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- sent request to Mary Rose

**Notice:** Use of this form is required by the DNR for any application filed pursuant to ch. NR 198, Wis. Adm. Code. Personal information collected on this form, including such data as your name, address, phone number, etc., will be used for management and enforcement of DNR programs, and is not intended to be used for any other purpose. Information may be made accessible to requesters under Wisconsin's Open Records laws (s. 19.32-19.39, Wis. Stats.) and requirements.

**Section I: Application Type**

Check one:

- Education, Prevention & Planning       Early Detection & Response       Established Infestation Control

Legislative District Numbers		To determine your legislative district, go to <a href="http://165.189.139.210/WAML/">http://165.189.139.210/WAML/</a> Type in complete address, next screen shows information.
Senate	Assembly	
12	38	

**Section II: Applicant Information**

Applicant Beecher Lake District			Type of Eligible Applicants		
Waterbody Name Beecher Lake			<input type="checkbox"/> County	<input type="checkbox"/> Tribe	<input type="checkbox"/> Other Gov't Unit
Project County/Township/Section/Range Marinette County, T36N, R20E, S28			<input type="checkbox"/> City	<input type="checkbox"/> Sanitary Dist.	<input type="checkbox"/> Nonprofit Org.
			<input type="checkbox"/> Village	<input checked="" type="checkbox"/> Dist.	<input type="checkbox"/> College, School, etc.
			<input type="checkbox"/> Town	<input type="checkbox"/> Assoc.	<input type="checkbox"/> Federal
			<input type="checkbox"/> State	<input type="checkbox"/> Other	
Authorized Representative Named by Resolution Nancy McKenny			Project Contact Name Joe Siuddzinski		
Authorized Representative Title Chair, Beecher Lake District			Project Contact Title Grant Coordinator		
Address 801 South Kensington Drive			Address 4398 Lime Kiln Road		
City Appleton	State WI	ZIP Code 54915	City Green Bay	State WI	ZIP Code 54311
Daytime Phone (area code) (920) 570-2196	Evening Phone (area code) (920) 739-1213	Daytime Phone (area code) (715) 737-0517	Evening Phone (area code) (920) 337-4913		
E-mail Address Rodmckenny@aol.com			E-Mail Address joseph.siuddzinski@gapac.com		

**Mail Check to:** (if different from applicant)

Name and Title	Address
Organization	City      State      ZIP Code

**For DNR Use Only**

Application Type	Date Received	Date Reviewed (AIS/LC/RC)	AIS/Lake /River Coordinator Approval /Date
Waterbody ID#	Adequate Public Access <input type="checkbox"/> Yes <input type="checkbox"/> No	Environmental Grants Specialist Approval / Date	
Eligible Project <input type="checkbox"/> Yes <input type="checkbox"/> No	Eligible Applicant <input type="checkbox"/> Yes <input type="checkbox"/> No	Project Priority Rank	Research / Demo Project <input type="checkbox"/> Yes <input type="checkbox"/> No
Prior Grant Award(s) <input type="checkbox"/> Yes <input type="checkbox"/> No	Fiscal Year(s)	Amount Received To Date \$	Project Awarded <input type="checkbox"/> Yes <input type="checkbox"/> No

# Aquatic Invasive Species (AIS) Control Grant Application

Form 8700-307 (12/11)

Page 2 of 3

**Section III: Project Information**

Project Title Beecher Lake EWM Control Project (Second Phase)	Proposed Ending Date 12/31/15
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Other Management Units	Letter of Support	Other Management Units	Letter of Support
1. Town of Beecher	<input checked="" type="checkbox"/>	4.	<input type="checkbox"/>
2. Marinette County	<input checked="" type="checkbox"/>	5.	<input type="checkbox"/>
3.	<input type="checkbox"/>	6.	<input type="checkbox"/>

**Section IV: Public Access**

Number of Public Vehicle Trailer Parking Spaces Available at Public Access Sites: 6

Number of Public Access Sites Including Boat Launches and Walk-ins: 3

**Section V: Cost Estimate and Grant Request**

<b>Section V must be completed or application will be returned. Details in support of Section V are welcome.</b>	Project Costs		
	Column 1 Cash Costs	Column 2 Donated Value	DNR Use Only
1. Salaries, wages and employee benefits		1,608.00	
2. Consulting services	21,600.00		
3. Purchased services--printing and mailing	200.00		
4. Other purchased services (specify):	151,000.00		
5. Plant material			
6. Supplies (specify)			
7. Depreciation on equipment			
8. Hourly equipment use charges			
9. State Lab of Hygiene (SLOH) Costs			
10. Non-SLOH Lab Costs			
11. Other (specify)	1,327.00		
12. <b>Subtotals</b> (sum each column)	174,127.00	1,608.00	
13. <b>Total Project Cost Estimate</b> (sum of column 1 plus sum of column 2)	175,735.00		
14. <b>State Share Requested (up to 75% of total costs may be requested)</b>	131,801.25		

Subject to the following maximum grant amounts:

- Education, Prevention and Planning Projects--up to \$150,000
- Early Detection and Response Projects--up to \$20,000
- Established Infestation Control Projects--up to \$200,000

Use of Federal funding as match: (check box below if applicable)

We are using or planning to apply for Federal funds to be used as match.

If known, indicate source of funding:

**Section VI: Attachments (check all that are included)**

**A. For all applicants: (Refer to instructions for applicability.)**

- 1. Authorizing resolution
- 2. Letters of support
- 3. Map of project location and boundaries
- 4. Lake map or river segment with public access sites identified (per Section IV of this application and page 20 of the guidelines)
- 5. Itemized breakdown of expenses
- 6. For projects that entail sending samples to the State Laboratory of Hygiene (SLOH) only: a completed SLOH Projected Cost Form
- 7. Project scope/description:
  - a. Description of project area
  - b. Description of problem to be addressed by project
  - c. Discussion of project goals and objectives
  - d. Description of methods and activities
  - e. Description of project products or deliverables
  - f. Description of data to be collected, if applicable
  - g. Description of existing and proposed partnerships
  - h. Discussion of role of project in planning and/or management of lake
  - i. Timetable for implementation of key activities
  - j. Plan for sharing project results
  - k. Other information in support of project not described above

**B. For applicants that are Lake Management Organizations (LMOs), River Management Organizations (RMOs) or Qualified Non-profit Organizations:**

- 1. For first time applicant LMOs/RMOs only: A completed Form 8700-226 (Lake Association Organizational Application) or 8700-287 (River Management Organization Application)
- 2. For first time applicant Qualified Nonprofit Organizations only: Copy of IRS 501(c)(3) determination letter and copies of your Articles of Incorporation and Bylaws
- 3. List of national and/or statewide organizations with which you are affiliated
- 4. List of board members' names, including municipality and county of residence. Designate officers
- 5. Documentation of current financial status
- 6. Brochures, newsletters, annual reports or other information about your organization

**C. Education, Prevention and Planning Projects: (No additional attachments required.)**

**D. Early Detection and Response Projects:**

- 1. APM Permit application

**E. Established Infestation Control Projects:**

- 1. Management Plan
- 2. APM Permit application

**Section VII: Certification**

I certify that information in this application and all its attachments are true and correct and in conformity with applicable Wis. Statutes.

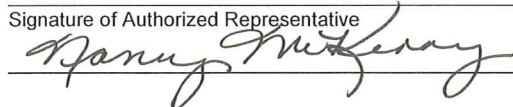
Print/Type Name of Authorized Representative

Nancy McKenny

Title of Authorized Representative

Chair, Beecher Lake District

Signature of Authorized Representative



Date Signed

July 31, 2013







March 26, 2013

Mary Rose Teves  
Bureau of Community Financial Assistance  
Wisconsin Department of Natural Resources  
P.O. Box 7921  
Madison, WI 53707-7921

Subject: Variance Request for Beecher Lake AIS Control Project

Ms. Teves:

The purpose of this correspondence is to request a variance under NR 198.16 to allow the Beecher Lake Protection and Rehabilitation District to receive financial assistance under the Aquatic Invasive Species Prevention and Control Grant program to conduct dredging in Beecher Lake. We welcome the opportunity to demonstrate how a limited amount of dredging will allow for the effective control of Eurasian watermilfoil (EWM) throughout Beecher & Upper Lakes and allow the Lake District to greatly reduce the amount of chemical inputs necessary to keep this exotic invader at bay.

The Beecher Lake District has been working in close cooperation with the Marinette County LWCD and the Wisconsin DNR since 2008 to control EWM, an aquatic invasive species. This work includes the development of a comprehensive aquatic plant management plan in 2010 and implementation of an Aquatic Invasive Species Control Project in 2011.

The AIS Control Project for Beecher & Upper Lakes (ACEI-073-10.1) provided funding for an integrated management program using winter drawdown, targeted herbicide use, and manual removal to control EWM, provide relief for shoreline property owners and the public, and to protect the lakes extremely diverse native plant community. Early-season use of herbicides to control EWM has been successful, providing control of EWM with minimal impacts to most native plant species. However, experience has shown that the benefits of herbicide use are short-lived, and routine herbicide use is both expensive and controversial.

Unfortunately, the use of winter drawdown to control EWM on Beecher Lake has been unsuccessful due to conditions beyond the control of the Beecher Lake District, primarily the design of the Beecher Lake Dam and natural sedimentation in the outlet stream channel. The Beecher Lake dam has a fixed-crest weir with no provision for raising or lowering the water level. The District proposed to overcome this problem by using siphons to drain water from the lake. In the winter of 2010/11 a series of siphons

were installed but the attempt was abandoned after extremely heavy rains overwhelmed their ability to complete the drawdown in the permitted time frame.

A second attempt in the winter of 2011/12 proved that siphons could work (see attached photo), however maintenance became increasingly difficult as winter progressed and everything became encased in ice, snow, and frozen mud. In 2011 the siphons were operated from August 27 to December 28, at which point the effort to maintain them became too great. Unfortunately the area experienced an unseasonably warm winter and the lake re-filled before an adequate sediment frost depth was achieved. As a result, EWM was not adequately controlled.

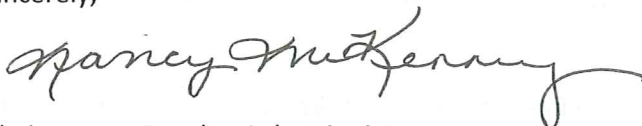
In an effort to simplify the drawdown process the Beecher Lake District is exploring dam modifications, specifically, the installation of a low-level drain. This would allow the District to conduct periodic winter drawdown with less effort and to hold the water level down through the entire winter, increasing the likelihood of successful EWM control.

In addition to the unusually mild winter, unanticipated physical constraints also prevented, and will continue to prevent, the desired level of EWM control. The Beecher Lake dam is located approximately 1,200 feet downstream from the natural lake outlet. In the 64 years since the dam was constructed sedimentation has filled the original stream channel. During the 2011/12 drawdown sediment obstructed the flow of water and prevented the lake from reaching the drawdown level required for maximum EWM control. A survey showed that while the maximum possible drawdown of 6-feet was achieved in front of the dam, the water level in the main body of the lake was only 3.6 feet below the ordinary high water mark. Removing the additional 2.4 feet of water is critical in achieving an acceptable level of EWM control.

To this end, the Beecher Lake District is requesting a variance to use AIS Prevention and Control Grant funding to dredge a 1300-foot long channel from the main body of Beecher Lake to the Beecher Lake Dam. The sole purpose of this project is to improve water flow to achieve the maximum possible drawdown of the lake for EWM control. The attached location map and aerial view construction plans detail the proposed dredging project.

The Beecher Lake District has been working with state and local partners for five years to prevent the dominance of EWM in our lakes. To date, routine herbicide use is the only viable management option. The proposed dredging project and dam modifications will add a new low-cost management tool for preventing EWM dominance on Beecher Lake. A variance to the program rules to allow this limited dredging project would be in the best interest of the Aquatic Invasive Species Prevention and Control Grant Program and is necessary to the success of the proposed EWM management program for Beecher and Upper Lakes.

Sincerely,



Chairperson, Beecher Lake District

Cc **Brenda Nordin, Water Resource Management Specialist, DNR – Northeast Region**  
Greg Sevener, Wastewater Specialist, DNR – Northeast Region

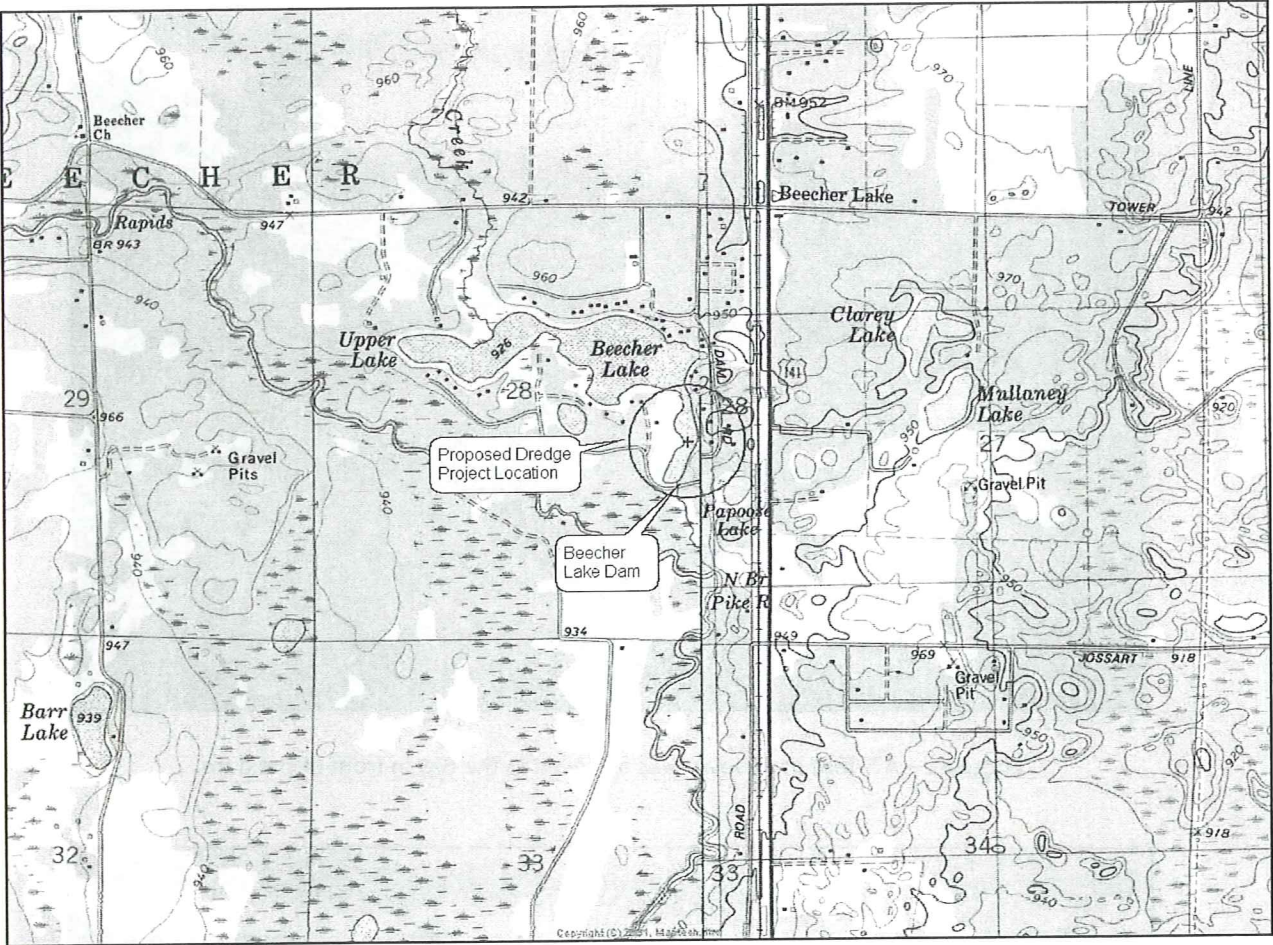




Photo #1 – A 5-foot drawdown was achieved in the Bay in front of the dam.



Photo #2 – Sediment buildup in the stream channel prevents the lake from draining, reducing drawdown effectiveness.



Beecher & Upper Lakes with the dam and proposed dredging project area identified.



**BEECHER LAKE EWM CONTROL PROJECT  
PROPOSAL (Phase II)  
DAM MODIFICATION & DREDGING**



By

Charles C. Druckrey, Water Resource Specialist  
Marinette County Land Information Office - Land & Water Conservation Division

JUNE, 2013



## PROJECT AREA

Beecher Lake is located in the Township of Beecher (T36N, R20E, S28) in Marinette County, Wisconsin. The lake actually consists of two separate lakes, Beecher Lake and Upper Lake that are connected by a narrow channel. Locally the combined lakes are referred to as Beecher Lake. The lakes drains to the Pike River, an Outstanding Resource Water and State designated Wild River.

The Upper Lake basin covers 21 acres with a maximum depth of 18 feet (figure 1). The Beecher Lake basin covers 35 acres with a maximum depth of 47 feet. A dam on the outlet of Beecher Lake maintains a head of approximately six feet and controls the water level in both basins. The lakes strongly stratify and routinely experience hypolimnetic oxygen depletion. Water quality is typically good with moderately stained water and low phosphorus concentrations. A water quality study conducted in 1996-97 found the lakes consistently in the mesotrophic range.

## PUBLIC ACCESS

The town of Beecher maintains an improved public boat launch on Upper Lake with room for at least six vehicles with trailers. A swimming beach and carry in access is also available at the town park on the north-shore of Beecher Lake. Roadside access is available at the dam along Dam Road.

## BEECHER LAKE PROTECTION AND REHABILITATION DISTRICT

The Beecher Lake Protection and Rehabilitation District (Beecher Lake District) was formed by resolution of the Town of Beecher board of commissioners in 2000 to provide for the protection and improvement of Beecher and Upper Lakes. The Lake District includes all waterfront property owners on Beecher and Upper Lakes.

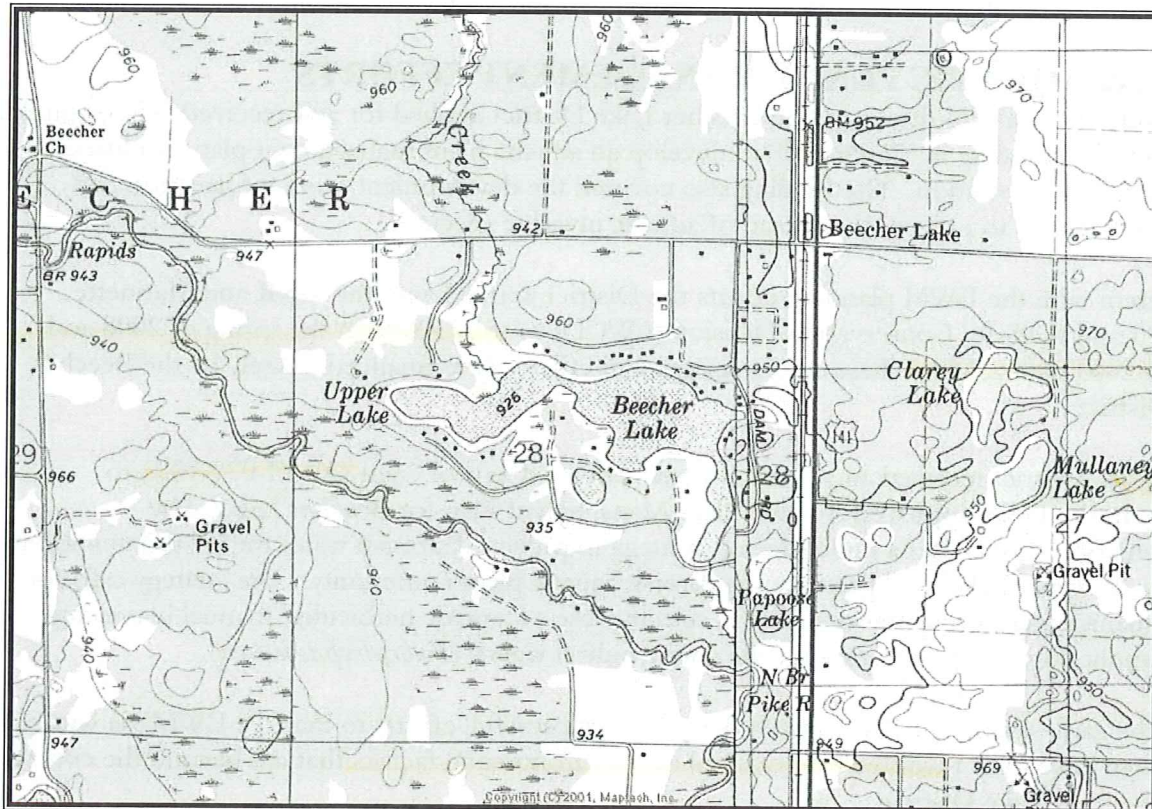


Figure 1. Beecher and Upper Lakes



## AQUATIC PLANT COMMUNITY & INVASIVE SPECIES

Historically Beecher and Upper lakes supported a diverse aquatic plant community. A transect survey conducted in 1995 found 23 native aquatic plants and no exotic species. The maximum rooting depth is typically between 7 and 10 feet depending on water clarity and water level fluctuations.

The density of aquatic plant growth, particularly in shallow water (<5 feet) has been a concern for many years. For several years' landowners cut plants with a Hockney weed cutter. However the inability of the cutter to collect plants led to less than satisfactory results. In 2002 the newly formed Lake District began using a private contractor to harvest aquatic plants. This was typically done once each summer.

Eurasian Water Milfoil (EWM) was discovered growing in Beecher and Upper Lakes in the fall of 2007. Plant samples were collected and verified by the Freckman herbarium at UW-Stevens Point. A cursory survey of the lake in October 2007 found EWM was widespread with dense stands covering more than 6.5 acres.

## AIS THREAT TO SURROUNDING WATER BODIES

Marinette County is on the front lines of the statewide EWM expansion. In 2000 there were five lakes and flowages in the County with EWM. By 2012 the total had grown to 22 with 5 new additions in 2007 alone. Most of the large regionally popular waters are already infested. New invasions are primarily occurring in smaller lakes with public access. Beecher and Upper Lakes, while not used for pleasure boating, are popular fishing lakes and will serve as new source waters for the spread of EWM. There are 29 named, and at least as many unnamed lakes within 5 miles of Beecher Lake. At this time none of these waters are known to harbor EWM.

## LAKE & AQUATIC PLANT MANAGEMENT EFFORTS

As a result of the EWM discovery the Beecher Lake District applied for and received Wisconsin AIS Control Grant funding in March 2008 to develop an aquatic plant management plan to address the growing EWM infestation. The funding also covered the development of an information and education strategy to prevent the spread of aquatic invasive species.

Concurrent with the EWM planning efforts the District worked with the DNR and Marinette County Land & Water Conservation Division (LWCD) to treat EWM in the spring of 2008 and again in 2009 with 2,4-D. These early management efforts were financed entirely by the Beecher Lake District.

In 2010 the District received an aquatic Invasive Species Control Grant (ACEI-073-10.1) to implement the DNR approved Aquatic Plant Management Plan for Beecher Lake. The management plan includes a multi-faceted strategy to prevent Eurasian water milfoil domination in Beecher & Upper Lakes and preserve the diverse aquatic plant community. The strategy calls for EWM management via winter drawdown, selective use of aquatic herbicides, manual harvesting where applicable, and monitoring for the native milfoil weevil (*Eubrychiopsis lecontei*).

While the early season 2,4-D treatments have been successful, efforts to manage EWM via winter drawdown have been thwarted by structural and environmental factors that are beyond the control of the Beecher Lake District.



The Beecher Lake Dam is a fixed level crested weir with no gates or other means of water level control. In 2010 the District attempted a winter drawdown using siphons but was thwarted by locally heavy rains and forced to abandon the effort. The drawdown was attempted again during the winter of 2011 and was partially successful as the District was able to drain more than 5 feet of water from the lakes south bay (see figure 1). Unfortunately, a build-up of sediment in the original creek bed between the dam and the lake prevented the main body of Beecher & Upper Lakes from draining completely. A survey of the dewatered lake bed showed that the water level in the main lake remained 2.5 feet higher than the water level in front of the dam.

EWM control was somewhat successful in the bay near the dam. However, throughout most of the lake, dewatering was insufficient. Success was also hampered by one of the warmest winters on record. Frost penetration was quite variable (0 to 4 inches) and much of the wet muck sediment that supports EWM did not freeze more than an inch or two deep. Test holes showed aquatic plant roots down to about 6 inches in much of the lake, much lower than the measured frost depth.



**Figure 1. Exposed lake bed in front of the Beecher Lake dam.**

In practice, draining the lake using siphons was only marginally effective. They did not have the capacity to move large amounts of water quickly and maintenance became increasingly difficult as winter progressed and everything became encased in ice, snow, and frozen mud. These two factors make it difficult to maintain the drawdown long enough to get good frost penetration and achieve acceptable EWM control.

## **RECOMMENDED MANAGEMENT ACTIONS**

The Beecher Lake Aquatic Plant Management Plan (amended April 2013) recommends modification of the Beecher Lake dam to simplify the drawdown process and allow for extended drawdown periods. The plan also calls for dredging a channel from the main body of Beecher Lake to the dam. This will allow for draining an additional 2.5 feet of water from Beecher and Upper Lakes and maximize the effectiveness of winter drawdown as an EWM management tool.

## **AIS INFORMATION & EDUCATION EFFORTS**

The 2008 aquatic plant management planning effort included development of a long-range information & education strategy to educate lake residents and lake users about AIS control efforts on Beecher Lake, the dangers of aquatic invasive species and how to prevent their spread. The I&E plan utilizes Beecher Lake District mailings, Countywide media sources and signage at public access points. The Marinette County LWCD also develops and organizes countywide AIS programs that complement AIS education efforts on Beecher Lake.

Will IT CONTINUE?

In the summer of 2008 the Beecher Lake District also began implementing a "Clean Boats, Clean Waters" boater education and inspection program on Beecher Lake. Volunteers also attended AIS monitoring workshops and began monitoring for other AIS infestation in Beecher Lake.

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## PROJECT GOALS AND OBJECTIVES

The goal of the proposed project is to make the necessary changes to allow for the effective use of winter drawdown as an EWM management tool in Beecher and Upper Lakes and minimize dependence of herbicides to control this invasive species.

## PROJECT PROPOSAL

The project calls for boring a hole through the face of the Beecher Lake dam and installing a drain pipe & shut-off valve. This will speed up water level changes, simplify the drawdown process, and allow the District to maintain the drawdown for the entire winter.

To overcome filling of the creek bed, the District proposes dredging a two to three foot deep channel from the main body of the lake to the dam. The 1320 foot long channel will be constructed with a 20-foot wide bottom and 4:1 side slopes. This will allow the District to drain another 2.5 feet of water from Beecher and Upper Lakes.

The strategy also calls for the judicious use of selective aquatic herbicides if needed along with diver assisted manual harvesting of isolated plants using a county-owned hydraulic harvester. Follow up surveys will be completed annually to evaluate the effectiveness of management practices.

## TASK SUMMARY

1. Install a low-level drain through the Beecher Lake Dam to speed and simplify the drawdown process for improved EWM control.
2. Dredge a channel between the main body of Beecher Lake and the Beecher Lake dam to maximize drawdown effectiveness throughout the lakes.
3. Conduct a winter drawdown of Beecher and Upper Lakes for EWM control.
4. Chemically treat EWM that is too deep to be controlled through winter drawdown.
5. Identify and manually remove isolated EWM plants, where found, to reduce the rate of EWM expansion.
6. Conduct pre and post treatment evaluation of EWM control practices according to DNR protocol to evaluate the effectiveness of winter drawdown as an EWM management tool in Beecher and Upper Lakes.
7. Enter all EWM pre, and post-treatment monitoring data in an excel spreadsheet and create a Geographic Information System (GIS) data layer containing aquatic plant information.
8. Create GIS maps of all herbicide treatment areas to accurately guide herbicide application and evaluate changes in the distribution and density of EWM.

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9. Prepare a final report detailing EWM management successes and failures and recommending changes to the long range EWM management plan to incorporate winter drawdown as a routine EWM management tool.
10. Assist with project management and documentation.
11. Assist with plan implementation.

**Task 1 - Install a low-level drain through the Beecher Lake Dam to speed and simplify the drawdown process for improved EWM control.**

Efforts to drain water from the lake using siphons clearly shows that dam modification is necessary if winter drawdown is to be used successfully as an EWM management tool. After consultation with DNR Dam Safety Engineers and private structural engineers it has been determined that the best course of action is to install a pipe through the existing spillway and fit it with a shutoff valve.

The propose dam modifications call for the installation of a drain pipe through the concrete spillway. A gate valve will be installed immediately upstream from the spillway. All modification will be designed by a licensed engineer for approval by the Wisconsin DNR. The pipe and valve system will be installed after the lake has been drawn down using siphons

The Beecher Lake Dam is owned by the Town of Beecher. The District has received permission from the town to modify the dam. The District has been working in close cooperation with the DNR and has applied for the necessary permits to modify the dam.

**Task 2 - Dredge a channel between the main body of Beecher Lake and the Beecher Lake dam to maximize drawdown effectiveness throughout the lakes.**

The attempted winter drawdown of 2010 was unsuccessful because of sedimentation that has occurred in the lake outlet since the dam was created. Removing this accumulated material will allow for an additional 2.5 feet of water level reduction in Beecher Lake and greatly enhance EWM control efforts on the lake.

The 1,320 foot long channel will be constructed after installation of the drain pipe. Construction will begin at the dam and proceed north to the lake outlet. Erosion control measures will be employed as necessary to prevent the discharge of sediment laden runoff from the lake.

A variance has been requested from the Wisconsin DNR under NR 198.16 to allow the Beecher Lake District to receive financial assistance to conduct limited dredging in Beecher Lake for the purpose of controlling EWM.

Throughout the planning process the Beecher Lake District and the Marinette County LWCD have worked closely with the local Wisconsin DNR Lakes Biologist and Water Management Specialist. An individual permit application for Lake Dredging has been submitted to the Wisconsin DNR.

**Task 3 - Conduct a winter drawdown of Beecher Lake for EWM control.**

Following installation of the drain pipe and channel dredging, the water level drawdown will be maintained through the winter for the purpose of EWM control. Refilling of the lake will begin after ice-out. - C1

**Task 4 - Chemically treat EWM that is too deep to be controlled through winter drawdown.** While the winter drawdown should expose more than 70% of the littoral zone in Beecher and Upper Lakes, some EWM can be found growing deeper than the maximum drawdown level. Dense stands of EWM that cannot be controlled via winter drawdown will be treated with 2,4-D applied early in the growing season. The Beecher Lake District has been using early-season 2,4-D treatments with good success since 2009.

**Task 5 - Identify and manually remove isolated EWM plants, where found, to reduce the rate of EWM expansion.**

The Marinette County Hydraulic Conveyor Project (AIS grant # ACEI-112-12) calls for enhanced manual harvesting of scattered EWM plants using a hydraulic harvester, constructed and maintained by the Marinette County LWCD. Harvesting plants on Beecher and Upper Lakes is funded under the Hydraulic Conveyor Grant through 2016.

Hydraulic harvesting is a labor intensive, but highly selective management tool. It will only be used on Beecher and Upper Lakes after the EWM population has been brought under control through the use of winter drawdown and periodic spot chemical treatments.

**Task 6 - Conduct pre and post treatment evaluation of EWM control practices according to DNR protocol to evaluate the effectiveness of winter drawdown as an EWM management tool in Beecher and Upper Lakes.**

Complete point/intercept surveys of Beecher and Upper Lakes were conducted in 2008, 2010, and 2013 to evaluate the ongoing EWM control efforts. Detailed point intercept surveys were conducted in several representative areas of the lakes in 2011 and again in 2012 to determine the effects of winter drawdown on the aquatic plant community.

Pre and post treatment aquatic plant surveys will be conducted according to DNR protocol to evaluate the effectiveness of EWM management measures including winter drawdown and future herbicide treatments. Results of the pre and post treatment surveys will be used to evaluate treatment success and make necessary changes in the management program. The Lake District's Aquatic Plant Committee in consultation with County LWCD staff and the local DNR aquatic biologist will conduct annual EWM management program evaluations.

**Task 7 - Enter all EWM pre, and post-treatment monitoring data in an excel spreadsheet and create a Geographic Information System (GIS) data layer containing aquatic plant information.**

All aquatic plant survey data will be entered into excel spreadsheets and mapped on GIS to aid in determining treatment effectiveness, identify non-target impacts and evaluate the overall EWM control program.

**Task 8 - Create GIS maps of all herbicide treatment areas to accurately guide herbicide application and evaluate changes in the distribution and density of EWM.**

EWM treatment areas will be mapped annually during the grant period and for a minimum of three years after grant implementation using a Trimble Geo-XT differential GPS unit. GIS shapefiles will be created to evaluate and guide EWM management options.



**Task 9 - Prepare a final report detailing EWM management successes and failures and recommending changes to the long range EWM management plan to incorporate winter drawdown as a routine EWM management tool.**

A final project report detailing and evaluating all EWM management efforts will be prepared. Special emphasis will be placed on evaluating the effect of periodic winter drawdown on the plant community, recommending a sustainable and effective management program for the control of EWM in Beecher and Upper Lakes, and evaluating and recommending triggers to determine when to conduct winter drawdown for EWM control. as an addendum to the Beecher Lake Aquatic Plant Management Plan.

**Task 10 – Assist with project management and documentation.**

The LWCD will work closely with the Beecher Lake District board and aquatic plant management committee to ensure that the EWM control program is completed in a timely manner and that monitoring and evaluation is completed as planned. The LWCD will assist the District in the administration of the grant including maintaining mailing lists, mailings relevant to project information/education, and proper documentation and filing for grant reimbursement.

Electronic copies of all data will be provided to the DNR and maintained for future use by the Marinette County LWCD. One hard copy and an electronic copy of all project data and the final report will be provided to the DNR. At least 4 hard copies of the project data, final report and maps will be provided to the Beecher Lake District.

**Task 11 – Assist with plan implementation.**

As a local government agency dedicated to protecting and preserving the natural resources of Marinette County, the Land & Water Conservation Division will continue to work with the Beecher Lake District to implement and update the aquatic plant management program as needed.

**TIMETABLE FOR IMPLEMENTATION**

Dam modifications and dredging may be scheduled to be completed in the winter of 2014/15. Aquatic plant monitoring will be conducted annually through the summer of 2017. A final report and management plan addendum will be completed by the end of 2017.

# BEECHER LAKE AIS CONTROL GRANT PROJECT

## Cost Estimate

### Consulting Services

Installation of low-level drain through the Beecher Lake Dam	\$35,000.00
Dredge channel between dam and lake	\$92,000.00
EWM herbicide treatments (estimated 15 ac over 3 years)	\$24,000.00
Construction layout, monitoring, & construction checks	\$6,000.00
Aquatic plant monitoring, EWM mapping, data entry & analysis	\$12,600.00
Program evaluation, planning, final report, and management plan addendum	\$3,000.00

### Misc.

Postage and printing	\$200.00
Mileage for field work and meetings	\$1327.00

### Beecher Lake District in-kind service

Siphon installation and maintenance (\$12.00/hrs. x 98 hours)	\$1,176.00
Volunteer labor for aquatic plant survey & EWM mapping (\$12.00/hrs. x 36 hours)	\$432.00

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**Total Estimated Project Cost** **\$175,737.00**

State Lake Planning Grant Share (75%) -\$131,802.75

Beecher Lake District in-kind service -\$1,608.00

**Beecher Lake District balance** **\$42,326.25**

### **Beecher Lake District Officers**

<u>Name</u>	<u>Office</u>	<u>County and Municipality of Residence</u>
Nancy McKenny	Chair	Outagamie Co., Appleton
Tracy Kupsh	Treasurer	Brown Co, DePere
Judy Siudzinski	Secretary	Outagamie Co., Appleton
Cary (Clancy) Whiting	Marinette Co., Representative	Town of Beecher
John Keely	Town of Beecher Representative	Town of Beecher





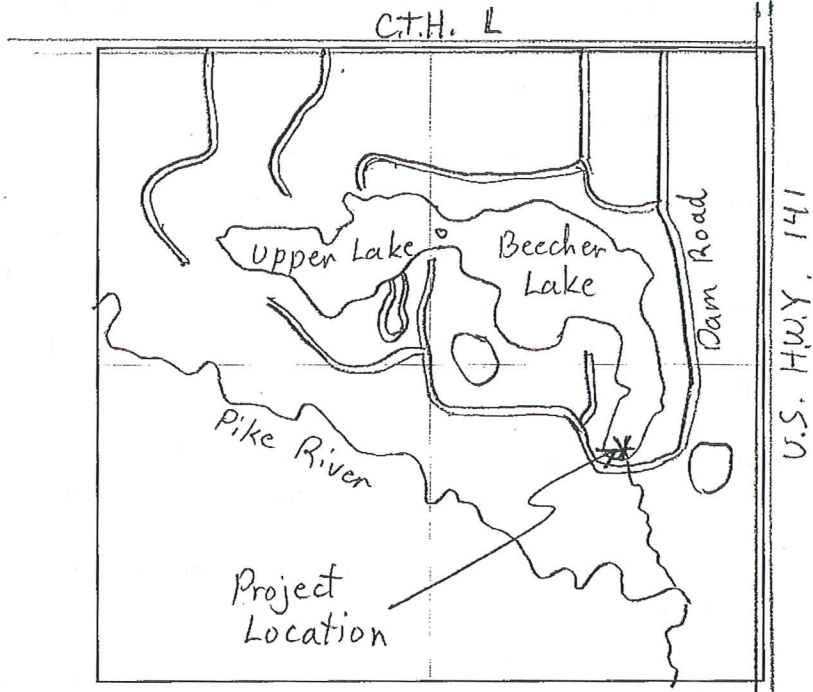
### CONSTRUCTION PLAN

PRACTICE: Beecher Lk Dredge Proj.  
 OWNER: Beecher Lake District PHONE: 920-739-1213  
 ADDRESS: Dam Road COUNTY: Marinette  
 TOWNSHIP: Beecher T36N; R19E; SEC.28  
 LOCAL OFFICE: Marinette County LWCD TEL. # 715-732-7528

DIGGERS HOTLINE

Call 3 Work Days  
Before You Dig

Toll Free  
1-800-242-8511



LOCATION MAP

**\*\* NOTICE TO LANDOWNERS AND CONTRACTORS REGARDING UTILITIES \*\***  
 No representation is made by the USDA Natural Resources Conservation Service or the County Land Conservation Dept. as to the existence or nonexistence of underground hazards. Prior to the start of construction the owners of utilities must be notified of the pending construction. You will be liable for damages resulting from construction activities! (Call Diggers Hotline)

CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE

I have reviewed and do accept the attached plans. I agree to have this project constructed in accordance with these plans and specifications and to notify all affected utility companies. I agree that any changes made during construction will be pre-approved by an authorized NRCS or County agent.

Signed: _____	Date: _____
Designed by: <u>Charles Druckrey</u>	Date: <u>6/5/2013</u>
Checked by: _____	Date: _____
Approved by: _____	Date: _____
Approved by: _____	Date: _____

## Construction Notes

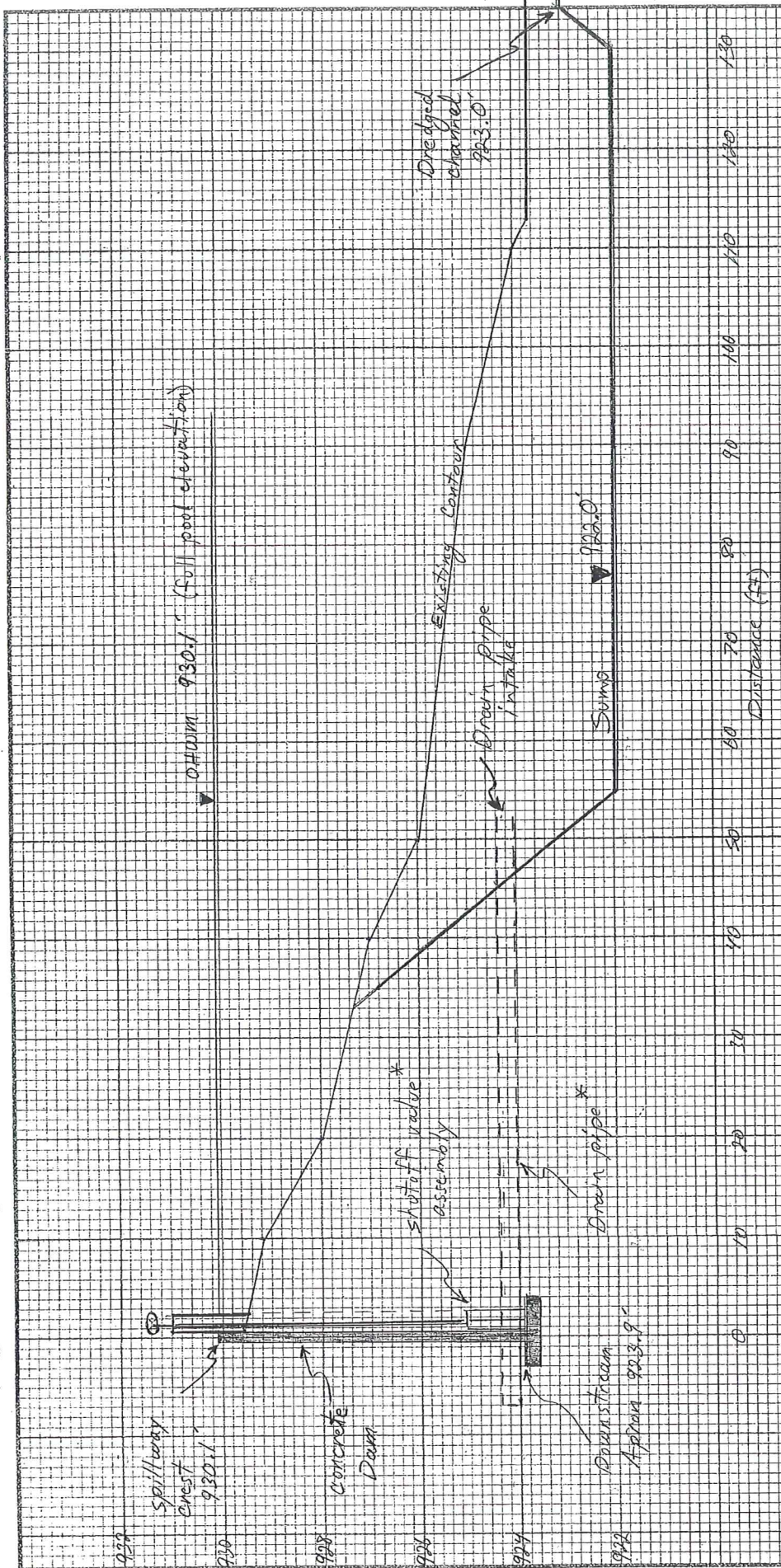
### Beecher Lake Channel Dredging Project

1. Construction shall be completed according to the following schedule
  - a. Mid to late August - The lake level will be lowered using siphons. Barring any large rain events or an unusually wet fall, the drawdown should be complete within 60 days.
  - b. October/November - After the water level drawdown is complete, a low-level drain pipe and valve assembly will be installed in the dam.
  - c. December – February - Dredging can begin after the drain pipe is installed and operational, and after the exposed lake bed is sufficiently frozen to support construction equipment. If snow depth prevents frost formation it may be necessary for the contractor to plow the snow aside to promote frost penetration.
2. Construction equipment is restricted to the frozen lakebed. Disturbance to the shoreline should be limited to a single access point at Dam Road.
3. Dredging should begin at the south end of the project site (nearest the dam) and proceed north to the lake.
4. As dredging proceeds, the gate valve at the dam can be closed during dredging operations to minimize sediment discharge from the lake. After sediment has settled the valve can be opened to maintain the lake level.
5. At full drawdown, the water level in the lake is approximately 2.5 feet higher than the water level near the dam. As the main body of the lake begins to drain it will likely erode the upper part of the channel and the water level near the dam will quickly rise by nearly 2.5 feet. The outlet pipe should be closed during this period until the sediment settles out. After the pipe is re-opened it will take several days for the rest of the lake to reach the full drawdown level.
6. After the full drawdown level has been reached the eroded portion of the channel should be dredged according to specification.
7. Any fill deposited on the lakebed or shoreline area to create an equipment access point must be removed prior to refilling the lake.
8. Any disturbed shoreline areas must be restored to the original grade and planted with a native seed mix according to the specifications on page xx.
9. The dredge spoil disposal site must be prepared to receive dredge spoils in advance of freeze-up. Any topsoil that can be salvaged should be stripped from the site and used to

create a berm around the perimeter of the site. During dredging operations a sufficient amount of organic sediment (muck) should also be placed aside for use as final cover.

10. The dredge spoil disposal area will be graded and reclaimed as soon as practicable in the spring. Any salvaged topsoil should be used for cover along with the organic sediment. Lime should be incorporated as needed and the entire sediment disposal site seeded with a conservation cover according to the specifications on page xx.





Becher Lake Dam  
Proposed Drain and Sump

U. S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

Designed	Date	Approved by
Drawn	Title	
Checked	Sheet No.	Drawing No.
	of	

Construction Notes

- \* Drain pipe and shut off valve assembly will be designed by a qualified structural engineer.
- \* Dam modifications must be approved by WDMA prior to any work being performed.



Beecher Lake  
Proposed Channel Dredging Project  
(Existing contours)



Existing channel high point = 925.4

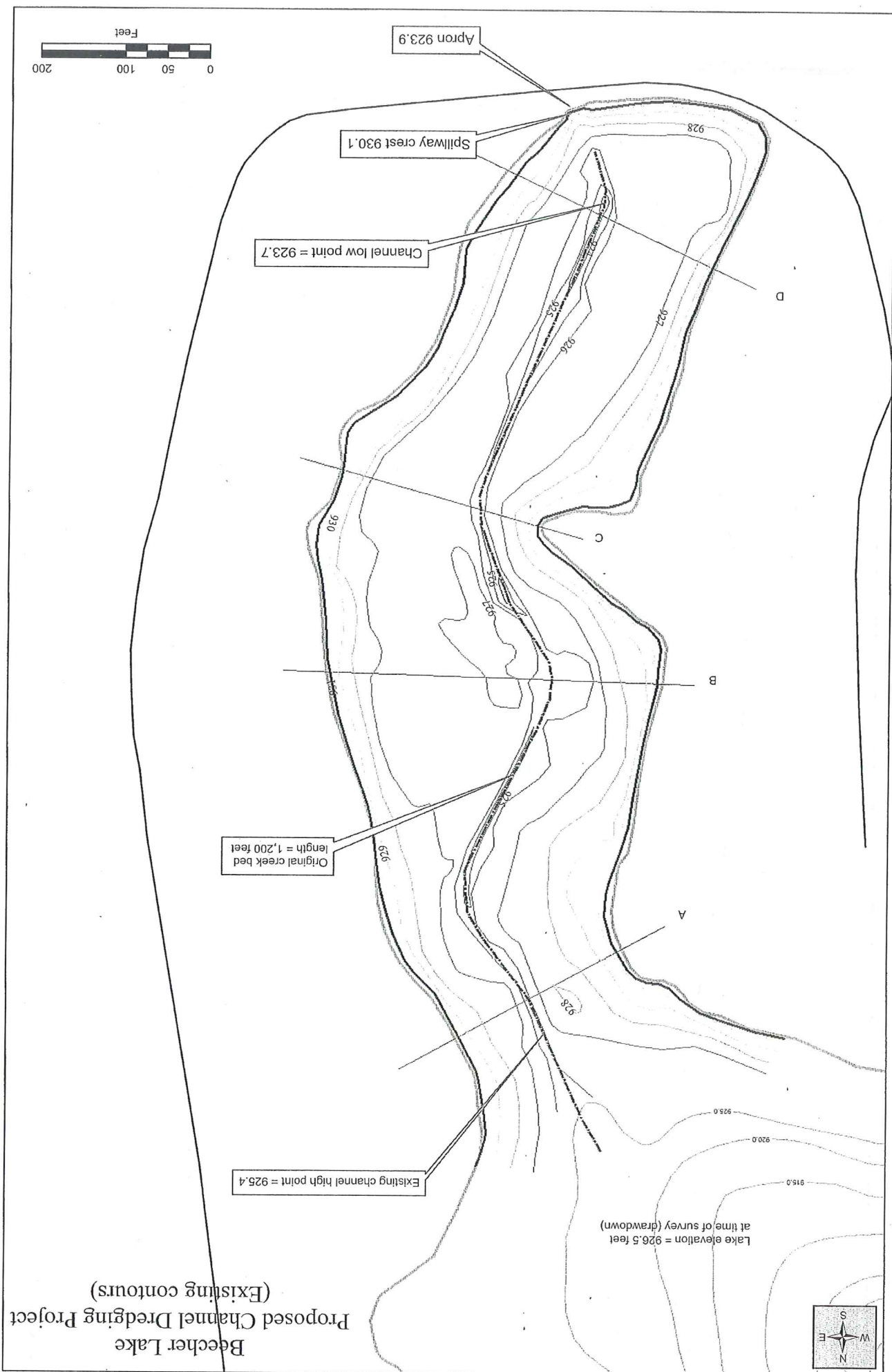
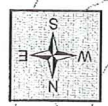
Original creek bed  
length = 1,200 feet

Channel low point = 923.7

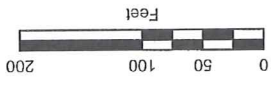
Spillway crest 930.1

Apron 923.9

Lake elevation = 926.5 feet  
at time of survey (drawdown)







Beecher Lake  
Proposed Channel Dredging Project  
(west side option)

Dam

Vinger

Existing channel high point = 925.4

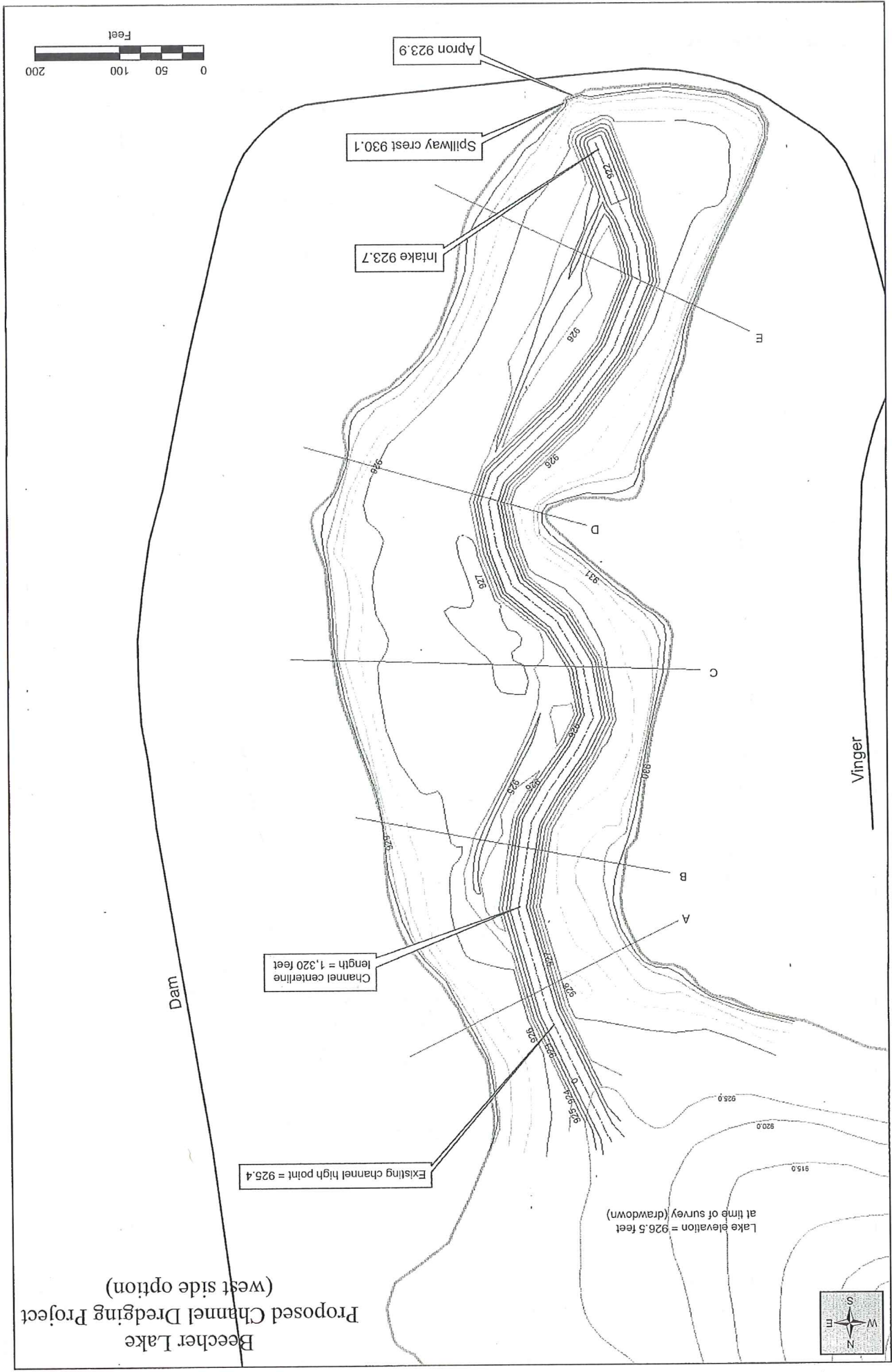
Channel centerline  
length = 1,320 feet

Intake 923.7

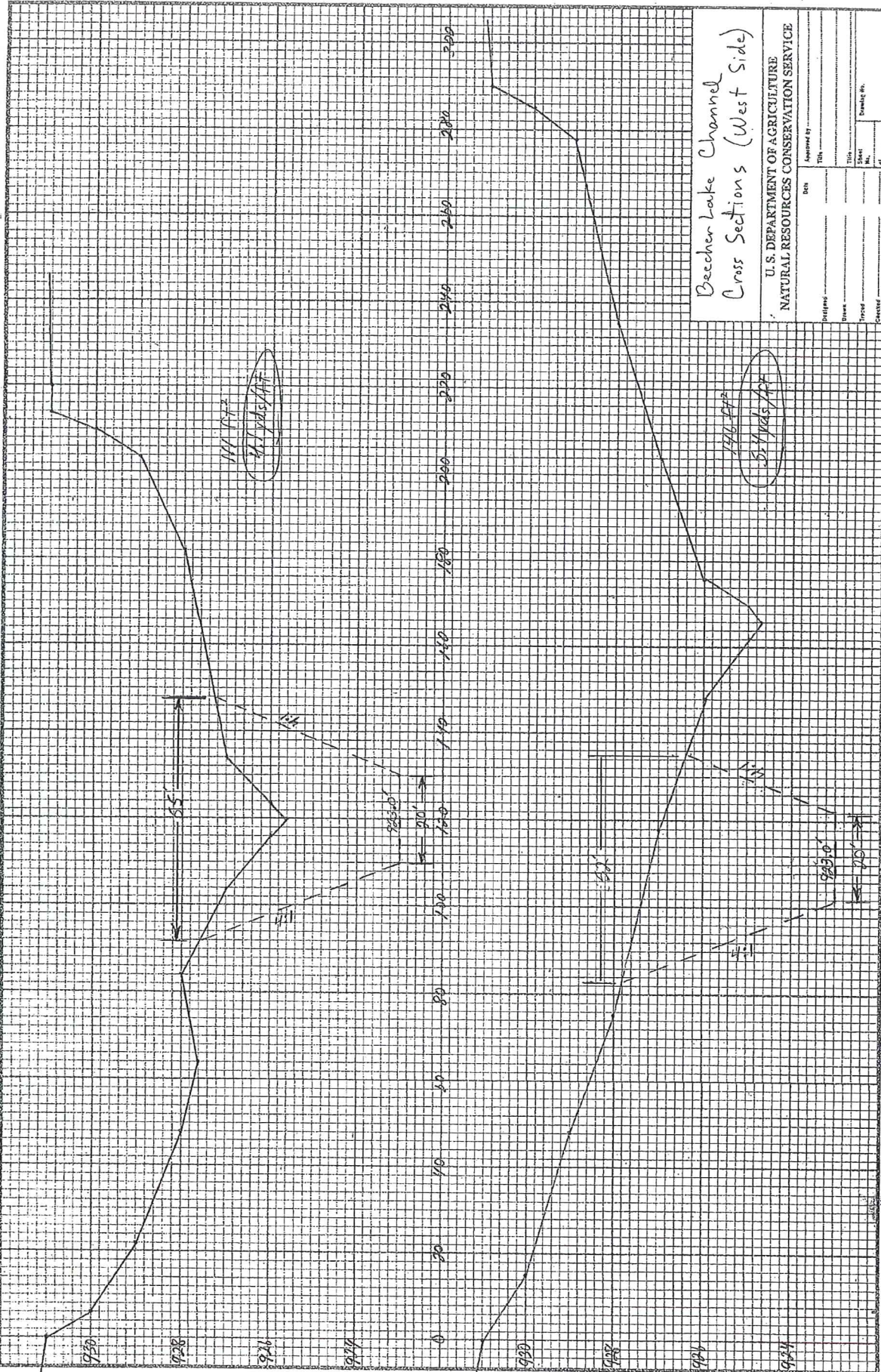
Spillway crest 930.1

Apron 923.9

Lake elevation = 926.5 feet  
at time of survey (drawdown)







Cross Section A

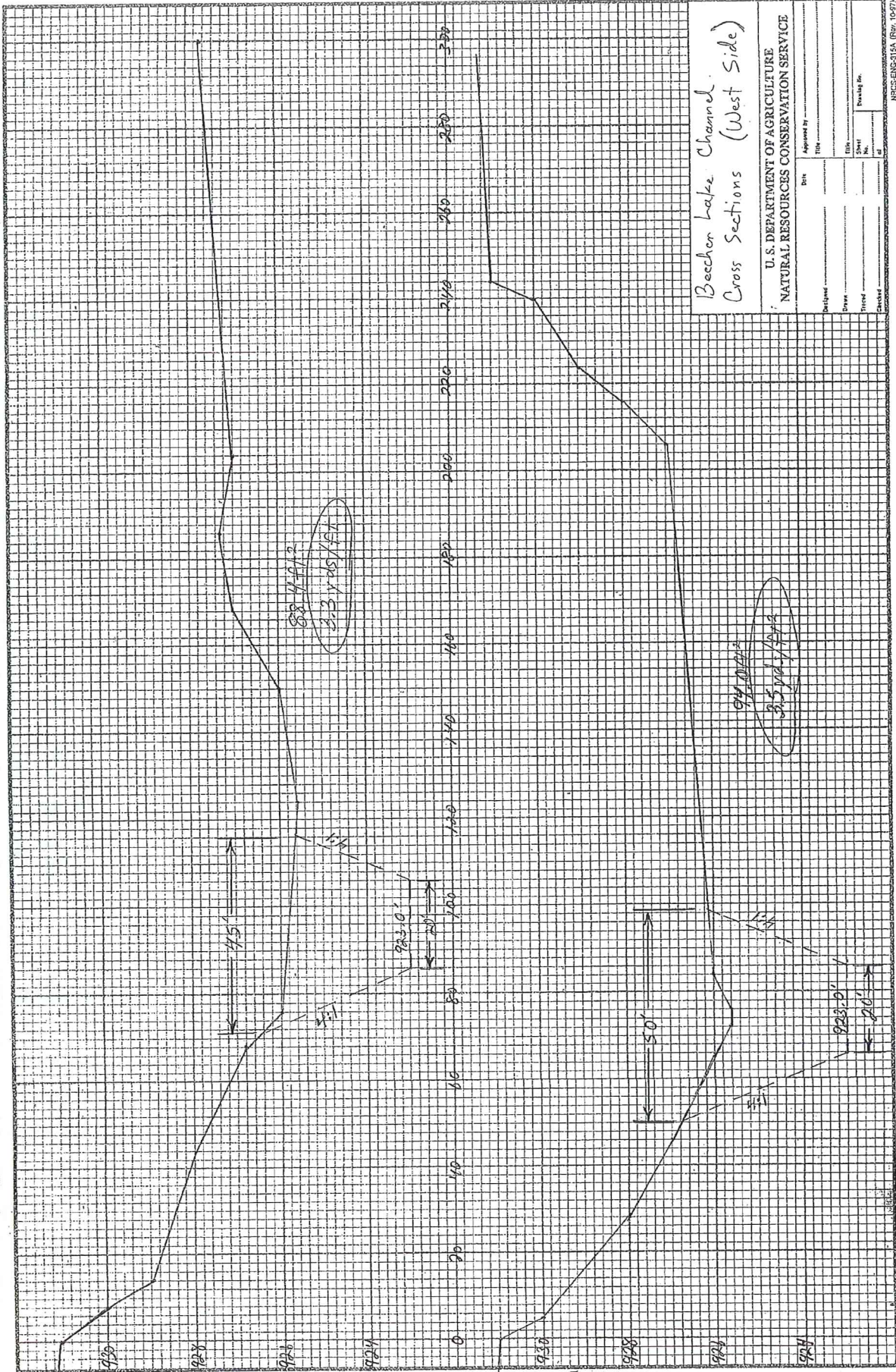
Cross Section B

Beecher Lake Channel  
Cross Sections (West Side)

U. S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

Prepared by	Date	Approved by
Drawn	Scale	Checked by
Printed	Sheet No.	Drawing No.
Checked		



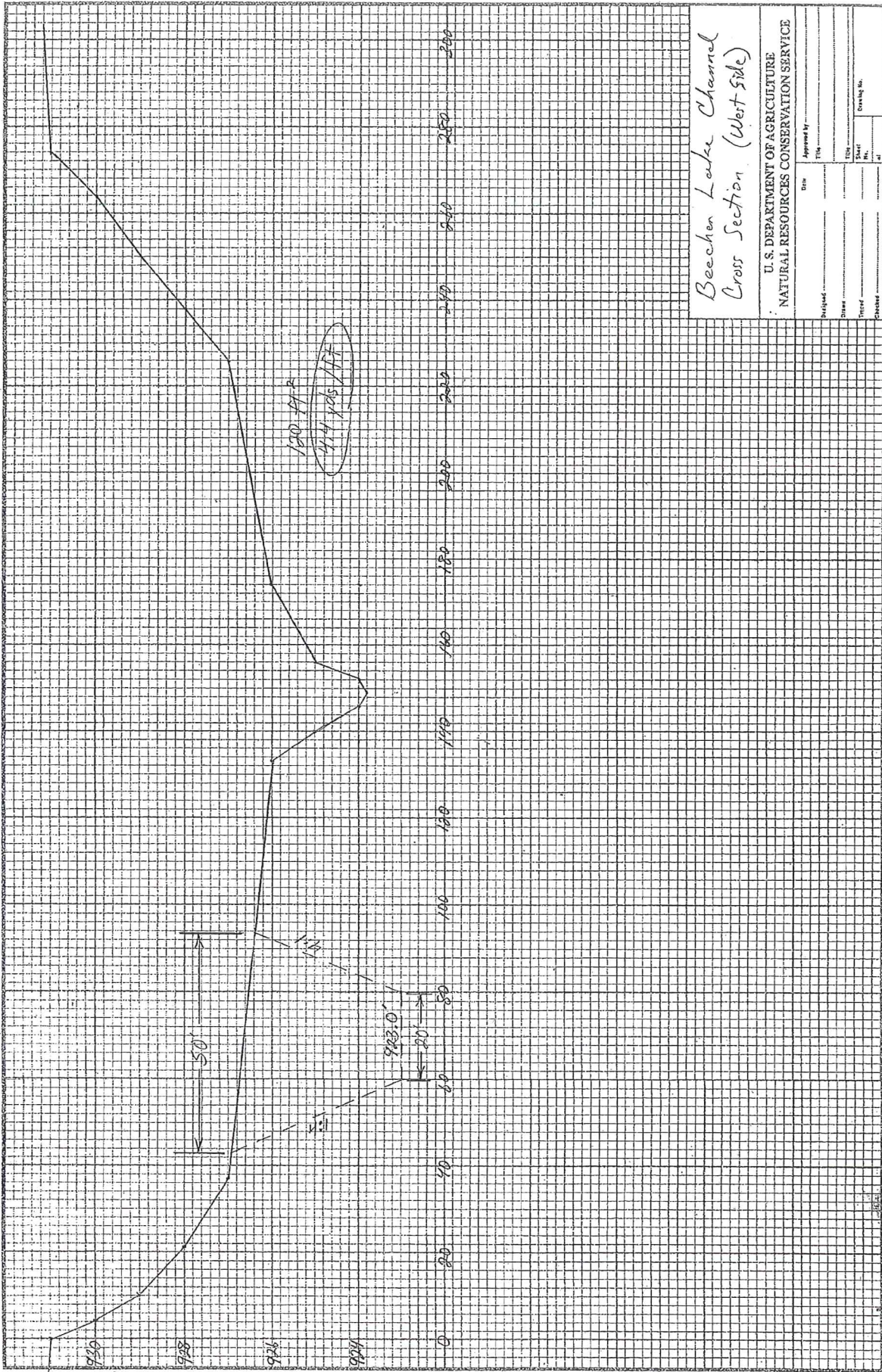


Beecher Lake Channel  
Cross Sections (West Side)

U.S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

Designed by	Date	Approved by	Title
Drawn			
Typed			
Checked			
Sheet	of	Drawings	





Beechen Lake Channel  
Cross Section (West Side)

U. S. DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

Prepared by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Drawn by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Checked by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Scale: \_\_\_\_\_ Drawing No. \_\_\_\_\_

Cross Section E

