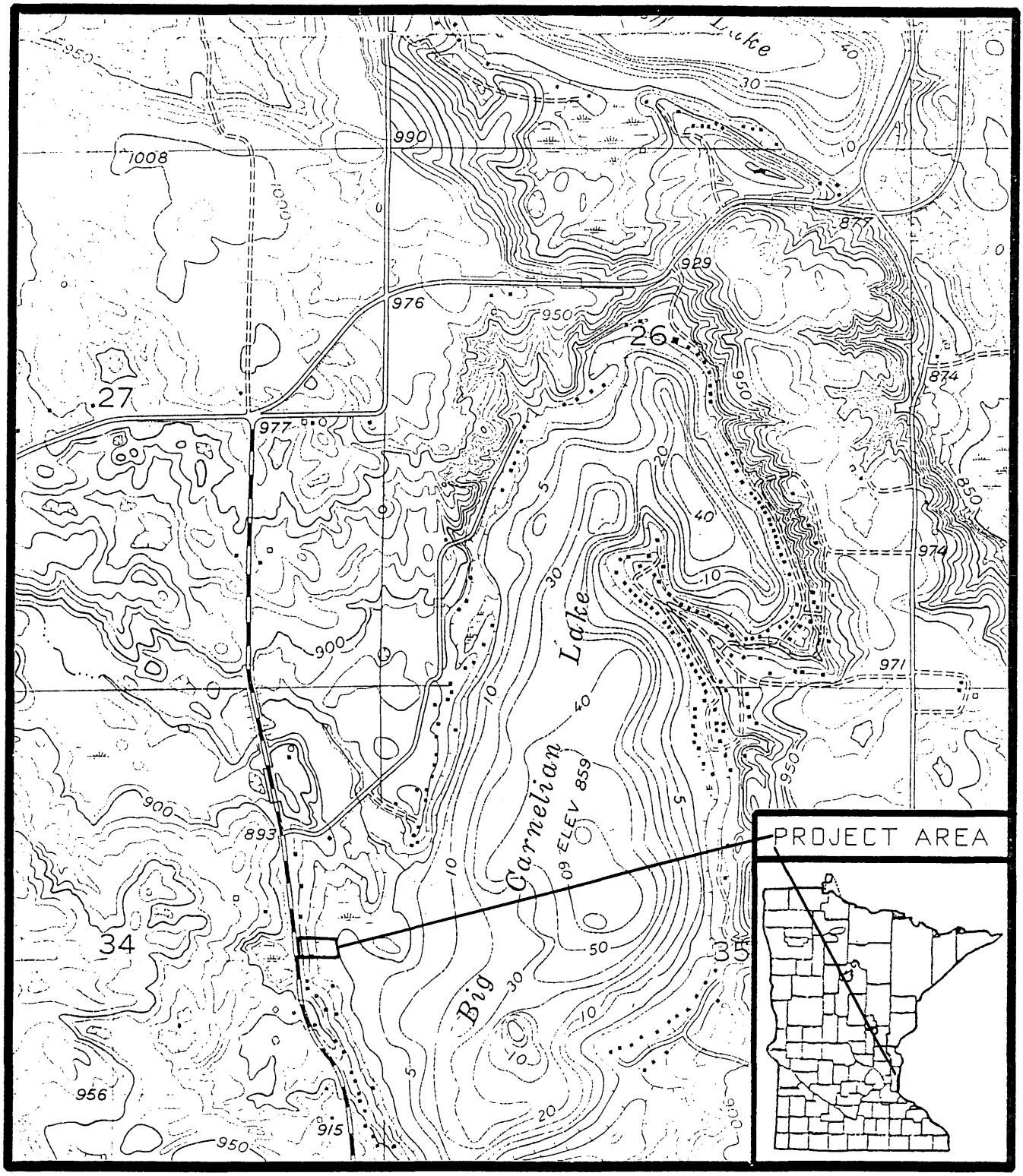
Known sites: A review of state site files indicated that there are no recorded cultural resources within a 1-mile radius of the project area. The closest recorded site is 21WA44, the Olson-Shoop Site, an Archaic/Early Woodland habitation area about 2 miles west of Big Carnelian Lake. The site was recorded by Terra Archaeological Services in 1977.

Field Review
Methods: Surface reconnaissance along shoreline and around ramp area.

Results: There is a small (c. 3/4 m high) ice ridge along the shoreline with good surface exposure. The ridge was examined along the full frontage of DNR's property. The steep bank along the western edge of the parking area, apparently created by a cut into the sideslope at the time the access was originally constructed, was also examined. No cultural materials were observed. Because the proposed work will be within the limits of previous construction, no additional field review was considered necessary.

Management Recommendations
It appeared that the proposed ramp and sand blanket replacement would not affect any significant prehistoric or historic resources. A recommendation was made that the project proceed with no additional review (SHPO Ref. No. EE-721).

Figure 39. Big Carnelian Lake Project Area



USGS Marine-on-St.-Croix Quadrangle, 1967, 7.5′ series (enlarged 1.42X - 1:17,000)

Big Marine Lake (21WA46)

Location
North shore of Big Marine Lake, Just off TH #97, adjacent to Mayberry Trail (see Figure 40).

Physiographic Province
Eastern St. Croix Moraine (Wright, 1972).

Geomorphic Region
Twin Cities Formation (Minnesota Soil Atlas Project, Twin Cities-Metro Area Sheet, 1975).

Scope of Project
Expansion and rehabilitation of existing township access. DNR has purchased property immediately east of the present access, and plans to construct a 15-unit parking area and install a double concrete ramp. The existing access will be at the far western end of the new facility.

Description of Project Area
Low-lying area on the Most of the project area is a newly-purchased parcel situated immediately east of the existing township access. A summer residence was located on the property until purchase by the State; it has since been demolished. Most of the parcel is covered with grasses, sumac, poison ivy and some scattered maples. There is good surface exposure along the shoreline and on the eastern side of the property. Maximum elevation of this property is only about 1 foot above the current lake level.

The existing township access consists of a very small, gravel parking area between the township road and the lakeshore. The western side of the parking area is an almost vertical slope at the end of a narrow, east-west trending ridge (the location of 21WA46), the top of which is about 6' above the current lake level. It appears that the eastern end of this ridge was truncated when the access was originally built some years ago.

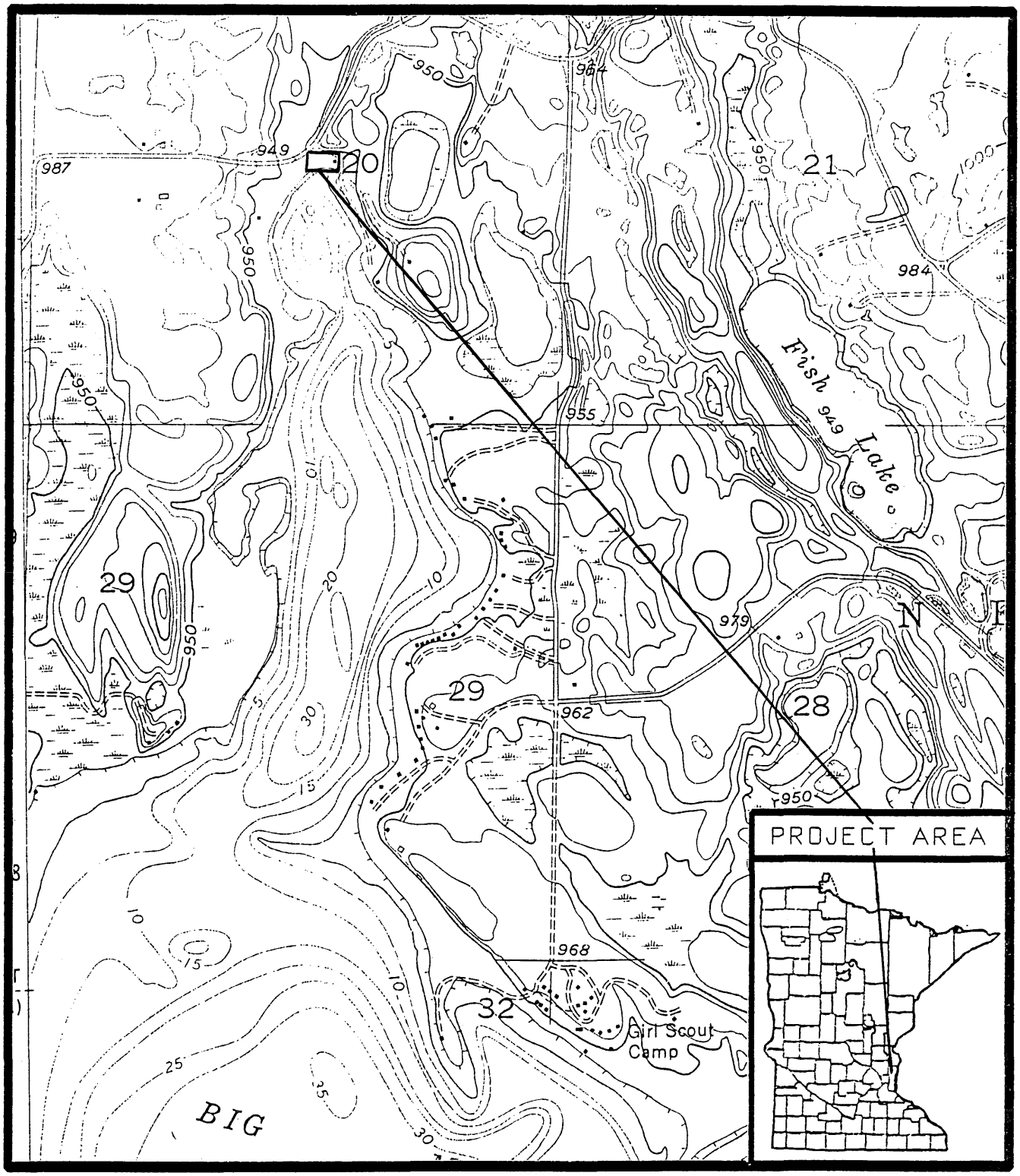
Records Review
Previous surveys: The only survey known to have taken place in the vicinity of this property is a survey conducted in 1978 by a student from the University of Minnesota. The survey resulted in definition of 21WA46, described below.

Known sites: The only recorded site close to the project area is 21WA46, recorded in 1978. The site form indicates that surface artifacts (debitage) were found on the eroded face of a bank along the lakeshore, 10 meters west of the Public Access. No testing of the site was done.

Field Review
Methods: A brief examination was made of the south (lakeward) and north slopes of the ridge upon which 21WA46 is located. A few prehistoric lithic artifacts were found on the lakeward side of the ridge in erosional exposures at the bases of trees. Because the site is located on private property, no subsurface testing was done.

On DNR's property, exposed areas along the shoreline and the old driveway were examined for surface materials. Shovel tests were done in the access expansion area

Figure 40. Big Marine Lake Project Area



USGS Marine-on-St.-Croix Quadrangle, 1967, 7.5′ series (enlarged 1.42X - 1:17,000)

to the east of the existing township facility.

Results: Soils in all shovel tests were loamy sands with a very poorly developed humic topsoil; saturated coarse lakebed sediments were encountered above c. 35 cm in all test locations. Recent disturbance to the area was evidenced by scattered items of recent debris and vigorous patches of poison ivy and sumac. No cultural materials were found on surface or in any shovel test.

Management Recommendations
The expansion of the existing township access, as planned, would not affect 21WA46, nor did it appear that there are any other significant historic or prehistoric resources that would be affected by construction. It was recommended that the project proceed according to the proposed design with no additional review (SHPO Ref. No. 88-0655).

Wright County

Buffalo Lake

Location
Wetland area on the north shore of Buffalo Lake, adjacent to CSAH #35 (see Figure 41).

Physiographic Province
Owatonna Moraine Area (Wright, 1972).

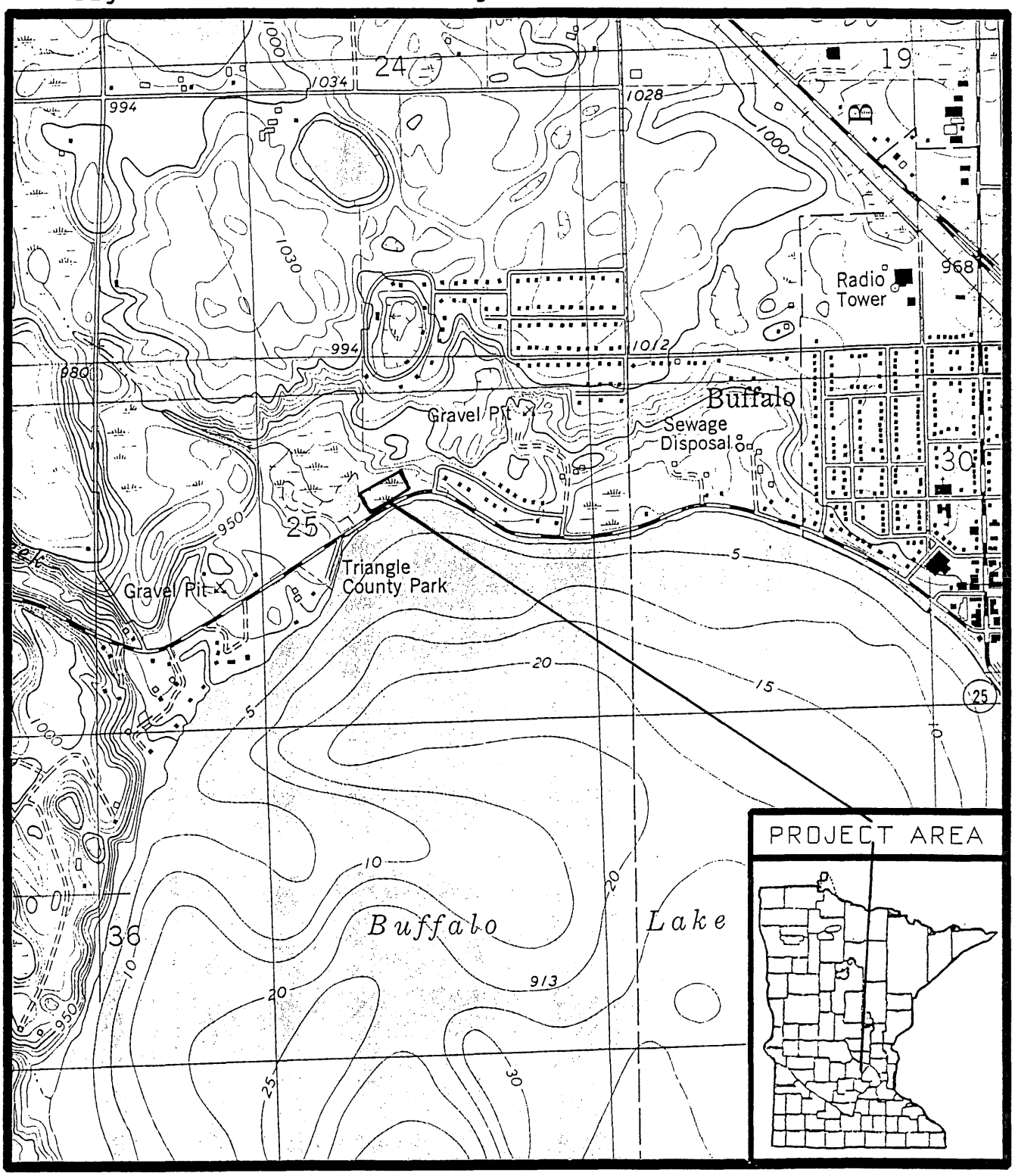
Geomorphic Region
Waconia-Waseca Moraine (Minnesota Soil Atlas Project, Stillwater Sheet, 1980).

Scope of Project
Cooperative project between DNR and Wright County; expansion of existing access facilities on the north shore of Buffalo Lake. The County Highway Department will use the construction area for disposal of excess fill during its on-going CSAH #35 maintenance and upgrade project. DNR will reimburse the County for the cost of the work. The fill will be placed in a wetland area north of the County Road to provide expanded parking for the present access, which is located on the right-of-way adjacent to the lake.

Description of Project Area
The property is just east of a DNR-Fisheries hatching pond. It appears to have been an arm of the lake at one time, but the natural drainage has been altered by road construction. Average elevation of this property is about 5 feet lower than the adjacent county road grade. An intermittent, partly channelized stream runs through the property. Current vegetation consists of scattered willows with a very sparse understory of sedges, bottle brush, and reeds.

Records Review
Previous surveys: The only formal cultural resource survey in the area was done in connection with the CSAH #35 project. Selected areas of road re-alignment or upgrading were field-checked with negative results (Anfinson, 1987 Annual Report, in press); no examination was done of road construction close to the proposed access.

Figure 41. Buffalo Lake Project Area



USGS Buffalo West Quadrangle, 1981, 7.5′ series (enlarged 1.42X - 1:17,000)

Known sites: A review of state site files indicated that there are several known prehistoric sites around Buffalo Lake: 21WR16 and 17 at the south end, 21WR28 on the east shore, and 21WR30 and 31 on the west shore. All of these are single mounds or mound groups recorded by Winchell (1911:213-4); none of them is within one mile of the project area.

Field Review

Methods: At the time of survey, the surface of the area was mostly dry, but there were a few areas of standing water, and the entire parcel appeared to have been inundated at some time during the past year. A staggered grid of shovel tests was done in the area.

Results: Soils were consistently very mucky silt loams and organic matter over saturated silty sands and clays. Some areas showed recent fill material, possibly dredge spoil from the Hatchery pond. No cultural materials were found in any shovel test.

Management Recommendations

It appeared that the proposed construction would not affect any significant prehistoric or historic resources. It was recommended that work proceed as planned with no additional review (SHPO Ref. No. EE-96).

IV. RIVER RECREATION PROGRAM DEVELOPMENT PROJECTS

REGION I - NORTHWEST

Marshall County

Red River/Oslo

Location
East bank of the Red River of the North, within the City of Oslo, MN, in the northeast quadrant of the TH #1 river crossing (see Figure 42).

Physiographic Province
Glacial Lake Agassiz (Wright, 1972).

Geomorphic Region
Agassiz Lacustrine Plain, Red River Valley (Minnesota Soil Atlas Project, Roseau Sheet, 1980).

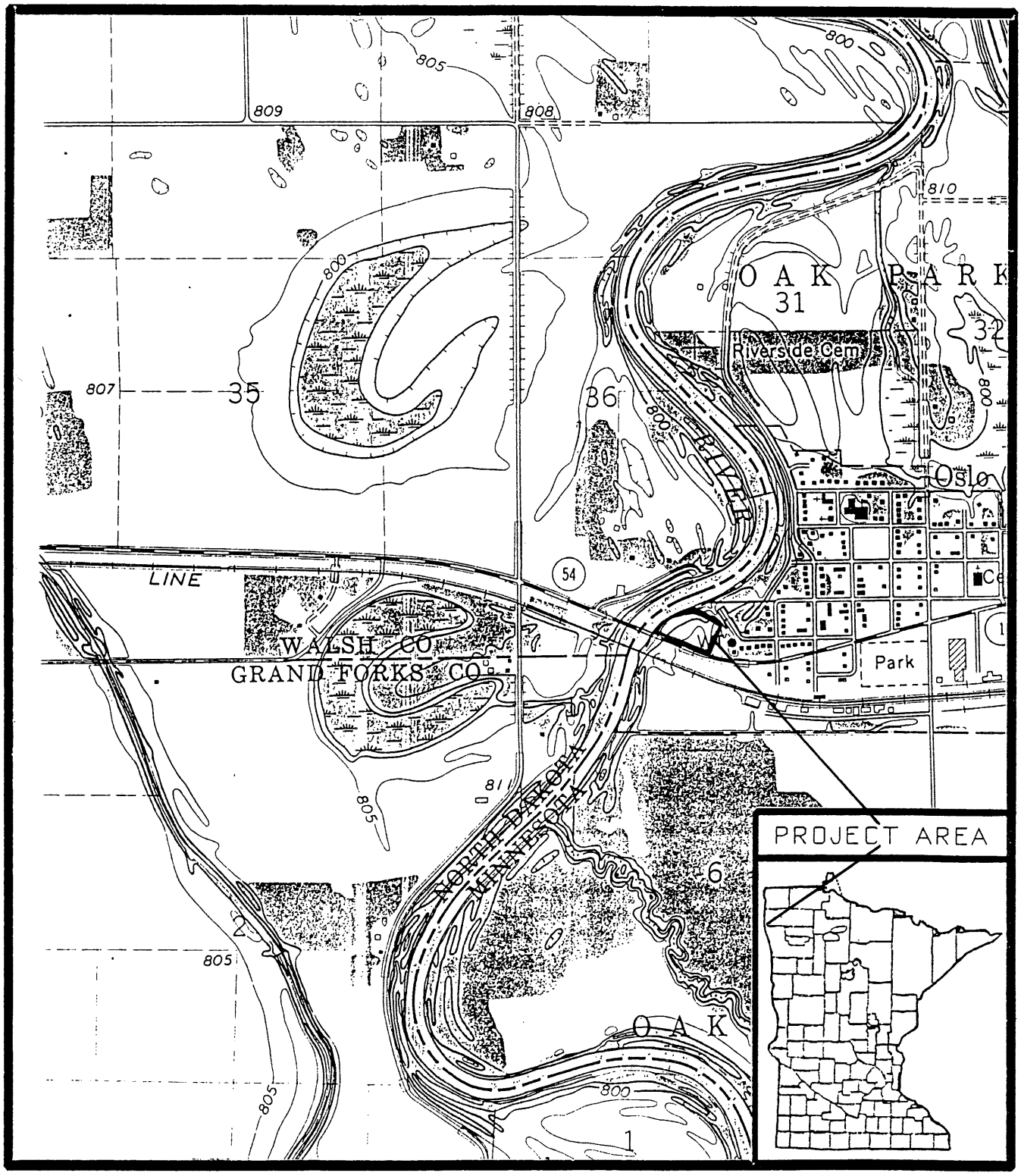
Scope of Project
Development of a new Public Water Access. This location has been in use for some time as a "traditional" access to the Red River; the City has agreed to lease the property to DNR for development and maintenance of improved access facilities, which will include an 8-unit parking area and concrete plank ramp. The existing gravel road will continue to be used for access to the property.

Description of Project Area
The property has been leased to DNR by the City of Oslo. It includes a vacated city street corridor, which led to a bridge across the Red River. This bridge was abandoned when the original TH #1 bridge was constructed. At low water, old bridge pilings are visible across the river from the cut area that is the proposed ramp location. The property in recent years has been used by the City Water Department; a pumping station and underground water line are located just outside the highway right-of-way. A flood-control dike marks the eastern property boundary, and the City water tower is immediately outside this dike to the east. A gravel road leads from nearby city streets over the dike to the center of the property. Most of the parcel is sparsely vegetated with grass, except along the northern edge, which is wooded. A few large trees still stand along the water's edge.

Records Review
Previous surveys: The only formal cultural resource survey known to have been done in the vicinity was a 1979 review by the Trunk Highway Survey of a proposed TH #1 bridge replacement. All work was to be confined to the existing corridor, which was already extensively disturbed.

Known sites: A review of state site files indicated that there are no recorded prehistoric or historic sites in the vicinity of the project area. No information

Figure 42. Red River/Oslo Project Area



USGS Oslo 1966 Quadrangle, 7.5′ series (enlarged 1.42X - 1:17,000)

was available about sites on the North Dakota side of the Red River.

Field Review
Methods: Surface reconnaissance along length of cutbank within project area; shovel tests in construction area.

Results: At the time of survey, the Red River was at or below its average summer elevation. About the upper 6 feet of the cutbank was accessible for examination; below that, the shoreline was very mucky. Visibility was moderate to poor, due to vegetation and a layer of recent flood sediments. A consistent shovel test interval could not be maintained because of gravel and broken paving materials from the former street and existing trail in the proposed parking area. In areas that could be tested, up to 1 meter of very fine-grained overbank sediments with no discernible stratigraphy overlay coarser materials. Close to the present channel, a thin layer of recent sediment caps interlayered silts and fine sands. To the east, the thickness of recent sediments increases and a shallow organic horizon appears, beneath which there are coarse sandy clays. (The organic horizon was discontinuous among test locations.) The Oslo Quad shows that the project area is within what looks like a meander scar on the east bank, and soil profiles are consistent with westward migration of the main river channel. No cultural materials were found along the cutbank or in shovel tests. (At other locations along the Red River, prehistoric sites have been found buried below several meters of accumulated overbank sediments. The scope of this survey, however, does not allow for testing below depths of about two meters. The probability that this property does contain such a deeply-buried site is reduced by the presence of the old meander scar. If there are unidentified buried resources within the property, adverse effect would be essentially limited to reduction of accessibility for deep testing.)

Management Recommendations
Survey results, as described above, did not identify any significant prehistoric or historic resources that might be affected by the proposed project. It was recommended that work proceed as planned with no additional review (SHPO Ref. No. EE-355). (Note: the Oslo dike has recently been the subject of a court battle between Minnesota and North Dakota regarding maximum allowable height of flood-control structures along the Red River. The court has ordered that the Oslo dike by lowered by several feet, but this work had not begun when DNR formulated its construction plans. If the resolution of this conflict results in modification of DNR's final design for this access, the revised design will be subject to additional review.)

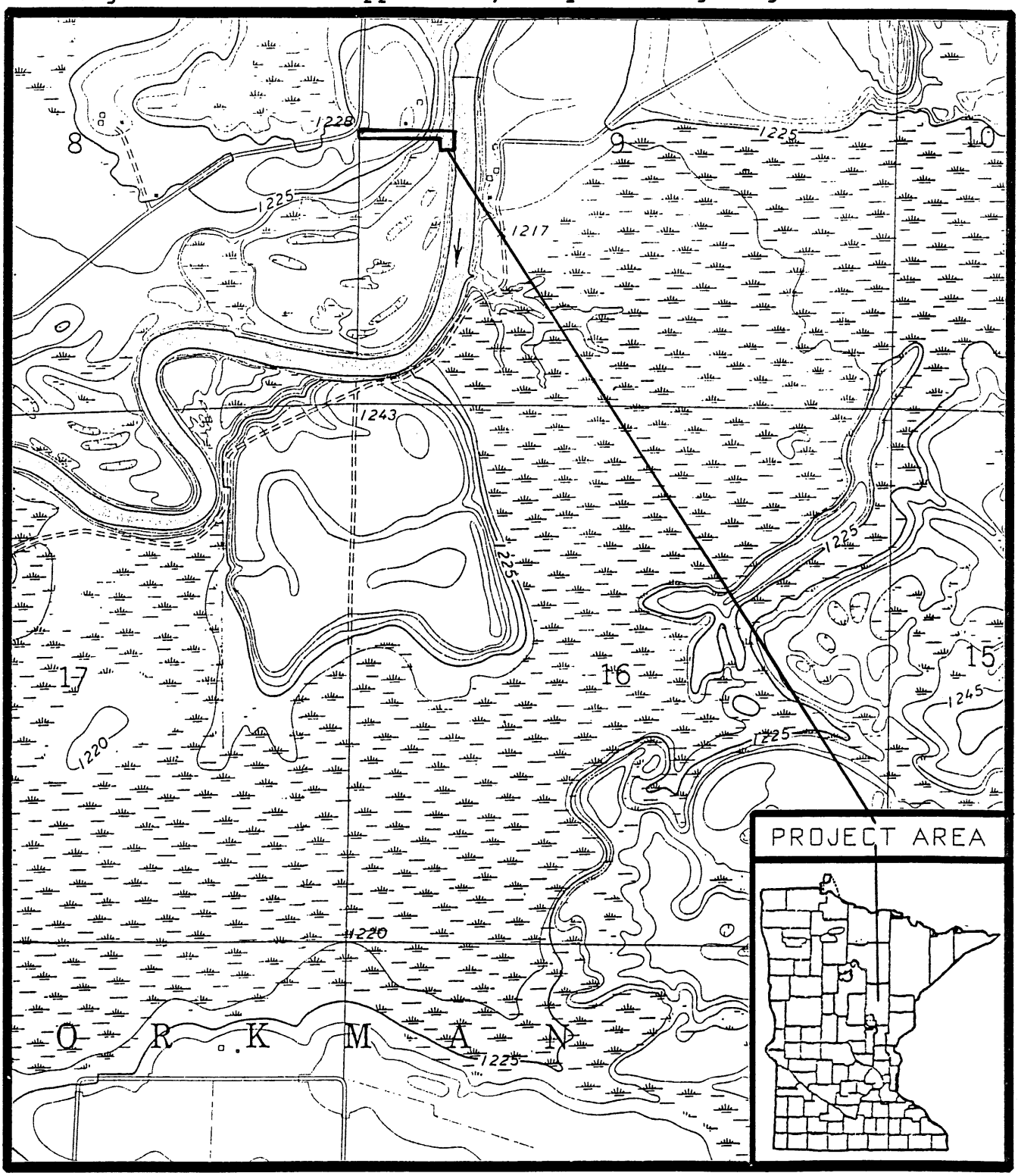
REGION II - NORTHEAST

Aitkin County

Mississippi River/Ferry Crossing

Location
West bank of the river, adjacent to County Road 10, 5 miles northeast of Palisade, MN (see Figure 43).

Figure 43. Mississippi River/Ferry Crossing Project Area



USGS Palisade Quadrangle, 1970, 7.5′ series (enlarged 1.42X - 1:17,000)

Physiographic Province
Glacial Lakes Upham & Aitkin (Wright, 1972).

Geomorphic Region
Aitkin Lacustrine Plain (Minnesota Soil Atlas Project, Duluth Sheet, 1977).

Scope of Project
Development of new facilities for access to the Mississippi River. The project area was formerly the site of a ferry crossing, for which a large cut was made in the riverbank. (No documentary evidence has been found regarding the dates of operation of this ferry.) DNR plans to install a concrete ramp in the existing cut, and construction an 8-unit parking area adjacent to it. The present dirt road between County Road #10 and the river will be slightly widened and re-surfaced, but no alignment changes will be made.

Description of Project Area
At the time of survey, the entire parcel was covered by tall grass with a fringe of hardwoods immediately along the river bank. DNR's proposed parking area is on a level bench about 8' above the river. The existing access road also crosses a second terrace about 12' higher than the first.

Records Review
Previous surveys: The only known cultural resource research in the vicinity was a survey of County Road 10 between TH #169 and TH #200. This work was conducted by the County-Municipal Highway Survey prior to the start of a major road rehabilitation project that was completed in the summer of 1987.

Known sites: A review of state site files indicated that there is one recorded prehistoric find spot in the vicinity of the project area: 21AK9002, recorded by the County-Municipal Highway Survey in 1979, on a low hill about 1-1/4 miles northeast of DNR's property. Information was received from a local collector about lithic artifacts having been found in that location, which was within a proposed alternative county road alignment. No subsurface testing of the area was done (Anfinson 1979:5-11).

Field Review
Methods: Bank exposures on both sides of the existing cut and along the river's edge were examined for cultural materials, and a grid of shovel tests was dug in the proposed parking area. Additional shovel tests were dug along the southern edge of the existing entry road alignment on the upper terrace.

Results: Soils on the lower terrace were silty clay loam over dense silty clay. An examination of the exposed profile in the bank cut indicated that the dense clay horizon continued to the water level. Soil probes were done to depths of 1.5 meters in several shovel test locations; these also showed no evidence of buried soil horizons down to that depth. On the upper terrace, very sandy loam overlays coarse sands and till. No cultural materials were found along the riverbank or in any shovel test.

Management Recommendations
No structures or structural remnants possibly associated with operation of the ferry were found within the project area. No other significant historic or prehistoric sites appear to exist on the property. It was recommended that the proposed

construction proceed with no additional review (SHPO Ref. No. 88-0627).

St. Louis County

Floodwood River

Location
West bank of the Floodwood River, within the City of Floodwood, about 3/4 mile upstream from its confluence with the St. Louis River (see Figure 44).

Physiographic Province
Glacial Lakes Aitkin & Upham (Wright, 1972).

Geomorphic Region
Upham Lacustrine Plain (Minnesota Soil Atlas Project, Duluth Sheet, 1977).

Scope of Project
Development of a new Public Water Access to the Floodwood River. Construction will include a 10-unit parking area, entry road and concrete plank ramp. A cut will be made in the riverbank for the ramp; the rest of the work will be at or above existing grade.

Description of Project Area
The property is owned by the City, which has entered into a cooperative agreement with DNR for development and maintenance of Public Water Access facilities. The parcel is adjacent to the St. Louis County Highway Department maintenance shops, and bordered along the north by a wetland area. Most of the parcel was previously filled and graded by the City.

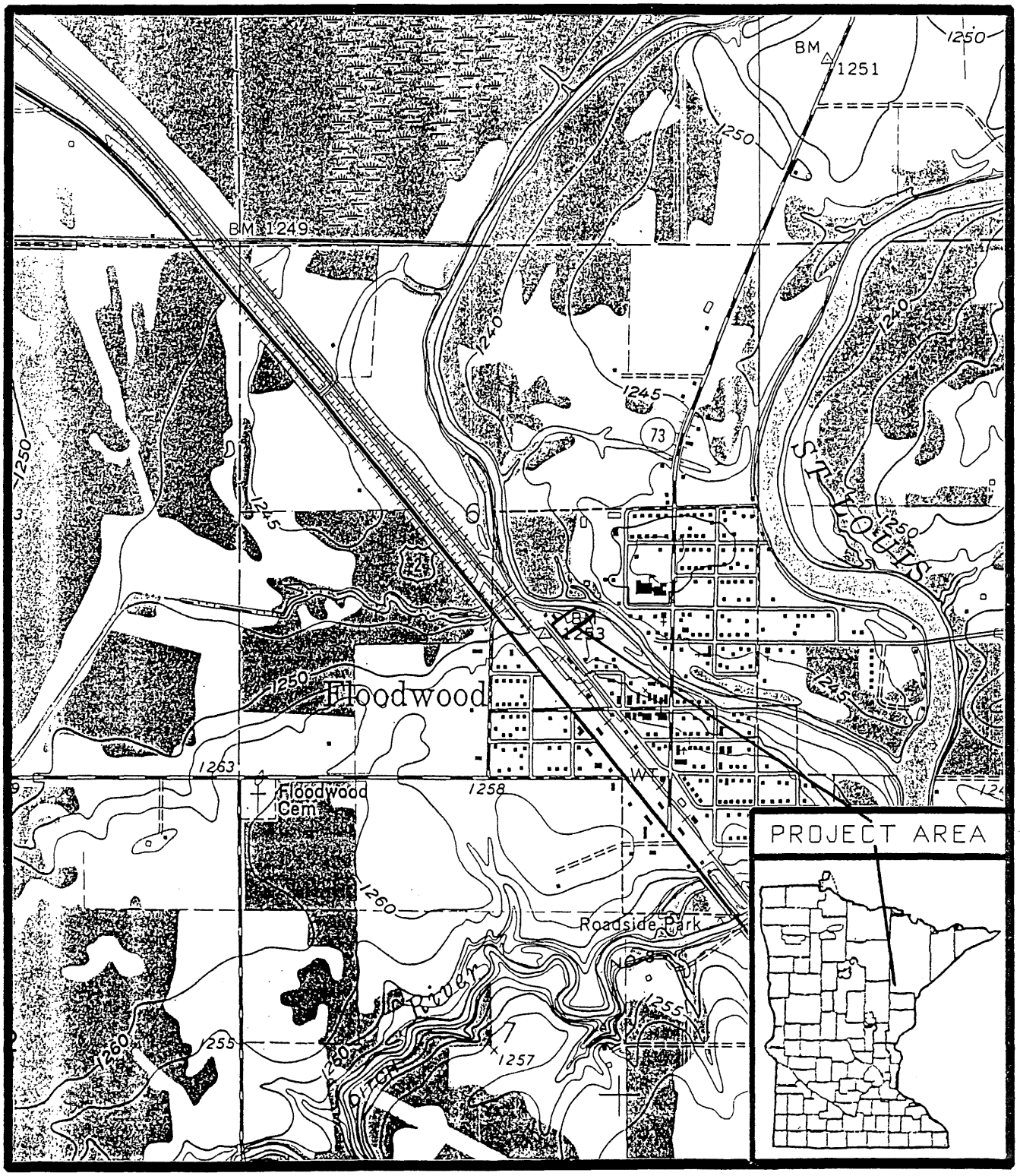
Records Review
Previous surveys: No evidence was found that there have been any formal cultural resource surveys within a 1-mile radius of the project area.

Known sites: A review of state site files indicated that there are no recorded cultural resources in the vicinity of the proposed access development.

Field Review
Methods: Surface reconnaissance along cutbank (maximum c. 3 m high) within property boundaries; shovel tests in proposed ramp and parking lot areas. Most of the project area was not accessible for subsurface survey, because of paving material (broken bituminous surfacing and gravel) spread over the former street. An area about 30 meters wide along the river's edge is outside the area previously filled and graded by the City; this area was shovel-tested at a 15-meter interval.

Results: Soils were uniformly very sandy loams over fine sand. No cultural materials were found in any shovel test or along the cutbank within the boundaries of the project area.

Figure 44. Floodwood River Project Area



USGS Floodwood Quadrangle, 1963, 7.5′ series (enlarged 1.42X - 1:17,000)

Management Recommendations
It appeared that the proposed project would not affect any significant historic or prehistoric resources. It was recommended that the project proceed with no additional review (SHPO Ref. No. EE-21).

REGION III - CENTRAL

Kanabec County

Snake River/Highway 65

Location
Level terrace on the north bank of the river, 1 mile north of McGrath, MN, just downstream from the TH #65 bridge over the Snake River (see Figure 45).

Physiographic Province
Brainerd-Automba Drumlin Area (Wright, 1972).

Geomorphic Region
Automba Drumlin Area (Minnesota Soil Atlas Project, Duluth Sheet, 1977).

Scope of Project
Development of a carry-in canoe access to the Snake River. Construction will include an 8-unit parking area, entry road and gravel path to the riverbank. The parking area will be built at or above existing grade; the walkway to the river will cross over the top of the dike and terminate in a flight of timber steps leading to the river.

Description of Project Area
The property is roughly triangular, bounded on the north and east by County Road #61 and on the river side by a flood-control dike. The property has been cleared but not otherwise developed, and is presently used as a trespass canoe access to the Snake River. At the time of survey, it was covered with brush and several stands of young aspen and birch.

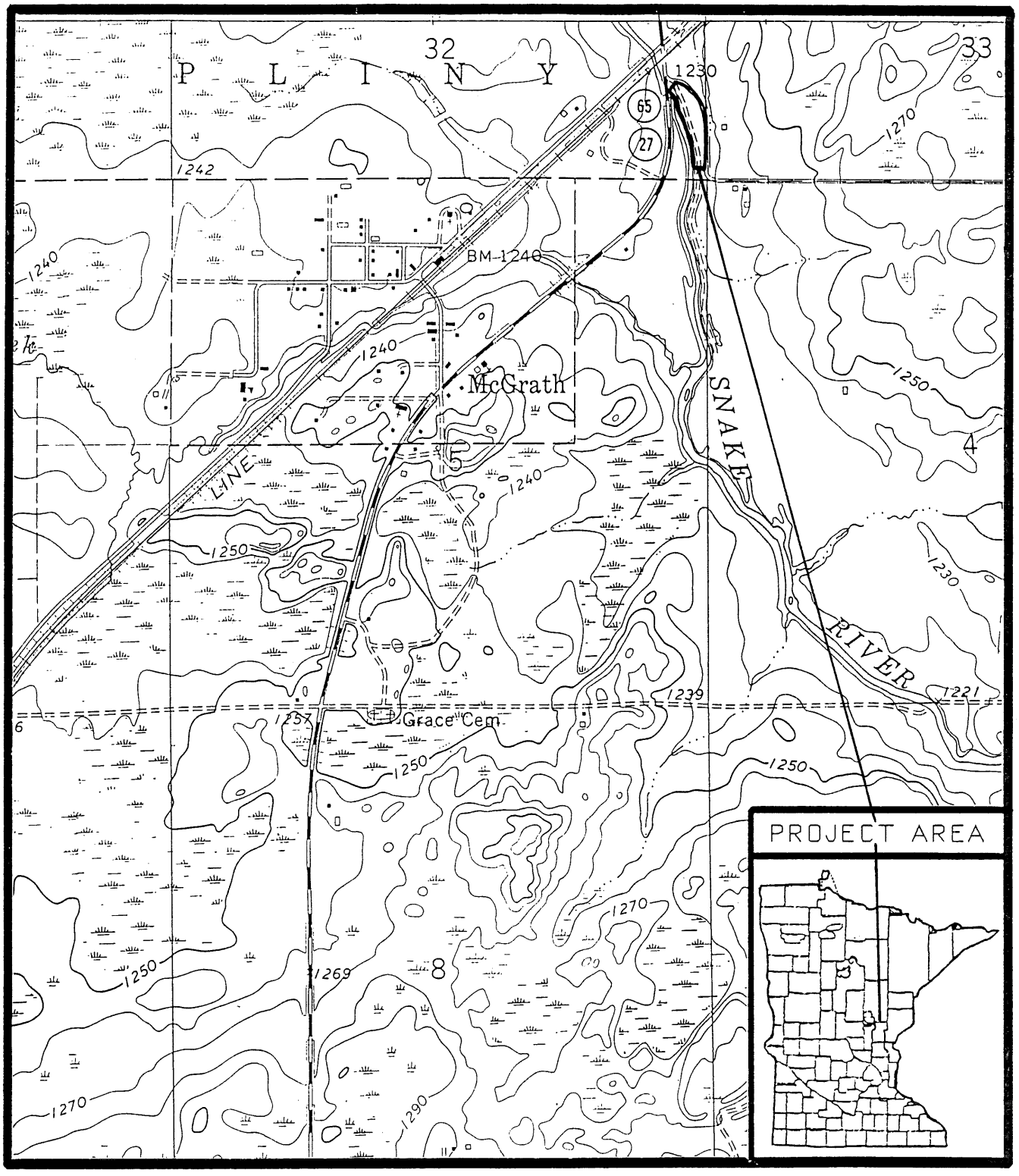
Records Review
Previous surveys: There have been no formal cultural resource surveys in the vicinity of the project area.

Known sites: A review of state site files indicated that there are no recorded historic or prehistoric sites within a 1-mile radius of the project area.

Field Review
Methods: Shovel tests in a 15-meter grid over the proposed parking area.

Results: Soil profiles showed that this segment of terrace is essentially intact and does not appear to have been subject to deposition of substantial amounts of overbank sediments. At this location, close to its headwaters, the Snake River is still fairly small, with few upstream tributaries. Water levels along this portion

Figure 45. Snake River/Highway 65 Project Area



USGS McGrath Quadrangle, 1968, 7.5′ series (enlarged 1.42X - 1:17,000)

of the river do not fluctuate as drastically as they do further downstream. Soils appear to have developed on coarse ground moraine materials, including quite a bit of cobble-sized till which occurs throughout the profiles. No cultural materials were found in shovel tests.

Management Recommendations

It appeared that the proposed project will not affect any significant prehistoric or historic resources. A recommendation was made that work proceed with no additional review (SHPO Ref. No. EE-356).

APPENDIX I. REFERENCES CITED

Agricultural Experiment Station, University of Minnesota.
1969-81 Minnesota Soil Atlas Project. In cooperation with the U.S. Department of Agriculture-Soil Conservation Service, St. Paul.

Anfinson, Scott F.
1979 Minnesota Municipal and County Highway Archaeological Reconnaissance Study: Annual Report - 1978. Minnesota Department of Transportation and Minnesota Historical Society, St. Paul.

Brew, Alan
1979 Field Investigation of Archaeological Potential of Proposed Harbor Area, Point View Resort, Leech Lake, Cass County, Minnesota, NCSCO-GR(78-017). Report submitted to U.S. Army Engineers Corps, St. Paul District Office.

1981 Field Investigation of Archaeological Potential, Piepenburg Park, McLeod County, Minnesota. Report submitted to McLeod County Parks Commission.

n.d. Field Notes and Artifact Catalog, 21CA10. On file, Bemidji State University Archaeology Laboratory.

Council for Minnesota Archaeology
1977 Archaeological Survey Standards for Minnesota. Unpublished Manuscript.

Emerson, Patricia M.
1987 DNR Unit Water Access Program Archaeological Reconnaissance Survey - Annual Report, 1985/86. Minnesota Department of Natural Resources and Minnesota Historical Society, St. Paul.

Johnson, Elden
1977 Cultural Resources Inventory of Lands Adjacent to Lake Winnibigoshish. Report submitted to U.S. Army Corps of Engineers, St. Paul District.

1978 The Prehistoric Peoples of Minnesota. Minnesota Prehistoric Archaeology Series, No. 3. St. Paul: Minnesota Historical Society.

Peterson, Leslie D.
1980 The Minnesota Trunk Highway Archaeological Reconnaissance Survey: Annual Report-1979. Minnesota Department of Transportation and the Minnesota Historical Society, St. Paul.

APPENDIX I, continued

Peterson, Leslie D. and Terry J. Pfutzenreuter
1979 The Minnesota Trunk Highway Archaeological Reconnaissance Survey: Annual Report-1978. Minnesota Department of Transportation and the Minnesota Historical Society, St. Paul.

Peterson, Leslie D. and William J. Yourd
1983 The Minnesota Trunk Highway Archaeological Reconnaissance Survey: Annual Report-1982. Minnesota Department of Transportation and the Minnesota Historical Society, St. Paul.

Soil Survey Staff
1972 Blue Earth County Soil Survey. St. Paul: USDA-Soil Conservation Service, Agricultural Experiment Station.

State Archaeologist's Office
var. Minnesota State Site Files. On file.

State Historic Preservation Office
var. Minnesota Cultural Resource Survey Report Files. On file.

1978-81 Field Notes, Minnesota Statewide Archaeological Survey. On file.

1985 The National Register of Historic Places - Minnesota Checklist. St. Paul:State Historic Preservation Office.

U.S. Department of the Interior-Forest Service
1985 Chippewa National Forest - Cultural Resource Site Files. On file.

Wilford, Lloyd A.
var. County Memos. On file.

Winchell, Newton V.
1911 The Aborigines of Minnesota. Minnesota Historical Society, St. Paul.

WPA
var. Historic Markers, Monuments, Indian Burials: Becker-Yellow Medicine Counties. On file, Minnesota Historical Society.

APPENDIX I, continued

Wright, H.E. Jr.
1972 'Physiography of Minnesota" in Sims & Morey,eds., Geology of Minnesota: A Centennial Volume. Minnesota Geological Survey, University of Minnesota, St. Paul.

APPENDIX II. SUMMARY OF FEDERAL AND STATE CULTURAL RESOURCE MANAGEMENT LEGISLATION AND REGULATIONS

FEDERAL STATUTES AND REGULATIONS

The National Historic Preservation Act of 1966 (P.L. 89-665)
- establishes Advisory Council on Historic Preservation
- prescribes procedures to be followed when Federal undertakings may affect cultural resources

The National Environmental Policy Act of 1969 (P.L. 91-190)
- incorporates consideration of cultural resources into overall environmental assessment process for Federal undertakings

The Archaeological and Historic Preservation Act of 1974 (P.L. 93-291)
- expands cultural resource management requirements to all Federally funded, licensed or permitted activities
- authorizes inclusion of costs of cultural resource management activities in overall project funding

Procedures for the Protection of Historic and Cultural Properties (36CFR60; 36CFR800)
- establish specific process to be followed for identification and evaluation of significant resources
- define criteria for determining significance of identified properties
- delineate procedures to be followed for nomination of properties to NRHP

Archaeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines (Federal Register, 9/29/83)
- define historic preservation planning process as it is to be carried out by State Historic Preservation Office
- broadly delineate various phases of the resource identification and evaluation process
- establish minimum professional qualifications for personnel carrying out preservation activities

STATE STATUTES AND REGULATIONS

The Outdoor Recreation Act of 1975 (MN Statutes, Chapter 86A)
- establishes the state's interest in the preservation and proper utilization of 'cultural and historic resources' for recreational and educational purposes
- charges DNR, in cooperation with MHS and other agencies, with establishment and maintenance of a registry of all entities that comprise the Minnesota Outdoor Recreation System, including state historic sites, scientific and natural areas, and other facilities that include cultural resources

APPENDIX II, continued

Minnesota Environmental Rights Act (MN Statutes, Chapter 116B)
- defines the state's interest in providing protection to historic as well as other types of resources
- allows individuals to sue for suspension of activities causing damage to resources covered under the Act

The Field Archaeology Act of 1963 (MN Statutes, Chapter 138)
- establishes licensing requirements for archaeological research on state lands
- requires state agencies to submit project information for review by MHS, SAO and MIAC
- charges MHS and SAO with the right and responsibility to enforce the provisions of the law and establish necessary regulations

The Private Cemeteries Act (MN Statutes, Chapter 307.08)
- establishes policy regarding treatment of human interments outside of platted cemeteries
- requires review of projects that have the potential to disturb human interments outside platted cemeteries
- charges SAO with the right and responsibility to enforce provisions of the law and establish necessary regulations in cooperation with MIAC

Policies and Procedures of the State Archaeologist's Office Regarding Implementation of Chapter 307.08
- establish procedures for identification and treatment of human interments not in platted cemeteries
- define preferred strategies for protecting unplatted interments or, when necessary, for mitigating unavoidable disturbance
- define responsibilities for determination of appropriate treatment

Archaeological Survey Standards for Minnesota (SAO, 1977)
- establish minimum standards for performing compliance-oriented field research
- provide guidelines for professionally-acceptable documentation of survey results

APPENDIX III. PROJECTS REVIEWED, 1985-87, BY DNR REGION

REGION I

Project Name	County	Results/Project Status	Years
Big Floyd Lake	Becker	negative	1987
Long Lake	Becker	negative	1987
Lake Sallie	Becker	21BK33 - site area avoided during construction	1986,87
Grace Lake	Beltrami	negative	1986
Campbell Lake	Beltrami	negative	1987
Lake Geneva/West	Douglas	negative	1986
Big Sand Lake	Hubbard	negative	1987
Blue Lake	Hubbard	negative	1986
Eagle Lake	Hubbard	negative	1987
East Crooked Lake	Hubbard	negative	1987
Lake Hattie	Hubbard	21HB21 - site area avoided during construction	1987
Island Lake	Hubbard	negative	1987
Red River/Oslo	Marshall	negative	1987
Franklin Lake	Otter Tail	negative	1986
Lake Marion	Otter Tail	21OT97 - site evaluation scheduled for 1988	1987
Lake Leven	Pope	negative	1987

REGION II

Project Name	County	Results	Years
Esquagamah Lake	Aitkin	negative	1987
Hanging Kettle Lake	Aitkin	21AK-9001 - severely disturbed; no evaluation	1986
Mississippi/Ferry Crossing	Aitkin	negative	1987
Deer Lake	Itasca	negative	1987
Johnson Lake	Itasca	negative	1987
Sucker Lake	Itasca	negative	1986
Little Fork R./Highway 11	Koochiching	21KC2 - data recovery recommended	1986
Little Fork R./Lofgren	Koochiching	negative	1986
Big Fork R./Big Falls	Koochiching	21KC9 - secondary deposition; no evaluation	1986
White Iron Lake	Lake	negative	1986
Armstrong Lake	St. Louis	negative	1986,87
Floodwood River	St. Louis	negative	1987
Shagawa Lake	St. Louis	negative	1986

APPENDIX III, continued

REGION III

Project Name	County	Results	Years
Snake River/Highway 65	Aitkin	negative	1987
Boy Lake	Cass	negative	1986
Inguadona Lake	Cass	negative	1986
Leech Lake/Sugar Point	Cass	21CA10 - evaluation completed	1987
Long/Pickeral Lake	Cass	negative	1987
Sanburn Lake	Cass	21CA161 - evaluation recommended	1986
Mississippi R./Highway 6	Crow Wing	negative	1986
Nokasippi River	Crow Wing	21CW65 - evaluation completed	1986
Borden Lake	Crow Wing	21CW101 - evaluation completed	1985,86
Pelican Lake/Halvorsen Bay	Crow Wing	negative	1986
Snake River/Co. Rd. 11	Kanabec	negative	1986
Big Fish Lake	Stearns	negative	1986
Big Watab Lake	Stearns	negative	1986
Pearl Lake	Stearns	negative	1985
Stocking Lake	Wadena	negative	1987

REGION IV

Project Name	County	Results	Years
Artichoke Lake	Big Stone	negative	1986
LeSueur River	Blue Earth	negative	1985
Loon Lake	Blue Earth	21BE71 - evaluation scheduled for 1988	1987
Madison Lake	Blue Earth	negative	1987
Minnesota/Fredrickson	Chippewa	negative	1986
Lake Hendricks	Lincoln	negative	1987
Budd Lake	Martin	negative	1986
Sisseton Lake	Martin	21MR23 - outside construction area	1986
Stahlis Lake	McLeod	negative	1986
Belle Lake	Meeker	negative	1987
Little Mud Lake	Meeker	negative	1987
Lake Manuella	Meeker	negative	1987
Round Lake	Meeker	negative	1987

APPENDIX III, continued

REGION V

Project Name	County	Results	Years
Circle Lake	Rice	negative	1986
Fox Lake	Rice	negative	1986
Horseshoe Lake	Rice	negative	1987
Shields Lake	Rice	negative	1986

REGION VI

Project Name	County	Results	Years
West Rush Lake	Chisago	negative	1987
Christmas Lake	Hennepin	negative	1986
Little Long Lake	Hennepin	negative	1986
Minnetonka/Halstead's Bay	Hennepin	negative	1985
Cedar Lake	Scott	negative	1986
Thole Lake	Scott	negative	1985
Big Carnelian Lake	Washington	negative	1987
Big Marine Lake	Washington	21WA46 - site avoided by construction	1987
Bone Lake	Washington	21WA53 - evaluation completed	1986
Clear Lake	Washington	negative	1986
Buffalo Lake	Wright	negative	1987
Cokato Lake	Wright	negative	1986
French Lake	Wright	negative	1986
Granite Lake	Wright	negative	1986
Ramsey Lake	Wright	negative	1985

APPENDIX IV. PROJECTS REVIEWED, 1985-87, BY COUNTY

County	Project Name	Results/Project Status	Year(s)
Aitkin	Esquagamah Lake	negative	1987
	Hanging Kettle Lake	21AK-9001 - severely disturbed; no evaluation	1986
	Mississippi/Ferry Crossing	negative	1987
	Snake River/Highway 65	negative	1987
Becker	Big Floyd Lake	negative	1987
	Long Lake	negative	1987
	Lake Sallie	21BK33 - site avoided during construction	1986,87
Beltrami	Grace Lake	negative	1986
	Campbell Lake	negative	1987
Big Stone	Artichoke Lake	negative	1986
Blue Earth	LeSueur River	negative	1985
	Loon Lake	21BE71 - evaluation scheduled for 1988	1987
	Madison Lake	negative	1987
Cass	Boy Lake	negative	1986
	Inguadona Lake	negative	1986
	Leech Lake/Sugar Point	21CA10 - evaluation completed	1987
	Long/Pickeral Lake	negative	1987
	Sanburn Lake	21CA161 - evaluation recommended	1986
Chippewa	Minnesota R./Fredrickson	negative	1986
Chisago	West Rush Lake	negative	1987
Crow Wing	Mississippi R./Highway 6	negative	1986
	Nokasippi River	21CW65 - evaluation completed	1986
	Borden Lake	21CW101- evaluation completed	1985,86
	Pelican Lake/Halvorsen Bay	negative	1986
Douglas	Lake Geneva/West	negative	1986
Hennepin	Christmas Lake	negative	1986
	Little Long Lake	negative	1986
	Minnetonka/Halstead's Bay	negative	1985
Hubbard	Big Sand Lake	negative	1987
	Blue Lake	negative	1986
	Eagle Lake	negative	1987
	East Crooked Lake	negative	1987
	Lake Hattie	21HB21 - site avoided by construction	1987
	Island Lake	negative	1987

APPENDIX IV, continued

County	Project Name	Results/Project Status	Year(s)
Itasca	Deer Lake	negative	1987
	Johnson Lake	negative	1987
	Sucker Lake	negative	1986
Kanabec	Snake R./Co. Rd. 11	negative	1986
Koochiching	Little Fork R./Highway 11	21KC2 - data recovery recommended	1986
	Little Fork R./Lofgren Park	negative	1986
	Big Fork R./Big Falls	21KC9 - secondary deposition; no evaluation	1986
Lake	White Iron Lake	negative	1986
Lincoln	Lake Hendricks	negative	1987
Marshall	Red River/Oslo	negative	1987
Martin	Budd Lake	negative	1986
	Sisseton Lake	21MR23 - site outside construction area	1986
McLeod	Stahlis Lake	negative	1986
Meeker	Belle Lake	negative	1987
	Little Mud Lake	negative	1987
	Lake Manuella	negative	1987
	Round Lake	negative	1987
Otter Tail	Franklin Lake	negative	1986
	Lake Marion	21OT97 - evaluation scheduled for 1988	1987
Pope	Lake Leven	negative	1987
Rice	Circle Lake	negative	1986
	Fox Lake	negative	1986
	Horseshoe Lake	negative	1987
	Shields Lake	negative	1986
St. Louis	Armstrong Lake	negative	1986,87
	Floodwood River	negative	1987
	Shagawa Lake	negative	1986
Scott	Cedar Lake	negative	1986
	Thole Lake	negative	1985

APPENDIX IV, continued

County	Project Name	Results/Project Status	Year(s)
Stearns	Big Fish Lake	negative	1986
	Big Watab Lake	negative	1986
	Pearl Lake	negative	1985
Wadena	Stocking Lake	negative	1987
Washington	Big Carnelian Lake	negative	1987
	Big Marine Lake	21WA46 - site outside construction area	1987
	Bone Lake	21WA53 - evaluation completed	1986
	Clear Lake	negative	1986
Wright	Buffalo Lake	negative	1987
	Cokato Lake	negative	1986
	French Lake	negative	1986
	Granite Lake	negative	1986
	Ramsey Lake	negative	1985

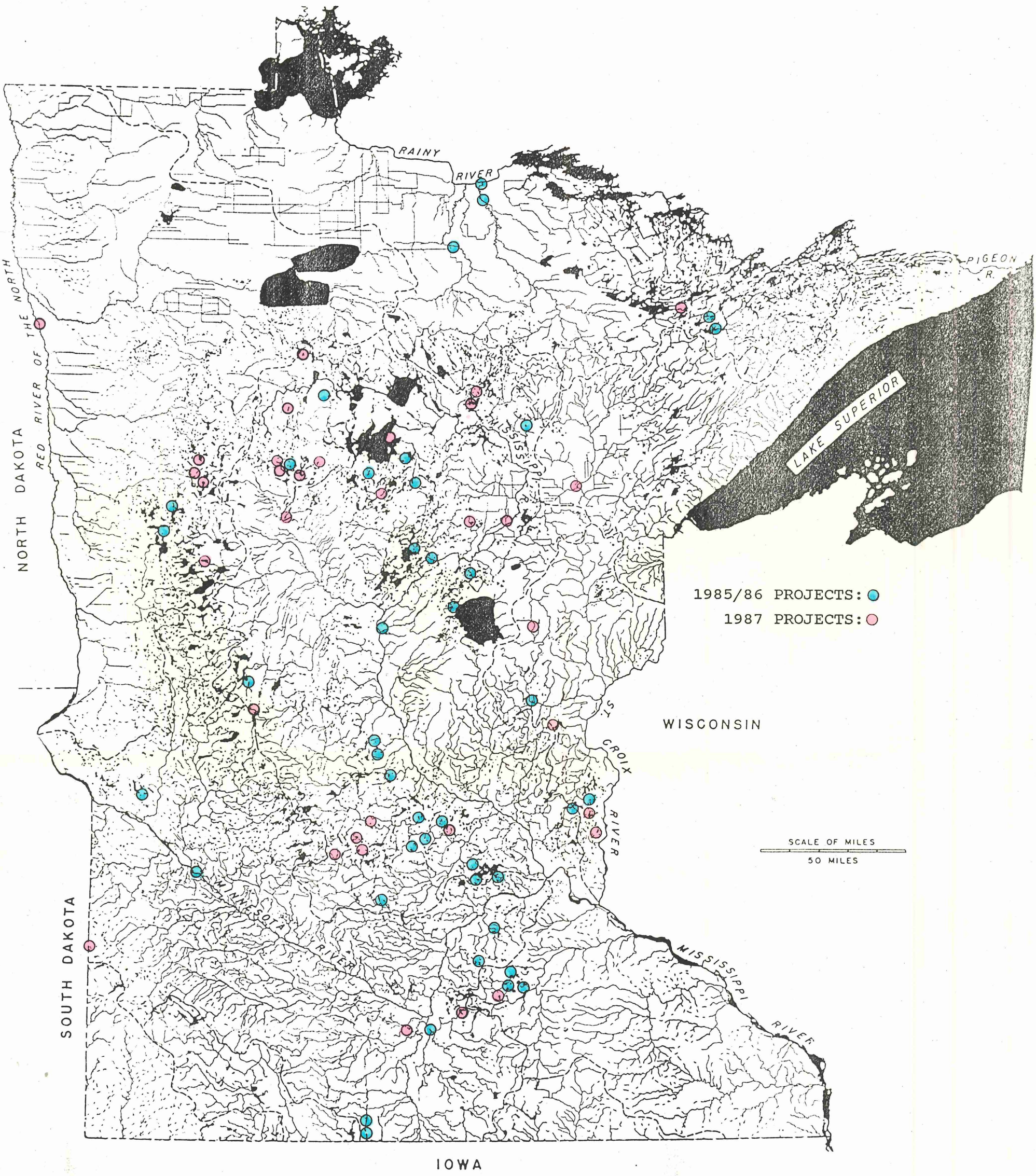
APPENDIX V. PROJECT LOCATIONS, 1985-87

County	Project Name	Location	Year(s)
Aitkin	Esquagamah Lake	T. 49N-26W, Sec. 18; W 1/2, SW NW SW.	1987
	Hanging Kettle Lake	T. 46N-27W, Sec. 14; NW NW SW NE.	1986
	Mississippi/Ferry Crossing	T. 49N-24W, Sec. 9; NW NE NW SW & N 1/2, NW NW SW.	1987
	Snake River/Highway 65	T. 44N-23W, Sec. 32; E 1/2, NE SE SE.	1987
Becker	Big Floyd Lake	T. 139N-41W, Sec. 15; W 1/2, SE NW SW NW & E 1/2, SW NW SW NW	1987
	Long Lake	T. 139N-41W, Sec. 29; SE NW SE SW & S 1/2, N 1/2, SE SE SW	1987
	Lake Sallie	T. 138N-41W, Sec. 8; SE NW SW NE & NE SE SW NE.	1986/87
Beltrami	Grace Lake	T. 146N-32W, Sec. 32; SW SW SE SE.	1986
	Campbell Lake	T. 148N-34N, Sec. 24; center 1/3 S 1/2 NE NE SW & center 1/3 N 1/2 SE NE SW.	1987
Big Stone	Artichoke Lake	T. 121N-44W, Sec. 1; S 1/2, SE SE NE.	1986
Blue Earth	LeSueur River	T. 107N-27W, Sec. 12; SE SE SE SE.	1985
	Loon Lake	T.107N-28W, Secs. 3; SW SW NE SW & Sec. 10; W 1/2, W 1/2, NW NE NW & W 1/2, W 1/2, SE NE NW.	1987
	Madison Lake	T. 108N-25W, Sec. 2; SW NE SE NW.	1987
Cass	Boy Lake	T. 142N-28W, Sec. 25; SE SE NE SE & NE NE SE SE.	1986
	Inguadona Lake	T. 140N-27W, Sec. 8; N 1/2, NE SE NW.	1986
	Leech Lake/Sugar Point	T.143N-29W; NW NE NE NE Sec. 36; S 1/2 SE SE SE Sec. 25.	1987
	Long/Pickeral Lake	T. 140N-29W, Sec. 33; S 1/2, SE SE SE.	1987
	Sanburn Lake	T. 139N-30W, Sec. 22; NE NW SE SE.	1986
Chippewa	Minnesota R./Fredrickson	T. 115N-39W, Sec. 13; NE NE SE SE NW.	1986
Chisago	West Rush Lake	T. 37N-22W, Sec. 16; NW NE NW SE & N 1/3, NW NW SE.	1987
Crow Wing	Mississippi R./Highway 6	T. 47N-29W, Sec. 24; NW NE SW NW.	1986
	Nokasippi River	T. 43N-32W, Sec. 27; E 1/2, NW NW SE.	1986
	Borden Lake	T. 44N-28W, Sec. 11; center, SW SE NE.	1985/86
	Pelican Lake/Halvorsen Bay	T. 136N-28W, Sec. 12; NW NW SE NW.	1986
Douglas	Lake Geneva/West	T. 128N-37W, Sec. 9; SE SW NE NE.	1986
Hennepin	Christmas Lake	T. 117N-23W, Sec. 35; SE NE SW NE.	1986
	Little Long Lake	T. 117N-24W, Sec. 10; NW NW SW SW.	1986
	Minnetonka/Halstead's Bay	T. 117N-24W, Sec. 27; E 1/2, SE SE NW.	1985
Hubbard	Big Sand Lake	T. 141N-34W, Sec. 27; E 1/2, SW SW SE & Sec. 34; E 1/2, NW NW NE.	1987
	Blue Lake	T. 141N-34W, Sec. 20; NW NE NW NE.	1986
	Eagle Lake	T. 141N-35W, Sec. 22; N 1/2, S 1/2, SW NW.	1987
	East Crooked Lake	T. 141N-33W, Sec. 14; N 1/2, NE NW NW.	1987
	Lake Hattie	T. 144N-35W, Sec. 25; NW NW NE NE & NE NE NW NE.	1987
	Island Lake	T. 141N-35W, Sec. 5; NW SE SW NE.	1987
Itasca	Deer Lake	T. 56N-26W, Sec. 6; NE NE SE SW.	1987
	Johnson Lake	T. 57N-26W, Sec. 13; S 1/2, SE NE SW.	1987
	Sucker Lake	T. 57N-23W, Sec. 33; NW NE NW SE.	1986
Kanabec	Snake R./Co. Rd. 11	T. 38N-23W, Sec. 6; center, SW SW NW.	1986
Koochiching	Little Fork R./Highway 11	T. 70N-25W, Sec. 29; SE NW SE SW & SW NE SE SW.	1986
	Little Fork R./Lofgren Park	T. 68N-25W, Sec. 9; S 1/2, SW NE NW.	1986
	Big Fork R./Big Falls	T. 155N-25W,Sec. 35; N 1/2, NE SE SE & N 1/2, NW SE SE.	1986

APPENDIX V, continued

County	Project Name	Location	Year(s)
Lake	White Iron Lake	T. 63N-11W, Sec. 31; SW NE NE SW.	1986
Lincoln	Lake Hendricks	T. 112N-46W, Sec. 19; SW SW SW SW.	1987
Marshall	Red River/Oslo	T. 154N-50W, Sec. 6; NW NW NW NE.	1987
Martin	Budd Lake	T. 102N-30W, Sec. 17; SW SW NW SW.	1986
	Sisseton Lake	T. 102N-30W, Sec. 8; W 1/2, SE NW SW.	1986
McLeod	Stahlis (Stahls) Lake	T. 117N-30W, Sec. 11; SW SW SW SW.	1986
Meeker	Belle Lake	T. 118N-30W, Sec. 35; NE NW SE SW.	1987
	Little Mud Lake	T. 121N-30W, Sec. 22; NW NE NW SE & NE NW NW SE.	1987
	Lake Manuella	T. 118N-30W, Sec. 3; N 1/2, SE NW SW.	1987
	Round Lake	T. 119N-31W, Sec. 36; NW NW NW NE.	1987
Otter Tail	Franklin Lake	T. 137N-42W, Sec. 22; NW SW SE SW.	1986
	Lake Marion	T. 135N-39W, Sec. 7; N 1/2, NE NE SE.	1987
Pope	Lake Leven	T.126N-37W, Sec. 13; SE SE NW NW & SW SW NE NW.	1987
Rice	Circle Lake	T. 111N-21W, Sec. 16; S 1/2, SW NW NW.	1986
	Fox Lake	T. 111N-21W, Sec. 27; E 1/2, SE SW SE & Sec. 34; E 1/2, NE NW NE.	1986
	Horseshoe Lake	T. 109N-22W, Sec. 7; NE SW SW SW & NW SE SW SW.	1987
	Shields Lake	T. 111N-22W, Sec. 35; SW NE NW.	1986
St. Louis	Armstrong Lake	T. 62N-14W, Sec. 15; SE SW NE SE & SE NE SE.	1986/87
	Floodwood River	T. 51N-20W, Sec. 6; SW SE NW SE & SE SW NW SE.	1987
	Shagawa Lake	T. 63N-12W, Sec. 27; SW SW NE NW & NW NW SE NW.	1986
Scott	Cedar Lake	T. 113N-22W, Sec. 18; E 1/2, SW NW SE.	1986
	Thole Lake	T. 115N-23W, Sec. 25; N 1/2, NW NE NW SE.	1985
Stearns	Big Fish Lake	T. 124N-30W, Sec. 20; E 1/2, NE SE SE.	1986
	Big Watab Lake	T. 124N-30W, Sec. 9; NW NW SE SE.	1986
	Pearl Lake	T. 122N-29W, Sec. 3; E 1/2, NW NW SE.	1985
Wadena	Stocking Lake	T. 138N-35W, Sec. 23; N 1/2, NE SE NE.	1987
Washington	Big Carnelian Lake	T. 31N-20W, Sec. 34; NE NE NW NE SE & E 1/2, SE SW SE NE.	1987
	Big Marine Lake	T. 32N-20W, Sec. 20; N 1/2, NW NW SE.	1987
	Bone Lake	T. 32N-20W, Sec. 5; W 1/2, SW NW NE.	1986
	Clear Lake	T. 32N-21W, Sec. 18; SE NE SE NW.	1986
Wright	Buffalo Lake	T. 120N-26W, Sec. 25; S 1/2, SW NW NE & N 1/2, NW SW NE.	1987
	Cokato Lake	T. 119N-28W, Sec. 14; NE NW SE SE.	1986
	French Lake	T. 120N-28W, Sec. 11; N 1/2, SE SW SW.	1986
	Granite Lake	T. 120N-27W, Sec. 30; NW NW NE NE.	1986
	Ramsey Lake	T. 120N-26W, Sec. 18; SE SE SE NE.	1985

APPENDIX VI. MAP OF PROJECT LOCATIONS, 1985-87


RAINY
RIVER
PIGEON
R.
LAKE SUPERIOR
NORTH DAKOTA
RED RIVER OF THE NORTH
MISSISSIPPI R.
1985/86 PROJECTS:
1987 PROJECTS:
WISCONSIN
ST CROIX RIVER
SCALE OF MILES
50 MILES
SOUTH DAKOTA
MINNESOTA RIVER
MISSISSIPPI RIVER
IOWA