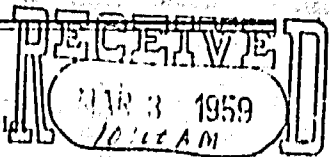


No. 587-3Water Division No. 3

(Blanks to be filled by the Engineer for the W. R. C.)

James River

District

STATE WATER RESOURCES COMMISSION
PIERRE, SOUTH DAKOTA

APPLICATION FOR PERMIT To Appropriate Water within the State of South Dakota

(TE—Draw a line through items not applicable.)

1. Name of applicant South Dakota Department of Game, Fish and Parks
Postoffice address Pierre, County Hughes, State S. Dak.

- I. If a corporation _____
- (a) Name of same _____
- (b) Date and place of incorporation _____
- (c) Amount of capital stock _____
- (d) Amount paid in _____
- (e) Names and addresses of directors _____

(NOTE—A certified copy of articles of incorporation must accompany the application.)

II. Method of accomplishing the work and financial resources of the applicant:

- (a) Method of accomplishing work (Whether by contract, employment of others, or by direct labor) _____

- (b) Cash on hand, \$ _____ (c) Treasury stock, \$ _____
- (d) Bonds to be issued, \$ _____ (e) Other resources, \$ _____

2. Name of diversion work Lake Byron
3. Amount of water claimed As required to fill lake to outlet level—Approximately 5000 acre feet per year.
4. Source of water supply Diversion from Foster Creek plus other natural watershed drainage.
5. Location of point of diversion NW 1/4 S-21; Twp 113; R 61
_____ on _____ bank _____ County.
6. Annual period or periods during which water is to be used All year long
7. To be used for:

- I. Irrigation or domestic use: Gravity, overhead sprinkling or combination system? _____

- (a) Number of acres to be irrigated _____ acres.

- (b) Legal subdivisions to be irrigated _____

(NOTE—A list of lands to be irrigated, giving each subdivision and fraction with acreage thereof, should be written here, or may be appended as a part of this application. Same must also be shown on accompanying map.)

- (c) Statement as to domestic use (giving location, etc.) _____

II. Stockwatering, mining, milling, power, fish culture, fire protection and public recreation:

- (a) Nature of use Fish and Wildlife propagation, conservation and recreation
Name any of the above uses claimed

- (b) Amount of power to be generated _____ horse power.

Amount claimed for engine cooling _____

- (c) Location of plant _____

- (d) Method of developing power _____

- (e) Point where water will be returned to stream _____

Map No. 448-3

8. Estimated cost of work:

(a) Head Gates, \$..... (b) Pumping plant, \$.....
 (c) Fluming, \$..... (d) Canal-earth, \$ 1,000.00 Rock, \$.....
 (e) Other structures \$..... Total, \$.....

9. Description of diversion works:

I. Nature of works: (Reservoir, dam, ditch, flume, pumping plant, etc.)

Ditch

II. Dimensions of works:

Ditch Area 370 sq. ft. Vol. 3,87 Cu ft. per sec. Discharge 1430 sec. ft.
 (a) Depth at top feet; length at bottom 3700 feet; thickness at bottom feet; thickness at top feet;
 feet; slope at front water face; slope at back face
 material used in construction
 (b) Reservoir: Capacity when filled 9000 acre feet. Surface area at highwater mark 1500 1700 1800 acres.

DEPTH AT OUTLET-Feet	SURFACE AREA AT EACH DEPTH AT OUTLET—ACRES	FEET	ACRE-Feet CAPACITY

(c)* Head gate: Width feet; height feet;
 Mater.

(d) Canal: Total length miles.

LOCATION BELOW HEADGATE	DEPTH	BOTTOM WIDTH	WIDTH AT WATER-LINE	GRADE PER MILE
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet
At Mile	 feet	 feet	 feet	 feet

(Give dimensions where reductions in size are made.)

10. Time required for completion of work completed years.

11. Time required for complete application of water to the proposed beneficial use completed years.

12. Choice of newspaper for publication of notice of intention to appropriate

STATE OF SOUTH DAKOTA

County of Hughes

ss.

I, Harry R. Woodward, being first duly sworn on my oath depose and say: That my relation to the above described undertaking is that of owner, that I have read the above foregoing statement, examined the map accompanying the same, and that I know of my own personal knowledge that the matters therein stated and shown are true.

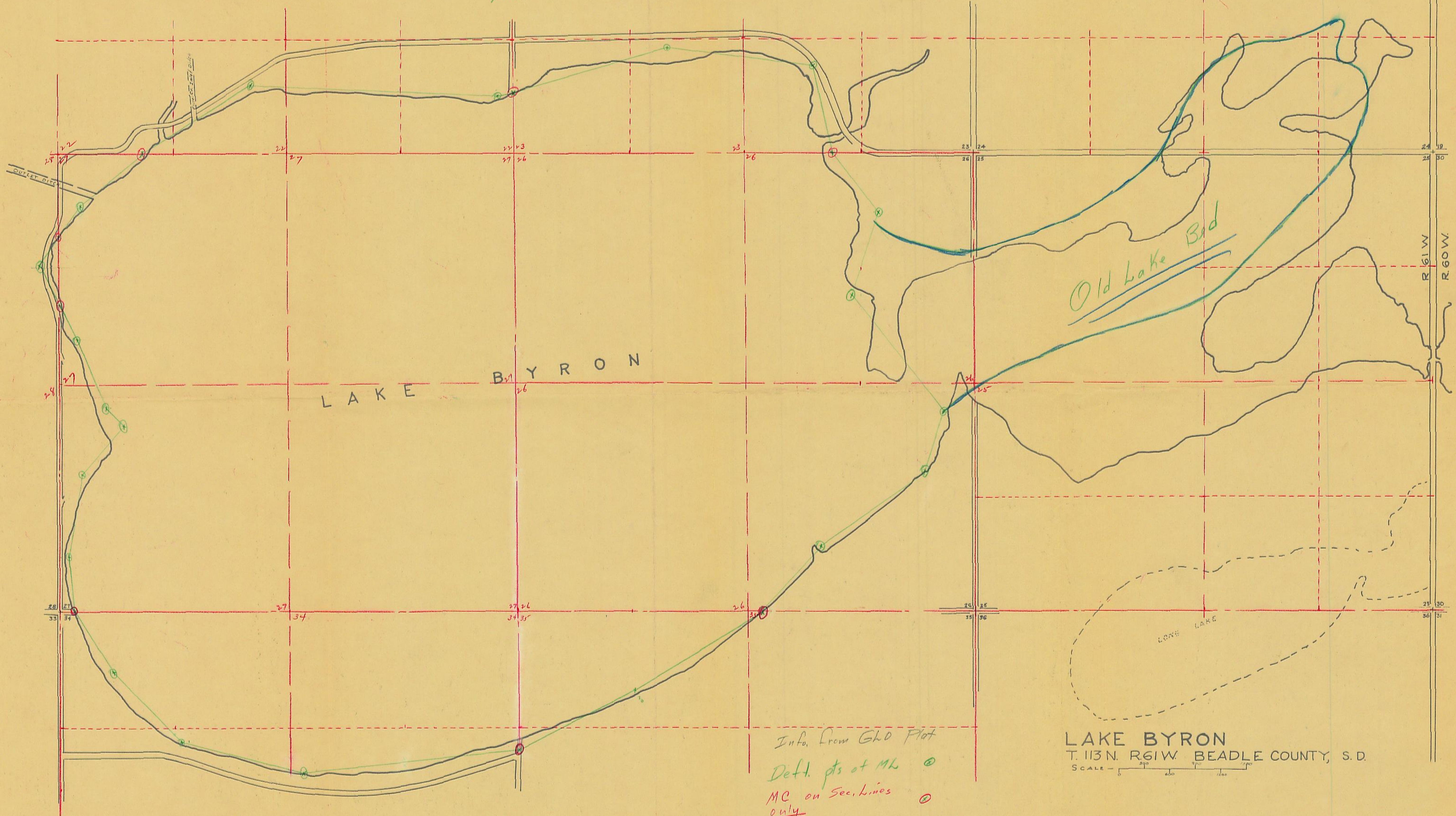
Signed

Subscribed and sworn to before me this 3rd day of March 1959

Notary Public (or other qualified officer.)

*Each diversion must have a headgate or measuring device.

Sketch of Lake Byron Meander Line & Old Lake Bed.



Info. from GHD Plot
 Defl. pts of ML
 MC on Sec. Lines
only
 Old Lake Bed

LAKE BYRON
 T. 113 N. R. 61 W. BEADLE COUNTY, S. D.
 SCALE - 0 200 400 600 800 1000

Remarks by State Water Resources Commission:

"Vested Right" claimed on Lake Byrona
meandered lake.

STATE OF SOUTH DAKOTA

County of Flagg

ss.

Pierre, South Dakota,

March 11, 1959

This is to certify that the foregoing application was received by the Commission at 10:00 o'clock

9 m. upon the 3 day of March, 1959

State Water Resources Commission

By:

Burton Jones
for Chief Engineer, Executive Officer

Vested Right
Number of permit 587-3

Date of first receipt of application

March 3, 1959

Date of return to applicant for correction, amendments or changes required as follows:

1959

Date of receipt of corrected application

1959

Date from which applicant may claim right

19 3/11, 1959

1959

Approved March 11, 1959 Recorded in Book 5 Page 133

This is to certify that we have examined the foregoing application for a permit to appropriate water of the State of South Dakota, and we hereby grant the same as stated herein, subject, however, to the following limitations and conditions:

1st. The equivalent of at least one-fifth of the work above specified is to be completed on or before

Completed, 1959

2nd. The whole of said work is to be completed on or before

Completed, 1959

3rd. The limit of time for proof of beneficial use of water appropriated in accordance herewith is

Completed, 1959

4th. The water appropriated shall be used for the purpose of fish and wildlife propagation,

conservation, and recreation

5th. The prior right of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to the use of water must not be injuriously affected by this appropriation.

6th. The amount of the appropriation herein granted shall not exceed 5000 acre feet annually cubic feet per second; neither shall it exceed the capacity of the above described system of diversion works, nor the least amount of water that experience may hereafter indicate as necessary for the production of crops in the exercise of the best husbandry; and further, said appropriation must be limited to not more than one-seventieth (1/70) of one cubic foot of water per second of time for each acre of land to which water is actually and beneficially applied for irrigation on or before this date, 1959; said water to be used during the following described annual period:

Continuously

Witness my hand this

23 day of

April, 1959

State Water Resources Commission

By:

Joe Bruner
Chief Engineer, Executive Officer

Certificate of Construction Issued

JUNE 14 1959

Water License Issued

JUNE 14 1959

Form 15.

Permit No. 587-3

Water Diversion No. 3 JAMES RIVER Water District

CERTIFICATE OF CONSTRUCTION

This is to Certify, That the Department of Game, Fish and Parks

the holder of Permit No. 587-3, issued upon Application No. 587-3, bearing date of priority of 1991

authorizing the diversion of 5,000 acre feet annually of the waters of Poster Creek and local watershed

County of Beadle, State of South Dakota at

a point in the NW 1/4 NE 1/4, Section 11, T113N, R61W

, for public recreation (Lake Byron)

purposes, has complied with the provisions of the laws of the State of South Dakota relating to completion of the works of diversion set out and described in said Permit; that said works are now in satisfactory condition for diverting and conveying to the place of intended use 5,000 acre feet annually of water.

Date July 14, 1971

WATER RESOURCES COMMISSION

By:

J.W. GRIMES, Executive Officer

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 587-3

(1) WHEREAS, On the 3rd day of March A. D. 19 59
the Department of Game, Fish and Parks

made Water Right Application No. 587-3 Vested Right for a permit to use 5,000 acre feet annually of the waters
of Foster Creek and local watershed

County of Beadle State of South Dakota, for public recreation

purposes and

(2) WHEREAS, On the 23rd day of April A. D. 19 59
Vested Right Permit No. 587-3 with a date of priority of 1931

was issued to said applicant recognizing for the diversion of said water, ~~and provided for~~ the completion of construction of the water
supply system therein described ~~on or before the~~ day of ~~April~~ 1959 and for the
application to beneficial use of said water ~~on or before the~~ date of April 1959

and;

(3) WHEREAS, It is hereby certified that the applicant has complied with the provisions of the laws of the State of South Dakota
relating to completion of the construction of the water supply system and is entitled to divert 5,000 acre feet annually
~~per second~~ of water for beneficial use and,

(4) WHEREAS, It is hereby certified that the applicant has complied with the provisions of the laws of the State of South Dakota
relating to the application of water to beneficial use of the following extent:

water is used in place for public recreational purposes.

(5) NOW, THEREFORE, By the virtue of the authority vested in us by the laws of the State of South Dakota. We hereby grant and confirm to _____
the Department of Game, Fish and Parks

_____ **Pierre, South Dakota**

_____ **Vested Right**
the holder _____ and owner _____ of said permit No. **587-3** a water right, dating from **1931**

_____ to use of **5,000 acre feet annually** ~~cubic feet per second~~ of the waters
of **Foster Creek and local watershed**

in the County of **Beadle** and State of South Dakota, or so much thereof as may be necessary for the
purposes hereinbelow mentioned, to be diverted at **a point in the NW $\frac{1}{4}$ NE $\frac{1}{4}$, Section 21, T113N, R61W**

and ~~reservoir to be constructed upon~~ **stored in place**

for the purpose of **public recreation (Lake Byron)**

Subject to any limitations listed in Water Right Permit No. **587-3** and subject to the laws of the State of South Dakota.

WITNESS, My hand and seal of our office at Pierre, South Dakota
this **14th** day of **June** A. D.
Nineteen Hundred and **Seventy-One**

WATER RESOURCES COMMISSION

By:

Chief Engineer, Executive Officer, **J.W. GRIMES**

Location No. 587-3Water Division No. 3 Tamias River Water District**Proof of Application of Water to Beneficial Use**

PETITIONER

Ques. 1. State your name, residence, occupation and postoffice address.

Ans. South Dakota Department of Game, Fish and Parks

Ques. 2. If acting in behalf of a corporation, state its name, principal place of business (if a foreign corporation, give name and postoffice of statutory agent,) your position with reference to same, and your authority for appearing in its behalf.

Ans. _____

Ques. 3. State date of posting and date of recording notice of appropriation.

Ans. _____

Ques. 4. State source of water supply and give exact location of point of diversion.

Ans. Foster Creek NW $\frac{1}{4}$ NE $\frac{1}{4}$ Sec. 21; Twp 113; R 61; Beadle County

Ques. 5. Describe your works of diversion giving length and height of each dam and state amount of water they are capable of conveying from point of diversion to place of use, and give name of canal or ditch or other works by which water is conducted to such place of use, and date of completion of same.

Ans. Diversion Ditch - Earth - Approximately 3700 feet long - Foster Creek
diversion completed 1931, Discharge - 1430 Sec. ft.

Ques. 6. State for what purpose water is used and describe place of use. (If for irrigation, name each subdivision in which used, and number of acres in each subdivision that have ACTUALLY been irrigated with said water.)

Ans. Used for Fish and Wildlife propagation, conservation and recreation in
place in Lake Byron (to include diversion as well as lake).

Ques. 7. If for other than irrigation purpose, state how applied, amount of horse power generated, etc.

Ans. Used in place in lake or reservoir

Ques. 8. What is the minimum amount of water required for the use specified above?

Ans. As required to fill lake to spillway outlet - approximately 5000 acre
feet per year.

Ques. 9. If you are not the person or representative of the corporation to whom above mentioned permit was originally issued, please state how ownership was acquired by present holder.

Ans. _____

Ques. 10. State when, how, in what amount and to what extent, the water diverted under above mentioned permit has been used.

Ans. Been in use ever since 1931 when diversion ditch was constructed. Used
by public for the uses specified except for that amount lost by evaporation

(Sign) Harry Plaudward

I hereby certify that the foregoing testimony was read to the above subscriber before its signing, that I believe him to be the person he represents himself to be, and that said testimony was subscribed and sworn to before me, at my office in Pierre, County of Hughes

State of South Dakota, on this 3rd day of March A. D. 1957

Witnesses. Edward J. J. J.

I, the undersigned, do hereby certify that I am a duly qualified elector residing in the immediate vicinity of the diversion works designated in the foregoing testimony, that I have no interest in the works, water or land above described, that I have read the foregoing testimony and that I know of my own personal knowledge that the matters therein stated are true.

Location No. _____

PROOF OF APPLICATION OF
WATER TO BENEFICIAL USE

PETITION OF HOLDER

Amount of Water _____ c. f. s.

Source _____

County _____

Purpose _____

Place of Use _____

Date of recording _____

Received and filed _____

**Department of
Water & Natural Resources**

Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181

September 21, 1988

Richard Beringson, Secretary
Department of Game, Fish and Parks
Anderson Building
445 E Capitol
Pierre SD 57501

Dear Mr. Beringson:

I am writing to notify you that pursuant to the Notice of Intent to Validate Vested Water Right Claims dated June 20, 1988 that I intend to oppose validation of all Department of Game, Fish and Parks Vested Water Right Claims for lakes for the following reasons:

1. Until the outlet elevation for each lake is surveyed and the outlet elevation is set by the Water Management Board.
2. To allow the Vested Water Right Claim to be amended, if necessary, as follows:
 - a) Include the outlet elevation;
 - b) To correct the amount of water claimed;
 - c) To add the qualification that a vested claim is subject where necessary to installation of a concrete outlet structure to assure retention of the outlet as the established elevation; and
 - d) To add any amendments and qualifications necessary to clarify a Vested Right Claim.

Also, that I intend to oppose validation of all Department of Game, Fish and Parks Vested Water Right Claims for dams to allow the Vested Water Right Claim to be amended, if necessary, as follows:

1. To include the spillway elevation;
2. To correct the amount of water claimed; and
3. To add any amendments and qualifications necessary to clarify a Vested Right Claim.



September 21, 1988

Richard Beringson, Secretary

Page 2

We will be working with your staff on these validations. We have already discussed setting outlet elevations before validating claims for lakes. Although the work necessary to complete the validation process will take several years to complete, the results should be of benefit to the public and to your Department. As the work is completed to validate each claim, the claim will be presented to the Water Management Board for validation.

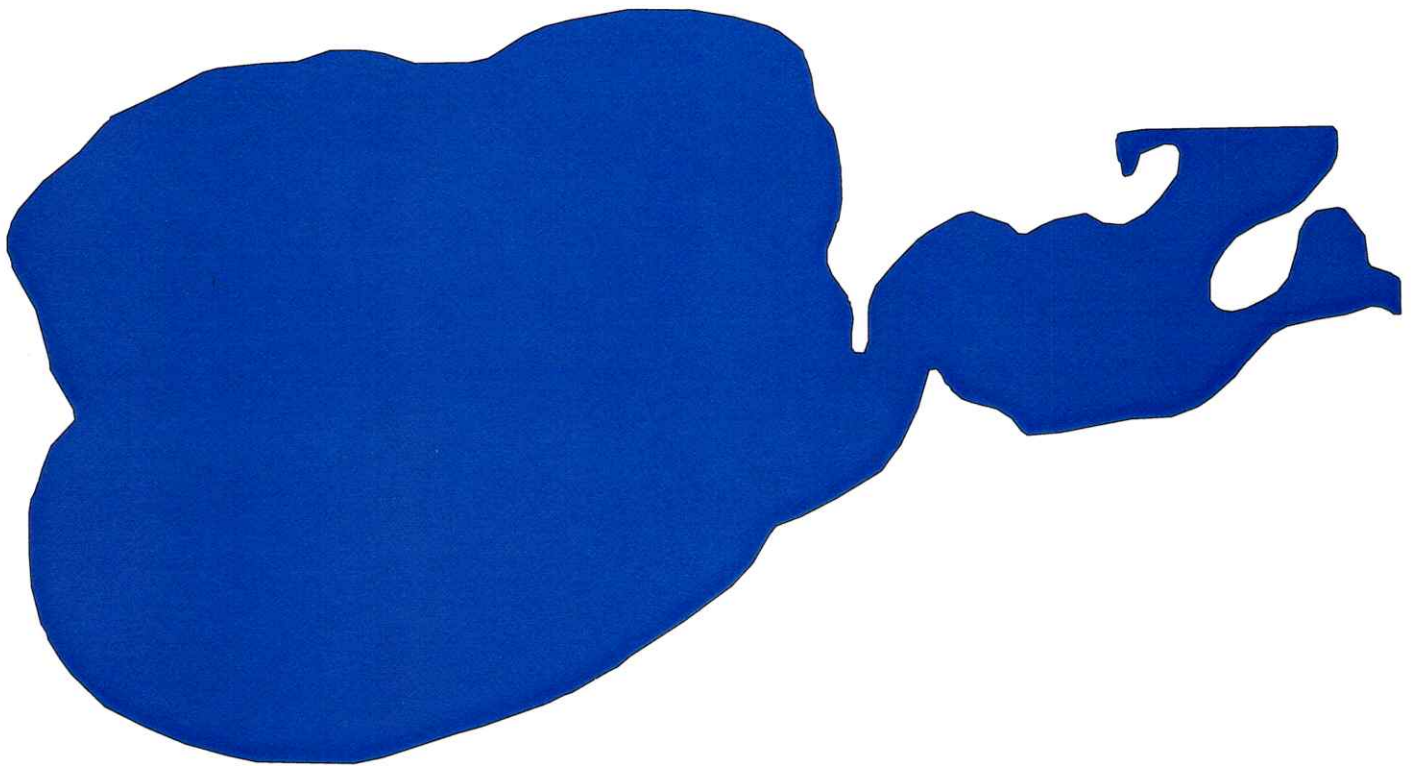
Please advise if you have any questions.

Very truly yours,

John Hatch
for JOHN HATCH, Chief Engineer
Water Rights Division
605 773-3352

cc: Ron Koth, Department of Game, Fish and Parks

REPORT ON LAKE BYRON - BEADLE COUNTY ORDINARY HIGH WATER MARK INVESTIGATION



WATER RIGHTS PROGRAM
January 22, 2001

South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today

**Department of Environment and Natural Resources
Joe Foss Building
523 East Capitol
Pierre, South Dakota 57501-3181**

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ABSTRACT

Keith Schrader, 1940 Meadowlark Lane #201, Huron, SD has requested the Water Management Board establish an Ordinary High Water Mark (OHWM), Ordinary Low Water Mark (OLWM), and outlet elevation for Lake Byron in Beadle County.

In response to the request and pursuant to SDCL 43-17-1, 43-17-21, 43-17-24 and 43-17-28, an investigation was conducted by the South Dakota Department of Environment and Natural Resources, Water Rights Program acting on behalf of the Water Management Board.

This report contains the results of the field investigation conducted in July, August, and September 2000.

During the field investigation of Lake Byron, the following easily recognizable characteristics were used in recommending an elevation for the OHWM and outlet: erosion, changes in the character of the soil, boulder lines, changes in slope, and terrestrial vegetation. There was limited evidence for the Ordinary Low Water Mark (OLWM), much of it was covered by water.

Based on the finding in this report, the recommended elevations for the Lake Byron OHWM and outlet are 1250.0 and 1248.1 feet above mean sea level respectively.

INTRODUCTION

On June 21, 2000, the Water Rights Program received a written request for the establishment of an Ordinary High Water Mark, Ordinary Low Water Mark, and outlet elevation for Lake Byron from Keith Schrader, a riparian landowner. Based on the request, an investigation was conducted to determine elevations to be recommended for the Ordinary High Water Mark (OHWM), Ordinary Low Water Mark (OLWM), and outlet.

OHWM is defined by SDCL 43-17-20(2), which states:

“Ordinary high water mark,” the term as defined in decisions rendered by the courts of this state.

An OHWM is established by the processes of nature. The Water Management Board’s (Board) setting thereof is merely a formal recognition of the mark established by nature.

An Ordinary Low Water Mark (OLWM) elevation will not be recommended for Lake Byron. The water conditions at Lake Byron covered much of the evidence for an OLWM.

State law (SDCL 43-17-2) provides that all navigable rivers and lakes are public highways within 50 feet landward from the water’s edge, provided that the outer boundary of such public highway may not expand beyond the OHWM and may not contract within the OLWM. Thus, the public has the right to use a strip of land up to 50 feet wide, below the OHWM, beginning at the water’s edge or the OLWM for public purposes.

Further, while the public may use the 50 foot strip of land for only “public” purposes, the private adjoining landowner may use the land for any purpose not inconsistent with the rights of the public. Such purposes ordinarily would include, but not limited to, the right to graze and water livestock, to hay, or to build a boat dock.

South Dakota Codified Law (SDCL) 43-17-23 states that in determining the OHWM, natural factors take precedence. Man-made influences, either those that have been constructed to lower the mark or those constructed to raise the mark, shall be disregarded unless the influences have been lawfully constructed or have existed and been accepted for a period of time determined by the Board to be the equivalent of natural conditions.

When requested to do so, the Board is required by SDCL 43-17-21 and 43-17-28 to establish the OHWM for public lakes. SDCL 43-17-1 provides that the ownership of land below the OHWM, and of land below the water of a navigable lake or stream, is regulated by the laws of the United States or by such laws of the state as the Legislature may enact.

A lake is “navigable” if its waters constitute “public waters” (Flisrand v. Madson 35 S.D. 457, 152 N.W. 796, (1915)). A lake is also “navigable” when, if maintained at the high-water mark, it is suitable for rowing, fishing, fowling and bathing (Anderson v. Ray (1916) 37 S.D. 17, 156 N.W. 591).

“Ordinary” according to SDCL 43-17-20(2) is defined in decisions rendered by the courts of this state. In the case of Flisrand v. Madson, 35 S.D. 457, 152 N.W. 796, (1915) the court wrote:

Neither high or low water mark means the highest or lowest point reached by the waters of a lake during periods of extreme and continued freshets, or periods of extreme and continued drought, but does mean the high and low points of variation of such waters under ordinary conditions, unaffected by either extreme.

In the case of Anderson v. Ray, 37 S.D. 17, 156 N.W. 591 (1916) the South Dakota Supreme Court wrote:

In the case of freshwater rivers and lakes - in which there is no ebb and flow of the tide, but which are subject to irregular and occasional changes of height, without fixed quantity of time, except that they are periodical, recurring with the wet or dry seasons of the year - high water mark, as a line between the riparian owner and the public, is to be determined by examining the bed and banks, and ascertaining where the presence and action of the water are so common and usual, and so long-continued in all ordinary years, as to mark upon the soil of the bed a character distinct from that of the banks, in respect to vegetation, as well as respects the nature of the soil itself.

In the Waubay Lake decision, issued on January 17, 1986, the South Dakota Supreme Court stated the determination of these water marks is to be done on a case by case basis. The Court stated that:

“... under ordinary circumstances, the Ordinary High Water Mark will be set at a level where there is a distinct mark which evidences erosion, and changes in the character of the soil, and destruction of terrestrial vegetation, which have occurred under the ordinary and continuous conditions of the lake, disregarding periods of extreme and periodic freshets, and disregarding the highest water mark which does not evidence erosion and soil changes and destruction of vegetation occasioned under ordinary conditions. If a single distinct mark, occasioned under ordinary circumstances and evidencing all of the factors delineated above does not exist, i.e., there is conflicting evidence of the role of the Ordinary High Water Mark, it is the level where significant major, and substantial terrestrial vegetation ends, that the OHWM is to be set.” (cites omitted)

MEANDER LINE

A meander line, as the name implies, is a line that meanders and is not at a constant topographic elevation. An OHWM is at a constant topographic elevation. Hence, a meander line is not and cannot be associated with an OHWM. A meander line survey is established by man for surveying and mapping purposes and to establish the number of acres subject to sale. A meander line is not a property line. OHWM's are established by nature and defined by man.

In the case of *Flisrand v. Madson*, 1915, the South Dakota Supreme Court wrote:

“The fact alone that the lake in question was meandered by the government survey does not directly control this matter, as a meander line is not considered a boundary line, but merely serves to define the sinuosities of the bank of the lake and a means of ascertaining the amount of land in the fractional tract subject to sale, which is to be paid for by the purchaser. *St. Paul Ry. Co., Shurmeier* 7 Wall 272, 19 L. Ed. 74, and note page 972.”

The meander line was surveyed around Lake Byron in 1875 (see Attachment No. 2).

GENERAL INFORMATION

Lake Byron is located in northern Beadle County 13 miles north of the city of Huron. Lake Byron is located in Sections 21, 22, 23, 24, 25, 26, 27, 34, and 35 T113N, R61W and Sections 19 and 30 T113N, R60W. The outlet channel is located on the northwest side of the lake in Section 27, T113N, R61W (see Attachment No.1). Lake Byron has a watershed area of approximately 214 square miles and a surface area of approximately 1850 acres at the current outlet level.

All elevations in this report are referenced to a United States Department of Commerce, Environmental Sciences Services Administration, Coast and Geodetic Survey benchmark with a 1929 sea-level datum described as follows:

The benchmark is located 10.2 miles north along State Highway 37 from the Chicago and North Western Railway crossing on Dakota Avenue in Huron, Beadle County, 318 feet south and 93 feet east of the northwest corner of section 16, T112N, R61W, at the top of a small rise, and in a pasture on the north side of a ravine. A standard disk, stamped "U 83 RESET 1951", and set in the top of a concrete post.

The Water Rights Program along the perimeter of Lake Byron established temporary benchmarks. The locations and elevations of the temporary benchmarks are available from the Water Rights Program upon request.

WATER RIGHTS

Vested Water Right Claim No. 587-3 held by the South Dakota Department of Game, Fish and Parks (GF&P) is one of two existing claims on file for water stored in Lake Byron. (Water Right files, 2000) There are also domestic uses (i.e. livestock watering, dams, dugouts, etc.) present within the Lake Byron drainage basin.

Vested Water Right Claim No. 587-3 claims a 1931 priority date, and approximately 5000 acre-feet of water per year to fill Lake Byron for public recreational purposes. The claim states that the location of the Lake Byron diversion is in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 21, T113N, R61W. This claim indicates a surface area of 1500 acres and storage capacity of 9000 acre-feet when full. The GF&P estimated the lake surface area and storage capacity at full water level on March 3, 1959. The storage and area of the lake are only estimates and may not be the actual lake storage or surface area at the OHWM.

A correction will need to be made to Vested Water Right Claim No. 587-3 for Lake Byron. The location of the Foster Creek diversion will need to be corrected from the NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 21 to the SE $\frac{1}{4}$ NE $\frac{1}{4}$ Section 21. The second diversion point is the outlet, located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 27, T113N, R61W.

Water Right No. 5027-3 held by the Lake Byron Watershed District claims a June 14, 1984 priority date to divert 12 cubic feet per second and store 3400 acre-feet of water from the James River for lake stabilization. The diversion point is located in the NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 33, T113N, R61W.

Vested Right Claim No. 807-3, Connors Lake, also held by GF&P, claims an 1889 priority date and approximately 240 acre-feet of water per year to fill Connors Lake to the outlet level for public recreational purposes. The claim states that the outlet is in the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 20, T113N, R61W.

Corrections also need to be made to Vested Right Claim No. 807-3. The location of the outlet for water in Mud Lake will need to be changed from the NE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 20 to the NW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 21, T113N, R61W.

GEOLOGY

Most of Beadle County lies in the James Basin division of the central lowland province. The extreme southwest corner of Beadle County is in the Coteau du Missouri section of the Great Plains province. The surface of the James Basin trends north to south between the Coteau du Missouri to the west and the Coteau des Prairies to the east. The James Basin is a lowland of low to moderate relief, the result of glacial ice action.

Most of Lake Byron lies on ground moraine. Moraine is till deposited by glaciers. Ground moraine is deposited by moving ice which levels the ground leaving a gently rolling topography (Gries, 1996). Glacial Lake Dakota lies to the north of Lake Byron. A catastrophic flood, the result of Glacial Lake Dakota washing out, created the James River trench just to the west of Lake Byron

A melt-water channel underlies Lake Byron. Melt-water channels are valleys or trenches cut by the melt-water from a glacier. The surface expression of this channel is an east-west trench more than 50 feet deep containing Lake Byron (Hedges, 1968). See Attachment No. 3.

HYDROLOGY

Lake Byron water levels appear to fluctuate with the water levels of the Tulare East James aquifer that occurs in the area. The Water Rights Program monitors many wells in the Tulare East James aquifer that encompasses Lake Byron. The two closest wells are; well BD-77C which lies 2 miles southeast of Lake Byron and well BD-77D which lies 5 miles southeast of Lake Byron. The general fluctuations in the water levels in wells BD-77C and BD-77D follow measured lake levels for Lake Byron over the last 17 years, see Attachment No. 5 and 5a.

Water levels in Lake Byron are most influenced by yearly precipitation and evaporation. The hydrograph for Lake Byron and Connors Lake have the same shape for the period of lake level measurements. This also follows the yearly precipitation graph. See Attachment Nos. 5 and 9. The Lake Byron Watershed District received a water right in 1985 to pump water from the James River to stabilize water levels in Lake Byron.

Surface water flow from Lake Byron follows the same direction as the flow in the surficial melt-water channels. Water flowing from Lake Byron's outlet flows to Connors lake through a manmade channel. Water leaves Connors lake over a spillway at the same elevation as Lake Byron's outlet and makes its way to Foster Creek. Foster Creek is a tributary to the James River.

WATER LEVELS

Available water level measurements of Lake Byron and Connors Lake are shown in Attachment No. 4. The Water Rights Program has taken water level measurements for Lake Byron since the fall of 1983 and for Connors Lake since the summer of 1986.

Lake Byron was completely dry at times during the 1930's (Howells, 1968). Reference was made in the April, 1943, South Dakota Conservation Digest, that for the first time since the construction of the Foster Creek Diversion, Lake Byron is full and spilling. Measurements taken by the Water Rights Program show that Lake Byron and Connors Lake have been as much as three feet over the outlet.

Betty Timm, landowner at Lake Byron for 30 years, reported that after a winter with a good amount of snow the lake level reaches the top of the beach. The top of beach elevations observed around the lake range from 1249.0 to 1251.4 fmsl. Ms. Timm also recalls enough water in the lake in 1993 and 1997 to cause significant lakeshore erosion. This past summer the Timms did not put their boat dock out due to low water levels. The lake was very low in the late 1980's.

Al Mueller has been a resident on Lake Byron for 25 years and recalls 5 feet of water over the outlet in the spring of 1997. Mr. Mueller has observed, during a typical spring runoff, at least one foot of water over the outlet. In addition, Keith Schrader, a lake resident since the 1950's, observes the outlet every spring. Mr. Schrader reported that water flows 1.5 - 2 feet over the outlet during spring runoff. Mr. Schrader's observations would put the lake water elevation between 1249.6 and 1250.1 fmsl.

CLIMATOLOGICAL DATA

Climatological data for Lake Byron is included in this report as Attachment No. 9. The climatological data is discussed in detail in the following section.

RUNOFF FACTORS

Soil moisture conditions refer to the degree that a soil is saturated with water. During a "dry" year(s), the soil moisture becomes depleted due to plant use, evaporation, and natural drainage. Runoff volume from a rainfall event during depleted soil moisture conditions would be reduced due to the rain soaking into the ground.

On the other hand, during a "wet" year(s), the soil becomes saturated with water and isn't capable of absorbing the rainfall event. Hence, the identical rainfall event during "wet" years will produce a much larger runoff volume than during "dry" years. The more saturated the soil becomes, the larger the runoff volumes generated during a particular rainfall event.

A single rainfall event whose duration is spread over a number of days or weeks can generate a relatively small runoff volume. Conversely, a single rainfall event whose duration is only a few minutes or hours could generate a relatively large runoff volume. Hence, the runoff volume generated by any given rainfall event is also dependent upon the amount and intensity.

The potential for the largest runoff volumes for any drainage basin (Lake Byron or any other lake) are generated when saturated soil moisture conditions are present going into the winter. The ground then freezes nearly solid and becomes impermeable due to winter temperatures below 32 degrees Fahrenheit. Snow accumulations coupled with cold winter temperatures set the scene for a major runoff event the following spring.

A rapid temperature rise in the spring quickly melts the previous winters snow accumulation. The still frozen/saturated soil is not able to soak up any of the snow melt-water, hence, nearly all snow melt-water arrives at terminal locations such as depressions, dams and lakes or discharge to streams.

As previously shown, yearly runoff entering Lake Byron is dictated by a complicated set of circumstances that include general climatic factors, soil moisture conditions, and snow melt.

MAN MADE INFLUENCES

Natural factors are given precedence in determining the ordinary high water mark. Man-made influences, either those that have been constructed to lower the mark or those constructed to raise the mark, shall be disregarded unless the influences have been lawfully constructed or have existed and been accepted for a period of time determined by the Board to be the equivalent of natural conditions (SDCL 43-17-23).

There appears to be manmade influences at Lake Byron and as on many other lakes the influences are in the inlet and outlet areas. Roads, culverts, and manmade ditches have replaced portions of the natural inlet and outlet channels for and between Lake Byron and Connors Lake.

The above man-made influences have apparently had an affect on the OHWM but, have been in place for such a time they probably constitute natural conditions. The Foster Creek - Lake Byron Diversion project was built in the early 1930's. This project drastically increased the watershed area for Lake Byron. Since the 30's were extremely dry the lake did not fill and begin to spill until 1943.

In addition the Lake Byron Watershed District holds Water Right No. 5027-3 which authorizes the diversion of 12 cubic feet per second and storage of 3400 acre-feet of water from the James River for lake stabilization. 1992 was the first year water was pumped into Lake Byron adding 1767 acre-feet to the lake. Since 1992 precipitation has been higher and water from the James River has been pumped only three times, in 1996, 1998 and 2000. The amount of water pumped in 1996 and 1998 was not significant. Pump records for 2000 have not been received as of this report. Water Right No. 5027-3 has not had an affect on the OHWM for Lake Byron.

FIELD INVESTIGATION

BENCH MARK ESTABLISHMENT AND COLLECTION OF FIELD DATA

Temporary benchmarks were established around Lake Byron. The locations and elevations for the temporary bench marks are available from the Water Rights Program upon request.

Field data for Lake Byron was collected in the summer of 2000. The data collected can be found in Attachment Nos. 7 and 8.

ORDINARY HIGH WATER MARK EVIDENCE

Distinct physical evidence used in identifying the OHWM are: erosion, changes in the character of the soil, boulder lines, change in slope, growth and destruction of terrestrial vegetation (FLISRAND V. MADSON, 1915; ANDERSON v. RAY, 1916; S.D. WILDLIFE FEDERATION v. WATER MGT. BD., 1986; Red Lake, Brule County Ordinary High Water Mark and Ordinary Low Water Mark, and Outlet Elevation Investigation Report).

Erosion

Distinct erosional features around Lake Byron are summarized in Attachment No. 8.

Also see photo nos. 7, 8, 9, 16, 20, 29, 31, 36, 39, 41, 47 and 51.

Erosional features at Lake Byron consist of cutbanks, slope changes, and washed root systems. These features were found at a variety of elevations on the bank: 1248 to 1248.2 and 1250.4 to 1251 fmsl for bottom of cutbank; 1250.1 to 1251.3, at 1255.6, and 1256.1 fmsl for top of cutbank. There were few washed root systems along the shore, one top of washed root systems was observed at 1248.7 fmsl. There are several slope changes starting at 1248.3 to 1250.1 fmsl. Other erosion lines occur at 1250.5 to 1251.5 and at 1252.3 fmsl. The most obvious changes in slope are the toe and top of the lake bank. These elevation occurred at 1248.7, 1249.6 to 1250.1, 1250.7 to 1250.9, and 1252.5 for toe of bank and 1250.7 to 1251.2, 1251.6 to 1251.1, 1252.6 to 1253.9, 1256.1 and 1258.8 fmsl for top of bank.

Changes in the character of the soil

Soil stratification occurs around a lake when wave action washes the lake shore and leaves the larger parent materials (pebbles, cobbles, boulders) relatively stationary while the fine grained materials (sand, silts, clays, peats) are transported the greatest distance into the lake. An idealized lake shore progression would start with backshore boulder sized materials and terminate with clay and peat materials deposited in the deepest portions of the lake. Historical lake levels can be inferred by locating areas showing remnant soil stratification.

The soil characteristics observed were found at elevations of 1248.3 to 1248.7, 1249.2 to 1249.6, and 1250.3 fmsl for top of washed pebbles; 1249 to 1249.2, 1250 to 1250.4, and 1250.8 to 1251.4 fmsl for the top of sandy beach; and 1250.3 and 1254.6 to 1255 for the beginning of top soil. Distinct surficial changes in the character of the soil at Lake Byron can be found in Attachment No. 8. Also see photo nos. 8, 16, 23, 29, 31, 35, 47, and 51.

Boulder Lines/Ice Pushed Ridges

In the spring lake shores can be acted upon by ice sheets and wind action which form ice pushed ridges. The lake ice melts first near the shores because of the relatively rapid heating of the earthy material of the shore and the shallow bottom. An open lane of water is formed which is further widened by a rise in lake level from the water added by the melting snow of the surrounding slopes. If strong winds develop before the ice becomes rotten, the ice is blown about from side to side by the winds and pushed on the shores with almost irresistible force. The direction of shove is related to that of the winds and

may vary along any shore even during a jam, if the winds shift considerably. The force of the push depends on the firmness and momentum of the ice, the latter being determined by the velocity and duration of the wind, the weight of the ice and to some extent the distance through which the ice is free to move. (Dionne, 1979)

Ice pushed ridges/boulder lines can be composed of foreshore and backshore materials. There are boulder lines present around Lake Byron. The boulder lines present are related to ice action and wave erosion acting upon the lake bank. The boulder lines are found at the base and along the slopes of steeply sloping hillsides as residuum.

Boulder lines are summarized in Attachment No. 8. Base elevations of boulder lines range from 1248.3 to 1248.5 fmsl. The top of the boulder lines exists at or near 1248.7 fmsl. See photo nos. 21 and 38.

Terrestrial Vegetation

The tree population observations in this report are limited to easily recognizable characteristics such as species, diameter and elevation. The tree population around Lake Byron is predominately cottonwood, ash, and elm. Growth of terrestrial vegetation around Lake Byron is summarized in Attachment No. 8. Also see photos in Attachment No. 10.

Certain species of trees are able to survive periods of flooding better than others. Elm, cottonwood, and ash trees are the predominant trees on Lake Byron's shore. Elm trees are considered intermediately tolerant to flooding. This means an elm tree with good vigor can survive occasional inundation between 20 and 30 percent of the growing season. Cottonwood and ash trees are considered tolerant to flooding. This means a cottonwood or ash tree with good vigor is able to survive when flooded more than 30 percent but less than 40 percent of the growing season. (Hightshoe, 1988)

The ability for certain trees to survive occasional flooding may be due to the formation of lateral roots at or just above the waterline (Gill). Photo No. 7 shows lateral roots washed by wave action

Using trees on a lake without other OHWM evidence would suggest that the OHWM elevation lies close to the elevation of predominant destruction of terrestrial vegetation. There are only a few trees below elevation 1249.7 fmsl on Lake Byron.

Elm, cottonwood, and ash trees measured at Lake Byron range in diameter from two inches to 4.5 feet and have grown between the elevations of 1248.5 and 1252 fmsl. Large trees were found at all locations investigated around the lake and at several different elevations. Trees two to 4.5-feet in diameter were found from 1249.7 to 1252 fmsl. The largest tree measured was a 4.5-foot diameter cottonwood stump found at elevation 1250.1 fmsl. The lowest terminal elevation observed for live trees at Lake Byron is 1248.5 fmsl.

OUTLET

The outlet for Lake Byron is located on the northwest side of the lake in Section 27, T113N, R61W (see Attachment No.1). The outlet consists of a concrete overflow weir placed at the bottom of the channel between Lake Byron and Connors Lake. See photo nos. 2 and 3. The overflow elevation occurs at 1248.1 fmsl. There are two gated structures beside the outlet. These are opened during spring runoff to facilitate flow from the lake and shut when there is 6 to 8 inches of water over the outlet. At the time of the investigation the gates were silted and no elevations were observed. There are five 5-foot culverts in the channel between Lake Byron and Connors Lake, set at varying elevations. See photo no. 4. Connors Lake has a 5.5-foot high concrete spillway at elevation 1248.0 fmsl.

In South Dakota most of the lakes with OHWM's have outlets that are six inches to one foot below the OHWM. The recommended OHWM for Lake Byron is 1.9 feet above the overflow elevation of the outlet. Water in Lake Byron must pass through Connors Lake before flowing to a discharge channel and stream. This may slow the evacuation of water from Lake Byron thus water is held at a higher elevation for an extended period of time. Man made structures have influenced the water levels in Lake Byron, however these influences were legally constructed and have been in place since the 1930's.

CONCLUSIONS

1. The term "Ordinary" for any given lake, as defined by established OHWM's can be synonymous with average, normal and yearly. "Ordinary" can also take into consideration periodic fluctuating water levels based upon prevailing climatic conditions and watershed characteristics.
2. A meander line is not at a constant elevation and is not considered in determining the OHWM for any given lake.
3. Measured water levels since October 14, 1983, indicate that Lake Byron has experienced 6.9 feet of fluctuation.
4. Man made influences caused by diversion projects, road construction and culvert installation over and in the outlet and inlet channels may have affected the Lake Byron OHWM, but have been in existence long enough to constitute natural conditions.
5. Based upon the field data summarized in Attachment No.8, a potential OHWM elevation for Lake Byron is 1250.0 fmsl. Erosional features and terrestrial vegetation afforded strong evidence with supportive evidence from soil characteristics. OHWM's are not associated with the highest limits of a lake bank but are associated with the upper limits of a lake bank. The majority of the indicators show the OHWM exists at the elevation of 1250.0 fmsl; it is recommended that the OHWM be established at 1250.0 fmsl.
6. It is recommended that the outlet elevation for Lake Byron be established at 1248.1 fmsl.
7. Vested Water Right Claim Nos.587-3 and 807-3 will need to be corrected prior to being validated.



Lynn Beck
Natural Resources Engineer Specialist
Water Rights Program



Gale N. Selken, P.E.
Natural Resources Engineer Director
Water Rights Program

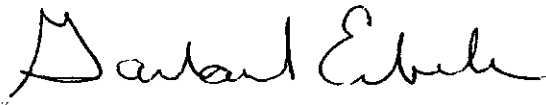
**RECOMMENDATION OF THE CHIEF ENGINEER ON ESTABLISHMENT OF
AN ORDINARY HIGH WATER MARK and OUTLET ELEVATION and
VALIDATION OF RECOGNIZED VESTED WATER RIGHT CLAIM NO. 587-3
FOR LAKE BYRON, BEADLE COUNTY**

Pursuant to SDCL 46-2A-2, the following is the recommendation of the Chief Engineer, Water Rights Program, Department of Environment and Natural Resources concerning establishment of an Ordinary High Water Mark, outlet elevation, and validation of Recognized Water Right Claim No. 587-3 for Lake Byron in Beadle County.

The Chief Engineer of the Water Rights Program recommends:

1. That the OHWM for Lake Byron, Beadle County be established at elevation 1250.0 feet mean sea level (fmsl).
2. That the outlet for Lake Byron, Beadle County be established at elevation 1248.1 fmsl.
3. Validation of Recognized Vested Water Right Claim No. 587-3 for sufficient water to maintain the water level to the outlet elevation of 1248.1 fmsl.

See report for additional information.



Garland Erbele, P.E. Chief Engineer
Water Rights Program
January 22, 2001

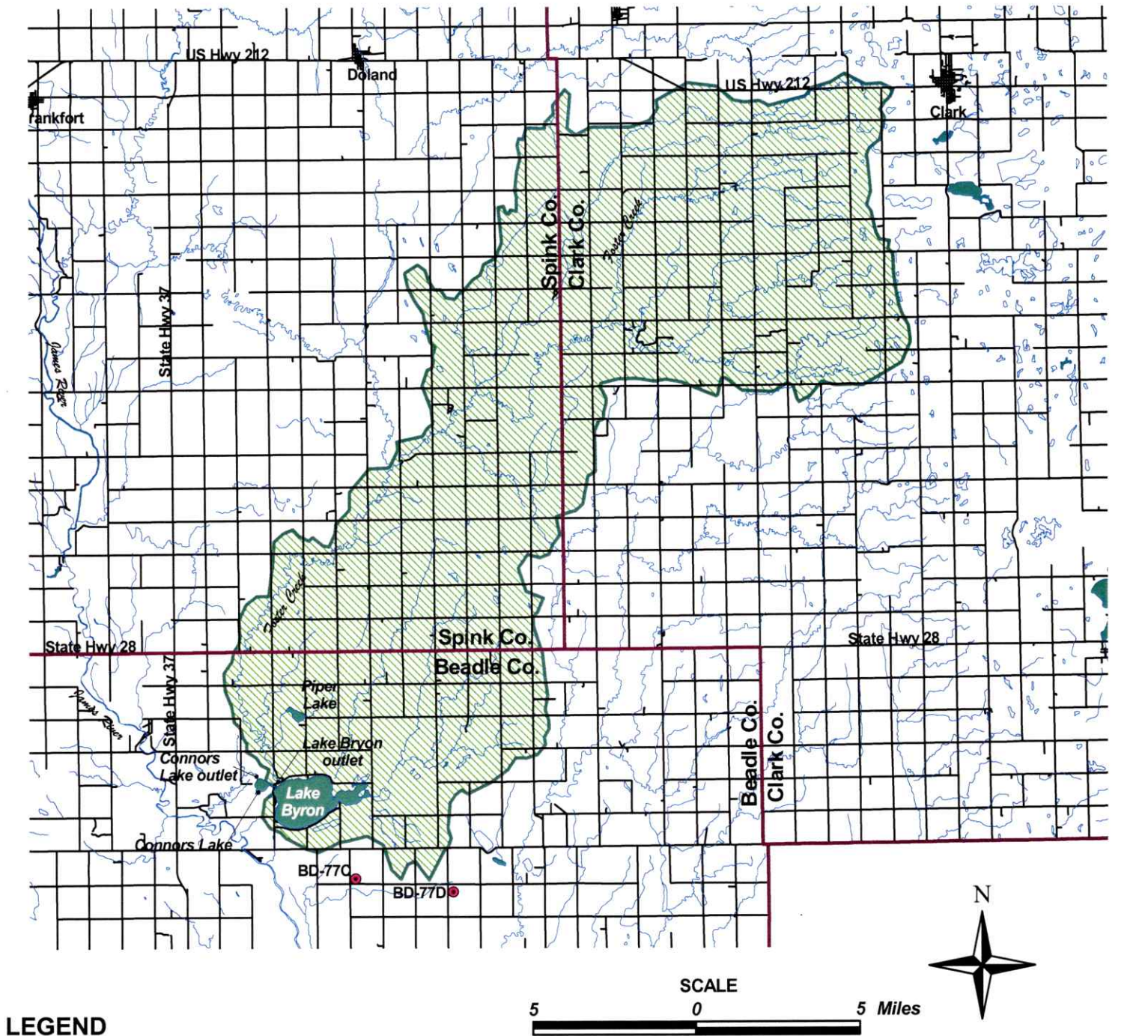
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- Wiley, I. R., April 1943, South Dakota Conservation Digest.

Persons and Agencies Referenced

- Archives, State Library Building, Pierre, SD 57501
- Beadle County Register of Deeds, County Courthouse, Huron, SD 57350
- Alvin Mueller, 19426 West Lake Loop, Huron, SD 57350
- Keith Schrader, 1940 Meadowlark Lane, #201, Huron, SD 57350
- Betty Timm, 1147 Iowa SE, Huron, SD 57350
- State Climatologist, South Dakota State University, Brookings, SD 57007

LAKE BYRON, BEADLE COUNTY ORDINARY HIGH WATER MARK INVESTIGATION



LEGEND

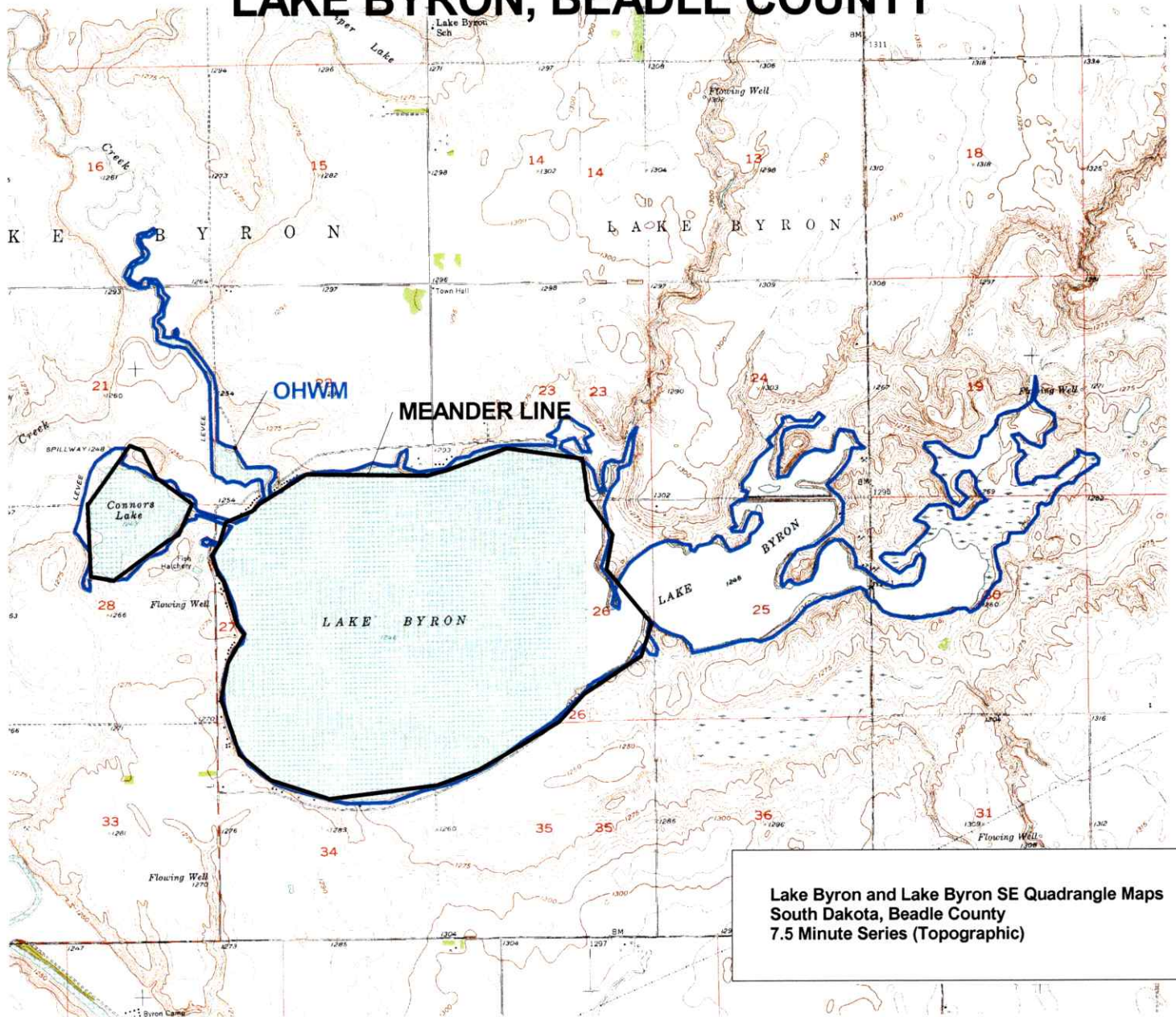
- Streams
- Roads
- Lakes
- Lake Byron Watershed 214 sq. mi.
- Observation Wells



SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
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OHWM and MEANDER LINE FOR LAKE BYRON, BEADLE COUNTY



SCALE

1 0 1 Miles

LEGEND

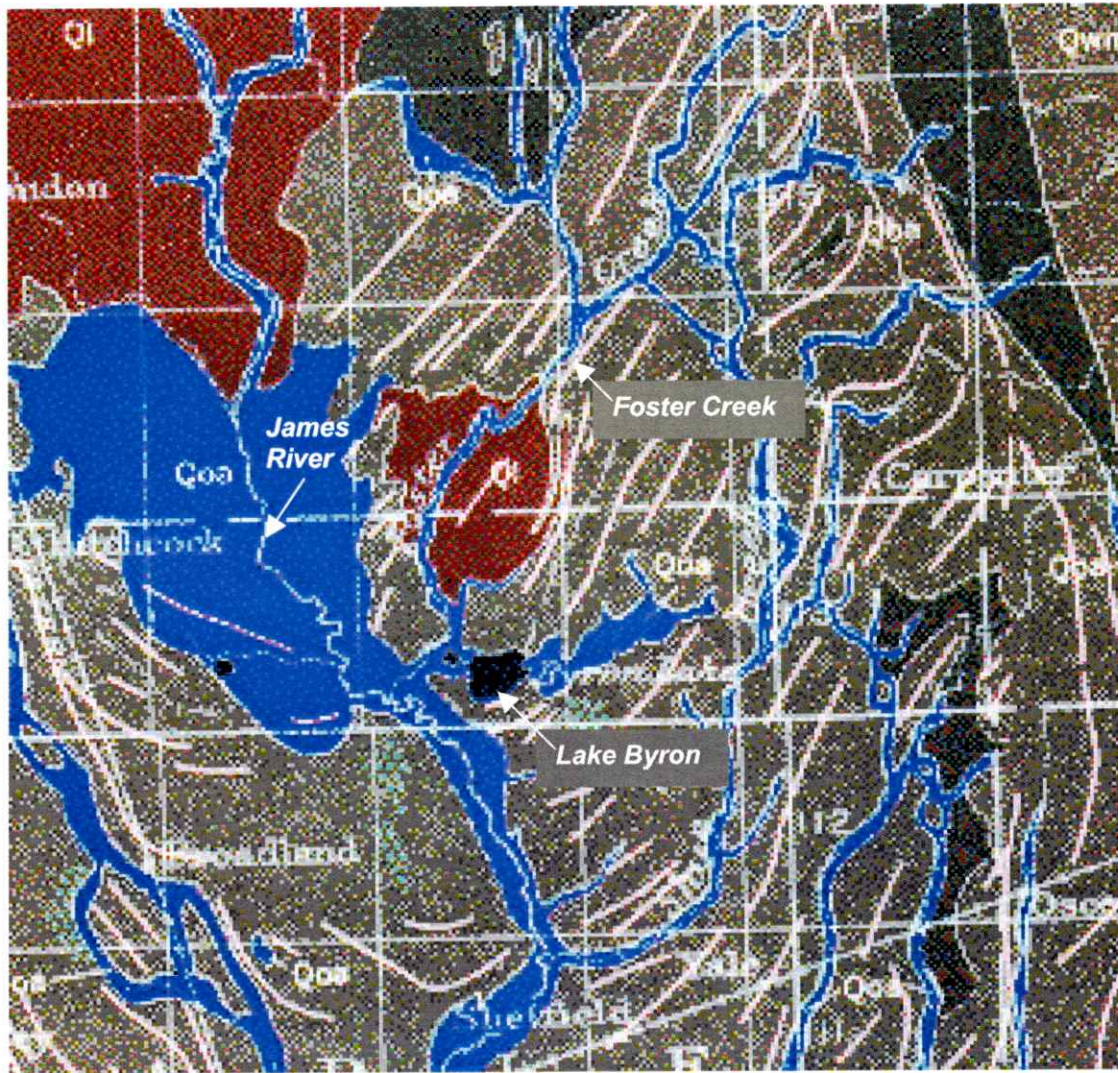
-  Meander Line
-  Lake Byron OHWM



SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
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MELTWATER CHANNEL



Melt-water Channel

Figure is a portion of the "Map of the Glaciated Region of South Dakota, Showing Surficial Deposits.
Professional Paper 262 Plate 1
Geology by R.F. Flint, 1950

Attachment No. 4

MEASURED WATER LEVELS FOR LAKE BYRON AND CONNORS LAKE, BEADLE COUNTY

DATE	WATER LEVELS LAKE BYRON	WATER LEVELS CONNORS LAKE
10-14-83	1244.5	
04-30-84	1248.6	
*summer 84	1251.3	
08-15-84	1248.8	
10-23-84	1248.7	
11-09-84	1248.4	
12-03-84	1248.3	
05-06-85	1248.7	
10-07-85	1248.1	
05-05-86	1249.3	
07-08-86		1248.3
10-06-86	1248.8	1248.5
**04-24-87	1248.8	1247.8
10-09-87	1247.0	1246.9
04-22-88	1247.6	1246.9
09-29-88	1246.2	1245.3
05-15-89	1248.4	1248.5
10-23-89	1246.7	1246.3
05-07-90	1246.6	1246.2
09-24-90	1246.0	1245.2
05-06-91	1246.3	1245.6
10-07-91	1247.5	1246.0
05-04-92	1247.6	1245.8
09-21-92	1247.6	1245.1
05-17-93	1248.7	1248.7
09-27-93	1248.1	1248.1
05-09-94	1248.7	1248.5
09-26-94	1248.1	1248.1
05-01-95	1249.2	1248.8
09-13-95	1248.1	1248.1
05-13-96	1248.5	1248.5
10-07-96	1247.9	1247.6
05-12-97	1248.6	1248.6
09-23-97	1248.3	1248.2
05-06-98	1248.7	1248.7
09-16-98	1247.7	1247.6
04-28-99	1248.8	1248.8
09-14-99	1248.6	1248.6
04-12-00	1247.9	1248.0
10-02-00	1247.2	1246.9

*Peak summer measurement 1984, unknown source.

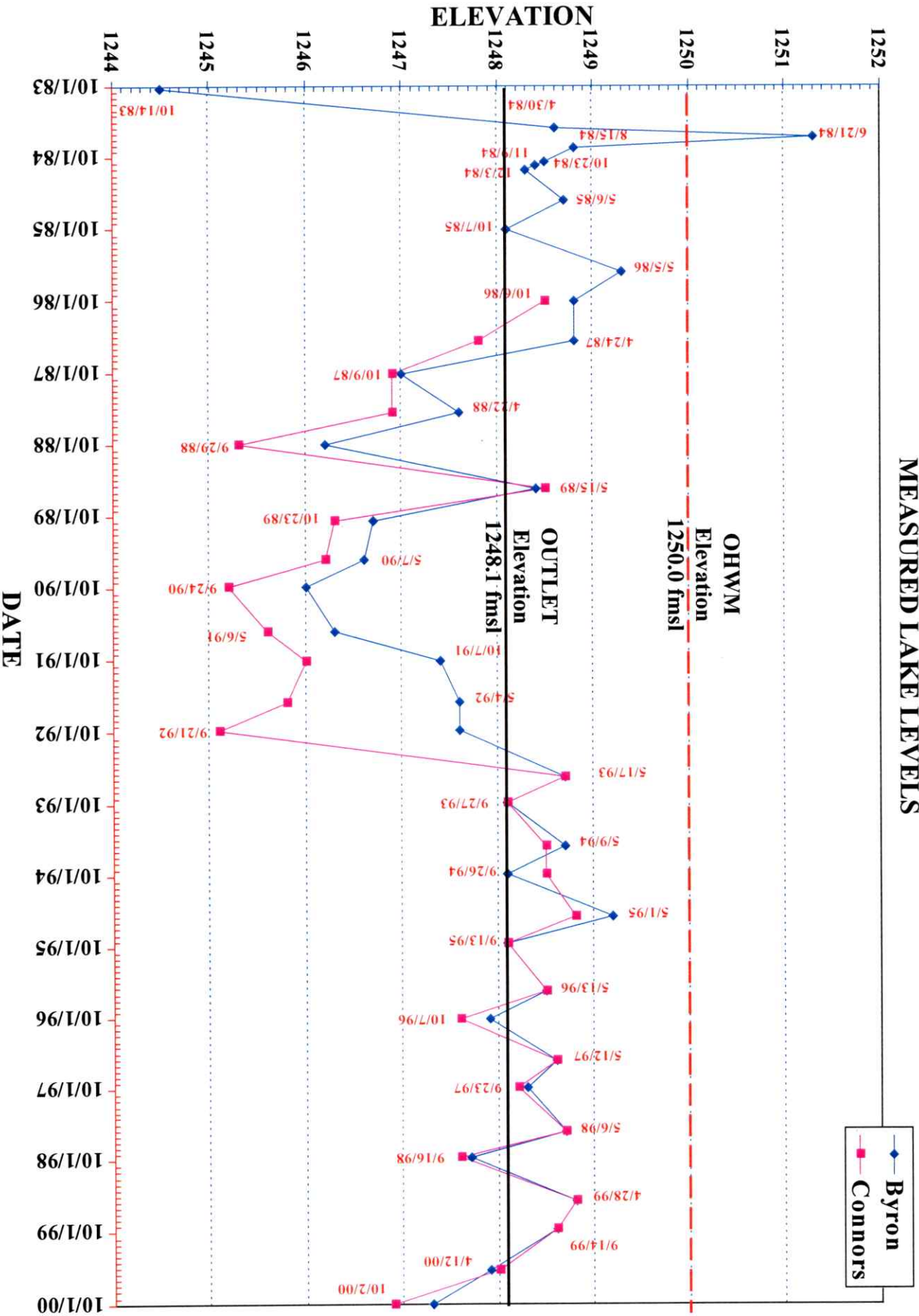
**Levels may have been affected by construction on Lake Byron outlet

Debris lines on Lake Byron have been measured at 1251.2 fmsl on 09-13-95 and 1250.2 fmsl on 05-12-97.

Measurements by Water Rights Program

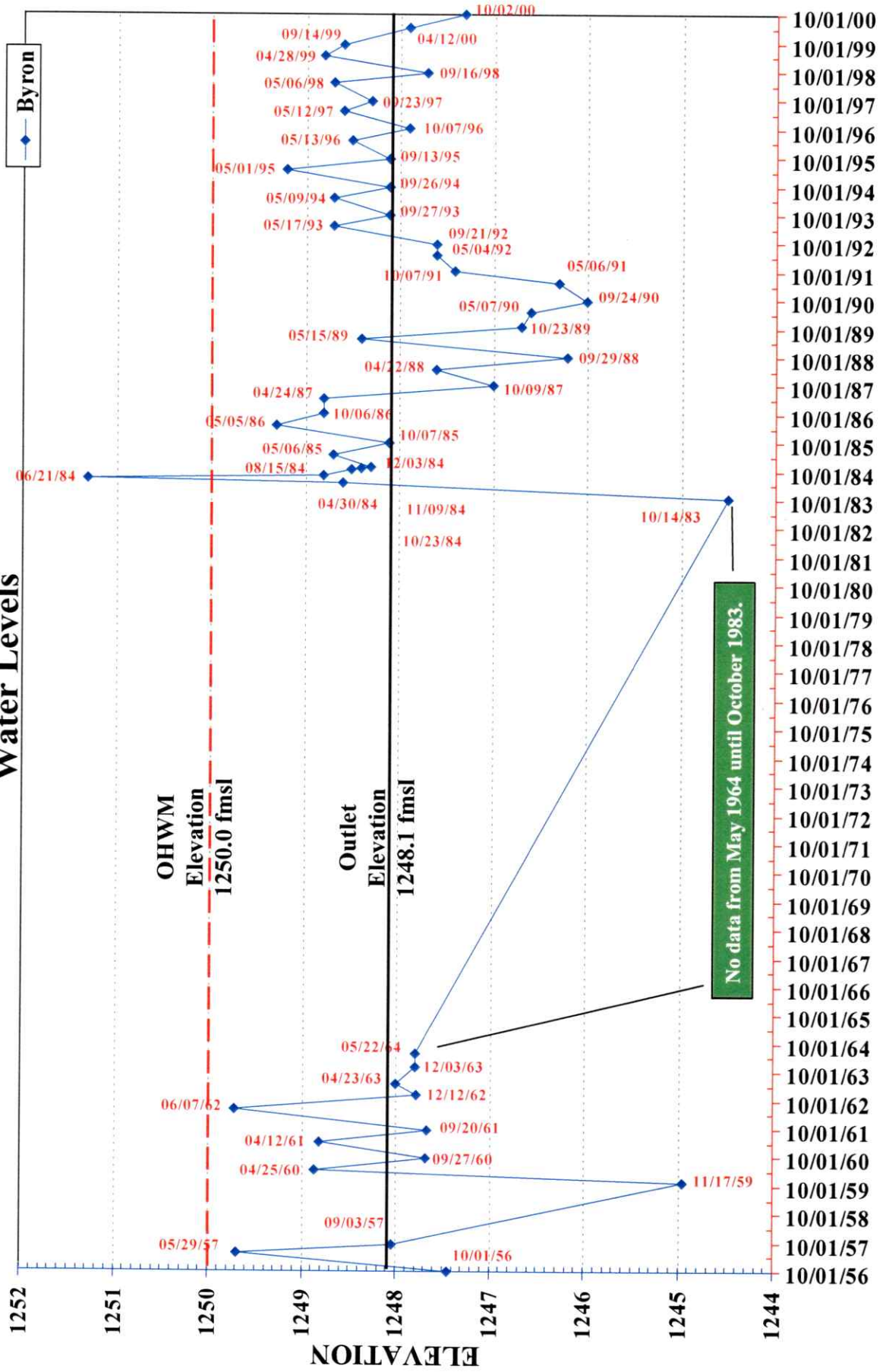
Attachment No. 5

LAKE BYRON and CONNORS LAKE, BEADLE COUNTY
MEASURED LAKE LEVELS

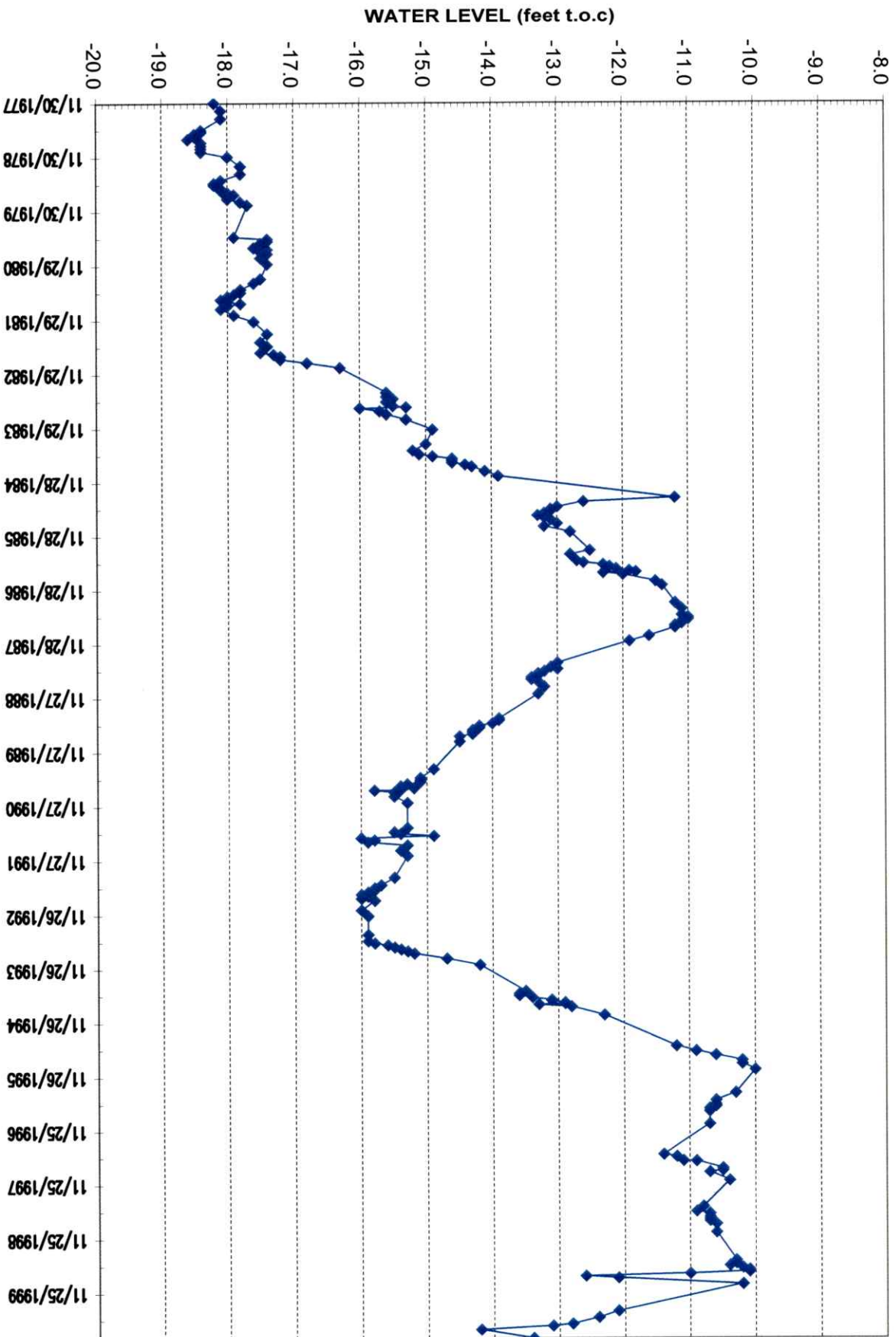


Lake Byron, Beadle County

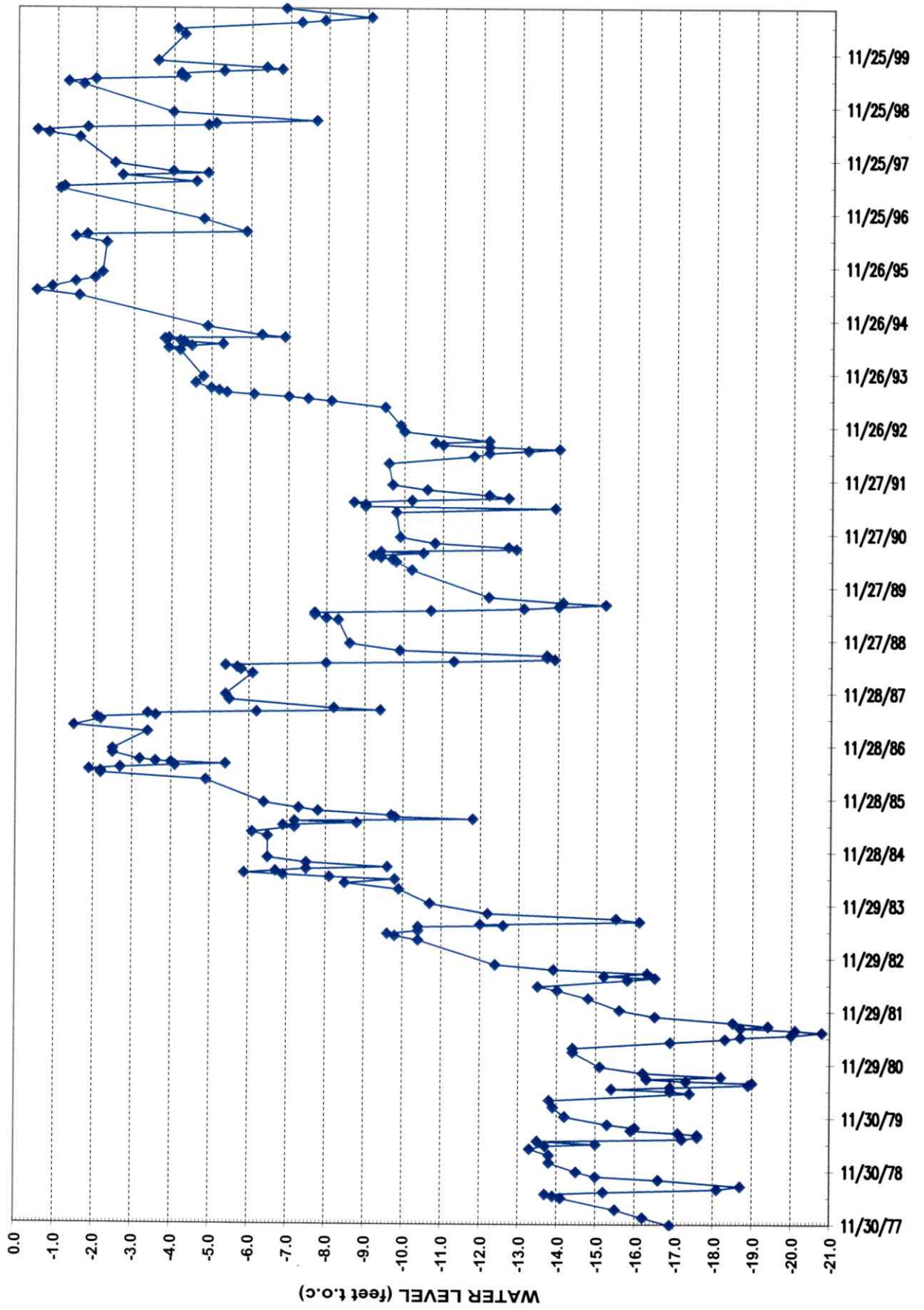
Water Levels



Attachment No. 6
WATER RIGHTS' OBSERVATION WELL
BD-77C



Attachment No. 6a
WATER RIGHTS' OBSERVATION WELL
BD-77D



Attachment No. 7

OHW M EVIDENCE

EROSIONAL CHARACTERISTICS:

Elevation (fmsl)	Legal Description	Comments
1248.4	W½ NW¼ Sec. 27, T113N, R61W	Top sand ridge in front of outlet
1248.9		Change in slope
1251.0		Top of ridge
1251.4		Top of ridge
1251.6		Top of bank
1248.6		Bottom of washed roots
1248.7		Top of washed roots
1250.1		Toe of bank
1253.9		Top of bank
1250.7	S½ SW¼ Sec. 22, T113N, R61W	Top of bank in inlet channel
1250.9		Top of bank in inlet channel
1250.9		Top of bank in inlet channel
1251.0		Top of bank in inlet channel
1249.0		Change in slope
1249.1		Change in slope
1249.2		Change in slope
1249.4		Change in slope
1252.1		Top of bank
1249.9	S½ SE¼ Sec. 22, T113N, R61W	Toe of erosion
1249.9		Toe of erosion at steep bank
1250.9		Toe of erosion
1250.9		Toe of erosion at steep scarp
1256.1		Top of steep bank
1257.8		Top of steep bank
1255.6		Change in slope
1248.3	E½ SW¼; W½ SE¼ Sec23, T113N, R61W	Toe of slope
1248.3		Toe of slope
1248.3		Toe of slope
1248.3		Toe of slope
1248.4		Toe of slope
1248.5		Toe of slope
1248.5		Toe of slope
1248.5		Toe of slope
1248.6		Toe of slope
1248.6		Toe of slope
1248.6		Toe of slope

EROSIONAL CHARACTERISTICS continued:

Elevation (fmsl)	Legal Description	Comments
1248.8		Toe of slope
1249.2		Toe of slope
1250.5		Toe of slope
1250.7		Toe of bank
1248.4		Top of slope
1248.4		Top of slope
1248.4		Top of slope
1248.4		Top of slope
1248.5		Top of slope
1248.5		Top of slope
1248.6		Top of slope
1249.1		Top of slope
1249.2		Top of slope
1249.2		Top of slope
1249.2		Top of slope
1249.4		Top of slope
1249.5		Top of slope
1251.2		Top of bank
1252.6		Top of bank
1253.0		Top of bank
1248.9	N½ NE¼ Sec. 26, T113N, R61W	Change in slope top
1249.1		Change in slope top
1249.6		Toe of cliff/bank
1249.9		Toe of cliff/bank
1250.4		Erosion line
1250.7		Erosion line
1251.0		Erosion line
1248.4	SE¼ NE¼ Sec. 26, T113N, R61W	Change in slope top
1248.5		Change in slope toe
1249.3		Top of sand ridge
1250.6		Toe of steep slope
1249.6	SE¼ NE¼ Sec. 25, T113N, R61W	Toe of slope
1249.9		Toe of slope
1252.3		Toe of slope
1252.4		Toe of slope
1252.4		Top of bank
1253.4		Top of bank
1254.6		Top of bank
1247.7	SE¼ Sec. 26, T113N, R61W	Bottom of washed pebbles
1248.0		Bottom of washed pebbles
1248.3		Top of washed pebbles
1248.4		Top of washed pebbles

EROSIONAL CHARACTERISTICS continued:

Elevation (fmsl)	Legal Description	Comments
1249.0		Bottom of erosion
1249.1		Bottom of erosion
1249.1		Bottom of erosion
1249.2		Bottom of erosion
1250.1		Top of erosion
1250.2		Top of erosion
1250.5		Top of erosion
1250.8		Top of erosion
1251.3		Top of erosion
1251.2		Top of bank
1252.0		Top of bank
1258.8		Top of bank
1247.9	NE¼ NE¼ Sec. 28, T113N, R61W	Bottom of erosion
1249.0		Top of erosion
1247.5	SE¼ SE¼ Sec. 21, T113N, R61W	Bottom of erosion
1248.1		Bottom of erosion
1248.6		Top of erosion
1249.4		Top of erosion
1248.0	SW¼ SE¼ Sec. 21, T113N, R61W	Bottom of erosion and steep bank
1247.6	SE¼ NW¼ Sec. 28, T113N, R61W	Bottom of erosion
1248.5		Top of erosion
1248.4		Change in slope top
1248.4		Change in slope top
1251.0		Toe of bank of inlet channel
1251.4		Toe of bank of inlet channel

SOIL CHARACTERISTICS:

Elevation (fmsl)	Legal Description	Comments
1248.5	W½ NW¼ Sec. 27, T113N, R61W	Bottom of washed pebbles
1248.6		Bottom of washed pebbles
1249.4		Top of washed pebbles
1250.3		Top of washed pebbles
1250.3	S½ SW¼ Sec. 22, T113N, R61W	Top of sandy beach
1250.3		Beginning of black soil
1245.5	S½ SE¼ Sec. 22, T113N, R61W	Bottom of boulder line
1249.5		Top of boulder line
1249.6		Top of boulder line
1248.5	E½ SW¼; W½ SE¼ Sec. 23, T113N, R61W	Bottom of washed pebbles
1248.5		Bottom of washed pebbles
1248.6		Bottom of washed pebbles
1249.4		Top of washed pebbles

SOIL CHARACTERISTICS continued:

Elevation (fmsl)	Legal Description	Comments
1249.4		Top of washed pebbles
1249.6		Top of washed pebbles
1250.0		Top of sandy beach
1250.4		Top of sandy beach
1250.8		Top of sandy beach
1251.0		Top of sandy beach
1250.9		Top of swimming beach
1251.2		Top of swimming beach
1251.4		Top of swimming beach
1248.7	SE¼ NE¼ Sec. 25, T113N, R61W	Top of sand
1248.7	SE¼ Sec. 26, T113N, R61W	Top of washed pebbles
1249.0		Top of sandy beach
1249.1		Top of sandy beach
1249.2		Top of sandy beach
1248.3	N½ NE¼ Sec. 26, T113N, R61W	Bottom of boulder line
1248.3		Bottom of boulder line
1248.5		Bottom of boulder line
1248.6		Top of boulder line
1248.7		Top of boulder line
1248.8		Top of boulder line
1254.6		Bottom of black dirt on cliff
1254.6		Bottom of black dirt on cliff
1255.0		Bottom of black dirt on cliff
1247.6	SE¼ SE¼ Sec. 21, T113N, R61W	Top of black diatomaceous earth
1248.1		Top of sand
1249.4		Top of sand
1247.7	SW¼ SE¼ Sec. 21, T113N, R61W	Top of black diatomaceous earth
1247.9		Top of washed pebbles

TERRESTRIAL VEGETATION:

Elevation (fmsl)	Legal Description	Comments
1250.4	W½ NW¼ Sec. 27, T113N, R61W	Lakeside elm tree
1251.3		Lakeside multi trunk 14" to 1' ash
1250.7		Landside elm tree
1251.8		Landside multi trunk 14" to 1' ash
1250.2	S½ SW¼ Sec. 22, T113N, R61W	Lakeside twin trunk 16" and 2' ash
1250.4		Lakeside 2' diameter ash
1250.4		Lakeside twin trunk 16" and 2' ash
1250.4		Lakeside 2' diameter ash
1250.5		Lakeside 2' diameter ash
1250.6		Lakeside 20" diameter cottonwood

TERRESTRIAL VEGETATION continued:

Elevation (fsml)	Legal Description	Comments
1250.7		Lakeside twin trunk 1.5' to 2.5' ctw
1250.9		Lakeside 20" diameter stump
1250.9		Lakeside 20" diameter stump
1250.9		Lakeside 16" diameter elm
1250.4		Lakeside 2.5' diameter ash
1249.8		Landside twin trunk 16" and 2' ash
1249.9		Landside 2' diameter ash
1250.3		Landside twin trunk 16" and 2' ash
1250.3		Landside 2' diameter ash
1251.0		Landside 2' diameter ash
1250.0		Landside 20" diameter cottonwood
1251.9		Landside twn trunk 1.5' & 2.5' ctw
1250.6		Landside 20" diameter stump
1250.9		Landside 20" diameter stump
1251.8		Landside 16" diameter elm
1249.5	S½ SE¼ Sec. 22, T113N, R61W	Lakeside 1' diameter elm
1249.9		Lakeside 6" diameter elm
1249.9		Lakeside 6" diameter elm
1250.3		Lakeside 3" diameter elm
1251.1		Landside 1' diameter elm
1250.4		Landside 6" diameter elm
1250.7		Landside 6" diameter elm
1250.5		Landside 3" diameter elm
1248.5	E½SW¼;W½SE¼ Sec. 23,T113N, R61W	Lakeside leaning tree
1249.9		Lakeside 2' diameter cottonwood
1250.0		Lakeside 20" diameter cottonwood
1250.1		Lakeside multi trunk 1' to 2' ash
1250.1		Lakeside 4.5' diameter stump
1250.2		Lakeside multi trunk 1.5' to 2' ctw
1250.3		Lakeside tw 1.5'&2' dia ctw stump
1250.3		Lakeside 1' diameter ash
1250.4		Lakeside 2' diameter cottonwood
1250.6		Lakeside multi trunk 1.5' to 2' ash
1250.7		Lakeside 1.5' diameter ash
1250.7		Lakeside cottonwood
1250.9		Lakeside multi trunk 10" to 2' ctw
1250.7		Lakeside 2.5' diameter cottonwood
1250.2		Landside leaning tree
1250.4		Landside 2' diameter cottonwood
1251.2		Landside 20" diameter cottonwood
1250.4		Landside multi trunk 1' to 2' ash
1250.8		Landside 4.5' diameter stump

TERRESTRIAL VEGETATION continued:

Elevation (fsml)	Legal Description	Comments
1252.0		Landside multi trunk 1.5' to 2' ctw
1250.8		Landside tw 1.5'&2' dia ctw stump
1251.1		Landside 1' diameter ash
1251.1		Landside 2' diameter cottonwood
1251.1		Landside multi trunk 1.5' to 2' ash
1251.0		Landside 1.5' diameter ash
1251.1		Landside cottonwood
1252.0		Landside multi trunk 10" to 2' ctw
1249.7	SE¼ NE¼ Sec. 26, T113N, R61W	Lakeside 1.5' diameter ash
1249.7		Lakeside 2.5' diameter ash
1249.7		Lakeside 8" diameter ash
1249.8		Lakeside 2" to 6" dia. group of ash
1249.8		Lakeside 2' diameter ash
1249.9		Lakeside 2" to 8" dia. group of ash
1249.7		Landside 1.5' diameter ash
1249.9		Landside 2.5' diameter ash
1250.8		Landside 8" diameter ash
1249.8		Landside 2" to 6" dia. group of ash
1250.0		Landside 2' diameter ash
1250.2		Landside 2" to 8" dia. group of ash
1248.5		Lakeside reeds
1249.0		Landside reeds
1249.4	SE¼ NE¼ Sec. 25, T113N, R61W	Lakeside 10" dia. russian olive
1249.9		Lakeside 2" to 4" dia. line of elm
1249.9		Lakeside 2" to 6" dia. group of elm
1250.3		Lakeside twin 2' diameter elm
1250.4		Lakeside 8" diameter elm
1251.7		Lakeside 2" diameter group of elm
1250.3		Landside 10" dia. russian olive
1250.7		Landside 2" to 4" dia. line of elm
1251.2		Landside 2" to 6" dia. group elm
1250.2		Landside twin 2' diameter elm
1252.0		Landside 8" diameter elm
1251.5		Landside 2" diameter group of elm
1248.2		Lakeside reeds
1248.2		Lakeside reeds
1248.4		Landside reeds
1249.0		Landside reeds
1250.0	SE¼ Sec. 26, T113N, R61W	Lakeside 10" diameter ash
1250.0		Lakeside twin 10" and 1' dia. ash

TERRESTRIAL VEGETATION continued:

Elevation (fsml)	Legal Description	Comments
1250.2		Lakeside 1.5' diameter ash
1250.2		Lakeside twin 1' and 2' dia. ctw
1250.6		Lakeside 2' diameter cottonwood
1250.8		Lakeside 1' diameter ash
1250.0		Landside 10" diameter ash
1250.0		Landside twin 10" and 1' dia. ash
1250.2		Landside 1.5' diameter ash
1250.4		Landside twin 1' and 2' dia. ctw
1250.4		Landside 2' diameter cottonwood
1250.4		Landside 1' diameter ash
1248.3	NE¼ NE¼ Sec. 28, T113N, R61W	Lakeside reeds
1249.6		Landside reeds
1247.8	SE¼ SE¼ Sec. 21, T113N, R61W	Lakeside reeds
1248.1		Landside reeds
1251.8	SE¼ NW¼ Sec. 28, T113N, R61W	Base russian olive inlet channel.
1251.9		Base russian olive inlet channel
1252.6		Base russian olive inlet channel.
1252.6		Base russian olive inlet channel
1252.8		Base russian olive inlet channel
1247.7		Lakeside reeds
1249.2		Edge of reeds in inlet channel
1249.3		Edge of reeds in inlet channel

WATER MARKS:

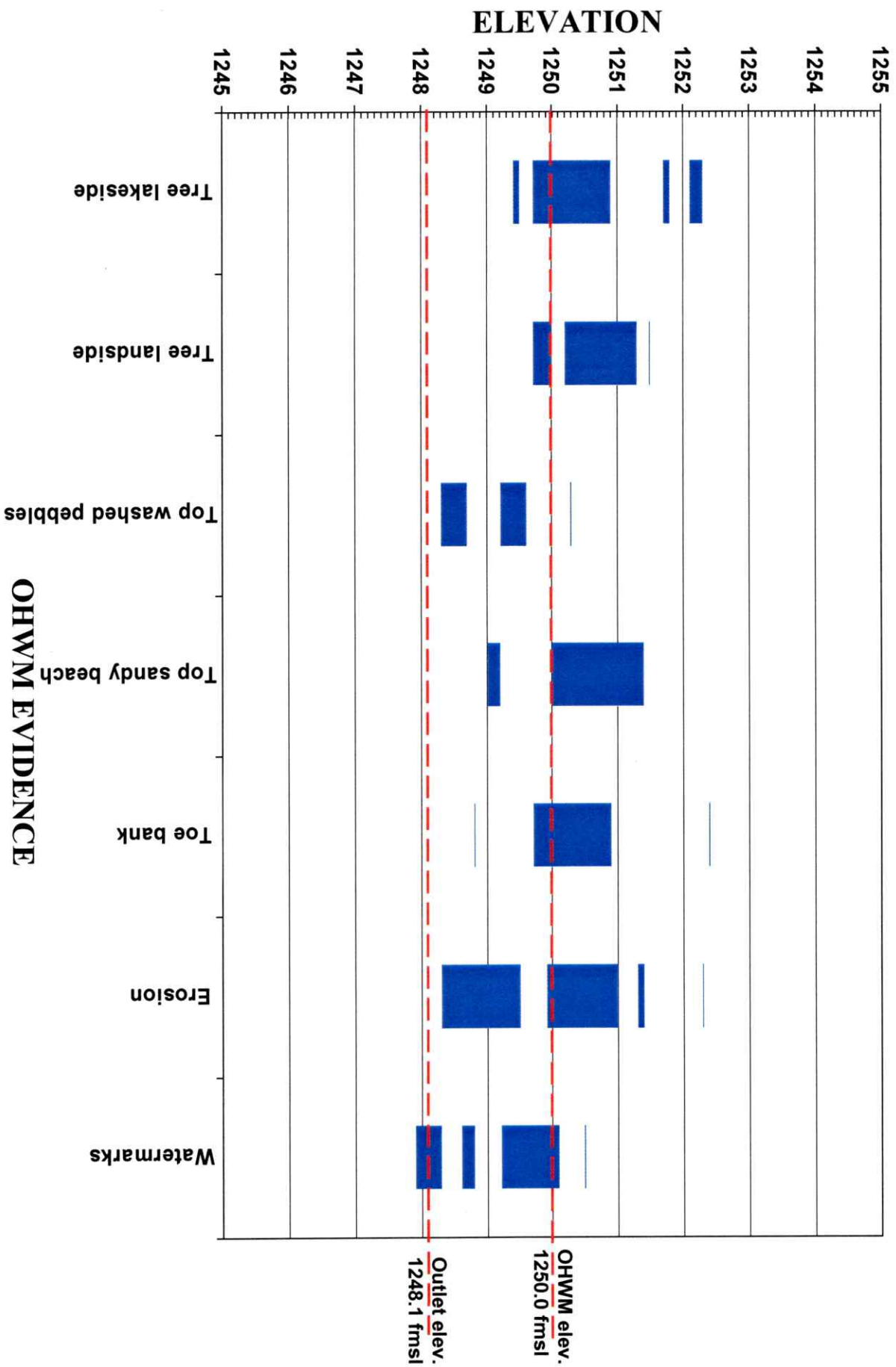
Elevation (fsml)	Legal Description	Comments
1248.0	W½ NW¼ Sec. 27, T113N, R61W	On riprap near outlet
1248.1		On riprap near outlet
1248.2		On riprap near outlet
1248.2		On riprap near outlet
1248.2		On riprap near outlet
1248.2		On riprap near outlet
1248.2		On riprap near outlet
1249.2		On riprap near outlet
1249.2		On riprap near outlet
1249.2		On riprap near outlet
1249.4		On riprap near outlet
1249.5		On riprap near outlet
1249.5		On riprap near outlet
1249.8		On riprap near outlet

WATER MARKS continued:

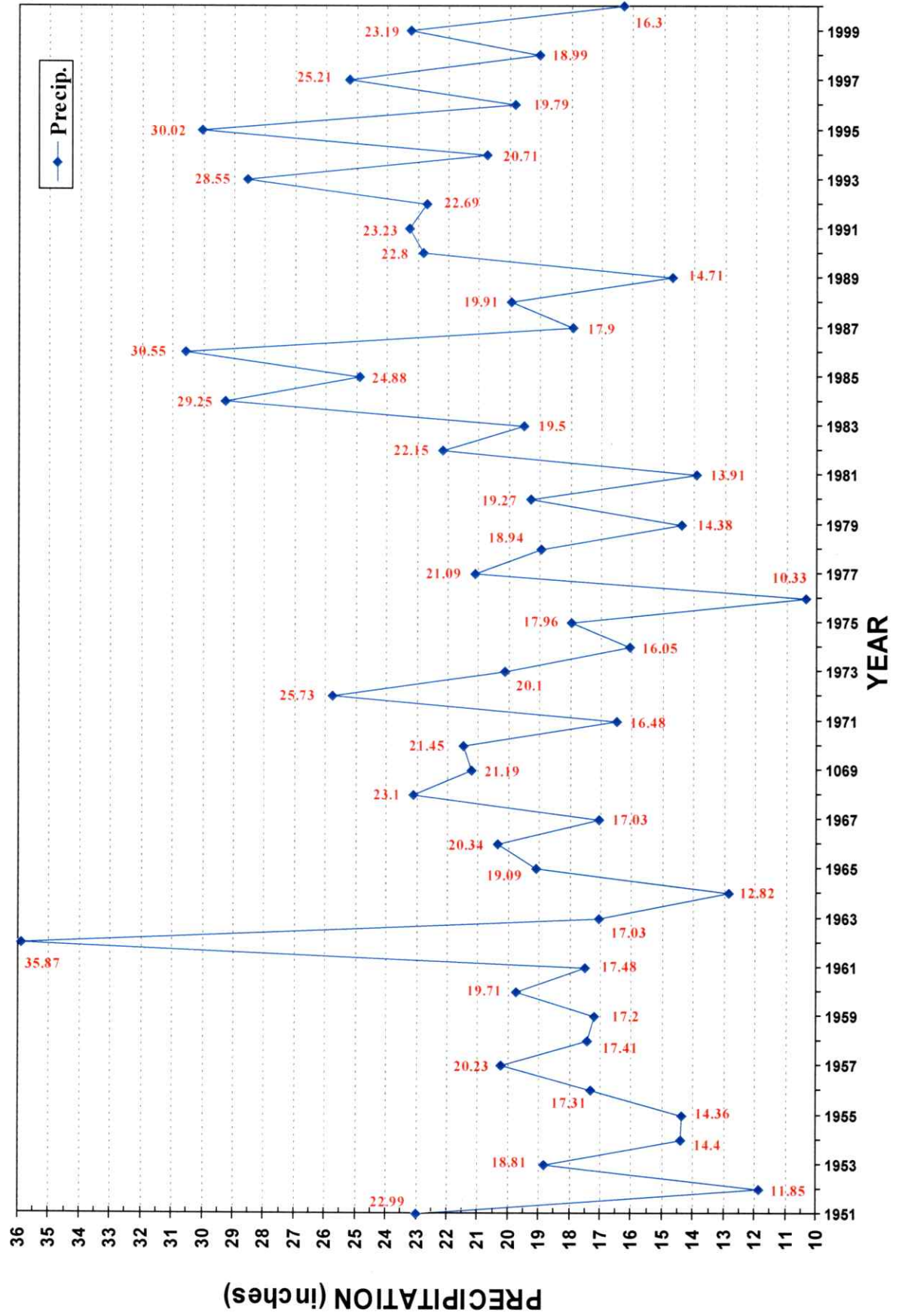
Elevation (fsm)	Legal Description	Comments
1248.3		On rock in outlet channel
1248.8	S½ SW¼ Sec. 22, T113N, R61W	On bridge pile
1249.2		On flow recorder casing
1247.9	S½ SE¼ Sec. 22, T113N, R61W	On boulder
1248.0		On boulder
1248.2		On boulder
1248.2		On boulder
1250.5		On boulder
1248.6	E½ SW¼;W½ SE¼ Sec.23,T113N,R61W	On boulder
1250.0		On retaining wall for cabin patio
1247.9	N½ NE¼ Sec. 26, T113N, R61W	On rock
1248.0		On rock
1248.1		On rock
1248.8		On rock
1250.1		On rock
1248.1	SE¼ NE¼ Sec. 26, T113N, R61W	On rock
1248.3		On rock
1249.6		On rock
1248.2	SE¼ NE¼ Sec. 25, T113N, R61W	On old concrete bridge pier
1248.1		On boulder
1247.7	SW¼ SE¼ Sec. 21, T113N, R61W	On rock
1247.9		On rock
1248.2		On rock
1248.3		On rock
1248.4		On rock
1248.9		On rock
1249.4		On rock
1249.5		On rock

Attachment No. 8 OHWM EVIDENCE GRAPH

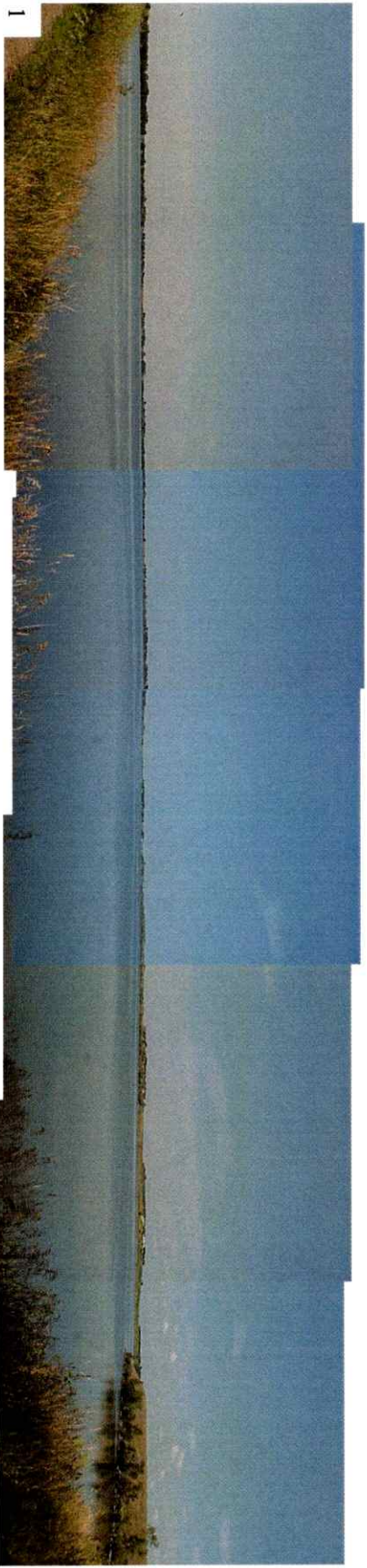
The blue bar segments represent bands of evidence along Lake Byron's shore. Each segment is a group of a particular category of evidence found at or near the same elevation.



Attachment No. 9 PRECIPITATION AT HURON FOR WATER YEAR OCT. - OCT.



Attachment No. 10
LAKE BYRON PHOTOS



Lake Byron, looking west.



2

7-20-00 - Lake Byron outlet, looking toward the lake.
NW¼ NW¼ Sec. 27-T113N-R61W



3

7-20-00 - Lake Byron outlet structure.
NW¼ NW¼ Sec. 27-T113N-R61W



4

7-20-00 - Culverts downstream of the Lake Byron outlet
in the channel between Lake Byron and Connors Lake.
NW¼ NW¼ Sec. 27-T113N-R61W



5

7-20-00 - Green algae mark elev. 1248.2 and dark water stain
at elev. 1249.2 to 1249.5 fmsl. near outlet.
NW¼ NW¼ Sec. 27-T113N-R61W



6

7-26-00 - Multi trunk 1' to 16" dai. ash tree landside elev.
1251.8 and lakeside elev. 1251.3 fmsl.
W½ NW¼ Sec. 27-T113N-R61W



7

7-26-00 - Elm tree top of washed roots elev. 1248.7 fmsl.
W½ NW¼ Sec. 27-T113N-R61W



8

7-26-00 - Beach cross section, top of washed pebbles and toe of slope elev. 1250.3, top of slope 1251.0 fmsl. W½ NW¼ Sec. 27-T113N-R61W



9

7-26-00 - Toe of slope elev. 1250.1 and top of bank elev. 1253.9 fmsl. W½ NW¼ Sec. 27-T113N-R61W



10

7-20-00 - Twin 1.5' and 2.5' dia. ctw tree landside elev. 1251.9 and lakeside elev. 1250.7 fmsl on east side of Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



11

7-20-00 - 2' dia. ash tree landside elev. 1251.0 and lakeside elev. 1250.5 fmsl on east side of Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



12

7-20-00 - Line of trees on the east side of Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



13

7-20-00 - 2' dia. ash tree landside elev. 1249.9 and lakeside elev. 1250.4 fmsl on the west side of Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



14

7-20-00 - Twin 16" and 2' dia. leaning ash landside elev. 1249.8 and lakeside elev. 1250.2 fmsl on the west side of Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



15

7-20-00 - 2' dia. and a twin 16" and 2' dia. ash landside elev. 1250.3 and lakeside elev. 1250.4 fmsl on the west side of Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



16

7-20-00 - Beach cross-section at cabin on west side of Foster Creek inlet. Top of sandy beach elev. 1250.3 and top of bank elev. 1252.1 fmsl. S½ SW¼ Sec. 22-T113N-R61W



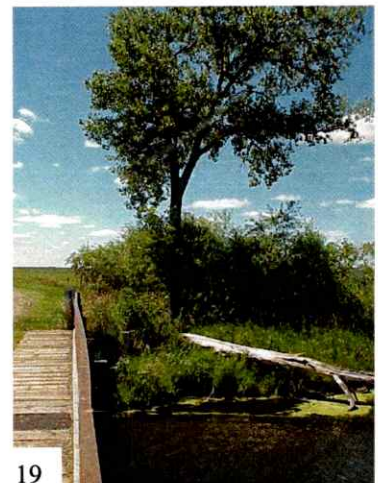
17

7-20-00 - Bridge over the Foster Creek diversion inlet to Lake Byron. S½ SW¼ Sec. 22-T113N-R61W



18

7-20-00 - Group of trees on the west side of the Foster Creek inlet. S½ SW¼ Sec. 22-T113N-R61W



19

7-20-00 - 1.7' dia. ctw landside elev. 1250.0 and lakeside elev. 1250.6 fmsl on west side of Foster Creek inlet, north side of bridge.



20

7-26-00 - Toe of steep bank at line of elm trees elev. 1249.9 fmsl S½ SE¼ Sec. 22-T113N-R61W



21

7-26-00 - Line of elm trees 3" to 1' in dia. with landside elev. 1250.4 to 1251.1 and lakeside elev. 1249.5 to 1250.3 fmsl, top of boulders elev. 1249.6 fmsl. S½ SE¼ Sec. 22-T113N-R61W



22

7-26-00 - Dark water mark on rip rap elev. 1248.6 fmsl. W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



23

7-26-00 - Beach cross section, top of washed pebbles elev. 1249.6 and top of swimming beach elev. 1251.4 fmsl. W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



24

7-26-00 - Multi trunk ctw tree 1.5' to 2' dia. landside elev. 1252.0 and lakeside elev. 1250.2 fmsl. W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



25

7-26-00 - Multi trunk ash tree 1' to 2' in dia. landside elev. 1250.4 and lakeside elev. 1250.1 fmsl. W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



26

7-26-00 - 2.5' dia. ctw tree lakeside elev. 1250.7 fmsl.
W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



27

7-26-00 - Row of ctw trees 4.5' dia stump, twin 2' and 1.5' dia, and 2' dia landside elev. 1250.4 to 1250.8 and lakeside elev. 1249.9 to 1250.3 fmsl.
W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



28

7-26-00 - Ctw trees multi trunk 10" to 2' dia., 20" dia, and 2' dia. landside elev. 1251.1 and 1252 lakeside elev. 1250 to 1250.9 fmsl.
W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



29

7-26-00 - Beach cross section, changes in slope elev. 1248.6 and 1249.5; top of sandy beach elev. 1250.8 fmsl.
W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



30

7-26-00 - Ctw tree landside elev. 1251.1 and lakeside elev. 1250.7 fmsl.
W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



31

7-26-00 - Beach cross section change in slope elev. 1248.4 and 1249.4; top of beach 1250.7 and top of band 1253 fmsl.
W½ SE¼ and E½ SW¼ Sec. 23-T113N-R61W



32

7-27-00 - Section of beach on north shore of Lake Byron.
W $\frac{1}{2}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 23-T113N-R61W



33

7-27-00 - Line of 1' to 2' dia. ash trees landside elev. 1251.1
lakeside elev. 1250.3 to 1250.7 fmsl.
W $\frac{1}{2}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 23-T113N-R61W



34

7-27-00 - Leaning tree on beach landside elev. 1250.2 and
lakeside elev. 1248.5 fmsl.
W $\frac{1}{2}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 23-T113N-R61W



35

7-27-00 - Beach cross section Toe of slope elev. 1248.8 and
top of sandy beach elev. 1250 to 1250.1 fmsl.
W $\frac{1}{2}$ SE $\frac{1}{4}$ and E $\frac{1}{2}$ SW $\frac{1}{4}$ Sec. 23-T113N-R61W



36

7-27-00 - Changes in slope elev. 1248.9 and 1249.1, toe of
cut bank elev. 1249.9 fmsl.
N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 26-T113N-R61W



37

7-27-00 - Water mark on rock elev. 1248.0 and 1248.1 fmsl.
N $\frac{1}{2}$ NE $\frac{1}{4}$ Sec. 26-T113N-R61W



38

7-27-00 - Water mark on rock elev. 1248.8 and 1250.1, Bottom of boulder line elev. 1248.4 and top of boulder line elev. 1248.7 fmsl. N½ NE¼ Sec. 26-T113N-R61W



39

7-27-00 - Base of cut bank elev. 1250.4 to 1251 fmsl. N½ NE¼ Sec. 26-T113N-R61W



40

7-27-00 - Bottom of black dirt line elev. 1254.6 fmsl N½ NE¼ Sec. 26-T113N-R61W



41

7-27-00 - Landside tree elev. 1249.7 to 1250.2 and lakeside tree elev. 1249.7 to 1249.9; top of small sand ridge deposited by waves 1249.3; toe of steep slope 1250.6 fmsl. SE¼ NE¼ Sec. 26-T113N-R61W



42

7-27-00 - Back of trees in previous picture.



43

7-20-00 - Water mark on old concrete bridge pile elev. 1248.2 fmsl. SE¼ NE¼ Sec. 25-T113N-R61W



44

7-20-00 - Water mark on rock elev. 1248.1 fmsl.
SE¼ NE¼ Sec. 25-T113N-R61W



45

7-27-00 - Landside of reeds elev. 1248.4 and lakeside elev.
1248.2 fmsl. SE¼ NE¼ Sec. 25-T113N-R61W



46

7-27-00 - Twin 2' dia. trunk elm tree landside and lakeside
elev. 1250.3 fmsl. SE¼ NE¼ Sec. 26-T113N-R61W



47

7-27-00 - Top of washed pebbles elev. 1248.4; top of erosion
elev. 1250.5; top of bank elev. 1252 fmsl.
NE¼ SE¼ Sec. 26-T113N-R61W



48

7-27-00 - Twin 1' and 2' dia. ctw landside elev. 1250.4 and
lakeside elev. 1250.2 fmsl.
SE¼ NE¼ Sec. 26-T113N-R61W



49

7-27-00 - Twin 1' dia. ash tree landside and lakeside elev.
1250 fmsl. NE¼ SE¼ Sec. 26-T113N-R61W



7-27-00 - 2' dia. ctw tree landside elev. 1250.4
and lakeside elev. 1250.6 fmsl.
NE¼ SE¼ Sec. 26-T113N-R61W



7-27-00 - Cross section of beach top of washed pebbles
1248.4, top of erosion 1250.1 and top of bank 1252 fmsl.
NE¼ SE¼ Sec. 26-T113N-R61W

3. The control structure will remain closed until Hamlin County has gone through the process as listed above. The process set forth in Qualification No. 1 shall be repeated each time the water levels raise again creating unsafe travel conditions on Hamlin County Road J.
4. Hamlin County is responsible for operation, maintenance and security of the water control structure. Should the inlet structure be illegally tampered with and the inlet opened, Hamlin County shall securely close the inlet within 48 hours of notification by the Natural Resource Conservation Service.
5. Flood Control Permit No. FC-28 is subject to securing necessary easements.
6. The Water Management Board retains jurisdiction of Flood Control Permit No. FC-28 in the event that additional information shows that this project causes adverse downstream impacts.

Mr. Gronlund reported that a notice, along with the revised recommendation, was sent to all parties with the date and time of this hearing. None of the parties were present for this hearing.

Motion by Freeman, seconded by Gunderson, to approve Flood Control Permit Application No. FC-28, Hamlin County, subject to the qualifications set forth by the chief engineer. Motion carried.

CONSIDER ESTABLISHMENT OF AN ORDINARY HIGH WATER MARK AND OUTLET ELEVATION FOR LAKE BYRON, BEADLE COUNTY AND VALIDATION OF RECOGNIZED VESTED WATER RIGHT NO. 587-3 FOR LAKE BYRON, DEPARTMENT OF GAME, FISH AND PARKS: Lynn Beck presented her report (copy on file).

Ms. Beck reported that in June 2000, Keith Schrader, a landowner on the lake, requested the Water Management Board establish an Ordinary High Water Mark, Ordinary Low Water Mark, and outlet elevation for Lake Byron.

In response to the request, an investigation was conducted by the Water Rights Program. Ms. Beck noted that the Ordinary Low Water Mark could not be determined for Lake Byron at this time because the water conditions at the lake covered much of the evidence.

Ms. Beck reported that Lake Byron is a meandered lake. The meander survey was conducted in 1875. The lake is located in northern Beadle County about 13 miles north of Huron. Lake Byron has a large watershed. Much of the watershed is due to the Foster Creek diversion into the lake. The watershed is approximately 214 square miles. At the outlet elevation, the surface area is 1,850 acres.

The Department of Game, Fish and Parks holds Recognized Vested Water Right Claim No. 587-3, which is for 5,000 acre-feet of water per year to fill Lake Byron for recreational purposes. Also, the Lake Byron Watershed District claims a June 14, 1984, priority date for diversion of 12 cfs not to exceed 3,400 acre-feet of water annually from the James River for lake stabilization.

Ms. Beck noted that Game, Fish and Parks also holds a vested claim for Connors Lake, which is a small water body just west of Lake Byron. This claim is for 240 acre-feet of water per year to fill Connors Lake to the outlet elevation for recreational purposes.

The Lake Byron water levels appear to fluctuate with the water levels of the East Tulare James aquifer. The Water Rights Program monitors several wells in this aquifer. The two closest wells are Well BD-77C, which lies two miles southeast of Lake Byron and Well BD-77D, which lies five miles southeast of Lake Byron. The general fluctuations in the water levels in these two observation wells follow measured lake levels for Lake Byron over the last 17 years.

Water levels in Lake Byron are most influenced by yearly precipitation and evaporation. The hydrograph for Lake Byron and Connors Lake have the same shape for the period of lake level measurements. This also follows the yearly precipitation graph.

Water flows from the Lake Byron outlet through a channel into Connors Lake. It then flows out of Connors Lake over a concrete spillway, which is at approximately the same elevation as the Lake Byron outlet; 1248.1. Water then flows a short distance to Foster Creek, a tributary to the James River.

Ms. Beck noted that the Water Rights Program has taken water level measurements for Lake Byron since the fall of 1983 and for Connors Lake since the summer of 1986. These measurements show that both Lake Byron and Connors Lake have been at least three feet over the outlet.

Ms. Beck said she talked to some of the local residents regarding what they have observed during spring runoff. Betty Timm, landowner at Byron for 30 years, reported that after a winter with a good amount of snow, the lake level reaches the top of the beach. The top of the beach elevations observed around the lake range from 1249.0 to 1251.4 fmsl. Ms. Timm also recalls enough water in the lake in 1983 and 1997 to cause significant shoreline damage. This past summer the Timm's did not put their boat dock out due to low water levels.

Ms. Beck also spoke with Al Mueller, who has been a resident on Lake Byron for 25 years. He recalls five feet of water over the outlet in the spring of 1997. Mr. Mueller has observed, during a typical spring runoff, at least one foot of water over the outlet.

Ms. Beck noted that Mr. Schrader, who requested the Ordinary High Water Mark, frequents the outlet during spring runoff and has observed about 1 ½ to two feet of water over the outlet. His observations would put the lake level between 1249.6 to 1250.1 fmsl.

Water Management Board
March 7, 2001, Meeting Minutes

Manmade influences have apparently had an affect on the Ordinary High Water Mark but, have been in place for so long that they probably constitute natural conditions. The Foster Creek – Lake Byron Diversion project was built in the early 1930's. This project increased the watershed area for Lake Byron.

The Lake Bryon Watershed District holds a water right for diversion of 12 cfs and not to exceed 3,400 acre-feet of water from the James River for lake stabilization. Ms. Beck stated that 1992 was the first year water was pumped into Lake Byron, adding 1,767 acre-feet to the lake. Since 1992, precipitation has been higher and water from the James River has been pumped only three times; in 1996, 1998, and 2000. The amount of water pumped in 1996 and 1998 was not significant. Pump records for 2000 have not been received by the Water Rights Program.

Ms. Beck said the investigation involved identifying evidence of the Ordinary High Water Mark. This evidence includes erosion, changes in the character of the soil, boulder lines, change in slope, growth and destruction of terrestrial vegetation. She showed pictures of trees, the bridge, the toe of a steep bank, the top of the sandy beach on the north shore of the lake, the toe of a steep cutbank, an area close to the outlet on the west side of the lake, washed pebbles, culverts, and the outlet. These pictures are all included in Ms. Beck's report.

Ms. Beck noted that in South Dakota most of the lakes with Ordinary High Water Marks have outlets that are six inches to one foot below the Ordinary High Water Mark. The Ordinary High Water Mark for Lake Byron is 1.9 feet above the overflow elevation of the outlet. Part of it is due to the fact that water enters Lake Byron then has to go through the channel to Connors Lake, where it then flows out of the spillway of Connors Lake before it really reaches a free fall situation where it is leaving the lake. Ms. Beck said this could result in slowing down the evacuation of water and therefore, keeping more water in Lake Byron for a longer period of time. That increases the Ordinary High Water Mark.

The chief engineer recommended that the Ordinary High Water Mark for Lake Byron be established at elevation 1250.0 fmsl; that the outlet for Lake Bryon be established at elevation 1,248.1 fmsl, and validation of Recognized Vested Water Right Claim No. 587-3 for sufficient water to maintain the water level to the outlet elevation of 1248.1 fmsl.

Responding to questions from Diane Best, Ms. Beck testified regarding her experience in setting Ordinary High Water Marks. Ms. Best then offered DENR Exhibit 1, the department's file on this matter. The exhibit was accepted into the record.

Responding to questions from Gary Richter, attorney for Game, Fish and Parks, Ms. Beck stated that the outlet on Lake Byron and the outlet on Connors Lake are the same elevation. Ms. Beck does not have any knowledge of work being done to change the elevation of these structures.

Responding to questions from Macy Davis, landowner, Ms. Beck testified that she did not survey or identify any high water marks in the northeast quarter of Section 21. Ms. Beck stated that the portion of the lake making its way up the channel was drawn on the map using a USGS topographic map. No actual land surveys were done on the Foster Creek diversion.

Keith Schrader, representing the Lake Byron Association, was administered the oath. He introduced several people who were in attendance at the hearing. Mr. Schrader testified in favor of the Ordinary High Water Mark and outlet elevation recommended by the chief engineer.

Leslie Peterson, Game, Fish and Parks, was administered the oath and testified in favor of the recommended Ordinary High Water Mark and outlet elevation.

John Kirk, Game, Fish and Parks, was administered the oath. He testified that the Department of Game, Fish and Parks has worked with Ms. Beck on several of the Ordinary High Water Marks that have been established. The Game, Fish and Parks believes Ms. Beck's recommendations for the Ordinary High Water Mark and outlet elevation are reasonable.

Macy Davis was administered the oath. She offered Exhibit 1, a map showing Lake Byron, Connors Lake and Foster Creek; Exhibit 2, a graph showing Lake Byron and Connors Lake measured lake levels; Exhibit 3, an excerpt from Lynn Beck's report on the investigation conducted for the Ordinary High Water Mark; Exhibit 4, report on Flood Control Permit Application No. FC-16, Lake Byron Watershed District, dated January 21, 1998; Exhibit 5, photos taken adjacent to Foster Creek NE ¼ Section 21-113-61, May 1998; Exhibit 6, letters from Ronald Wheeler to Brad and Macy Davis, memorandum of understanding, and correspondence with SD Game, Fish and Parks; Exhibit 7, February 16, 2001 letter to Macy Davis from Lynn Beck. The exhibits were accepted into the record.

Ms. Davis testified that she believes the Ordinary High Water Mark proposed for Lake Byron should be revised to eliminate the portion around Foster Creek in the NE ¼ of Section 21, Township 113N, Range 61W, which is the property she owns. Foster Creek is a stream that is diverted into the Lake Byron; it is not part of Lake Byron. The report provides no data to show the presence or location of high water marks throughout that portion of the proposal. The report states that the high water is to be determined by examining the banks of the body of water and provide information that shows the marks on the soil and vegetation that indicates a high water mark. The water mark indicators described in the report are around the shore of Lake Byron.

Ms. Davis said no one can tell where the 50 foot strip of land for public use is located around Foster Creek. Conflicting data and assumptions are being used to support the 1250 fmsl as the choice for the Ordinary High Water Mark.

The operational plan for regulating the lake level was to maintain the level of the lake at 1248 fmsl. This is shown in Exhibit 4. The excess flow is to pass by the lake. Ms. Davis questioned why the department would want to set the Ordinary High Water Mark at 1250 fmsl now, when they only wanted it at 1248 fmsl three years ago.

Ms. Davis stated that during the summer of 1997, someone trespassed on her property and dug a ditch without her knowledge or approval. After the ditch was dug, the Lake Byron Watershed District, using various deceptive devices, tried to obtain Ms. Davis' approval to install regulating components to divert high water flows in Foster Creek away from Lake Byron. The South Dakota Department of Game, Fish and Parks was aware of that attempt to keep the level at 1248 fmsl. Early in 1999, Ms. Davis was approached by representatives of the Lake Byron Watershed

District. Ms. Davis informed them that the first point of negotiation was to vacate the bogus easement held by the State of South Dakota.

Ms. Davis said at this time no one can tell where the Ordinary High Water Mark is in the NE ¼ of Section 21. A line has been drawn on the map that is not supported by any water mark indicators that the law requires. The data does not support the establishment of an Ordinary High Water Mark in the NE ¼ of Section 21. Ms. Davis said the Ordinary High Water Mark would essentially create a public right-of-way across her property, completely dividing the property. Without knowing where the Ordinary High Water Mark is located, a landowner cannot responsibly plan and manage the property. Likewise, it would create a huge problem for the manager of the public right-of-way.

Ms. Davis said establishment of the Ordinary High Water Mark takes away the landowners rights. Ms. Davis asked if the Water Management Board could show her the location of the Ordinary High Water Mark on her property.

Ms. Davis stated that she believes Foster Creek should not be included in the Ordinary High Water Mark because it is not part of the lake. It is only a tributary that goes into the lake. The Ordinary High Water Mark should be established around Lake Byron only.

At the request of Chairman Brink, Ms. Davis marked in red ink the location of the ditch on her property.

Responding to a question from Mr. Freeman regarding Exhibit 6, Ms. Davis said a mistake was made when the easement was given. The original easement was given by Betts', and Betts' never owned the land. The easement says the NE ¼ of Section 21 and it should have said the SE ¼ of Section 21, which is the land the Betts' owned. Ms. Davis said she asked the Lake Byron Watershed District to correct this easement, but nothing was done about it.

Responding to a question from Mr. Rollag, Ms. Davis said this ditch was constructed before any authorization to do the project was obtained. The ditch did not follow the original creek channel.

Ms. Davis said she has nothing against the Ordinary High Water Mark at Lake Byron, but she does not want to have the NE ¼ of Section 21 on Foster Creek included as part of the lake.

Mr. Freeman noted that the issue of the easement being for the wrong section of land is a matter that needs to be resolved in court, not by the Water Management Board. Ms. Davis said this matter has never been resolved, but this is one of the things the Lake Byron Watershed and Game, Fish and Parks tried to use to gain access to her property. Ms. Davis said she has corresponded with Game, Fish and Parks about this easement, but the Game, Fish and Parks say they are not responsible for it because the easement was granted when School and Public Lands was involved.

Mr. Schrader said this matter goes back to 1931 when the diversion ditch was put in the NE ¼ of Section 21. Mr. Schrader noted that he has visited with Ms. Davis regarding this matter.

Responding to questions from Ms. Best, Ms. Davis stated that the original easement was for the wrong property and that construction of the ditch in 1997 occurred without her permission or knowledge. Ms. Davis said she believes this was done in order to maintain the level of Lake Byron at 1248 fmsl.

Mr. Freeman said the issue of the ditch is irrelevant to this case. The ditch has nothing to do with the Ordinary High Water Mark. He said if there is a problem with the ditch, the court can be used to remedy that problem.

Ms. Best asked if the ditch, which was constructed in 1997, shoots water back into the old Foster Creek channel. Ms. Davis answered that the ditch did not shoot water back into old Foster Creek, but it probably will now because the water will probably be high this year.

Ms. Best asked what the ditch has to do with where the historic high water mark should be. Ms. Davis answered that she doesn't think Foster Creek should be included with the high water mark for Lake Byron because it is not part of the lake. If Foster Creek is included, it will cut Ms. Davis' land in two. Ms. Davis said when there is a high water mark, there is a 50 foot access on each side of the water.

Responding to questions from Mr. Ritcher, Ms. Davis said it is her understanding that there is public access 50 feet on each side of the water from the Ordinary High Water Mark. Mr. Ritcher said the statutes provide that the right of access may not exceed beyond the Ordinary High Water Mark. Ms. Davis said it doesn't exceed beyond the Ordinary High Water Mark, but on each side of the water, there will be 50 feet.

Mr. Ritcher read 43-17-2 into the record.

Ms. Davis reiterated that she believes the Ordinary High Water Mark in Foster Creek will directly divide her property in two, so there will be public access in her pasture. She again asked that Foster Creek not be included with the Lake Byron Ordinary High Water Mark.

Responding to questions from Chairman Brink, Ms. Beck testified that the contour interval on the map is five feet. The blue line is a representation of the Ordinary High Water Mark. The Ordinary High Water Mark is an elevation. The representation on the topo map takes it up this channel, which is probably reasonable, because it was dug at one point to bring water into the lake.

Ms. Beck stated that there is no access across private property without permission. Once on the water by using public access of navigable lakes and streams, the public has access below the Ordinary High Water Mark. The Ordinary High Water Mark is the elevation, not necessarily that blue line, which is just trying to represent the Ordinary High Water Mark.

Ms. Best asked Ms. Beck to explain the issue of establishing an Ordinary High Water Mark for Lake Byron and the difference it would make if the Foster Creek channel were included. Ms. Beck said as far as Lake Byron goes, establishing an Ordinary High Water Mark and including Foster Creek would probably not make a big difference.

Mr. Freeman said the creek does not need to be surveyed in order to establish the 1250 fmsl because this is the water level. Ms. Beck agreed. She said the 1250 fmsl was established using the evidence around the lake. When the lake is at 1250 fmsl, according to the topo map, that is where the water will go.

Mr. Rollag asked where the 50 feet is that Ms. Davis is talking about.

Ms. Beck stated that the statute says there is a 50 foot highway of public access from the water's edge when there is enough room provided for it. If the water level is high, and there is only 10 feet between the water's edge and the Ordinary High Water Mark, then the public is limited only to 10 feet. The other question is, what can Ms. Davis use her property for if there is public access to it. Ms. Beck said Ms. Davis still has all the rights of a property owner to graze cattle, build boat docks, etc., but she cannot bar the public from the portion they have the right to be on. The public cannot walk across Ms. Davis' property to get to it. The only way they can get to the water is to enter it by public access, either public right-of-way or a canoe up the channel from the lake, but it does not give them the right to walk across her property to get access.

Ms. Best asked if the access issues are the same for lakes as they are for streams. Ms. Beck answered that the same issues apply for both navigable lakes and streams. Ms. Beck said on lakes and streams there is an Ordinary High Water Mark whether it is established or not, and those same access issues probably apply to those water bodies. There is still a public right to access on Foster Creek.

Mr. Schrader requested the board set the Ordinary High Water Mark for Lake Byron at 1250 fmsl.

Motion by Freeman, seconded by Gunderson, to establish the Ordinary High Water Mark for Lake Byron at 1250.0 fmsl, to establish the outlet elevation at 1248.1 fmsl, and to validate Recognized Vested Water Right Claim No. 587-3 for sufficient water to maintain the water level to the outlet elevation of 1248.1 fmsl. Motion carried.

Chairman Brink asked Mr. Guhin to prepare the Findings of Fact, Conclusions of Law and Final Decision.

CONSIDER CANCELLATION OF WATER PERMIT NOS. 831-1 AND 832-1, HAROLD JACKSON: Ron Duvall provided his report on this matter (copy on file).

Mr. Duvall reported that on July 11, 2000, he completed an inspection of three water permits held by Harold Jackson for purposes of licensing the developed portions of the permits. As part of the inspection, Mr. Duvall visited with Corky Jackson, who is Harold Jackson's son, regarding the status of the three permits.



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Memo to File

Lake Byron in Beadle County

VWR No. 587-3

The OHWM was set by the Water Management Board on March 7, 2001.

OHWM elevation 1250.0 fmsl NGVD29

The outlet elevation was set by the Water Management Board on March 7, 2001

Outlet elevation 1248.1 fmsl NGVD29

The Water Management Board validate Vested Water Right No. 587-3 on March 7, 2001

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF THE	)	
ESTABLISHMENT OF THE	)	
ORDINARY HIGH WATER MARK AND	)	
OUTLET ELEVATION FOR LAKE	)	FINDINGS OF FACT, CONCLUSIONS
BYRON IN BEADLE COUNTY	)	OF LAW, AND FINAL DECISION
AND THE VALIDATION OF VESTED	)	
WATER RIGHT CLAIM NO. 587-3	)	
FOR LAKE BYRON IN BEADLE	)	
COUNTY, SOUTH DAKOTA	)	
GAME, FISH AND PARKS	)	

FINDINGS OF FACT

1. This is an application to set the ordinary high water mark, ordinary low water mark, and outlet elevation for Lake Byron in Beadle County. As part of this proceeding, the Board will also consider the validation of Recognized Vested Water Right Claim Number 587-3 for Lake Byron in Beadle County in the name of South Dakota Game, Fish and Parks.

2. Pursuant to established procedure, the Water Rights Program of the Department of Environment and Natural Resources conducted a field investigation to ascertain the physical data to be used in identifying the ordinary high water mark. The Board credits the evidence developed by Lynn Beck, the author of the Lake Byron Report, as that of an experienced expert in this area.

3. Lake Byron was meandered in approximately 1875. The meander line as set out in Attachment 2 to the Lake Byron Report serves as some evidence of the ordinary high water mark but is not definitive evidence.

4. Pursuant to state statute, the Board finds it necessary to determine which manmade influences have existed or have been

accepted for such a period of time as to be the equivalent of natural conditions. The Board finds, in particular, that the Foster Creek-Lake Byron diversion project which was lawfully built in the early 1930s has been accepted for such a period of time as to be the equivalent of natural conditions. The Board finds, furthermore, that the culvert between Lake Byron and Connors Lake, immediately to the west of Lake Byron was lawfully constructed and has been accepted for such a period of time as to be the equivalent of natural conditions.

5. The Board has considered, in determining the ordinary high water mark, evidence relating to erosion, changes in the character of soil, boulder lines and terrestrial vegetation.

6. The Board has examined the evidence of erosional characteristics and finds that, of about one hundred sites, over ninety percent of the erosion markers are clustered between 1248 feet mean sea level and 1253 feet mean sea level.

7. Changes in the character of the soil were also examined. Changes occur around a lake when wave action washes the lake shore and leaves the larger materials, such as pebbles, cobbles and boulders relatively stationary while the fine grain materials, such as sand, silts, clays and peat are transported into the lake the greatest distance. Expert testimony indicated that the top of the washed pebbles varied from 1248.3 feet mean sea level to 1250.3 feet mean sea level; the top of the sandy beach varied from 1249 to 1251.4 feet mean sea level and the

beginning of the top soil varied from 1250.3 to 1255 feet mean sea level.

8. Boulder lines around Lake Byron have been created by ice action and wave erosion acting upon the lake bank. The base elevation of boulder lines range from 1248.3 feet mean sea level to 1248.5 feet mean sea level. The top of the boulder line exists at or near 1248.7 feet mean sea level.

9. The Board has also considered the end of major terrestrial vegetation as an important indicator of the ordinary high water mark. Elm trees are considered somewhat tolerant to flooding, meaning that an elm tree with good vigor can survive occasional inundation between twenty to thirty percent of the growing season. A twin two foot diameter elm tree was found at 1250.2 feet mean sea level and a one foot diameter elm was found at 1249.5 feet mean sea level. Cottonwood and ash trees are considered to be more tolerant of flooding than elm trees. These trees with good vigor are able to survive when flooded more than thirty percent but less than forty percent of the growing season. A one and a half foot diameter ash and a two and a half foot diameter ash are both found at 1249.7 feet mean sea level. The largest tree measured was a 4.5 feet diameter cottonwood stump found at elevation of 1250.1 feet mean sea level. The existence of this very large tree at this level indicates that the water mark is most likely below the level of that tree. An unidentified tree at 1248.5 feet mean sea level is the lowest growing tree.

10. Considering all the evidence set forth above, the Board finds that the ordinary high water mark should be set at 1250.0 feet mean sea level. In making this determination, the Board has given most weight to the end of territorial vegetation factor. The discovery of a very large tree at 1250.1 feet mean sea level set a definite upper limit and the size and types of tree found below that level yield 1250.0 feet mean sea level as a solid estimate of the ordinary high water mark. Each of the other indicators cluster around this level and further support this finding.

11. Because of the high level of the lake, it is impossible to set the low water mark at this time.

12. The outlet for Lake Byron is located on the northwest side of the lake on section 27 and consists of a concrete overflow weir placed at the bottom of the channel between Lake Byron and Connors Lake. Overflow elevation occurs at 1248.1 feet mean sea level.

13. The Board takes note of the fact that, in most cases, outlet elevations have been set six inches to one foot below the ordinary high water mark. The Board finds that the use of this range in this case is inappropriate. Water in Lake Byron must pass through Connors Lake before flowing to a discharge channel and stream. This slows the evacuation of water from Lake Byron. Thus, water is held at a higher elevation for an extended period of time. The outlet elevation is therefore appropriately set 1.9

feet below the ordinary high water mark. The Board finds that the outlet elevation should be set at 1248.1 feet mean sea level.

14. The Board has also considered the argument of Macy Davis, who opposes, in some respects, the establishment of the Lake Byron ordinary high water mark at the level set out above. As indicated on Davis Exhibit No. 1, Ms. Davis is the owner of property in the northeast quarter of section 21. The ordinary high water mark as represented by a line drawn by the Water Rights Program on that Exhibit includes a section of Foster Creek which runs through the property of Ms. Davis.

15. The expert witness testified that she did not look at water marks in the area along Foster Creek which constitutes a narrow strip of land and a portion of Foster Creek extending from the shore of Lake Byron over a mile through Section 21.

16. The expert witness verifies that the location of the proposed OHWM at elevation 1250.0 through Section 21 is only an estimate (Exhibit 78).

17. Ms. Davis argues that the inclusion of the creek within the high water mark for Lake Byron is inappropriate.

18. The Board rejects this conclusion. The Board relies upon evidence from the expert for the Water Rights Program that Foster Creek is hydraulically part of Lake Byron. The Board notes, furthermore, that the representation of the Lake Byron ordinary high water mark as drawn on Exhibit 1 does not, itself, set the ordinary high water mark. Rather the ordinary high water mark is set at 1250.0 feet mean sea level. The ordinary high

water mark applies to Foster creek as it flows through the property of Ms. Davis only at the 1250.0 feet mean sea level elevation. To the extent that water levels rise above the 1250.0 feet mean sea level elevation along Foster Creek, the public would be entitled to use the water pursuant to SDCL 43-17-29, but could not have access to land above that elevation without consent. To the extent that the water level retreats below the 1250.0 feet mean sea level elevation, public access would be defined by SDCL 43-17-2.

19. Ms. Davis also opposes the ordinary high water mark on the grounds that her property was illegally entered and a ditch was constructed on her property in the last year. The Board finds that this action, insofar as it occurred, would not have any effect on the setting of the ordinary high water mark and is not relevant to these proceedings.

20. The Board has also considered the claim of Ms. Davis that an easement has been improperly recorded on her property. The Board finds that this claim is not relevant to the setting of the ordinary high water mark in this matter.

21. The South Dakota Department of Game, Fish and Parks claims a 1931 priority date for public recreational purposes. In this proceeding it is undisputed that Lake Byron was used for public recreational purposes on a legally continuous basis since 1931. Such public recreational purposes include use of the lake for fishing, boating, swimming, picnicking, and other recreational purposes.

4. Recognized Vested Water Right Claim No. 587-3 is validated for sufficient water to maintain the water level to an outlet elevation of 1248.1 feet mean sea level.

Dated this 2 day of May, 2001.

BY THE BOARD:

Marian Lindgren

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