SOUTH DAKOTA
FLOOD CONTROL PERMIT NO. FC-29

Date of first receipt of application March 22, 2000.

The Water Management Board approved Flood Control Permit No. FC-29 on May 25, 2000 for the City of Watertown, PO Box 910, Watertown SD 57201 subject to the following limitations, conditions and qualifications:

1. Flood Control Permit No. FC-29 authorizes construction of a weir and gate system located in the inlet/outlet channel between the Big Sioux River and Lake Kampeska in the NE ¼ Section 15-T117N-R53W. This Lake Kampeska inlet/outlet weir will have an overflow elevation of 1718.2 feet mean sea level (fmsl) and will include two control gates with a flow elevation of 1711.2 fmsl. The main weir will also contain a fish passage weir with a flow elevation of 1715.0 fmsl.

2. The project will control the amount of sediment entering Lake Kampeska.

3. The date from which applicant may claim right is March 22, 2000.

QUALIFICATIONS

1. The application for Flood Control Permit FC-29 on behalf of the City of Watertown is GRANTED subject to the following conditions.

2. That the construction, operation, maintenance and repair of the Lake Kampeska weir and gated control system is the responsibility of the city of Watertown. The operation of the gates shall be in accordance with the following criteria:

   Open Gates
   - During internal flooding or after a flood event on the river; and
   - If lake level is above the stage in the river; and
   - If lake level is above its normal level of 1717.8 fmsl; or
   - During drought periods when the lake level falls 30 inches below normal elevation (1715.3 fmsl).

   Closed Gates
   - Normal operating conditions; or
   - When lake level reaches its normal level during draining operation; or
   - When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

3. The prior water rights of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to use the water may not be unlawfully impaired by this flood control permit.

(continued)

4. The prior water rights of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to use the water may not be unlawfully impaired by this flood control permit.

5. The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to 1) altering the established ordinary high water mark for Lake Kampeska; 2) flooding to Lake Kampeska properties; 3) detrimental effects to recreational fisheries or the State threatened trout-perch.

6. Within a reasonable time after the grant of this permit, the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican. The plan shall be supplied to Lake Pelican Water Project District, which may comment as it believes to be appropriate. The Department of Environment and Natural Resources shall review the plan and approve the plan with or without modifications or, if the plan is unacceptable, shall formulate a new plan which shall be given effect within a reasonable period of time. Should the applicant or any other party be aggrieved by the action of Department of Environment and Natural Resources under this paragraph, the issue shall be advertised and scheduled for hearing before this Board.

WATER MANAGEMENT BOARD

By: Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
Department of Environment and Natural Resources

APR 0 4 2001
date

NOTE: The City of Watertown's plan entitled "Lake Kampeska Diversion Weir on Sediment Load and Transport to Downstream Areas, Flood Control Permit FC-29, January 26, 2001" was approved by the Department of Environment and Natural Resources on February 12, 2001.

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 15, 2000

NOTICE

TO: Vincent A. Foley
City Attorney
PO Box 845
Watertown, SD 57201
and Parties of Record (see attached list)

Jay M. Leibel
P.O. Box 406
Madison, SD 57042

FROM: Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

SUBJECT: In the Matter of the Flood Control Permit No. FC-29, City of Watertown

Consistent with SDCL 1-26-33, the agency record for the above entitled matters is being transmitted to the Third Judicial Circuit Court in Codington County. A chronological and alphabetical index of the agency record and a list of exhibits is also being transmitted to the court. A copy of each index is enclosed.

enclosures

c: John Guhin, Deputy Attorney General
Diane Best, Assistant Attorney General

PARTIES OF RECORD
FLOOD CONTROL PERMIT APPLICATION NO. FC-29

APPLICANT

Richard L. Schlechter
City of Watertown
P. O. Box 910
Watertown, SD 57201-0910

represented by:

Kevin J. Krull
Deputy City Attorney
City of Watertown
23 – 2nd Street NE
Watertown, SD 57201

PETITIONERS

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

represented by:

Jay M. Leibel
Ericsson, Ericsson and Leibel
P.O. Box 406
Madison, SD 57042

Rick Trupe, Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
Watertown, SD 57201

Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Avenue NW
Watertown, SD 57201

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

SD Dept. of Game, Fish and Parks
c/o Tim Olson
523 East Capitol Ave.
Pierre, SD 57501-3182

Marge and Bill Swaboda
1730 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

CERTIFICATION

I hereby certify that on August 15, 2000 , I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated August 15, 2000, along with a copy of the Parties of Record, and a copy of the chronological index, alphabetical index and exhibit list regarding Flood Control Permit No. FC-29, addressed as stated below, and on the attached Parties of Record List:

Vincent A. Foley, City Attorney, P.O. Box 845, Watertown, SD 57201

Jay Leibel, P.O. Box 406, Madison, SD 57042

A copy of the above described Notice was sent Inter-office to:

John Guhin, Deputy Attorney General, Capitol Building

Diane Best, Assistant Attorney General, Capitol Building

Tim Olson, Department of Game, Fish & Parks, Joe Foss Building

Eric S. Gronlund
Natural Resources Engineer
Water Right Program

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 16th day of August, 2000.

Karen Schlaak
Notary Public

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

KAREN SCHLAAK, Notary Public
My Commission Expires
April 1, 2003

Ericsson, Ericsson & Leibel

Richard L. Ericsson
Jay M. Leibel
Amy Langner Bozzell

Attorneys & Counselors at Law
P.O. Box 406
100 N. Egan Avenue
Madison, SD 57042
605-256-4597
Fax 605-256-2424

L.F. Ericsson (1909-1979)
Robert R. Spencer (1925-1986)

February 13, 2001

Darlene Bailey
Codington County Clerk of Courts
PO Box 1054
Watertown, South Dakota 57201

Re: Lake Pelican Water Project District vs. South Dakota Water Management Board
CIV. 00-333

Dear Darlene:

Please find enclosed herein the original Motion to Dismiss and Order for Dismissal in the above-entitled matter. I would ask your assistance in getting this Order signed by Judge Timm.

Please advise the court that the reason for the dismissal is that the concerns of the Plaintiff in the Flood Control Permit Application FC-29 City of Watertown which prompted the filing of this appeal to circuit court have now been addressed. The City of Watertown submitted an operating plan dated January 26, 2001 and the plan has been approved by Department of Energy and Natural Resources.

I would ask that you return a signed copy to me in the stamped self-addressed envelope upon filing.

Very truly yours,

Jay M. Leibel
FOR THE FIRM

JML/cd

rleric@hcpd.com *jmleibel@hcpd.com* *alangner@hcpd.com*

3-14

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 15, 2000

Ms. Darlene Bailey
Codington Co. Clerk of Court
P.O. Box 1054
Watertown, SD 57201

Re: Transmittal of Record in the Matter of Flood Control Permit No. FC-29, City of Watertown (Case 00-333)

Dear Clerk:

Consistent with SDCL 1-26-33, I am transmitting the agency record for the above entitled matters to the Third Judicial Circuit Court in Codington County. The following is enclosed:

1. agency record
2. transmittal of record
3. chronological index
4. alphabetical index
5. list of exhibits

The City's Exhibit Nos. 2 through 7 are large poster board exhibits that will be hand delivered to you on August 18, 2000. Additionally, the court reporter has not completed the transcript of the May 25th hearing on this matter. A copy of the transcript will be forwarded to you as soon as it is submitted.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures

STATE OF SOUTH DAKOTA	)	IN CIRCUIT COURT
	: SS	
COUNTY OF CODINGTON	)	THIRD JUDICIAL CIRCUIT
	)	(00-333)
IN THE MATTER OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-29, CITY OF WATERTOWN	)	TRANSMITTAL OF RECORD

I, Eric S. Gronlund, Natural Resource Engineer, Water Rights Program, Department of Environment and Natural Resources, certify as follows:

1. As a Natural Resource Engineer employed by the Water Rights Program, Department of Environment and Natural Resources, I am responsible for maintaining the formal agency file on all applications which are subject to the jurisdiction of the South Dakota Water Management Board.

2. Consistent with my responsibilities in the Water Rights Program, I have kept the agency record in the matter of Flood Control Permit Application No. FC-29 filed by the City of Watertown. The record is herewith transmitted to the above-captioned reviewing court pursuant to SDCL 1-26-33.

3. In addition, I have prepared a chronological and alphabetical index of the agency record and a list of exhibits which are herewith transmitted to the above-captions reviewing court pursuant to SDCL 1-26-33. A copy of the indexes is also being sent to the parties of record on this date.

Dated this 15th day of August, 2000.

Eric S. Gronlund

Eric S. Gronlund, Natural Resource Engineer
Water Rights Program
Dept. of Environment & Natural Resources

Subscribed and sworn to before me this
15th day of August, 2000

Karen Schlaak

Notary Public

KAREN SCHLAAK, Notary Public
My Commission Expires
April 1, 2001

My commission expires: _____

KAREN SCHLAAK
NOTARY PUBLIC
SOUTH DAKOTA
SEAL SEAL

STATE OF SOUTH DAKOTA	)	IN CIRCUIT COURT
	: SS	
COUNTY OF CODINGTON	)	THIRD JUDICIAL COURT
		(00-333)
IN THE MATTER OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-29 CITY OF WATERTOWN	)))	CHRONOLOGICAL INDEX

Date	Document	Pages
March 6, 2000	Technical Memorandum No. 1 – Diversion Structure Project (bound copy)	(attached separately)
March 6, 2000	Amendment and Executive Summary for Technical Memorandum No. 1 – Diversion Structure Project	(attached separately)
March 21, 2000	Letter to Eric Gronlund from Richard L Schlechter	1
March 22, 2000	Application for Flood Control Permit (form 2, site location maps and preliminary design)	2-5
March 22, 2000	Resolution No. 00-6, City of Watertown	6
March 22, 2000	Receipt for payment of application fee	7
March 31, 2000	Conversation File Documentation by Eric Gronlund	8
March 31, 2000	Report on City of Watertown Flood Control Permit Application No. FC-29	9-12
March 31, 2000	Recommendation of Chief Engineer for Flood Control Permit Application No. FC-29, City of Watertown	13
March 31, 2000	Letter to Richard L Schlechter, City of Watertown regarding publishing the Notice of Hearing	14-15
March 31, 2000	Letter to Watertown Public Opinion regarding publishing the Notice of Hearing (w/copy of the notice)	16-18

Date	Document	Pages
April 3, 2000	Letter to Brad Johnson, President, Lake Kampeska Water Project District from Eric Gronlund	19
April 3, 2000	Letter to Kay Farris from Eric Gronlund	20
April 3, 2000	Letter to Julian Wick, Lake Pelican Water District from Eric Gronlund	21
April 3, 2000	Appointment of Hearing Chairman	22
April 4, 2000	Revised Report on City of Watertown Flood Control Permit Application No. FC-29	23-27
April 10, 2000	First Transmittal of Publication Notice	28
April 14, 2000	Letter to Gale N Selken, Dept of Environment & Natural Resources from Julian L Wick requests continuance	29
April 17, 2000	Proof of Publication of Hearing from Watertown Public Opinion	30
April 18, 2000	Petition to Intervene to Garland Erbele, Chief Engineer from Kay Farris (w/attachments)	31-33
April 18, 2000	Petition to Intervene to Water Rights Program and City of Watertown from Rick Trupe, Mayor, City of Castlewood	34
April 19, 2000	Petition to Intervene from Julian Wick, Lake Pelican Water Project District	35-36
April 20, 2000	Letter to Gale Selken, Water Rights Program from HDR Engineering, Inc. (w/attachments)	37-73
April 21, 2000	Petition to Intervene to Garland Erbele, Chief Engineer from Tim Olson, Dept of Game, Fish & Parks	74

April 24, 2000	Letter to Garland Erbele, Chief Engineer from Richard L Schlechter supporting application	75
April 26, 2000	Notice of Automatic Delay of Hearing on Flood Control Permit Application No. FC-29, City of Watertown (w/certificate of service)	76-78
May 2, 2000	Letter to Tim Olson, Dept of Game, Fish & Parks from Richard L Schlechter	79-80
May 2, 2000	Letter to Julian Wick, Lake Pelican Water Project District from Richard L Schlechter	81
May 3, 2000	Letter to Rick Trupe, City of Castlewood from Richard L Schlechter	82
May 3, 2000	Letter to Kay Farris, Judy & Larry Picht, Charles Rector, Troy & Karen Breitag, Susan & Mark Rieb, Ava Jo Holmes, Marge & Bill Swaboda, Trudy Rector from Richard L Schlechter	83-84
May 4, 2000	Letter to Parties of Record from Diane Best (w/copy of Appointment of Hearing Chairman and list of parties of record)	85-87
May 4, 2000	Letter to Garland Erbele, Chief Engineer from Richard L Schlechter (w/attachments – draft design)	88-95
May 8, 2000	Letter to Richard L Schlechter, City of Watertown from Julian L Wick	96
May 10, 2000	Letter to Julian L Wick, Lake Pelican Water Project District from Richard L Schlechter	97
May 10, 2000	Letter to Kay Farris, Judy & Larry Picht, Charles Rector, Troy & Karen Breitag, Susan & Mark Rieb, Ava Jo Holmes, Marge & Bill Swaboda, Trudy Rector from Richard L Schlechter	98
May 15, 2000	Letter from Jay M Leibel submitting Notice of Appearance of Counsel (w/certificate of service)	99-101

June 2, 2000	Memorandum from John P Guhin transmitting proposed Findings of Fact, Conclusions of Law and Final Decision to Parties (w/certificate of service)	102-104
June 2, 2000	Proposed Findings of Fact, Conclusions of Law and Final Decision	105-120
June 7, 2000	Scheduling Order signed by Rodney Freeman (w/certificate of service)	121-124
June 12, 2000	DENR Response to Proposed Findings of Fact, Conclusions of Law and Final Decision (w/certificate of service)	125-131
June 12, 2000	Proposed Alternative Suggestions, Objections, and Additional Proposals of the City of Watertown (w/certification of service)	132-136
June 12, 2000	Proposed Findings of Fact, Conclusions of Law and Final Decision proposed by Lake Pelican Water Project District (w/certificate of service)	137-148
June 15, 2000	Transcript of Telephone Hearing to Consider Findings of Fact, Conclusions of Law and Final Decision	(attached separately)
June 16, 2000	Findings of Fact, Conclusions of Law and Final Decision in the Matter of Flood Control Permit Application No. FC-29, City of Watertown (signed)	149-164
June 20, 2000	Notice from Garland Erbele transmitting adopted Findings of Fact, Conclusions of Law and Final Decision to Parties (w/certificate of service)	165-167
July 19, 2000	Letter to Jay M Leibel from Richard L Schlechter transmitting draft monitoring plan	168-173
July 25, 2000	Letter to Richard L Schlechter from Jay M Leibel	174-175

STATE OF SOUTH DAKOTA	)	IN CIRCUIT COURT
	: SS	
COUNTY OF CODINGTON	)	THIRD JUDICIAL COURT
		(00-333)
IN THE MATTER OF THE APPLICATION FOR FLOOD CONTROL PERMIT NO. FC-29 CITY OF WATERTOWN	)))	ALPHABETICAL INDEX

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March 6, 2000	Technical Memorandum No. 1 – Diversion Structure Project (bound copy)	(attached separately)
June 15, 2000	Transcript of Telephone Hearing to Consider Findings of Fact, Conclusions of Law and Final Decision	(attached separately)

Exhibits Introduced into Evidence

in the Matter of the Flood Control Permit No. FC-29, City of Watertown

Exhibit No.	Description
DENR-1	DENR file on Flood Control Permit Application No. FC-29, City of Watertown
DENR-2A	Feasiblity Report and Environmental Assessment, Flood Control for Watertown and Vicinity, South Dakota
DENR-2B	Feasiblity Report and Technical Appendix, Volume 2, Flood Control for Watertown and Vicinity, South Dakota
DENR-4	Amendment and Executive Summary for Technical Memorandum No. 1, Diversion Structure Project
City-1	Packet containing map of area and photos
City-2	Schematic map of Flood Relationships
City-3	Plan view of diversion site layout for proposed Kampeska weir
City-4	Proposed long weir, the gate structure, access to gate structure, and fish notch
City-5	Weir section view
City-6	Big Sioux River discharge frequency relationship between Lake Pelican and Lake Kampeska – six years
City-7	Big Sioux River discharge frequency relationship between Lake Pelican and Lake Kampeska – 100 years
City-8	April 20, 2000 letter to Gale Selken
Pelican-1	May 24, letter to Julian Wick from Barr Engineering

#8

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star

March 21, 2000

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec & Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown Community Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water Treatment Facility
605-882-6243
FAX 605-882-6242

Mr. Eric Gronlund, Natural Resources Engineer
SD Department of Environment and Natural Resources
Division of Water Rights
523 East Capitol Avenue
Pierre, SD 57501

CIU 00-033



Dear Mr. Gronlund:

Enclosed is a completed application for a Flood Control Permit Within the State of South Dakota for Watertown's proposed Big Sioux River/Lake Kampeska Diversion Project (also referred to as Lake Kampeska Diversion Weir). The enclosed application is complete with a check in the amount of $150.00 for the filing fee required by state statute, and 2 sets of the following:

- Completed Form 2: Application for flood control permit.
- Copy of Watertown City Council Resolution No. 00-6 authorizing me to sign environmental and other documents for the project on the city's behalf
- (3) 11" x 17" figures
  - Site location – Big Sioux River/Lake Kampeska Diversion & Lake Kampeska Outlet Control Structure, stamped and signed by Allan D. Erickson, PE of HDR Engineering, Inc.
  - Site Layout – Big Sioux River/Lake Kampeska Diversion (P-2)
  - Typical Sections – Big Sioux River/Lake Kampeska Diversion (P-3)
- Amendment and Executive Summary for Technical Memorandum No. 1 – Diversion Structure Project, March 2000

I believe several copies of "Technical Memorandum No. 1 – Diversion Structure Project, October 1999" prepared by HDR Engineering, Inc. have been previously forwarded to your office by HDR for your preliminary information and use. Though the Amendment and Executive Summary is intended to be somewhat of a stand alone document, I encourage and request that you refer to the orginal document for any technical background information that may support or explain the project. I trust that the enclosed and referenced materials will help you and the rest of DENR's Water Rights staff develop their understanding and favorable recommendations in support of the project. If additional copies are needed, please feel to contact me.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

FILED

CLERK OF COURTS
CODINGTON COUNTY
DATE 8-16-00

1

FORM 2: Application for flood control permit

(type or print)



Mail to:
Water Rights Program
Joe Foss Building
523 E. Capitol
Pierre, SD 57501-3181
(605) 773-3352

No. FC-29 Hydrologic Unit

Basin

Newspaper Watertown Public Opinion
(office use only)

APPLICATION FOR A FLOOD CONTROL PERMIT WITHIN THE STATE OF SOUTH DAKOTA

1. Name of Applicant City of Watertown

   Address 23 Second Street NE, P.O. Box 910
   (Street, RR or Box)

   Watertown, SD 57201 Phone No. (605) 882-6204, ext. 29
   (City) (State) (Zip Code)

2. Name of watercourse Inlet/Outlet to Lake Kampeska on Big Sioux River

3. Location of project (legal description) NE¼, Section 15, T117N, R53W of the Fifth Principal Meridian.

4. County or counties where project is located Codington County

5. Give a brief description of the proposed project including the type of project (Dam, Dikes, Channel Modifications, etc.) and purpose for the project. When available include any preliminary engineering report or other reports or information that will help explain the project. (Attach sheet if more space is needed.)
   The project includes the construction of the Lake Kampeska Diversion weir. Lake Kampeska is experiencing a large amount of sediment deposition from flow events occurring in the Big Sioux River. The sediment deposition into the lake between the period of 1994 to 1997 has been estimated at 71,200 tons. During the initial stages of a flood event, a large portion of sediment is transported. An uncontrolled weir structure was found to reduce sediment loading to Lake Kampeska by diverting low flows.

Attachment: Attach Map (see instruction) Amendment and Executive Summary for Technical Memorandum No. 1 "Diversion Structure Project" dated March 2000.

STATE OF SOUTH DAKOTA)
SS
County of Codington)

I, Richard L. Schlechter the applicant, certify that I have read this application, have examined the attached map and that the matters are true and that I intend, and am able to complete the necessary construction.

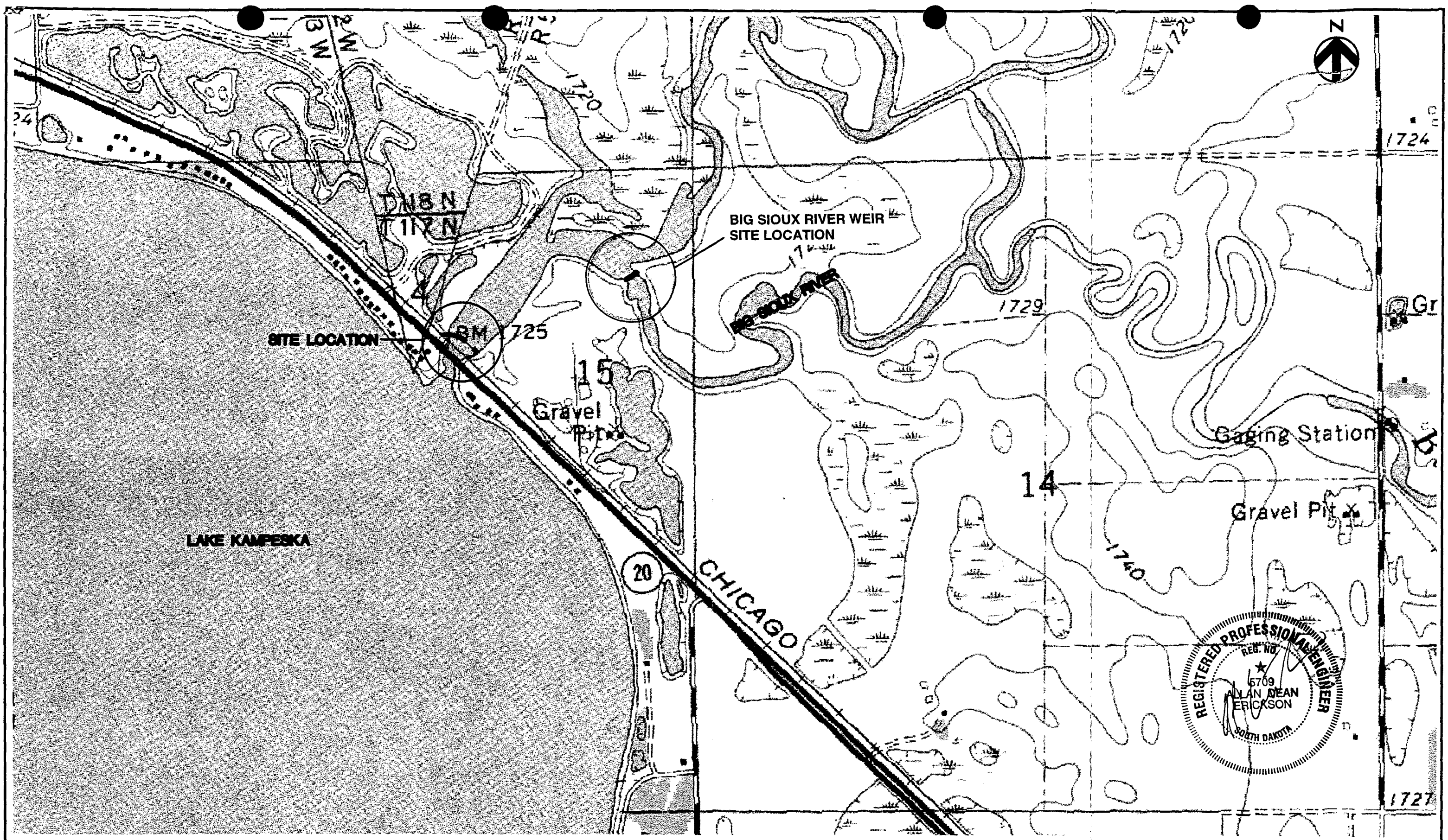
Signed Richard L Schlechter

TERRI-LYNN M. BECKER
NOTARY PUBLIC SOUTH DAKOTA
SEAL SEAL

Subscribed and sworn to before me this 21st day of March 19 2000

Terri-Lynn M Becker
Notary Public

My Commission Expires
01-24-04



HDR

HDR Engineering, Inc.

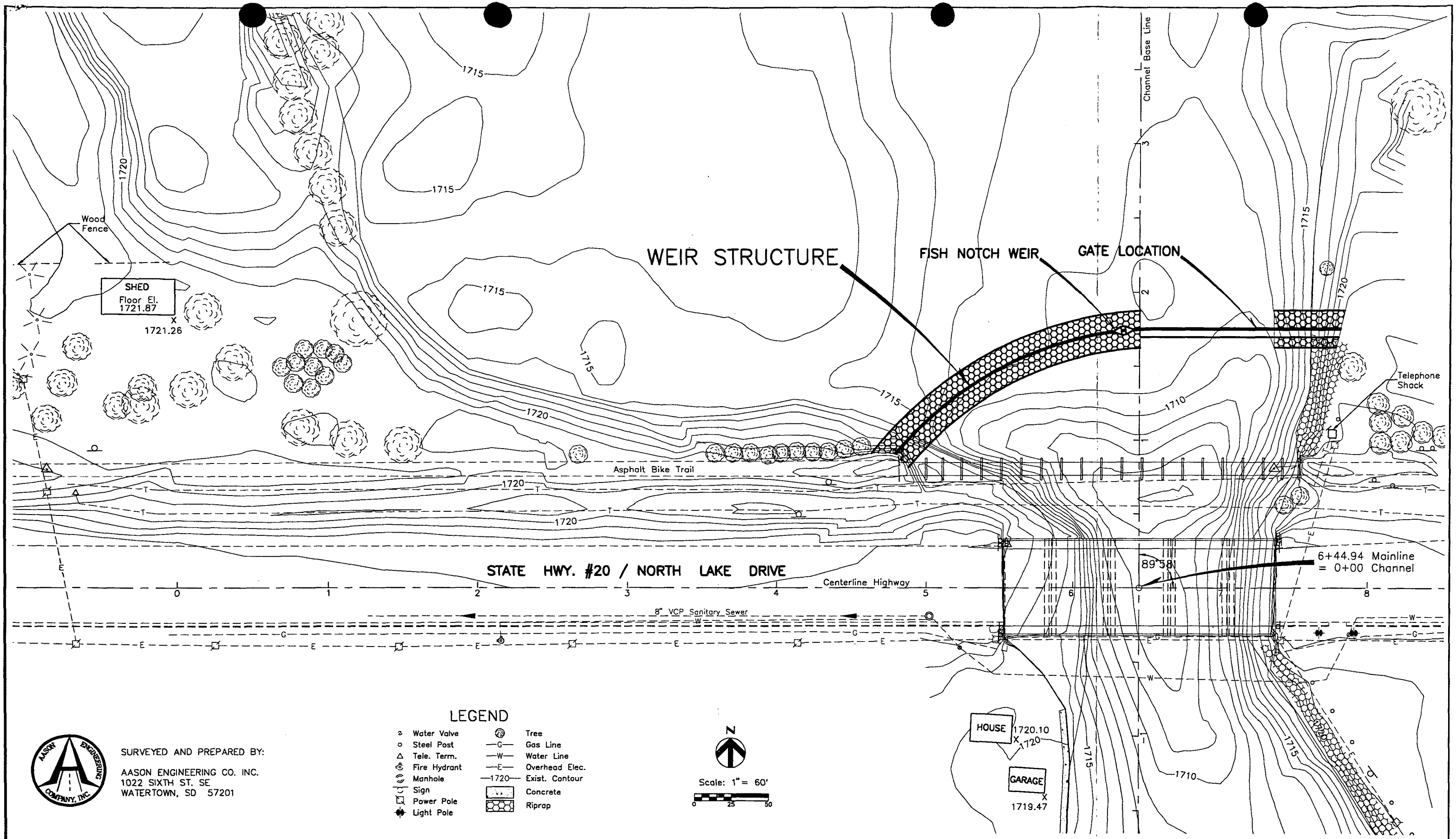
Index No.	Description	Date	Drwn.	Chkd.	Resp. Dspr.	Proj. Mgr.

Project Manager: ALLAN ERICKSON
Architect | I&C/Process
Civil: JERRY STEVENS | Mechanical
Electrical | Structural
Drawn By: BRENDA MILLER

Lake Kampeska Water Project District
Lake Kampeska Water Quality Diversion Weir Project
Watertown, South Dakota
1998

SITE LOCATION

Date: FEBRUARY 2000
Scale:
Project No.: 08080-005-135
Drawing No.:
Issue:



SURVEYED AND PREPARED BY:

AASON ENGINEERING CO. INC.
1022 SIXTH ST. SE
WATERTOWN, SD 57201

LEGEND

Water Valve	Tree
Steel Post	Gas Line
Tele. Term.	Water Line
Fire Hydrant	Overhead Elec.
Manhole	Exist. Contour
Sign	Concrete
Power Pole	Riprap
Light Pole	

N

Scale: 1" = 60'

0 25 50

HDR Engineering, Inc.

Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager: ALLAN ERICKSON
Architect
Civil: JERRY STEVENS
Electrical
Mech/Process
Mechanical
Structural
Drawn By: BRENDA MILLER

Lake Kampeska Water Project District
Lake Kampeska Water Quality Diversion Weir Project

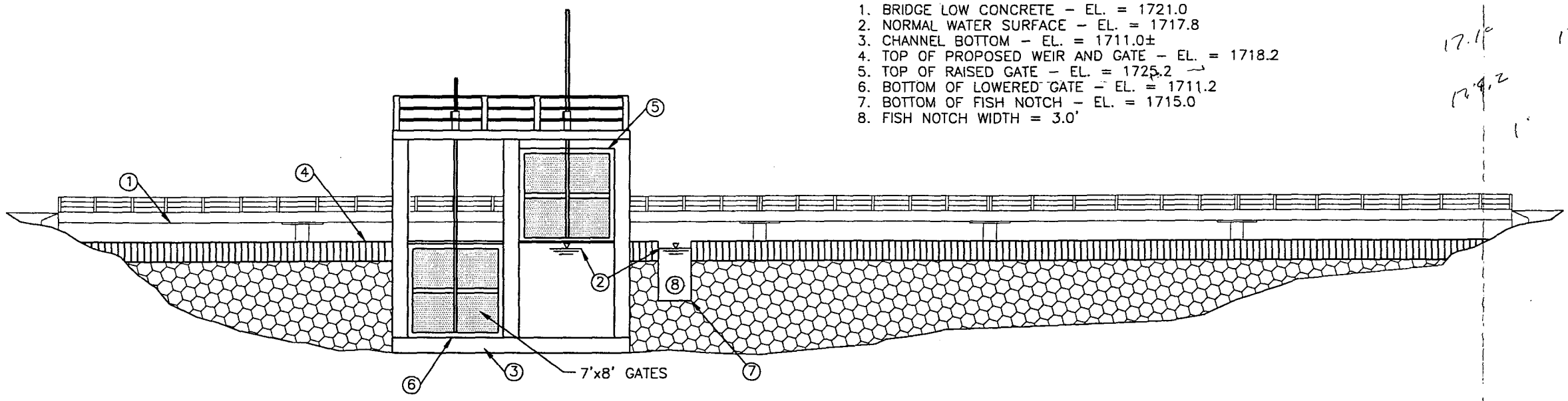
Watertown, South Dakota 1998

SITE LAYOUT

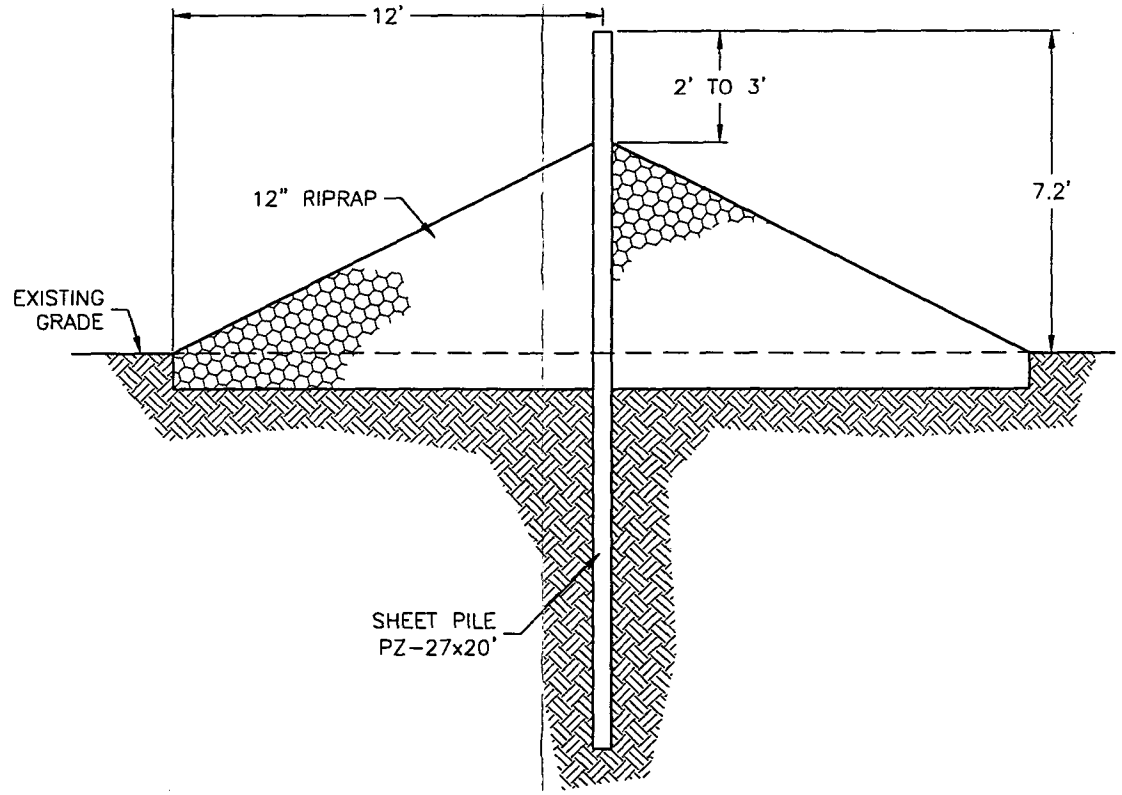
Date: FEBRUARY 2000
Scale:
Project No.: 08080-005-135
Drawing No.: P-2
Issue:

1. BRIDGE LOW CONCRETE – EL. = 1721.0
2. NORMAL WATER SURFACE – EL. = 1717.8
3. CHANNEL BOTTOM – EL. = 1711.0±
4. TOP OF PROPOSED WEIR AND GATE – EL. = 1718.2
5. TOP OF RAISED GATE – EL. = 1725.2
6. BOTTOM OF LOWERED GATE – EL. = 1711.2
7. BOTTOM OF FISH NOTCH – EL. = 1715.0
8. FISH NOTCH WIDTH = 3.0'

17.1[illegible] 17.82
17[illegible].2
1717.8



TWIN GATE WEIR OPTION
FISH OPENING
ELEVATION



TYPICAL WEIR SECTION

HDR

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager: ALLAN ERICKSON
Architect | I&C/Process
Civil: JERRY STEVENS | Mechanical
Electrical | Structural
Drawn By: BRENDA MILLER

Lake Kampeska Water Project District
Lake Kampeska Water Quality Diversion Weir Project
Watertown, South Dakota
1998

TYPICAL SECTIONS

Date: FEBRUARY 2000
Scale: NO SCALE
Project No.: 08080-005-135
Drawing No.: P-3
Issue:

5

RESOLUTION NO. 00-6

WHEREAS, the City of Watertown expects to be the recipient of a Disaster Community Development Block Grant from the US Department of Housing and Urban Development as administered by the State of South Dakota to assist the city with Big Sioux River/Lake Kampeska Diversion Project; and

WHEREAS, the City of Watertown is required to designate a certifying officer for the purpose of signing required documents pertaining to this grant;

NOW, THEREFORE BE IT RESOLVED, that the Mayor of the City of Watertown, be hereby designated as the City's official for the purpose of signing the CDBG grant agreements and contracts, and

NOW, THEREFORE BE IT RESOLVED, that the Finance Officer of the City of Watertown, be hereby designated as the City's official for the purpose of signing correspondence, pay requests, and other required documents; and

WHEREAS, the City of Watertown is required to designate an environmental certifying officer for the purpose of signing required environmental documents pertaining to this grant;

NOW, THEREFORE, BE IT RESOLVED, that the Public Works Operation Manager of the City of Watertown, be hereby designated as the City's environmental certifying officer for the purpose of signing environmental correspondence and other required documents and forms.

The above and foregoing Resolution was moved for adoption by Alderman Culhane, seconded by Alderman Johnson, and upon voice vote all voted "aye" whereupon the Mayor declared the resolution duly passed and adopted.

Dated the 6th day of March, 2000.

ATTEST:

Tracy D. Turbak, CPA
Finance Officer

Brenda S. Barger
Mayor

Publish: March 11, 2000



RECEIPT

Water Rights Program

South Dakota Department of Environment and Natural Resources

No 416435

Pierre, March 22, 2000

RECEIVED OF City of Watertown, P.O. Box 910, Watertown, SD 57201-0910
the following amount in fees for services rendered as provided for by law:

Fee for Application for Permit No. FC-29 to Appropriate Water, to construct and to put water to beneficial use	150	00
Fee for Application for Permit No. _____ to Appropriate Water, for Future Use		
Fee to retain Future Use Permit No. _____ after period of seven years.		
Fee for Inspecting Constructed Works, confirming beneficial use and issuing Water License No.		
Fee for Filing Transfer Form		
Fee for Filing Extension Request		
Fee for		
(Any Other Work Provided by Law) **Total**	150	00

By Garland Erbele
Chief Engineer

7

Water Rights Program - DENR
Conversation File Documentation

NAME OF PERSON OR FILE: Flood Control Application No. FC-29, City of Watetown

ADDRESS: COUNTY: Codington

DATE: March 31, 2000 TELEPHONE:

RE: Conversation with Rick Schlechter

COMMENTS:

We contacted Mr. Schlechter regarding one of the elevations in the operation criteria for the gates proposed by Application No. FC-29.

Under the operating criteria enclosed in the HDR executive summary the elevation for open gates during drought periods when lake level fall 30 inches below its normal elevation should by **1715.3 fmsl**. Mr. Schlechter requested that we amend the application accordingly.

File in Permit or other file as necessary. Use to document conversations and what the other party was told; why action or decision was made.

NAME: Eric Iverson

City of Watertown
Flood Control Permit Application No. FC-29

The City of Watertown has submitted Flood Control Permit Application No. FC-29. Application No. FC-29 proposes to construct a weir and gate system on the inlet/outlet of Lake Kampeska. The purpose of the project is to control the amount of sediment entering the Lake. The project will be located in the NE1/4 Section 15, T117N-R53W. The weir will have an overflow elevation of 1718.2 feet mean sea level (fmsl), and fish passage weir with a flow elevation of 1715.0 fmsl and two gates with a flow elevation of 1711.2 fmsl. An ordinary high water mark and outlet elevation for Lake Kampeska has been set at 1718.3 fmsl and 1717.8 fmsl, respectively.

HISTORY:

There have been many attempts to control the Big Sioux River and the flows into Lake Kampeska. The first attempt was in 1928 when several structures were constructed to increase the water flow into the lake, decrease the outflow from the lake and prevent fish from leaving the lake. An ice jam caused considerable damage to the structure the following spring. This system was abandoned.

In 1932 a rock dam was constructed on the Big Sioux River downstream from the Lake. In 1933 a diversion ditch was dug to connect Gravel Creek to the Big Sioux River. A dam was constructed on the old Gravel Creek channel. The purpose of these projects was to increase the flow into Lake Kampeska.

In 1941 a sheet pile dam was constructed across the Big Sioux River to raise the water level of the lake. This is the present outlet control for Lake Kampeska. This structure has been tampered with and has had a notch cut out of the weir. The notch was cut in the weir to lower the water level in Lake Kampeska.

The flood of 1969 raised the lake level and flooded homes around the lake. Consequently, the dam on the old Gravel Creek channel was intentionally breached to divert water from the lake. Later a dam was placed in the diversion ditch to stop the discharge of water through the channel.

The years from 1992 through 1997 saw much above average precipitation and inflows into Lake Kampeska. The increased flows and sediment loading are conditions that Application No. FC-29 proposes to address.

PROPOSED PROJECT:

FC-29 proposes to construct an uncontrolled weir structure on the inlet/outlet channel to Lake Kampeska. The structure will have a fish passage weir and will have two 7 feet by 8 feet gates. The City of Watertown will operate the gates.

The operation criteria for the gates is as follows:

Open Gates: During internal flooding or after a flood event on the river occurs
And
Lake level is above the stage of the river
And
Lake level is above its normal level (1717.8)
OR
During drought period when lake level falls 30 inches below its normal Elevation (1715.3)

Closed Gates: Normal operating condition
OR
When lake level reaches its normal level during draining operation
OR
When filling during drought period close gates when lake level is 24 Inches below normal (1715.8)

With the gates closed and the elevation of the weir set at 1718.2 fmsl all flows below 1000 cubic feet per second will be bypassed downstream of Lake Kampeska.

CONCERNS WITH APPLICATION:

1. The proposed weir will be set 0.1 feet below Lake Kampeska's established ordinary high water mark of 1718.3 fmsl. This proposed project may impact Lake Kampeska by establishing a new high water mark and could affect private lands. The Water Management Board approved Flood Control Application No. FC-19 for the Lake Pelican Water District in 1996. Flood Control Permit No. FC-19 allowed the construction of an inlet/outlet weir with the overflow elevation of 1712.25 fmsl, which is 2.05 feet over the established ordinary high water mark for Lake Pelican. The Board retained jurisdiction over the weir if there was flooding problems on Lake Pelican. In addition, Lake Pelican can re-establish the original channel from the Lake and leave the weir in place. Since construction of the Lake Pelican weir, the Water Rights Program has received no complaints from landowners regarding the project.

2. The "Amendment and Executive Summary for Technical Memorandum No. 1" submitted with the application states "There are a few low areas where the 2 and 10-year events exceed the channel capacity but these areas are mostly parkland or undeveloped." If these areas are privately owned, flood easements will need to be obtained before construction of the proposed project.

3. Reducing the flow capacity through the inlet/outlet with the use of the weir and gates could cause wind/wave damage by holding lake levels higher for longer periods of time. The "Amendment and Executive Summary for Technical Memorandum No. 1" references the U.S. Army Corps of Engineers report "Feasibility Report and Environmental Assessment Flood Control for Watertown and Vicinity, South Dakota August 1994. The Corps report on page 51 figure 18 shows a two year wind setup and wave run-up elevation of at least 1.1 feet

at still pool (1717.8 fmsl). The Executive Summary states "Local interests indicated that problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above normal lake elevation of 1717.8 fmsl." This is a direct contradiction to the Corps report and needs to be resolved.

4. Although the purpose of Application No. FC-29 is to reduce sediment into Lake Kampeska; there is very little documentation in the Executive Summary or in the original report by HDR Engineering Inc concerning the benefits. The original report page 18 states "Therefore, for comparison purposes only, the sediment load diverted from the lake is based on a constant peak discharge." The report gives an amount of the sediment moved downstream but does not reference how this sediment load would affect the existing Flood Control Permit No. FC-19 for Lake Pelican. The report does indicate that the flood frequency would be increased from a 2-year frequency to a 1.3-year event and the 8-year recurrence interval would be increased to a 5.5-year event. The increase of the flood frequencies may have a corresponding increase in sediment loading.

5. The Amendment and Executive Summary attempted to address the internal flooding from the 28.8 square mile drainage area disregarding flow contributions from the Big Sioux River. The Summary used a 24-hour period for inflows, outflows and lake accumulations. There should be a reservoir routing for the various recurrence interval storms to determine impacts to Lake Kampeska's water level. In addition the analysis in the Summary uses 1717.8 fmsl for the river elevation while there is a 25, 50 or 100 event in the Lake Kampeska internal drainage. The river stages will probably not be at 1717.8 fmsl or no discharge when the various frequencies storms are in the adjacent drainage areas.

The statutory requirements for approving a flood control permit are stated in SDCL 46-2A-ll "a permit for flood control works may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited, the project will not increase the likelihood or the severity of flood damages in areas other than the project area or the area proposed to be benefited, the project will not endanger human life or property and the project will not impair existing water rights, except to the extent that such rights are extinguished or compensated through agreement or exercise of the power of eminent domain."

The Lake Pelican Water District has been issued Flood Control Permit No. FC-19. Permit No. FC-19 authorized the construction of a weir on the inlet/outlet of Lake Pelican to control the amount of silt and sediment loading that enters the lake. The proposed construction of the weir on Lake Kampeska will increase the flows and sediment loading in the Big Sioux River and downstream to Lake Pelican. The proposed project will also increase the flood frequency downstream of the Kampeska weir. In order for the conditions for SDCL 46-2A-11 to be met, flood easements would have to be obtained from downstream landowners and an agreement would be needed from Lake Pelican Water District.

CONCLUSIONS:

1. The approval of Application No. FC-29 would allow the increase of flood frequencies and sediment loading in the Big Sioux River and into Lake Pelican. The amount of sediment loading is not quantified in the application material.

2. Flood Control Application No. FC-29 does not meet the requirements of SDCL 46-2A-11 in that it will adversely affect existing water rights, mainly Flood Control Permit No. FC-19 and will increase the flood frequency on downstream lands.

RECOMMENDATION:

Advertise Flood Control Application No. FC-29 for deferral to allow the applicant to address the concerns presented in this report before the Water Management Board.

Gale N Selken

Gale N. Selken P.E.
Natural Resources Engineer IV
Water Rights Program
Department of Environment and Natural Resources

RECOMMENDATION OF CHIEF ENGINEER FOR FLOOD CONTROL APPLICATION NO. FC-29, City of Watertown

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 Flood Control Application No. FC-29, City of Watertown, c/o Richard L. Schlechter, P.O. Box 910, Watertown SD 57201.

The Chief Engineer is recommending DEFERRAL of Application No. FC-29 to allow the applicant to address concerns presented in the Water Rights Program staff report before the Water Management Board.

See report on application for additional information.

Garland Erbele, Chief Engineer
March 31, 2000

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

March 31, 2000

Richard L. Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Dear Mr. Schlechter:

Flood Control Application No. FC-29 requests authorization to construct a diversion weir and gate structure in the inlet/outlet channel to Lake Kampeska. The Water Rights Program has examined this application. A notice of hearing has been sent to the Publisher of the Public Opinion printed at Watertown, SD (Ph # (605) 886-6901). You will need to contact the newspaper to authorize publication.

Enclosed is a copy of the notice of hearing, report and the recommendation of the Chief Engineer. Please review the notice prior to publication and notify Gale Selken or myself if you have any corrections or questions.

The Chief Engineer is recommending DEFERRAL of Application No. FC-29 to allow the applicant to address concerns presented in the Water Rights Program staff report before the Water Management Board.

The staff report prepared on the application expresses concern regarding 1) the project's impact to the established ordinary high water mark; 2) the potential flooding of privately owned land without securing flood easements; 3) basing assessment of wind-wave action in contradiction to the Corps of Engineer's report; 4) the lack of documentation on the quantity of sediment reduction and potential impacts of increased sedimentation downstream; and 5) there being no reservoir routing to determine impacts to Lake Kampeska's water level. We ask that you provide the Water Right Program the necessary information to address these concerns by April 24th in order to provide adequate time to analyze it prior to the Board meeting. The Chief Engineer may revise his recommendation prior to the Board meeting based on supplemental information submitted. Regardless, the City will need to address all these concerns at the Board meeting.

Be sure to contact the Watertown Public Opinion to authorize publication of the city's notice of hearing and to arrange for payment. Early contact with the paper can eliminate delays. The publisher has been instructed to publish the notice once each week for two consecutive weeks with the last publication to occur twenty days before the scheduled May 3rd and 4th board meeting.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosure

NOTE: If you plan to contest any part of the Chief Engineer's recommendation, you must file a petition pursuant to the procedures outlined in the attached notice of hearing. The Water Management Board will then consider your concerns during a hearing on the application.

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

March 31, 2000

Watertown Public Opinion
P.O. Box 10
Watertown, SD 57201-0010

ATTENTION: Legal Public Notice

Enclosed is a Notice of Hearing on Flood Control Permit No. FC-29 to Appropriate Water to be published twice. Please publish the first notice on April 6, 2000, with the second publication 7 days later.

The applicant must verify to you that the notice is to be published, before you make the first publication. **Please BILL the APPLICANT for the cost of publication.** The APPLICANT is City of Watertown, %Richard L. Schlechter, P.O. Box 910, Watertown, SD 57201 (Ph # (605) 882-6204, ext. 29).

Please send the Water Rights Program the first publication immediately. The publication is checked for accuracy so any corrections can be made in the second publication. You may use the form below or fax a copy of the first publication. Any fax should be sent to the attention of Karen Schlaak at (605) 773-4068. Publication errors can invalidate the public notice.

After the second publication, **please send us an affidavit or use the enclosed Proof of Publication form.** The applicant pays the cost of publication, but the Water Rights Program records require an affidavit or Proof of Publication. Delays in receiving the affidavit can be costly to the applicant.

Sincerely,

Eric Gronlund
Natural Resources Engineer
605 773-3352

enclosures

----------CUT HERE----------

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

No. FC-29

Date_____

We are in receipt of your letter of March 31, 2000, enclosing Notice of Hearing to Appropriate Water by Flood Control Permit No. FC-29 which was first published in our issue of_____. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

_____ _____
Name Newspaper

Instruction to Newspaper - Publish first notice on April 5, 2000, with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF HEARING on Flood Control Application No. FC-29

Notice is given that the City of Watertown, c/o Richard L. Schlechter, P.O. Box 910, Watertown, SD 57201 has filed an application for a flood control permit for a weir at the inlet/outlet channel to Lake Kampeska in Codington County.

Flood Control Application No. FC-29 request authorization to construct a weir and gate system located in the inlet/outlet channel between the Big Sioux River and Lake Kampeska in the NE¼ Section 15, T117N, R53W. The purpose of the project is to control the amount of sediment entering Lake Kampeska. The weir will have an overflow elevation of 1718.2 feet mean sea level (fmsl) and contain a fish passage weir with a flow elevation of 1715.0 fmsl. The weir will also include two control gates with a flow elevation of 1711.2 fmsl. An ordinary high water mark and outlet elevation for Lake Kampeska as previously established by the Water Management Board is 1718.3 and 1717.8 fmsl, respectively.

The City of Watertown Municipal Utilities Department will administer operation of the weir gates. The proposed operation of these control gates is as follows:

Open Gates
- During internal flooding or after a flood event on the river; or
- If lake level is above the stage in the river; or
- If lake level is above its normal level of 1717.8 fmsl; or
- During drought periods when the lake level falls 30 inches below its normal elevation (1715.3 fmsl).

Closed Gates
- Normal operating criteria; or
- When lake level reaches its normal level during draining operation; or
- When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. FC-29 to allow the applicant to address concerns before the Water Management Board. The Chief Engineer may revise the recommendation prior to the hearing before the Water Management Board. There will not be future public notice if the Chief Engineer revises the recommendation prior to board hearing.

Any person interested in opposing or supporting the application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E Capitol, Pierre SD 57501 (605 773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by April 24, 2000. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider this application at 8:30 AM, May 4, 2000, in the Conference Room, Floyd Matthew Center, 523 E. Capitol Ave., Pierre, SD. The agenda time is an estimate and may be delayed due to prior agenda items. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application. The request for an automatic delay must be filed by April 24, 2000. If there is a request for an automatic delay, it is anticipated that a special board meeting will be held on May 24, 2000, to consider this application. Only those people who have filed a petition will receive future notice if a special meeting is scheduled.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by April 24, 2000, at the above Water Rights Program address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application are made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15. Nettie H. Myers, Secretary, Department of Environment and Natural Resources.

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

April 3, 2000

Brad Johnson, President
Lake Kampeska Water Project District
950 North Lake Drive
Watertown, SD 57201

Dear Mr. Johnson:

I am writing to inform you of a pending flood control permit application. The city of Watertown has filed Flood Control Permit Application No. FC-29 requesting authorization to construct a diversion weir and gate structure in the inlet/outlet channel to Lake Kampeska. Please find enclosed a copy of the report, recommendation and public notice prepared on the application. The notice hearing is scheduled to be published in the Public Opinion on April 6 and 13, 2000. This notice schedules a hearing before the Water Management Board on May 4, 2000, in Pierre.

The Chief Engineer is currently recommending deferral of the application. However, this recommendation may be revised prior or during the Board hearing. Please be aware this will be the only public notice on this application and is the one opportunity to petition to intervene. Any person wishing to participate in the May 4th hearing will need to submit a petition by April 24, 2000. Details on filing a petition are included in the notice of hearing.

Please feel free to contact Gale Selken or myself if you have any questions.

Sincerely,

Eric Gronlund

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

April 3, 2000

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Dear Ms. Farris:

We had a telephone conversation well over one-year ago regarding Lake Kampeska. At that time, you asked that I provide you notice if a flood control permit application was filed for a structure on Lake Kampeska.

The city of Watertown has filed Flood Control Permit Application No. FC-29 requesting authorization to construct a diversion weir and gate structure in the inlet/outlet channel to Lake Kampeska. Please find enclosed a copy of the report, recommendation and public notice prepared on the application. The notice hearing is scheduled to be published in the Public Opinion on April 6 and 13, 2000. This notice schedules a hearing before the Water Management Board on May 4, 2000, in Pierre.

The Chief Engineer is currently recommending deferral of the application. However, this recommendation may be revised prior or during the Board hearing. Please be aware this will be the only public notice on this application and is the one opportunity to petition to intervene. Any person wishing to participate in the May 4th hearing will need to submit a petition by April 24, 2000. Details on filing a petition are included in the notice of hearing.

Please feel free to contact me if you have any questions.

Sincerely,

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

April 3, 2000

Julian Wick
Lake Pelican Water District
4002 20th Avenue SW
Watertown, SD 57201

Dear Mr. Wick:

I am writing to inform you of a pending flood control permit application. The city of Watertown has filed Flood Control Permit Application No. FC-29 requesting authorization to construct a diversion weir and gate structure in the inlet/outlet channel to Lake Kampeska. Please find enclosed a copy of the report, recommendation and public notice prepared on the application. The notice hearing is scheduled to be published in the Public Opinion on April 6 and 13, 2000. This notice schedules a hearing before the Water Management Board on May 4, 2000, in Pierre.

The Chief Engineer is currently recommending deferral of the application. However, this recommendation may be revised prior or during the Board hearing. Please be aware this will be the only public notice on this application and is the one opportunity to petition to intervene. Any person wishing to participate in the May 4th hearing will need to submit a petition by April 24, 2000. Details on filing a petition are included in the notice of hearing.

Please feel free to contact Gale Selken or myself if you have any questions.

Sincerely,

Eric Gronlund

Eric Gronlund
Water Rights Program
(605) 773-3352

enclosures

BEFORE THE

SOUTH DAKOTA WATER MANAGEMENT BOARD

IN RE FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	)))	APPOINTMENT OF HEARING CHAIRMAN

The South Dakota Water Management Board hereby appoints Rodney Freeman to act as Hearing Chairman in the above-entitled contested case proceeding. This appointment includes the authority to set hearing for and act upon motions involving prehearing discovery, scheduling, briefing, continuances, or other prehearing matters. Further, this appointment includes the authority to make recommended rulings on substantive prehearing motions. The Board retains full authority to make final binding decisions with regard to substantive matters.

Dated this 3rd day of April, 2000.

BY THE BOARD:

Francis E Brink

Francis Brink, Chairman
South Dakota Water Management Board
(on behalf of the Board)

pld41900.db(nan)

Revised April 4, 2000
City of Watertown
Flood Control Permit Application No. FC-29

The City of Watertown has submitted Flood Control Permit Application No. FC-29. Application No. FC-29 proposes to construct a weir and gate system on the inlet/outlet of Lake Kampeska. The purpose of the project is to control the amount of sediment entering the Lake. The project will be located in the NE1/4 section 15, T117N R53W. The weir will have an overflow elevation of 1718.2 feet mean sea level (fmsl), and fish passage weir with a flow elevation of 1715.0 fmsl and two gates with a flow elevation of 1711.2 fmsl. An ordinary high water mark and outlet elevation for Lake Kampeska has been set at 1718.3 fmsl and 1717.8 fmsl, respectively.

HISTORY:

There have been many attempts to control the Big Sioux River and the flows into Lake Kampeska. The first attempt was in 1928 when several structures were constructed to increase the water flow into the lake, decrease the outflow from the lake and prevent fish from leaving the lake. An ice jam caused considerable damage to the structure the following spring. This system was abandoned.

In 1932 a rock dam was constructed on the Big Sioux River downstream from the Lake. In 1933 a diversion ditch was dug to connect Gravel Creek to the Big Sioux River. A dam was constructed on the old Gravel Creek channel. The purpose of these projects was to increase the flow into Lake Kampeska.

In 1941 a sheet pile dam was constructed across the Big Sioux River to raise the water level of the lake. This is the present outlet control for Lake Kampeska. This structure has been tampered with and has had a notch cut out of the weir. The notch was cut in the weir to lower the water level in Lake Kampeska.

The flood of 1969 raised the lake level and flooded homes around the lake. Consequently, the dam on the old Gravel Creek channel was intentionally breached to divert water from the lake. Later a dam was placed in the diversion ditch to stop the discharge of water through the channel.

The years from 1992 through 1997 saw much above average precipitation and inflows into Lake Kampeska. The increased flows and sediment loading are conditions that Application No. FC-29 proposes to address.

PROPOSED PROJECT:

FC-29 proposes to construct an uncontrolled weir structure on the inlet/outlet channel to Lake Kampeska. The structure will have a fish passage weir and will have two 7 feet by

8 feet gates. The City of Watertown will operate the gates. The operation criteria for the gates is as follows:

Open Gates: During internal flooding or after a flood event on the river occurs
And
Lake level is above the stage of the river
And
Lake level is above its normal level (1717.8)
OR
During drought period when lake level falls 30 inches below its normal Elevation (1715.3)

Closed Gates: Normal operating condition
OR
When lake level reaches its normal level during draining operation
OR
When filling during drought period close gates when lake level is 24 Inches below normal (1715.8)

CONCERNS WITH APPLICATION:

1. The proposed weir will be set 0.1 feet below Lake Kampeska's established ordinary high water mark of 1718.3 fmsl. This proposed project may impact Lake Kampeska by establishing a new high water mark and could affect private lands. The Water Management Board approved Flood Control Application No. FC-19 for the Lake Pelican Water District in 1996. Flood Control Permit No. FC-19 allowed the construction of an inlet/outlet weir with the overflow elevation of 1712.25 fmsl, which is 2.05 feet over the established ordinary high water mark for Lake Pelican. The Board retained jurisdiction over the weir if there was flooding problems on Lake Pelican. In addition, Lake Pelican can re-establish the original channel from the Lake and leave the weir in place. Since construction of the Lake Pelican weir, the Water Rights Program has received no complaints from landowners regarding the project.

2. The "Amendment and Executive Summary for Technical Memorandum No. 1" submitted with the application states "There are a few low areas where the 2 and 10-year events exceed the channel capacity but these areas are mostly parkland or undeveloped." If these areas are privately owned, flood easements will need to be obtained before construction of the proposed project.

3. Reducing the flow capacity through the inlet/outlet with the use of the weir and gates could cause wind/wave damage by holding lake levels higher for longer periods of time. The "Amendment and Executive Summary for Technical Memorandum No. 1" references the U.S. Army Corps of Engineers report "Feasibility Report and

Environmental Assessment Flood Control for Watertown and Vicinity, South Dakota August 1994. The Corps report on page 51 figure 18 shows a two year wind setup and wave run-up elevation of at least 1.1 feet at still pool (1717.8 fmsl). The Executive Summary states "Local interests indicated that problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above normal lake elevation of 1717.8 fmsl." This is a direct contradiction to the Corps report and needs to be resolved.

4. Although the purpose of Application No. FC-29 is to reduce sediment into Lake Kampeska; there is very little documentation in the Executive Summary or in the original report by HDR Engineering Inc concerning the benefits. The original report page 18 states "Therefore, for comparison purposes only, the sediment load diverted from the lake is based on a constant peak discharge." The report gives an amount of the sediment moved downstream but does not reference how this sediment load would affect the existing Flood Control Permit No. FC-19 for Lake Pelican. The report does indicate that the flood frequency would be increased from a 2-year frequency to a 1.3-year event and the 8-year recurrence interval would be increased to a 5.5-year event. The increase of the flood frequencies may have a corresponding increase in sediment loading.

5. The Amendment and Executive Summary attempted to address the internal flooding from the 28.8 square mile drainage area disregarding flow contributions from the Big Sioux River. The Summary used a 24-hour period for inflows, outflows and lake accumulations. There should be a reservoir routing for the various recurrence interval storms to determine impacts to Lake Kampeska's water level. In addition the analysis in the Summary uses 1717.8 fmsl for the river elevation while there is a 25, 50 or 100 event in the Lake Kampeska internal drainage. The river stages will probably not be at 1717.8 fmsl or no discharge when the various frequencies storms are in the adjacent drainage areas.

The statutory requirements for approving a flood control permit are stated in SDCL 46-2A-ll "a permit for flood control works may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited, the project will not increase the likelihood or the severity of flood damages in areas other than the project area or the area proposed to be benefited, the project will not endanger human life or property and the project will not impair existing water rights, except to the extent that such rights are extinguished or compensated through agreement or exercise of the power of eminent domain."

The Lake Pelican Water District has been issued Flood Control Permit No. FC-19. Permit No. FC-19 authorized the construction of a weir on the inlet/outlet of Lake Pelican to control the amount of silt and sediment loading that enters the lake. The proposed construction of the weir on Lake Kampeska will increase the flows and sediment loading in the Big Sioux River and downstream to Lake Pelican. The proposed project will also increase the flood frequency downstream of the Kampeska weir. In order for the

conditions for SDCL 46-2A-11 to be met, flood easements would have to be obtained from downstream landowners and an agreement would be needed from Lake Pelican Water District.

CONCLUSIONS:

1. The approval of Application No. FC-29 would allow the increase of flood frequencies and sediment loading in the Big Sioux River and into Lake Pelican. The amount of sediment loading is not quantified in the application material.

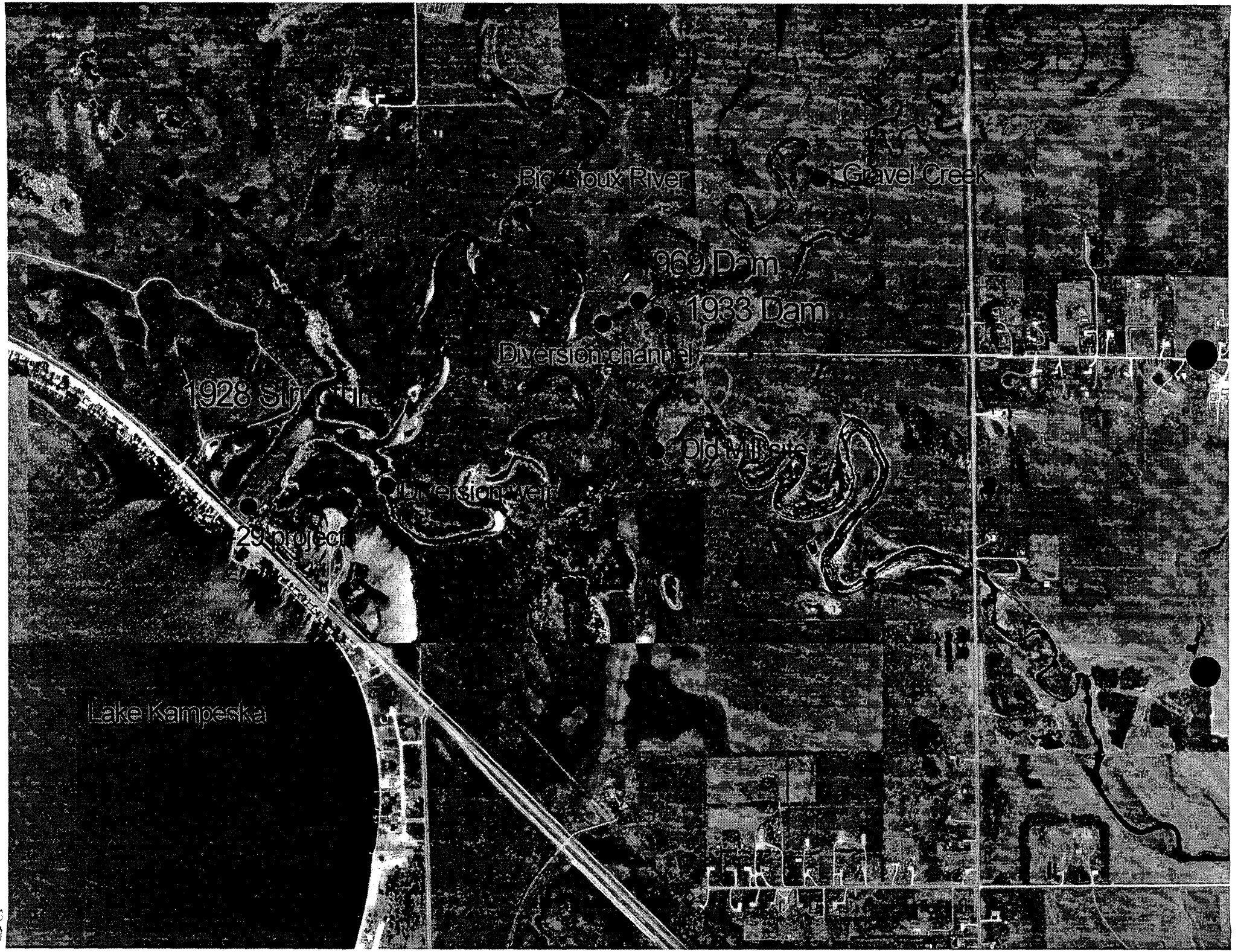
2. Flood Control Application No. FC-29 does not meet the requirements of SDCL 46-2A-11 in that it will adversely affect existing water rights, mainly Flood Control Permit No. FC-19 and will increase the flood frequency on downstream lands.

RECOMMENDATION:

Advertise Flood Control Application No. FC-29 for deferral to allow the applicant to address the concerns presented in this report before the Water Management Board.

Gale N Selken

Gale N. Selken P.E.
Natural Resources Engineer IV
Office of Water Rights
Department of Environment and Natural Resources


Big Sioux River
Gravel Creek
960 Dam
1933 Dam
Diversion channel
1928 Structure
Old Millsite
Diversion weir
29 project
Lake Kampeska



NOTICE OF HEARING ON FLOOD CONTROL APPLICATION NO. FC-29

Notice is given that the City of Watertown, c/o Richard L. Schlechter, P.O. Box 910, Watertown, SD 57201 has filed an application for a flood control permit for a weir at the inlet/outlet channel to Lake Kampeska in Codington County.

Flood Control Application No. FC-29 request authorization to construct a weir and gate system located in the inlet/outlet channel between the Big Sioux River and Lake Kampeska in the NE 1/4 Section 15, T117N, R53W. The purpose of the project is to control the amount of sediment entering Lake Kampeska. The weir will have an overflow elevation of 1718.2 feet mean sea level (fmsl) and contain a fish passage weir with a flow elevation of 1715.0 fmsl. The weir will also include two control gates with a flow elevation of 1711.2 fmsl. An ordinary high water mark and outlet elevation for Lake Kampeska as previously established by the Water Management Board is 1718.3 and 1717.8 fmsl, respectively.

The City of Watertown Municipal Utilities Department will administer operation of the weir gates. The proposed operation of these control gates is as follows:

Open Gates

- During internal flooding or after a flood event on the river; or
- If lake level is above the stage in the river; or
- If lake level is above its normal level of 1717.8 fmsl; or
- During drought periods when the lake level falls 30 inches below its normal elevation (1715.3 fmsl).

Closed Gates

- Normal operating criteria; or
- When lake level reaches its normal level during draining operation; or
- When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. FC-29 to allow the applicant to address concerns before the Water Management Board. The Chief Engineer may revise the recommendation prior to the hearing before the Water Management Board. There will not be future public notice if the Chief Engineer revises the recommendation prior to board hearing.

Any person interested in opposing or supporting the application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E. Capitol, Pierre, SD 57501 (605-773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by April 24, 2000. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

The Water Management Board will consider this application at 8:30 a.m., May 4, 2000, in the Conference Room, Floyd Matthew Center, 523 E. Capitol Ave., Pierre, SD. The agenda time is an estimate and may be delayed due to prior agenda items. The Chief Engineer's recommendation is not final or binding upon the Board. The Board is authorized to 1) approve, 2) approve with qualifications, 3) defer, or 4) deny this application based on the facts presented at the public hearing. The hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application.

The request for an automatic delay must be filed by April 24, 2000. If there is a request for an automatic delay, it is anticipated that a special board meeting will be held on May 24, 2000, to consider this application. Only those people who have filed a petition will receive future notice if a special meeting is scheduled.

Any hearing will be an adversary proceeding. Any person filing a petition and/or the applicant have the right to be represented by a lawyer and may present evidence or cross-examine witnesses according to SDCL 1-26. These and other due process rights will be forfeited if not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law. Contact Eric Gronlund by April 24, 2000, at the above Water Rights Program address to request copies of information pertaining to this application, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

Nettie H. Myers, Secretary
Department of Environment and Natural Resources
(April 5, 12, 2000)

TO: Eric Gronlund
Water Rights Program
Joe Foss Building
Pierre SD 57501-3181

No. FC-29

Date 4-5-00

We are in receipt of your letter of March 31, 2000, enclosing Notice of Hearing to Appropriate Water by Flood Control Permit No. FC-29 which was first published in our issue of April 5th, 2000. ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.

Monica Saathoff
Name

Watertown Public Opinion
Newspaper



April 14, 2000

Department of Environment and Natural Resources
Gale N. Selken P.E.
Natural Resources Engineer IV
Water Rights Program
523 East Capitol
Pierre SD 57501-3181

Re: Flood Control Application No. FC - 29

The Lake Pelican Water Project District asks for a continuance on the hearing of the flood control permit application by the City of Watertown, South Dakota; No. FC - 29

The information provided to Lake Pelican Water Project District in the 'Amendment and Executive Summary for Technological Memorandum No. 1'; by South Dakota Department of Environment and Natural Resources, is insufficient to determine the amount of the adverse affects (ie: increase of flood frequencies and sediment loading) on Lake Pelican and permit No. FC - 19.

Since neither the Lake Kampeska Water Project District or the City of Watertown have contacted Lake Pelican Water Project District, we ask that more data be provided to us and a hearing on the application occur no earlier than the July scheduled meeting. We would like our concerns addressed in time to review the pertinent information with our environmental engineers.

Respectfully submitted,

Julian L. Wick

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

29

Form 8



PROOF OF PUBLICATION

STATE OF SOUTH DAKOTA)
) SS
County of Codington)

I, Monica K. Saathoff

certify that the attached printed Notice was taken

from the Watertown Public Opinion

printed and published in Watertown

County of Codington a

state of South Dakota. The notice was publi

in the newspaper on the following two dates:

April 5th, 2000

April 12th, 2000

Cost of Printing 186.16

Monica Saathoff
(Signature)

Bookkeeper
(Title)

April 12th, 2000
(Date Signed)

WATERTOWN

NOTICE OF HEARING ON FLOOD CONTROL APPLICATION NO. FC-29

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Flood Control Application No. FC-29 request authorization to construct a weir and gate system located in the inlet/outlet channel between the Big Sioux River and Lake Kampeska in the NE 1/4 Section 15, T117N, R53W. The purpose of the project is to control the amount of sediment entering Lake Kampeska. The weir will have an overflow elevation of 1718.2 feet mean sea level (fmsl) and contain a fish passage weir with a flow elevation of 1715.0 fmsl. The weir will also include two control gates with a flow elevation of 1711.2 fmsl. An ordinary high water mark and outlet elevation for Lake Kampeska as previously established by the Water Management Board is 1718.3 and 1717.8 fmsl, respectively.

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- Normal operating criteria; or
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Pursuant to SDCL 46-2A-2, the Chief Engineer recommends DEFERRAL of Application No. FC-29 to allow the applicant to address concerns before the Water Management Board. The Chief Engineer may revise the recommendation prior to the hearing before the Water Management Board. There will not be future public notice if the Chief Engineer revises the recommendation prior to board hearing.

Any person interested in opposing or supporting the application must file a written petition with BOTH the applicant and Chief Engineer. The applicant must also file a petition if opposed to the Chief Engineer's recommendation. The Chief Engineer's address is "Water Rights Program, Foss Building, 523 E. Capitol, Pierre, SD 57501 (605-773-3352)" and the applicant's mailing address is given above. A petition filed by either an interested person or the applicant must be filed by April 24, 2000. The petition may be informal, but must include a statement describing the petitioner's interest in the application, the petitioner's reasons for opposing or supporting the application, and the signature and mailing address of the petitioner or the petitioner's legal counsel, if legal counsel is obtained.

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This application is made pursuant to SDCL 46-1-1 thru 46-1-9, 46-1-12 thru 46-1-16; 46-2-3.1, 46-2-9, 46-2-11, 46-2-13, 46-2-17; 46-2A-1 thru 46-2A-12, 46-2A-14, 46-2A-15, 46-2A-20, 46-2A-21; 46-5-1 thru 46-5-11, 46-5-13 thru 46-5-15, 46-5-24, 46-5-25, 46-5-30.2, 46-5-30.4, 46-5-31, 46-5-47, 46-5-48; and Board Rules ARSD 74:02:01:01 thru 74:02:01:15.

Nettie H. Myers, Secretary
Department of Environment and Natural Resources
(April 5, 12, 2000)

April 18, 2000



Garland Erbele, Chief Engineer
Water Rights Program
Foss Building
523 E. Capitol
Pierre SD 57501

Re: Flood Control Permit Application No. FC-29

Dear Sir:

I want to express my concern with the proposal in Flood Control Permit Application No. FC-29. My residence is located 2 miles north of Highway 20, just east off Sioux Conifer Road. Almost every spring there is flooding to the west of us around the city well fields, and in the recent high water years the flood water has spread east across Sioux Conifer Road. The flood water has affected several property owners in the area. I've attached a copy of an area map and circled the area affected.

I am completely in favor of reducing the sediment flow into Lake Kampeska and improving the water quality, and I sympathize with people at the lake who have experienced flooding. However, I ask that you consider the impact the proposed weir and gates will have on the property owners in the above-mentioned Sioux Conifer Road area. According to the statutory requirements for approving a flood control permit as stated in SDCL 46-2A-11, "a permit for flood control works may be issued only if the project will reduce the damage from flooding or erosion in the area proposed to be benefited, *the project will not increase the likelihood or severity of flood damages in areas other than the project area or the area proposed to be benefited, the project will not endanger human life or property* and the project will not impair existing water rights, except to the extent that such rights are extinguished or compensated through agreement or exercise of the power of eminent domain."

If Flood Control Permit Application No. FC-29 is approved, I ask that property owners in the Sioux Conifer Road area circled on the attached map be guaranteed that the weir and gate system will not increase the chance of flooding their properties. The other alternative it to develop a fair compensation agreement.

Please keep me informed of any actions or meetings concerning Flood Control Permit Application No. FC-29. Thank you.

Sincerely,

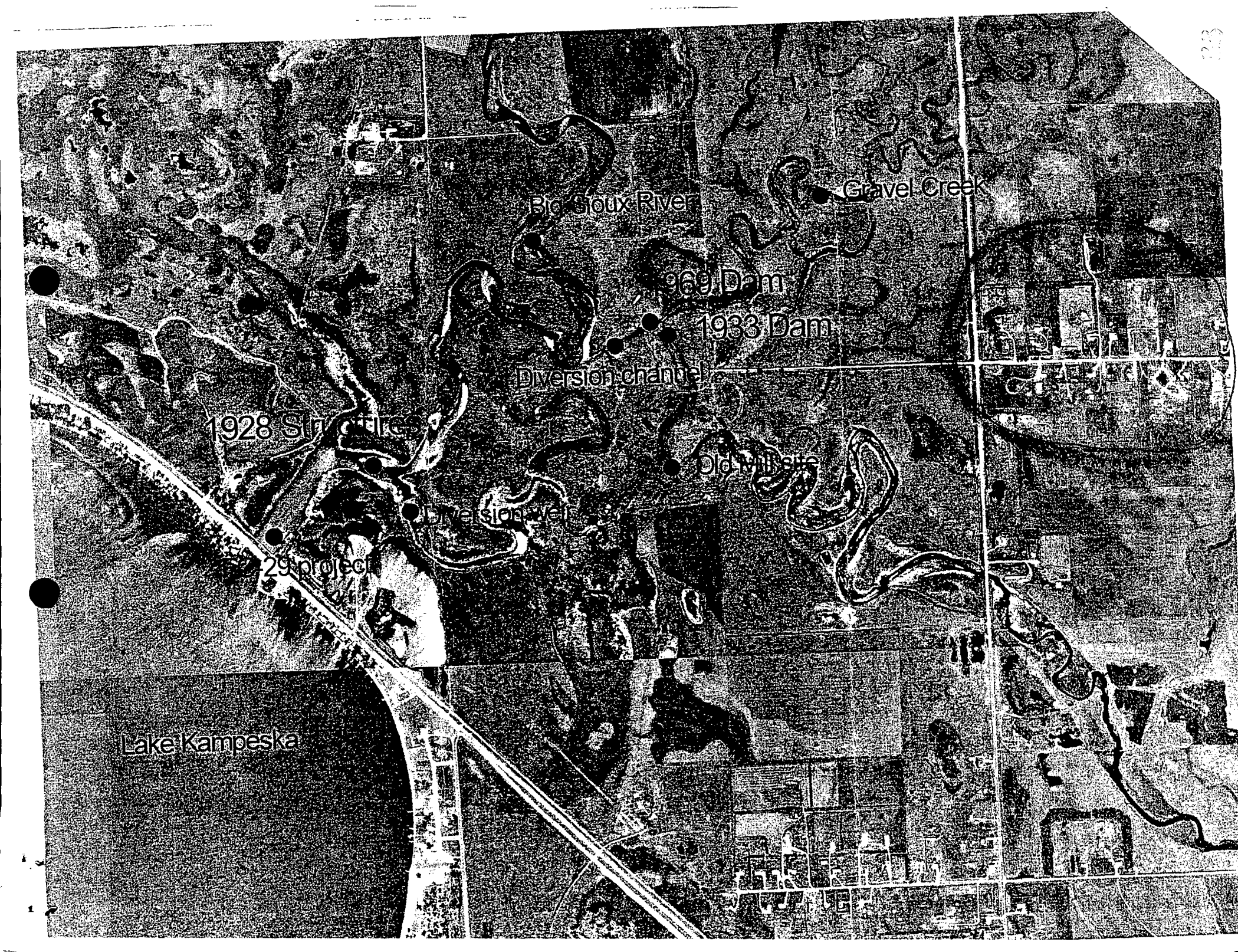
Kay Farris

Kay Farris
2003 38th Ave NW
Watertown SD 57201
605-882-1561 Home
605-884-3813 Work

cc: City of Watertown
c/o Richard L. Schlechter
PO Box 910
Watertown SD 57201

I, too, share the concerns expressed in the April 18, 2000 letter written by Kay Farris.

Susan M. Rieb 16792 Sioux Conifer Rd
Mark J Rieb 16792 Sioux Conifer Rd.
Judy Picht 1824 38th Ave NW
Larry Picht 1824 38th Ave NW
Hoagy Holmes 1725 38th Ave NW
Judy Rector 1729A 38th Ave. N.W.
Marge Swaboda 1730 38th Ave N.W
Bill Swaboda 1730 38th AVE N.W.
Charles I Rector 1729 38th Ave NW.
Troy Breitag 1729B 38 Ave NW
Karen Breitag 1729B 38th Ave NW


Big Sioux River
Gravel Creek
969 Dam
1933 Dam
Diversion channel
1928 Structure
Old Mill site
Diversion weir
29 project
Lake Kampeska

City of Castlewood

♦♦♦

P.O. Box 17 ♦ 204 East Main Street ♦ Castlewood, SD 57223
Phone 605-793-2220 ♦ Fax 605-793-1307



April 18, 2000

Water Rights Program
Chief Engineer
Foss Building
523 East Capitol
Pierre, SD 57501

City of Watertown
c/o Richard L. Schlechter
P.O. Box 910
Watertown, SD 57201

Dear Sirs:

The City of Castlewood would like to intervene on the application for a flood control permit for a weir at the inlet/outlet channel to Lake Kampeska. We would also like to present testimony concerning this application and be part of the hearing scheduled for the application.

Sincerely,

Rick Trupe

City of Castlewood
Rick Trupe, Mayor

RT/sg

PETITION

WE, THE UNDERSIGNED on behalf of the LAKE PELICAN WATER PROJECT DISTRICT submit this Petition in support of the recommendation of Garland Erbele, Chief Engineer of DENR that the hearing for project FC-29 be deferred to allow certain issues as to the project to be addressed.

The petitioners are interested parties, as the proposed project will impact transmission of water, and water quality of lakes and streams within the Lake Pelican Water Project District.

The petitioner supports the recommendation of the Chief Engineer for deferral as it is in the petitioner's belief that there are certain issues that need to be addressed prior to approval of the application

The mailing address of the petitioner is: 4002 – 20th Avenue, SW, Watertown, South Dakota 57201-7033.

Julian L. Wick

Julian Wick, Chairman of the Board
Lake Pelican Water Project District

Sworn to before me this 19th day of April, 2000.

Linda J. Miller

Signature of Officer Administering Oath

(Seal)

My commission expires 3-26-05

Notary Public

Title of Officer Administering Oath



April 14, 2000



Department of Environment and Natural Resources
Gale N. Selken P.E.
Natural Resources Engineer IV
Water Rights Program
523 East Capitol
Pierre SD 57501-3181

Re: Flood Control Application No. FC - 29

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The information provided to Lake Pelican Water Project District in the 'Amendment and Executive Summary for Technological Memorandum No. 1'; by South Dakota Department of Environment and Natural Resources, is insufficient to determine the amount of the adverse affects (ie: increase of flood frequencies and sediment loading) on Lake Pelican and permit No. FC - 19.

Since neither the Lake Kampeska Water Project District or the City of Watertown have contacted Lake Pelican Water Project District, we ask that more data be provided to us and a hearing on the application occur no earlier than the July scheduled meeting. We would like our concerns addressed in time to review the pertinent information with our environmental engineers.

Respectfully submitted,

Julian L. Wick

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown SD 57201-7033

April 20, 2000

HDR

Gale Selken
Division of Water Rights
SDDENR
Joe Foss Building
523 East Capitol Ave.
Pierre, SD 57501



RE: Big Sioux River/Lake Kampeska Diversion Project
Permitting Concerns with Application No. FC-29

Dear Mr. Selken:

This letter is to address the concerns with the permit application that you presented in your correspondence to Rick Schlechter on April 4th, 2000. We have restated your concerns in this response, in italics, with our response following.

Item No. 1 of the list of concerns states:
The proposed weir will be set 0.1 feet below Lake Kampeska's established ordinary high water mark of 1718.3 fmsl. The proposed project may impact Lake Kampeska by establishing a new high water mark and could affect private lands. The Water Management Board approved Flood Control Application No. FC-19 for the Lake Pelican Water District in 1996. Flood Control Permit FC-19 allowed construction of an inlet/outlet weir with the overflow elevation of 1712.25 fmsl, which is 2.05 feet over the established ordinary high water mark for Lake Pelican. The Board retained jurisdiction over the weir if there was flooding problems on Lake Pelican. In addition, Lake Pelican can re-establish the original channel from the lake and leave the weir in place. Since construction of the Lake Pelican weir, the Water Rights Program has received no complaints from landowners regarding the project.

As per our discussion, you had presented this as background information, and did not need a response from HDR.

Item No. 2 of the list of concerns states:
The "Amendment and Executive Summary for Technical Memorandum No. 1" submitted with the application states "There are a few low areas where the 2 and 10-year events exceed the channel capacity but these areas are mostly parkland or undeveloped." If these areas are privately owned, flood easements will need to be obtained before construction of the proposed project.

We have reviewed our files and the information provided by the Corps of Engineers to determine if additional information exists with respect to hydrology and hydraulics in the downstream reaches from the project. During the Pelican Weir study we found that the Corps of Engineers had modeled flows of 560 cfs and 820 cfs for extensive distances downstream of Willow Creek. This information is not available to HDR in detailed form. Their study was based on surveyed cross sections taken between 1 and 5 miles apart for reaches between Willow Creek and Brookings. The Corps of Engineers may be able to evaluate these sections and determine the extent of increased flooding, if any, resulting from the proposed project. However, we feel the wide section spacing will not add significantly to the understanding of downstream reaches.

We have reviewed data available to us for the reaches between Willow Creek and five miles north of Lake Kampeska, and have numerous sections in this study area. The reach between Willow Creek and Lake Kampeska provides the best indication of flow changes in the channel. As distance downstream increases, the flow contribution from this project will be attenuated or lessened with distance. In addition, increased drainage areas downstream will add additional flows from other sub-basins which will proportionately reduce the impact of flow changes. It can be generally assumed that channel capacities increase as one proceeds downstream.

We have prepared a number of exhibits that help visualize the impact of the increased water depths to the Big Sioux River channel. The Corps of Engineers had prepared a Frequency Analysis, for the Big Sioux River, in which they showed the change in flow based on pre-project conditions for a variety of recurrence intervals. We have prepared two graphs shown in Figure 1, which shows the flow change through Watertown (between Pelican Lake and Lake Kampeska) for all recurrence intervals between 0 and 10 years, and Figure 1B, which shows the flow change downstream of Pelican Lake. For the Lake Pelican to Lake Kampeska reach, shown in Figure 1, it appears that the maximum increase in flow is at about the 2 year recurrence interval at 657 cfs. The increase reduces to 0 at 1,200 cfs, which is currently equal to approximately the 6 year recurrence interval. For the reach below Pelican Lake, shown in Figure 1B, it appears that the maximum increase in flow is at about the 2 year recurrence at 594 cfs. The increase reduces to 0 at 801 cfs, which is approximately the 6 year recurrence interval. Figure 2 and Figure 2B show the same information plotted on the scale showing the 100 year recurrence interval to provide a perspective of other plausible flood events.

The extent of increased inundation due to these flows can be determined by evaluating available downstream sections between Lake Kampeska and Willow Creek. From the 1996 Pelican Weir study conducted by HDR Engineering, Inc. natural sections were plotted and rating curves calculated at the following sections:

- Section 364, located at the mouth of Willow Creek
- Section 10, located approximately 1200 ft downstream of U.S. Highway 81
- Section 14 located approximately 1200 ft. upstream of U.S. Highway 81
- Section 16, located just downstream of 20th Avenue (refer to Figures 3 to 10).

Rating curves were plotted showing the various low flows as well as the 50, 100, and 500 year flows as determined by the Corps of Engineers.

Additional sections were also plotted between Watertown and Lake Kampeska:

- Section 18, located between Broadway Ave. and the Big Sioux River weir
- Section 22, located at Hwy. 212 bridge
- Section 24, located at River Street bridge
- Section 30, located between RR bridge and 4th Ave. South
- Section 32, located at 4th Ave. South bridge
- Section 34, located between 4th Ave. South and NW RR bridge
- Section 36, located at Chicago and Northwest RR bridge
- Section 38, located at Kemp Ave. bridge
- Section 40, located between Kemp Ave. and 3rd Ave. North
- Section 42, located at 3rd Ave. North bridge
- Section 44, located between 3rd Ave. North and RR bridge
- Section 48, located between RR bridge and 10th Ave. North
- Section 50, located at 10th Ave. North bridge

Evaluation of these sections indicates that all flows in the range that may be impacted with the proposed project are essentially confined to the channel with the exception of four sections: Section 10, Section34, Section 40, and Section 44. Downstream of Pelican Lake Inlet/Outlet Channel, channel flows between 480 (existing 2 year event) and 801 cfs (6 year event – no additional impact) results in an increase in channel surface, topwidth, from 230 ft. to 360 ft at Section 10 (Figure 10). The maximum channel width increase for a given frequency occurs at the 2 year event with an increase in channel width of 20 feet. Upstream of Pelican Lake Inlet/Outlet Channel, channel flows between 530 (existing 2 year event) and 1200 cfs (6 year event – no additional impact) results in an increase in channel surface from 284 ft to 500 ft at Section 34 (Figure 19), and from 220 ft to 552 ft at Section 40 (Figure 22), and from 144 ft to 440 ft at Section 44 (Figure 24). Of the 17 sections studied, 4 indicate an increase in channel width. The width increases range from 20 ft to 120 ft. for the range of flows studied. These areas will experience inundation at an increased

frequency if the proposed weir is constructed. The three sections upstream of Pelican Lake that experience an increase in channel width occur within property owned by the City of Watertown. The fourth section, downstream of Lake Pelican, was also noted as being impacted in the Lake Pelican permitting process.

Based on these sample sections the impacts of the proposed weir have been well identified. The frequency of a given flow between 0 and 1200 cfs will become more frequent, varying between 0 and 1 year more frequent. Figure 1 shows that the shift in frequency between Pelican Lake and Lake Kampeska is greatest (less than 1 year) between the 3 year and 4 year events. Maximum increase in flow impact will be approximately 114 cfs at approximately the 2 year recurrence interval.

It should be noted that the recurrence intervals used here are for the current channel condition, with the Big Sioux River weir, near Lake Kampeska Inlet/Outlet channel, in operation.

The existing Big Sioux weir was constructed to maintain a minimum water surface elevation in Lake Kampeska during drought periods. A secondary benefit of the existing weir was reduced flooding in the downstream reaches for all frequencies of events. A negative impact of the existing Big Sioux River weir was to cause sedimentation and water quality problems in Lake Kampeska. The proposed Lake Kampeska weir project is intended to reduce the negative impact of sedimentation and water quality deterioration by excluding only the low flows from the Big Sioux River. With the proposed project flows higher than 400 cfs begin to overtop the Lake Kampeska weir. The flow exchange between the Big Sioux River and Lake Kampeska will return to the Pre-project Condition at approximately the 6 year event, meaning that the 1,200 cfs event will continue to be diverted into Lake Kampeska retaining the flow reduction benefits of the existing Big Sioux River weir.

Item No. 3:
Reducing the flow capacity through the inlet/outlet with the use of the weir and gates could cause wind/wave damage by holding lake levels higher for longer periods of time. The "Amendment and Executive Summary for Technical Memorandum No. 1" references the U.S. Army Corps of Engineers report "Feasibility Report and Environmental Assessment Flood Control for Watertown and Vicinity, South Dakota August 1994. The Corps report on page 51 figure 18 shows a two year wind setup and wave run-up elevation of at least 1.1 feet at still pool (1717.8 fmsl). The Executive Summary states "Local interests indicated that problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above normal lake elevation of 1717.8 fmsl." This is a direct contradiction to the Corps report and needs to be resolved.

The statement addressed in the Executive Summary "*Local interests indicated that the problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above the normal lake elevation of 1717.8 fmsl*" can be found on page 65 of the Corps report "Feasibility Report and Environmental Assessment Flood Control for Watertown and Vicinity, South Dakota August 1994". The report goes on to say "Thus, wind-wave effects on Lake Kampeska flood stages is only applied if the lake exceeds elevation 1719.0 m.s.l.". Figure 26, page 66, of the same report shows the Stage-Damage Curve for Lake Kampeska Still Pool Elevations.

The proposed weir elevation has been established 0.8 feet below the elevation, defined by the Corps of Engineers, that damage occurs from wave-wind action. In order for the lake level to rise to 1719.0 m.s.l. the stage of the Big Sioux River would have to be at or greater than 1719.0 m.s.l. At this elevation the weir would have been submerged, having no impact on the lake elevation. As the stage of the Big Sioux River decreases the lake would drain at the same rate as it does under the existing condition until the river stage reaches the elevation of the top of the weir, elevation 1718.2. At this point the lake would drain at a rate allowed by the flow over the weir and through the gates.

Internal drainage alone can not cause the lake level to rise to 1719.0. The river stage would have to be above the top of the weir, submerging the weir. At a lake elevation of 1719.0 the storage volume of the lake above the normal lake level (1717.8 m.s.l.) is 5,760 acre-feet, assuming no flow is allowed leave the lake over the weir or through the gates. The flow from a 500-year event within the basin, over a 24 hour

period, produces a volume of 5,031 acre-feet. Again this assumes no flow is allowed to leave the lake over the weir or through the gates. This would not be the case unless the stage of the river was at the same elevation, submerging the weir (acting under the condition that exists today).

Looking at the scenario of the lake level, prior to the internal flood event, being at the top of the weir (1718.2 m.s.l.) the available storage volume in the lake, between elevation 1718.2 and 1719.0, would be 3,840 acre-feet. This available storage is greater than the volume produced from a 100-year event, 3,136 acre-feet, occurring over a 24 hour period. Again, this assumes no flow is leaving the lake.

Item No. 4:
Although the purpose of Application No. FC-29 is to reduce sediment into Lake Kampeska; there is very little documentation in the Executive Summary or in the original report by HDR Engineering Inc concerning the benefits. The original report page 18 states "Therefore, for comparison purposes only, the sediment load diverted from the lake is based on a constant peak discharge." The report gives an amount of the sediment moved downstream but does not reference how this sediment load would affect the existing Flood Control Permit No. FC-19 for Lake Pelican. The report does indicate that the flood frequency would be increased from a 2-year frequency to a 1.3-year event and the 8-year recurrence interval would be increased to a 5.5-year event. The increase of the flood frequencies may have a corresponding increase in sediment loading.

There has been very little information available that could be used to accurately quantify the amount of sediment that would be diverted with the construction of the proposed weir. The "Upper Big Sioux River Hydrology" report, dated June 1998, refers to sampling suspended sediment and estimating the total sediment load occurring to Lake Kampeska in a certain time period. From page 3 of the report:

> "During the flood, James Hanson and the author *(Jack R Little)* collected five suspended sediment samples at the Lake Kampeska Inlet/Outlet gage. The concentrations found in the water flowing into the lake ranged from 50-98 milligrams per liter; and for the water flowing out ranged from 14-18 milligrams per Liter. Using these data and the streamflow data from the Inlet/Outlet gage it is estimated that 35,500 tons of sediment were carried into and 6,700 tons of sediment were carried out of Lake Kampeska during the 1997 water year. For the period of record, October 1, 1993 to September 30, 1997, at the Inlet/Outlet gage; 71,200 tons of sediment have been carried into the lake, and 9,500 tons have been carried back out. Also, it is estimated that 36% of the sediment was carried into the lake during the 62% of the time when the flow varied between zero and 1,490 cfs; and 64% of the sediment was carried into the lake during the 0.6% of the time when the flow exceeded 1,490 cfs."

Quantifying the actual amount of sediment diverted requires an extensive sedimentation transport study and would be a significant undertaking. We do believe that the amount of sediment transported would be somewhat proportional to the amount of flow. Therefore, in addressing the impacts to Flood Control Permit No. FC-19 for Lake Pelican, due to sediment load transfer, we believe that examining the flow interaction between Lake Kampeska, Big Sioux River, and Pelican Lake indicates that impacts are negligible.

The Big Sioux River/Lake Kampeska/Pelican Lake system is shown in Figure 26 along with three tables:

1. Flow interaction between the Big Sioux River, Lake Kampeska, and Pelican Lake prior to the construction of the Pelican Lake weir.
2. Flow interaction between the Big Sioux River, Lake Kampeska, and Pelican Lake after the construction of the Pelican Lake weir.
3. Flow interaction between the Big Sioux River, Lake Kampeska, and Pelican Lake after the construction of the Lake Kampeska weir.

Analysis shows that flows greater than 6 year events has no impact on the Pelican Lake (no flow increase into the lake). Comparing the tables for "Flow Interaction after Construction of the Pelican Weir" verses "Flow Interaction after Construction of the Lake Kampeska Weir" indicates that the construction of the

Lake Kampeska weir increases flow into Pelican Lake for 2 year and 4 year event by 13 cfs and 5 cfs, respectively. These increases are minor when compared to the 230 cfs and 305 cfs reduction that the Pelican weir attained for these two flow events. The additional amount of sediment transported into Pelican Lake from an increase of 13 cfs would be negligible.

Construction of the Lake Kampeska weir provides the biggest benefit to Lake Kampeska for flow events at or less than the 2 year event. The weir would reduce flow into the lake by 127 cfs for the 2 year event and would divert all flow events less than 400 cfs occurring in the Big Sioux River.

While construction of the Kampeska weir causes a small increase in flow to Pelican Lake for the 2 year and 4 year events, the amount of sediment transported into the lake from the increase would be negligible. Therefore, while Lake Kampeska realizes a benefit from the construction of its inlet/outlet weir, the weir causes no significant impact on Pelican Lake.

Item No. 5:
The Amendment and Executive Summary attempted to address the internal flooding from the 28.8 square mile drainage area disregarding flow contributions from the Big Sioux River. The Summary used a 24-hour period for inflows, outflows and lake accumulations. There should be a reservoir routing for various recurrence interval storms to determine impacts to Lake Kampeska's water level. In addition the analysis in the Summary uses 1717.8 fmsl for the river elevation while there is a 25, 50, 100 event in the Lake Kampeska internal drainage. The river stages will probably not be at 1717.8 fmsl or no discharge when the various frequencies storms are in the adjacent drainage areas.

In order to conduct reservoir routing analysis a hydrology study would need to be conducted for the Lake Kampeska inner-basin to develop a hydrograph for the basin. The time or resources is not available for this type of analysis and therefore a worst-case scenario will be examined and discussed below.

In establishing coincidental occurrence of flow events between the Big Sioux River and Lake Kampeska an area ratio method was used. For the case of a tributary stream (Lake Kampeska Inlet/Outlet), its relative independence may be qualitatively evaluated by a comparison of its drainage area with that of the mainstream, that being the Big Sioux River. A short duration storm which causes peak discharge on a small basin may not be critical for a larger basin. Also, it may safely be assumed that if the same storm causes peak discharges on both basins, the peaks will be out of phase.

As an aid to the evaluation of joint probabilities, the following criteria was used:

	Frequencies for Coincidental Occurrence			
Area Ratio	10-year Design		100-year Design	
	Main Stream	Tributary	Main Stream	Tributary
10,000 to 1	1	10	2	100
	10	1	100	2
1,000 to 1	2	10	10	100
	10	2	100	10
100 to 1	5	10	25	100
	10	5	100	25
10 to 1	10	10	50	100
	10	10	100	50
1 to 1	10	10	100	100
	10	10	100	100

The design frequencies suggested in the table above represents the extreme combinations of frequencies for each event.

The Lake Kampeska basin is 28.8 square miles and the Corps report "Flood Control for Watertown and Vicinity – August 1994, page 8" lists the Big Sioux River drainage area upstream of Watertown as being 510 square miles. This gives an area ratio of 17.7 to 1 and therefore the 10 to 1 criteria ratio would apply. This indicates that a 2 year flow event in the Big Sioux River basin occurs at the same time that a 2 year event occurs in the Lake Kampeska basin and 25 year event in the Big Sioux River basin occurs concurrently with a 25 year in the lake basin.

Recurrence Interval: Coincidental 2-year events
The 2 year event on the Big Sioux River produces a stage of 1718.74, which is 0.54 feet above the crest of the proposed Lake Kampeska weir. This produces an inflow into the lake, over the weir, of 405 cfs. At this flow rate it would take 57 hours to raise the level of the lake from 1717.8 to the crest of the weir. This seems to be an excessive duration, 57 hours, but without a 2 year hydrograph for the Big Sioux River for this analysis we will assume that this will occur.

A 2 year event in the lake basin produces a peak flow of 118 cfs. Without a hydrology study the shape of a 2 year hydrograph can not be determined. It is not known if the peak flow last only a few minutes or a few hours. To be conservative a peak flow duration of 24 hour will be assumed. This assumption would produce a flow volume of 234.05 acre-feet and cause a rise in the lake level (with no flow leaving the lake) of only 0.05 feet. The maximum lake level would be obtained if the end of the 24 hour period coincides with the end of the 57 hour duration period. This would produce a lake level of 1718.25. If the stage in the river settled to the elevation equivalent to the crest of the weir at the end of the 57 hours the lake level would lower from 1718.25 to 1718.2 in approximately 47 hours. This is an average outflow of 60 cfs which is greater than that indicated in Figure 7 of the Corps report. It takes 22 of the 47 hours to fall from 1718.21 to 1718.20 (equilibrium between the lake and the river).

Inner Basin Flow Events For the 5, 10, and 25-year events
Submergence of the weir occurs in less then 24 hours for flood events on the Big Sioux River with a recurrence intervals in excess of the 2 year event. The 10 year event on the Big Sioux River produces a stage of approximately 1719.67, which is 1.47 feet above the crest of the proposed Lake Kampeska weir. The weir has an overflow capacity of 2473 cfs in an unsubmerged condition. At this stage it would only take 9 hours to raise the level of the lake from 1717.8 to 1718.2. Once the weir becomes submerged the interaction between the lake and the river would return to its pre-project condition. The weir would not have an influence over the exchange of flow between the lake and the river while in the submerged condition. As the river stage decreases the lake level would begin to drain at the same rate it does under the existing conditions until the river stage reaches the top of the weir.

In order to examine what effects the weir would have on letting inner basin flows pass the weir structure the river stage was set to equal the weir crest. This analysis was conducted for the 2, 5, 10, and 25 year storm events occurring in the Lake Kampeska basin. Again, if the same recurrence interval was used for the Big Sioux River the weir would become submerged in less than 24 hours for those intervals of 5, 10, and 25 years, and the system would return to the existing operating conditions.

The table below shows the total volume produced by the event, the lake level if no discharge through the weir were to occur, total discharge volume through gates and over weir, total runoff volume within the lake, and the lake level with discharge over the weir and through the gates.

Recurrence Interval	Peak Flow (cfs)	Total Storm Vol. (acre-feet)	Lake Level Without Discharge	Max. Discharge Weir/Gate (cfs)	Vol. Discharged Through Structure (acre-feet)	Total Vol. Stored in Lake (acre-feet)	Lake Level with Discharge
2 year	118	234	1718.25	85	125	109	1718.22
5 year	338	670	1718.34	15	255	416	1718.29
10 year	554	1099	1718.43	357	386	713	1718.35
25 year	908	1801	1718.58	418	527	1274	1718.47

Analysis shows that the maximum lake level that would occur under these conditions is 1718.58 if no discharge was allowed passed the weir structure and 1718.47 if discharge were allowed to occur. The following tables indicates how long it would take to lower the lake level to the crest of the weir (equivalent with the river stage).

2-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.22	3.56	81.79	85.35	0.0020	109.1	
1718.21	1.02	53.93	54.95	0.0013	50.22	10.16
1718.2	0	0	0	0.0000	0	22.12
					Total Time =	32.27

5-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.29	26.19	159.06	185.25	0.0043	415.76	
1718.28	22.66	151.57	174.23	0.0040	376.87	2.62
1718.27	18.9	142.68	161.58	0.0037	335.23	3.00
1718.26	15.37	133.19	148.56	0.0034	290.42	3.50
1718.25	11.41	120.59	132	0.0030	242.1	4.17
1718.24	8.16	107.86	116.02	0.0027	189.72	5.11
1718.23	5.84	96.47	102.31	0.0023	152.48	4.13
1718.22	2.67	74.33	77	0.0018	92.04	8.16
1718.21	1.02	53.93	54.95	0.0013	48.15	8.05
1718.2	0	0	0	0.0000	0	21.21
					Total Time =	59.93

10-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.35	58.1	207.46	265.56	0.0061	712.59	
1718.3	32.27	170.53	202.8	0.0047	480.46	11.99
1718.25	10.73	118.15	128.88	0.0030	228.19	18.41
1718.2	0	0	0	0.0000	0	42.85
					Total Time	73.25

25-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.47	140	278.13	418.13	0.0096	1274.66	
1718.4	92.65	242.38	335.03	0.0077	970.92	9.76
1718.35	59.88	209.56	269.44	0.0062	723.52	9.90
1718.3	34.72	174.75	209.47	0.0048	505.15	11.03
1718.25	13.16	126.47	139.63	0.0032	266.03	16.58
1718.21	1.87	66.05	67.92	0.0016	69.43	22.92
1718.2	0	0	0	0.0000	0	24.74
					Total Time	75.27

The August 1994 U.S. Army Corps of Engineers report "Flood Control for Watertown and Vicinity" on page 37, Figure 5, shows the Big Sioux River and Lake Kampeska relationship between stage and flow. This figure has been renumbered as Figure 27 and is included with this letter. The figure was based on Kampeska datum. In order to convert it to Mean Sea Level the stages must be reduced by 2.5 feet.

Figure 27 indicates that it takes a stage difference of 1 foot difference for the flow out of Lake Kampeska to reach 100 cfs and a difference of 3 feet for outflow to reach 2,000 cfs. The weir structure allows 130 cfs to pass through the gates and over the weir with only 0.1 feet of head difference and 6,200 cfs to pass with 3 feet head difference. This indicates that the weir does not negatively impact outflow from the lake.

Thank you for providing your concerns and allowing us to address them. If you have any questions feel free to call Jerry Stevens or me at this office.

Sincerely

Allan D. Erickson, P.E.
Project Manager
aerickso@hdrinc.com

Jerry L. Stevens, P.E.
Hydraulics Engineer
jstevens@hdrinc.com

Attachments

cc: Rick Schlechter - City of Watertown
File

Figure 1 - Big Sioux River Discharge Frequency Relationship between Pelican Lake and Lake Kampeska

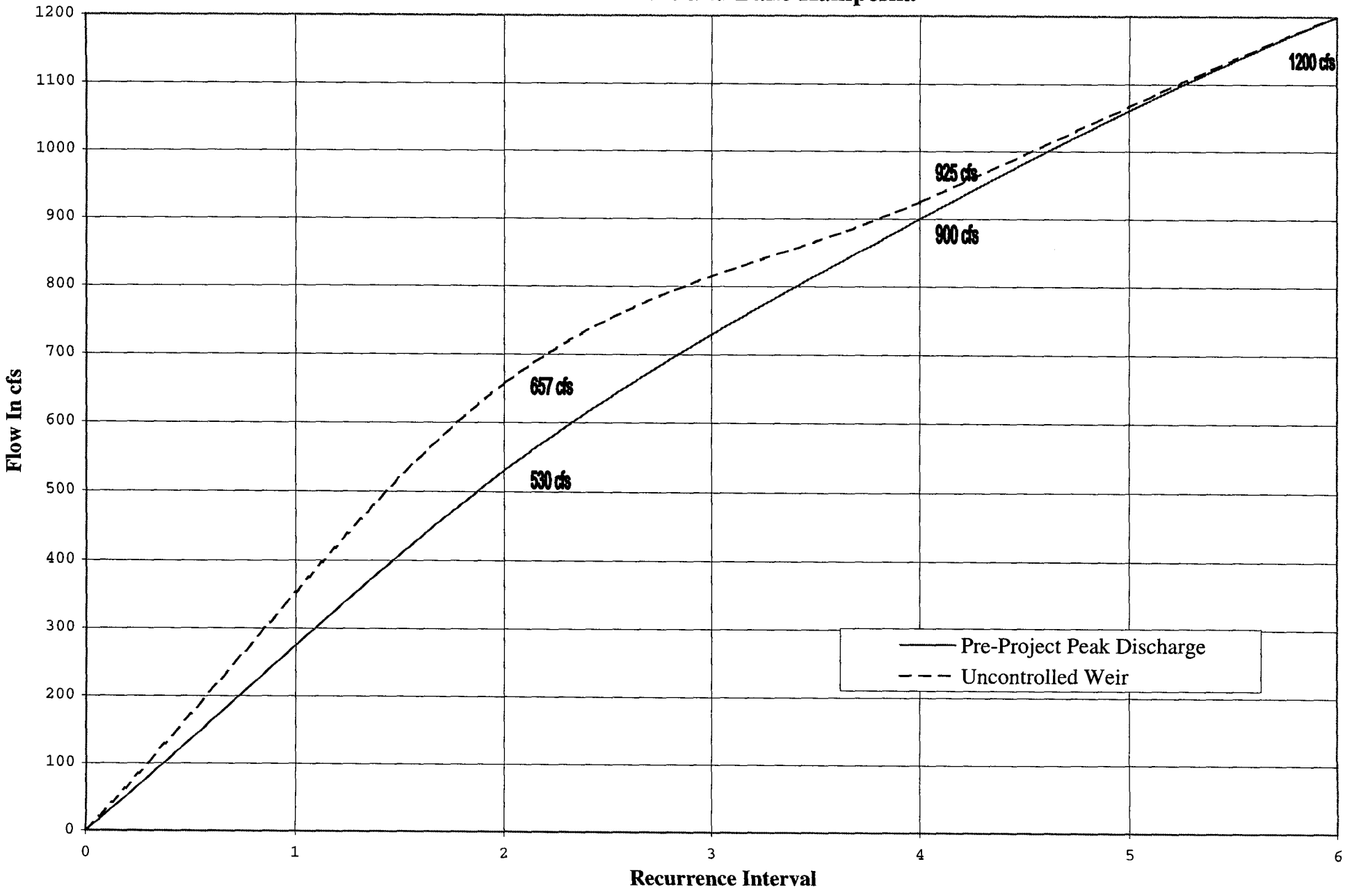


Figure 1B - Big Sioux River Discharge Frequency Relationship Downstream from Pelican Lake

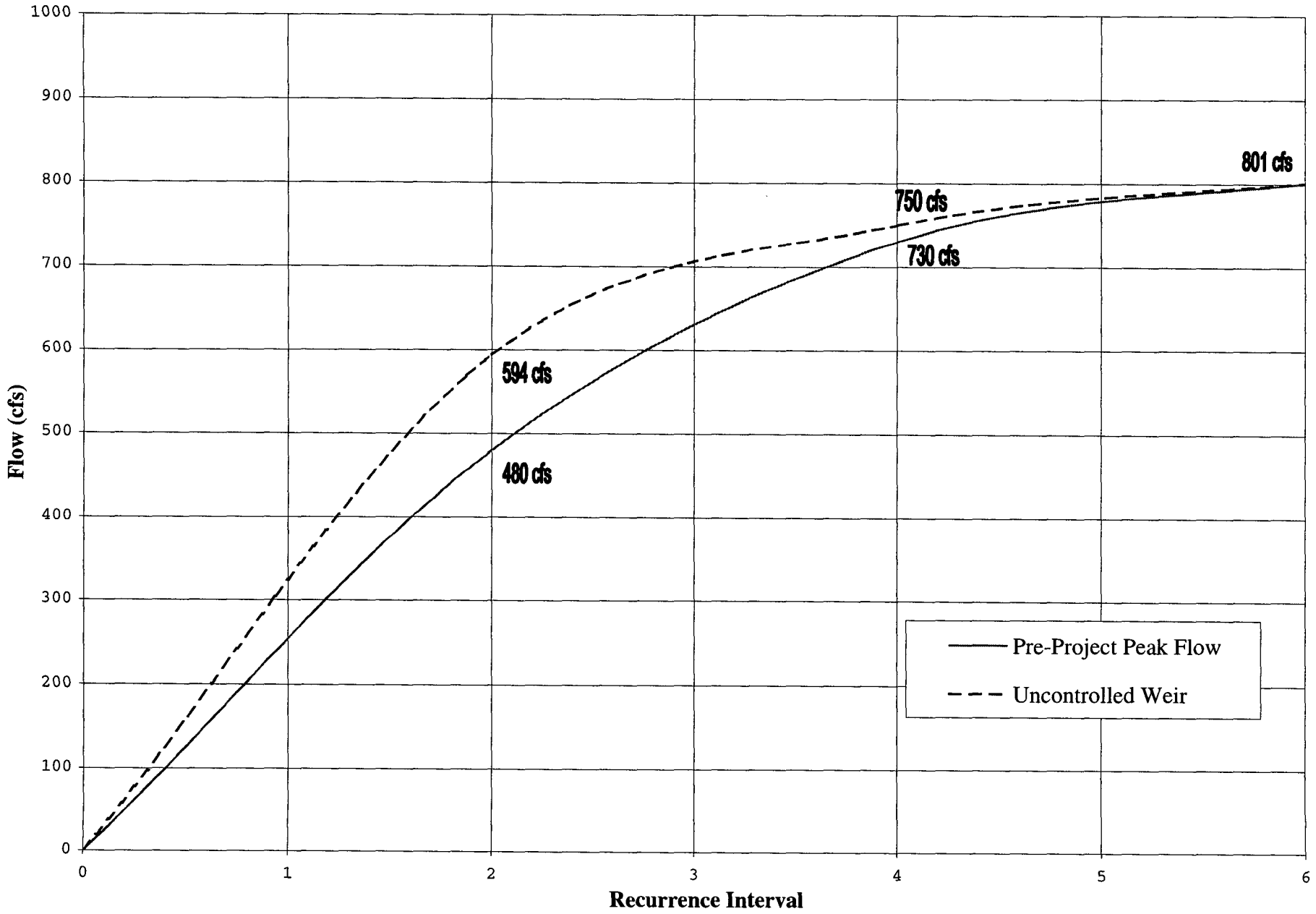


Figure 2 - Big Sioux River Discharge Frequency Relationship between Pelican Lake and Lake Kampeska

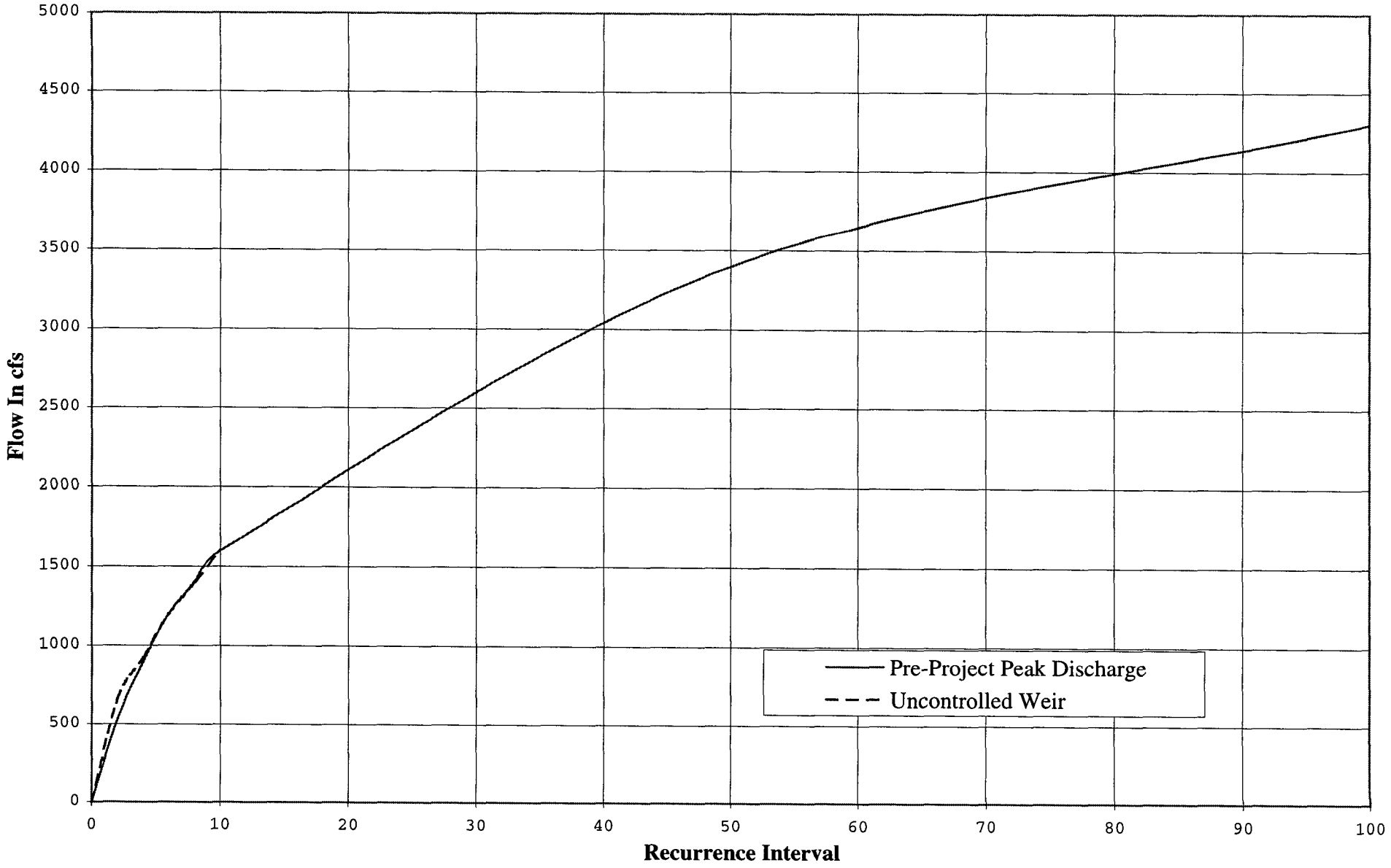


Figure 2B - Big Sioux River Discharge Frequency Relationship Downstream from Pelican Lake

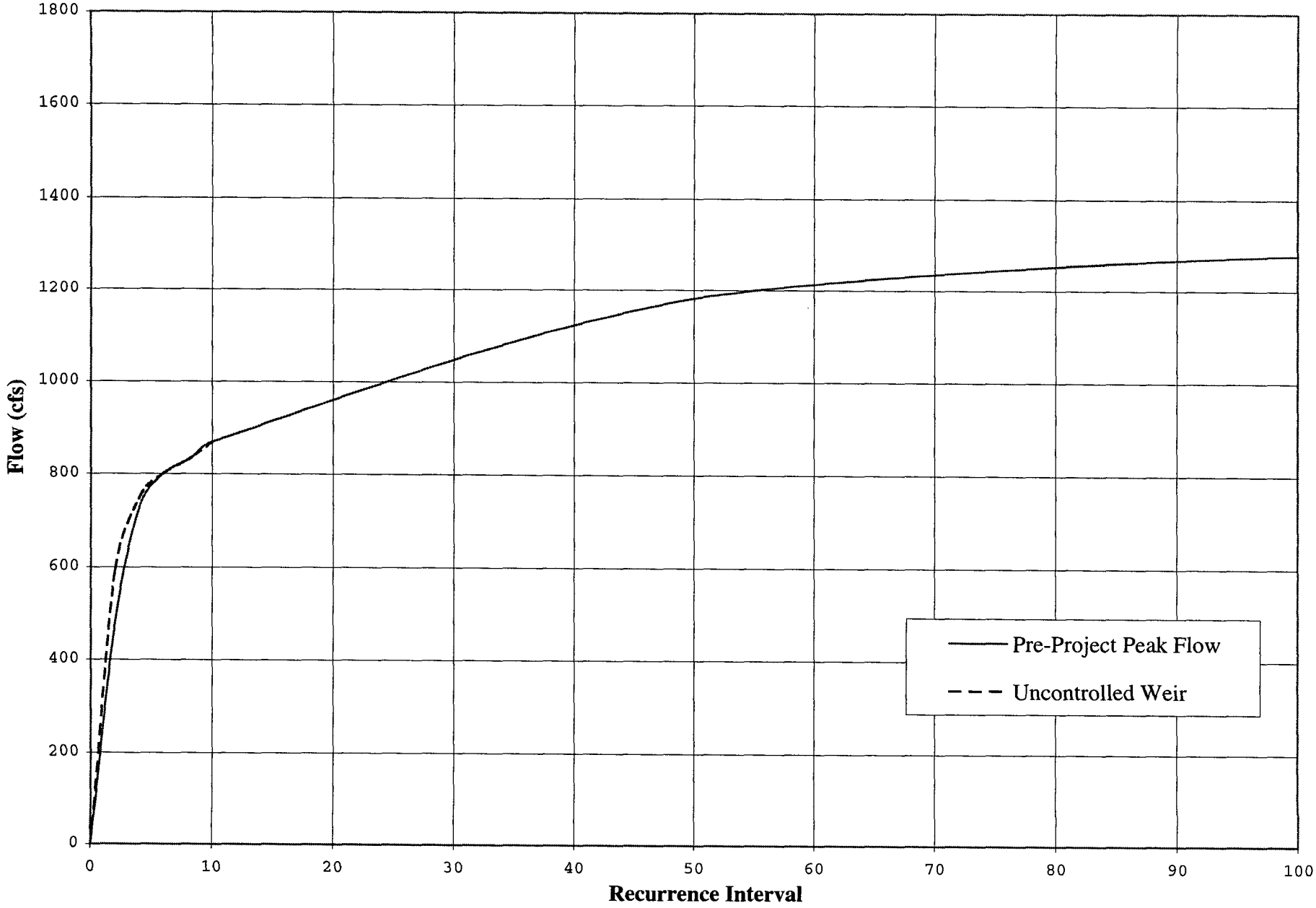
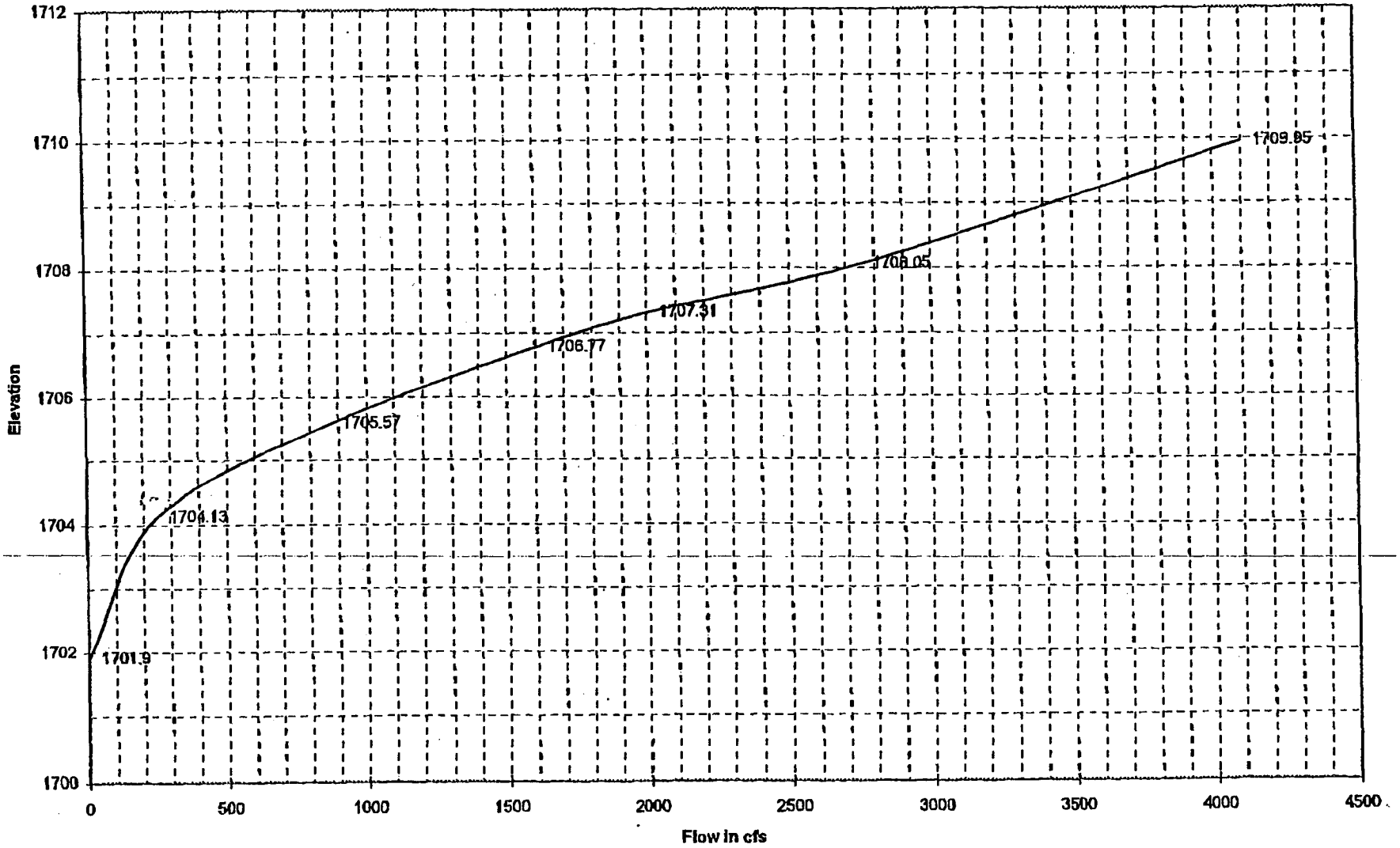


Figure 3

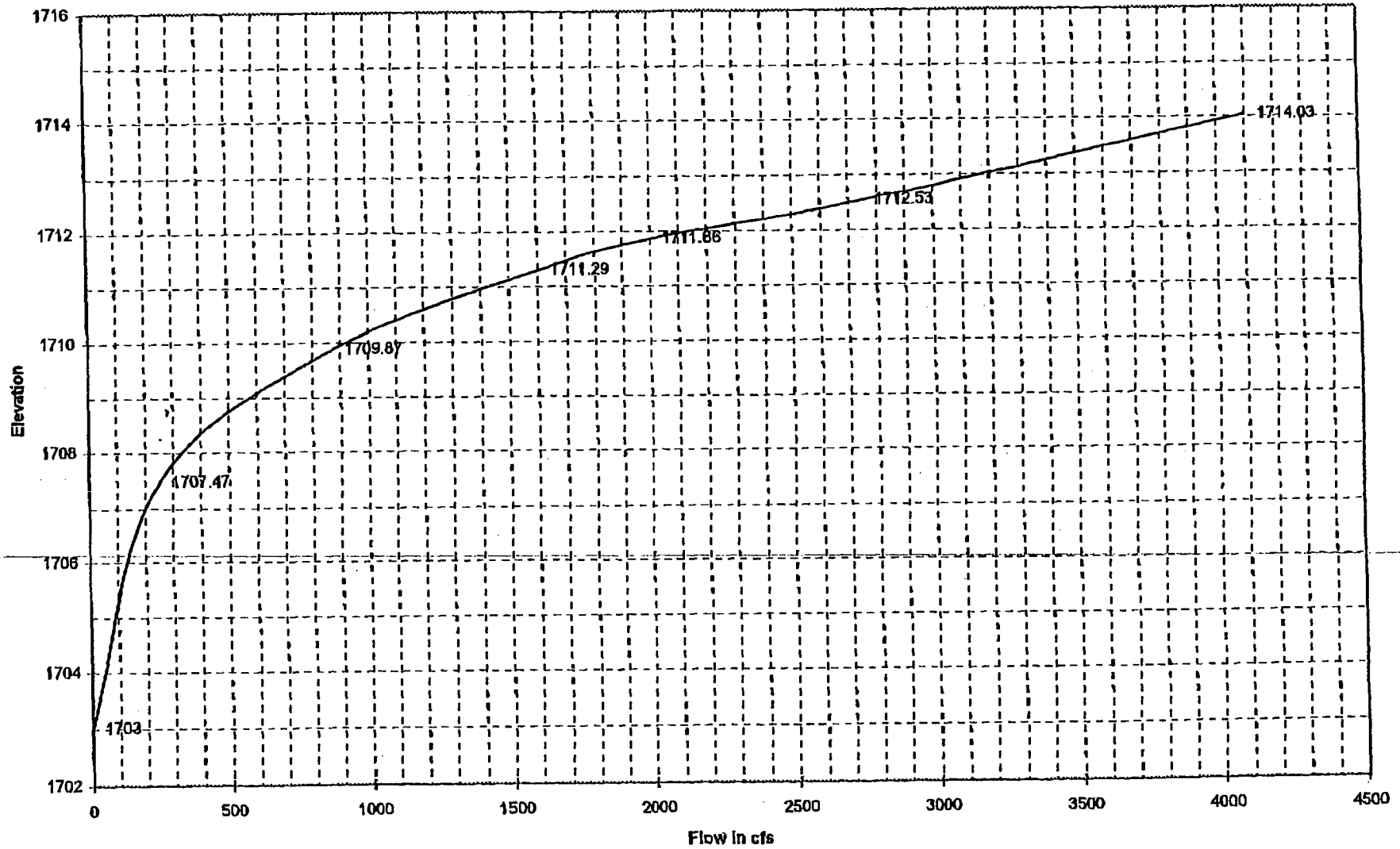
Channel Rating Curve Section 364



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Figure 4

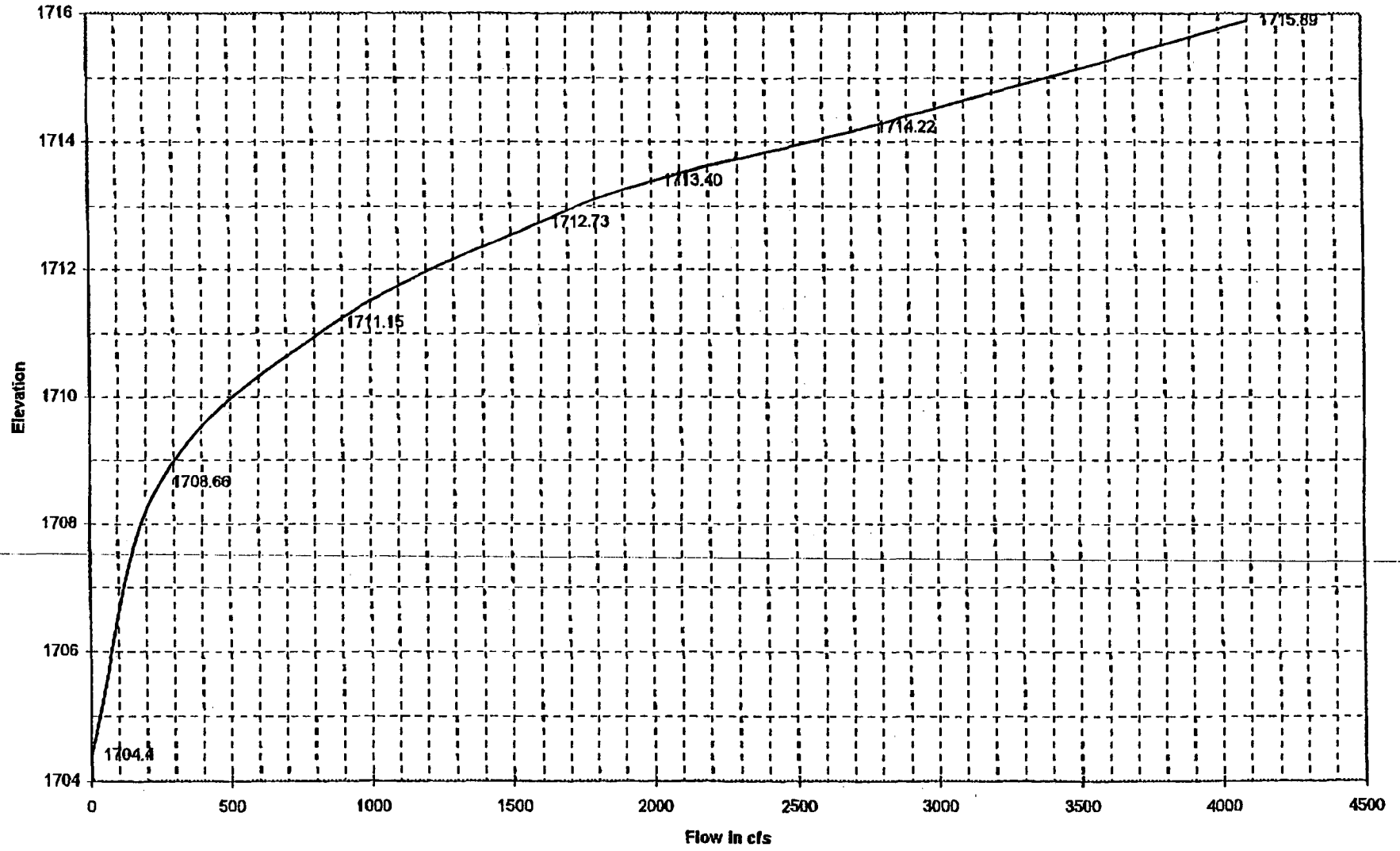
Channel Rating Curve Section 10



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Figure 5

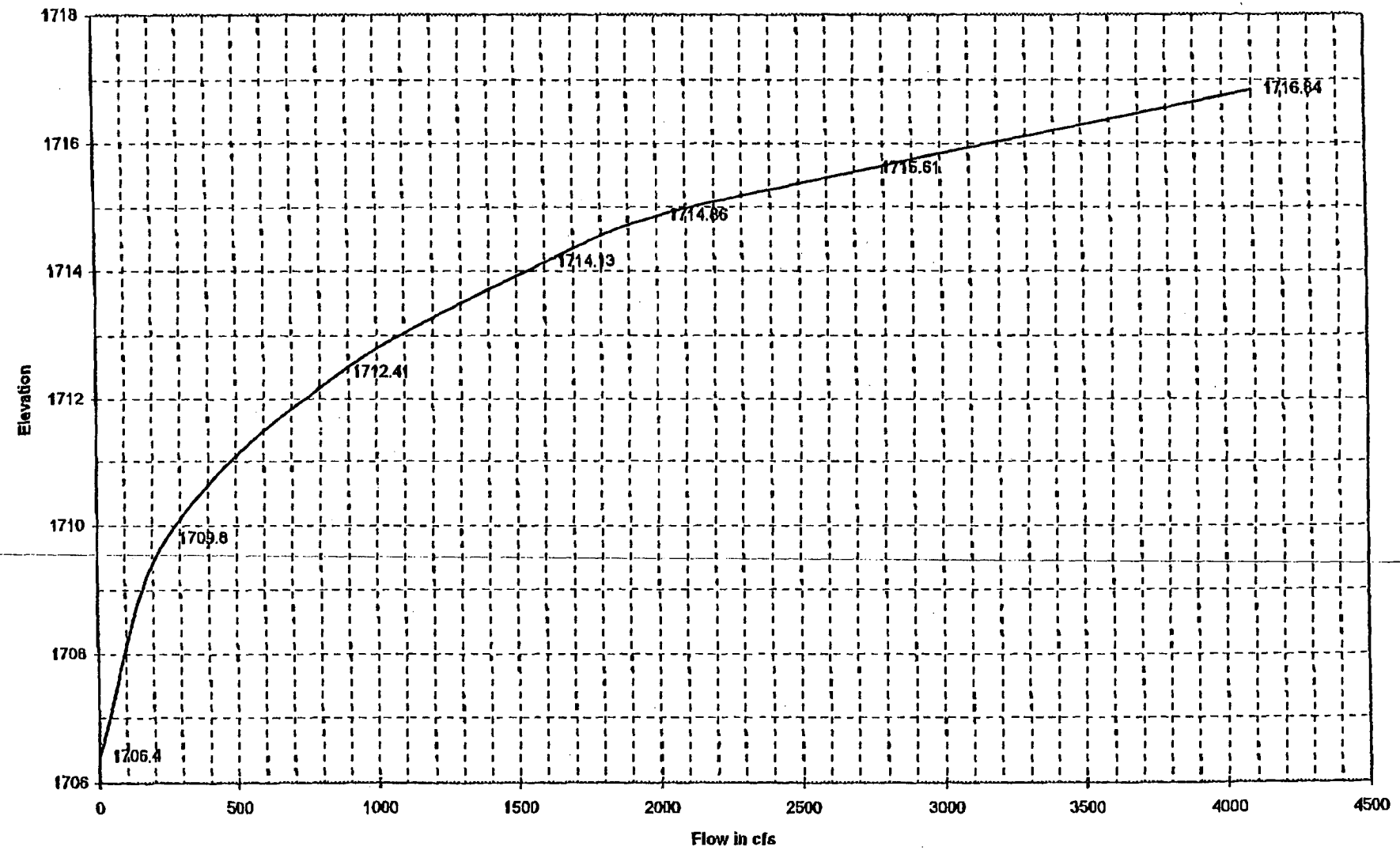
Channel Rating Curve Section 14



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Figure 6

Channel Rating Curve Section 16



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Figure 7 - Cross Section 364.1

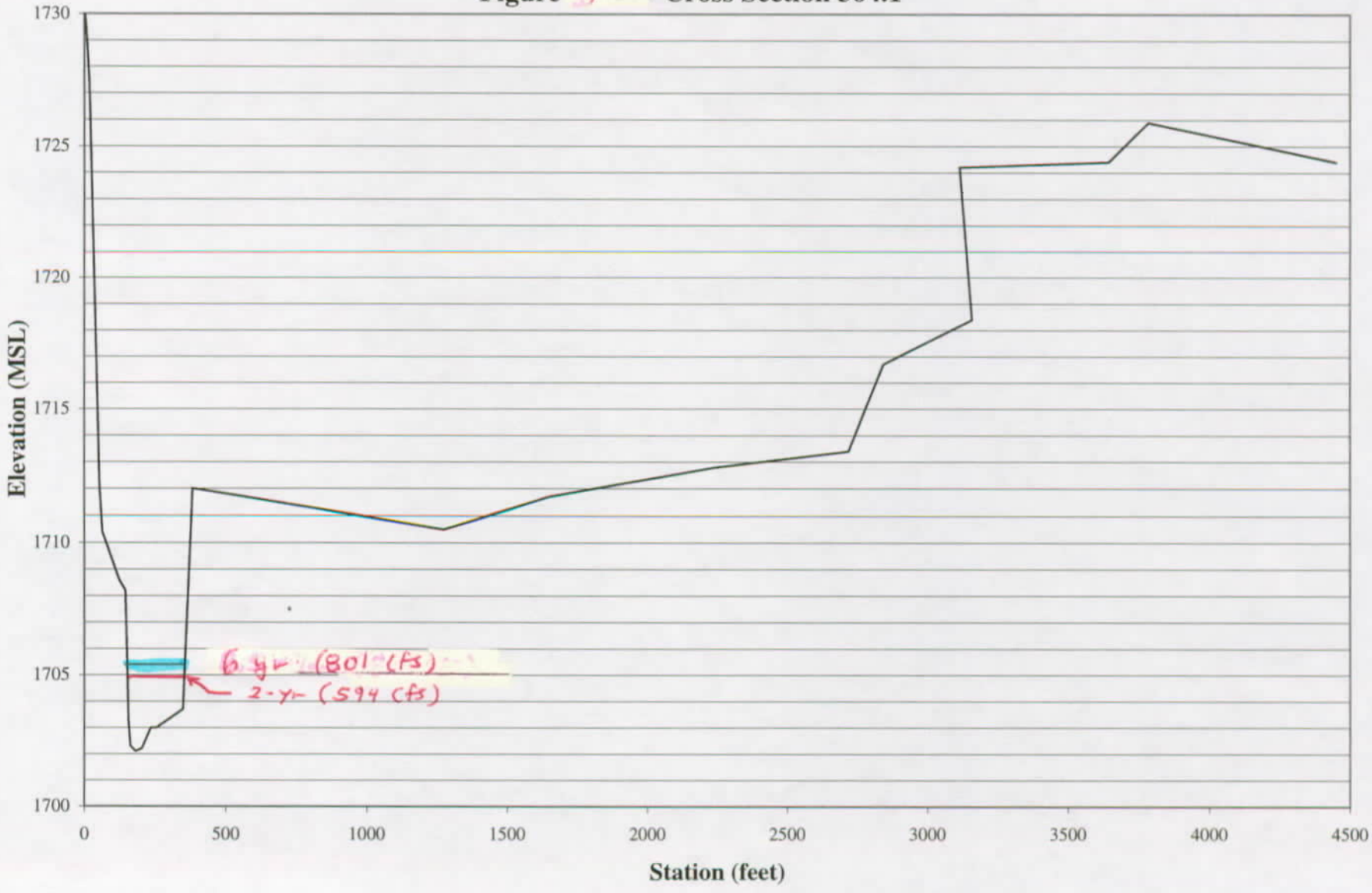


Figure 8 - Section 365

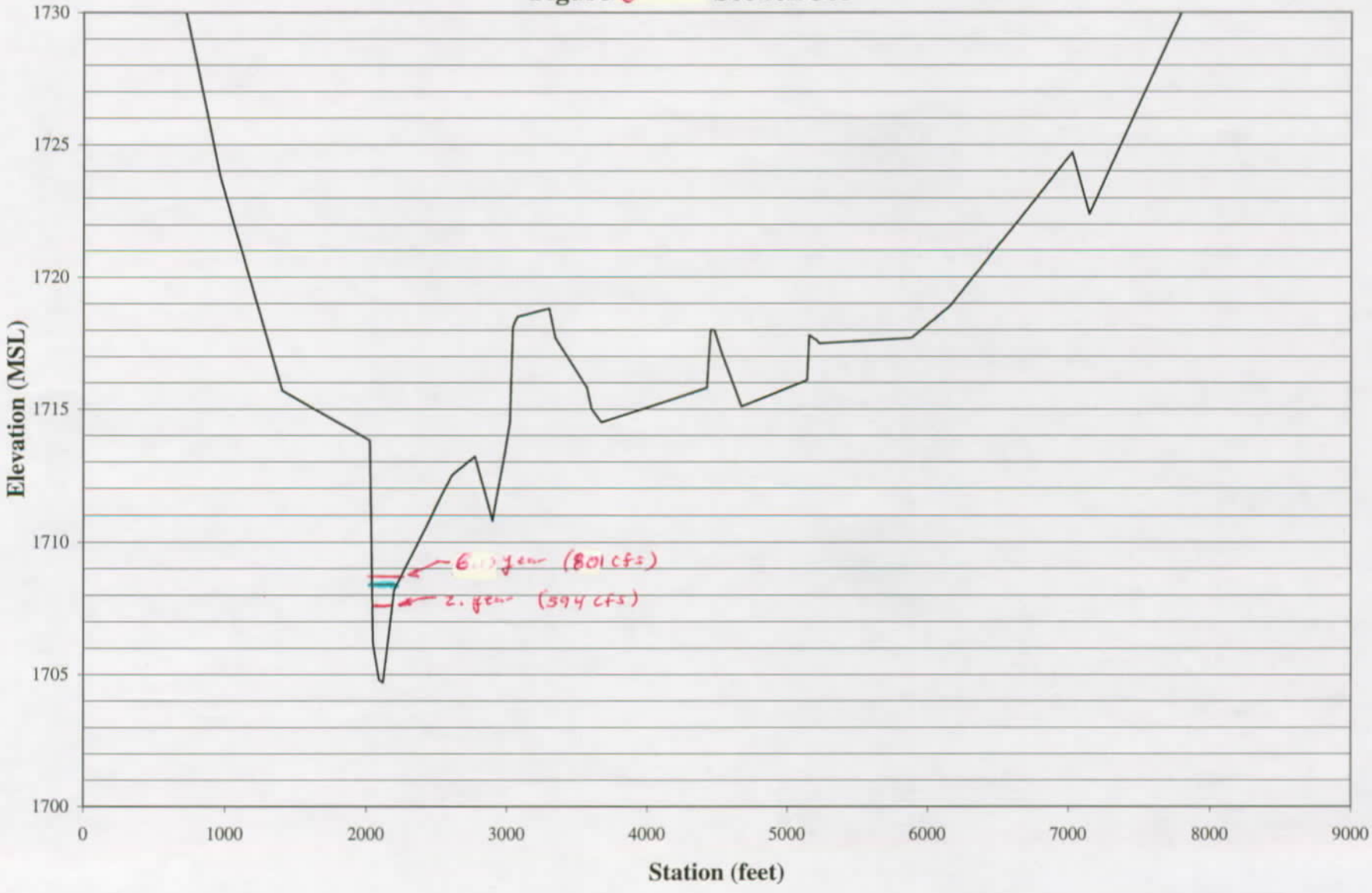


Figure 9 - Cross Section 8

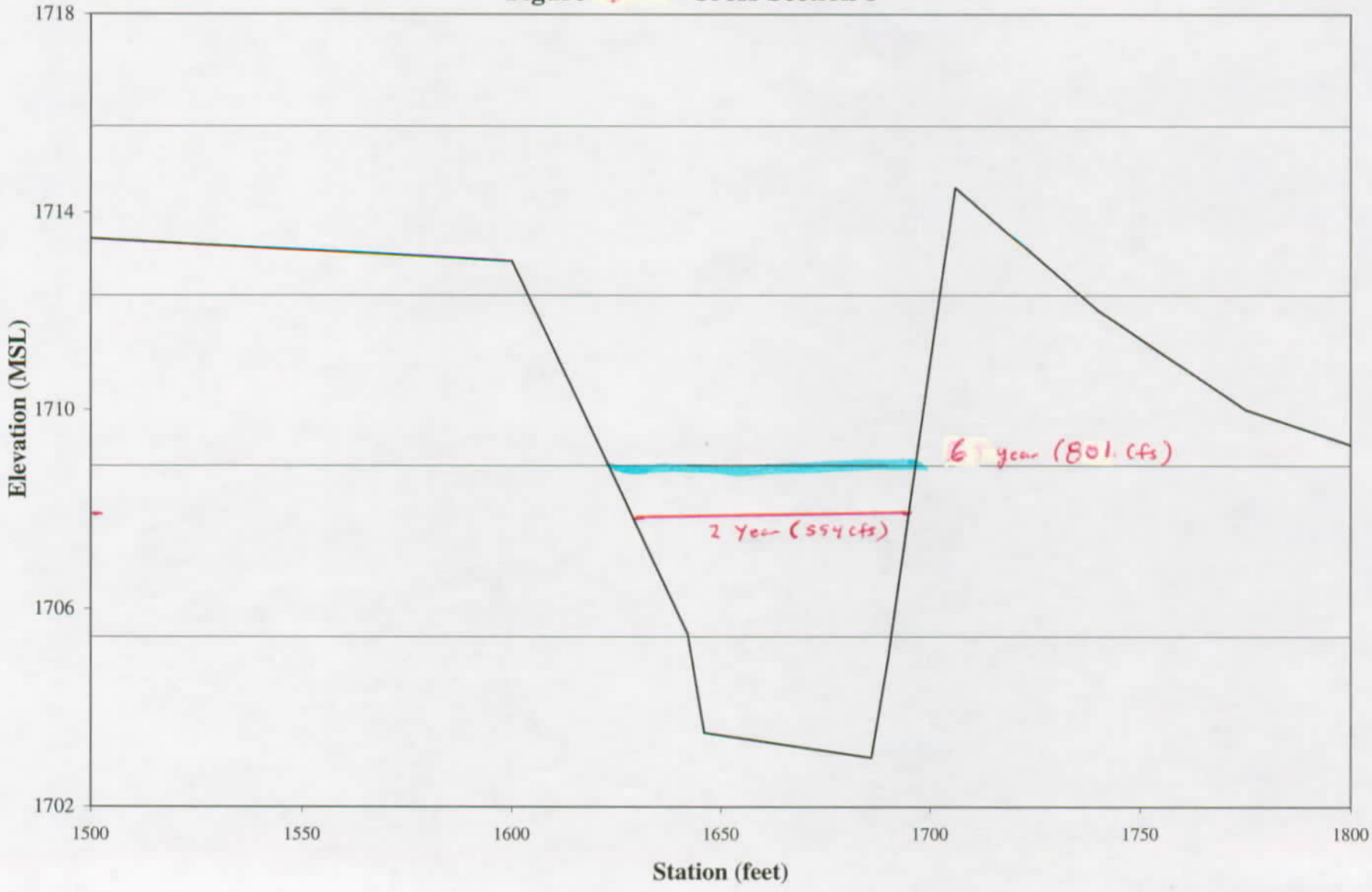


Figure 10 - Cross Section 10

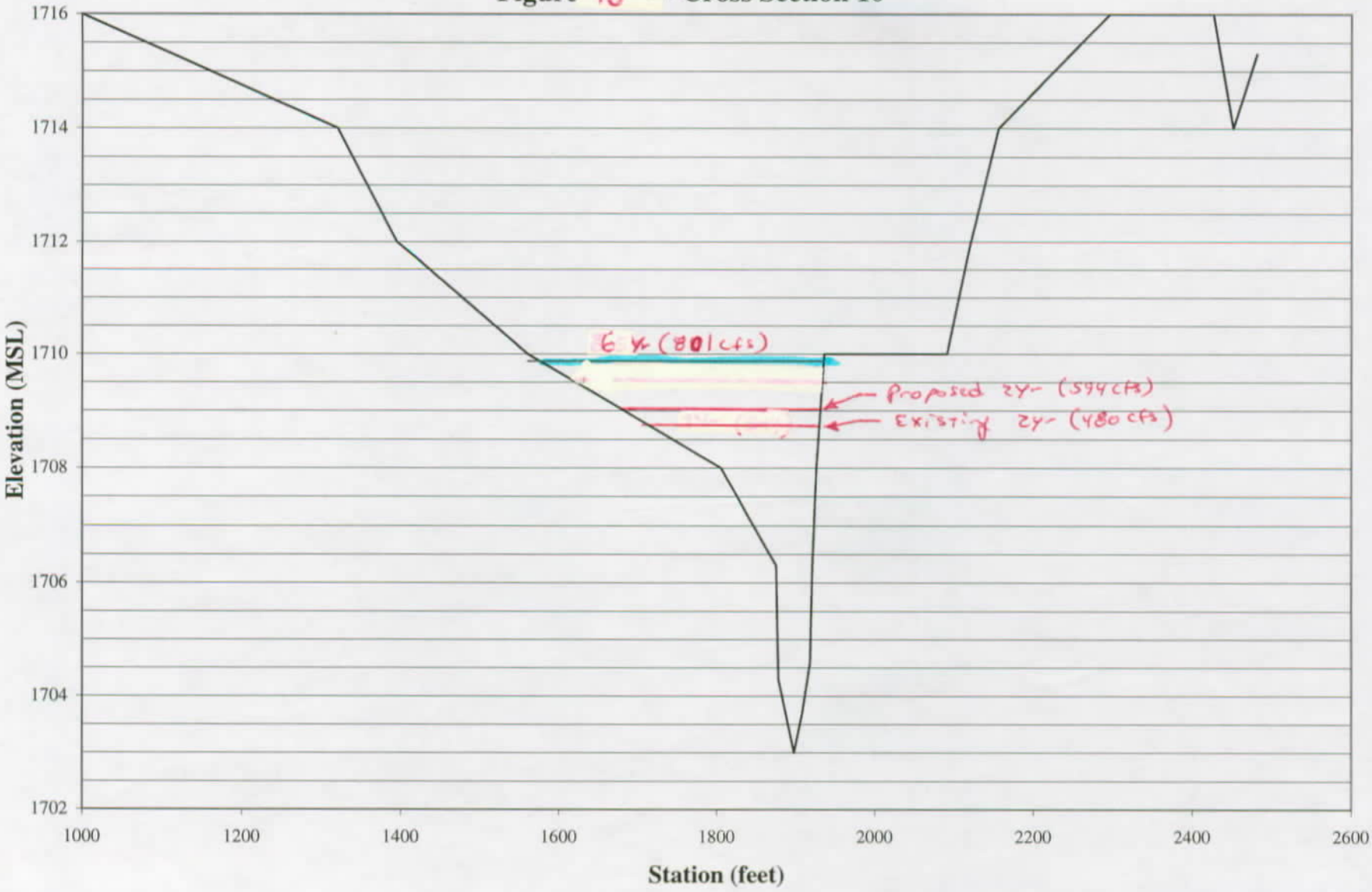


Figure 11 - Cross Section 12

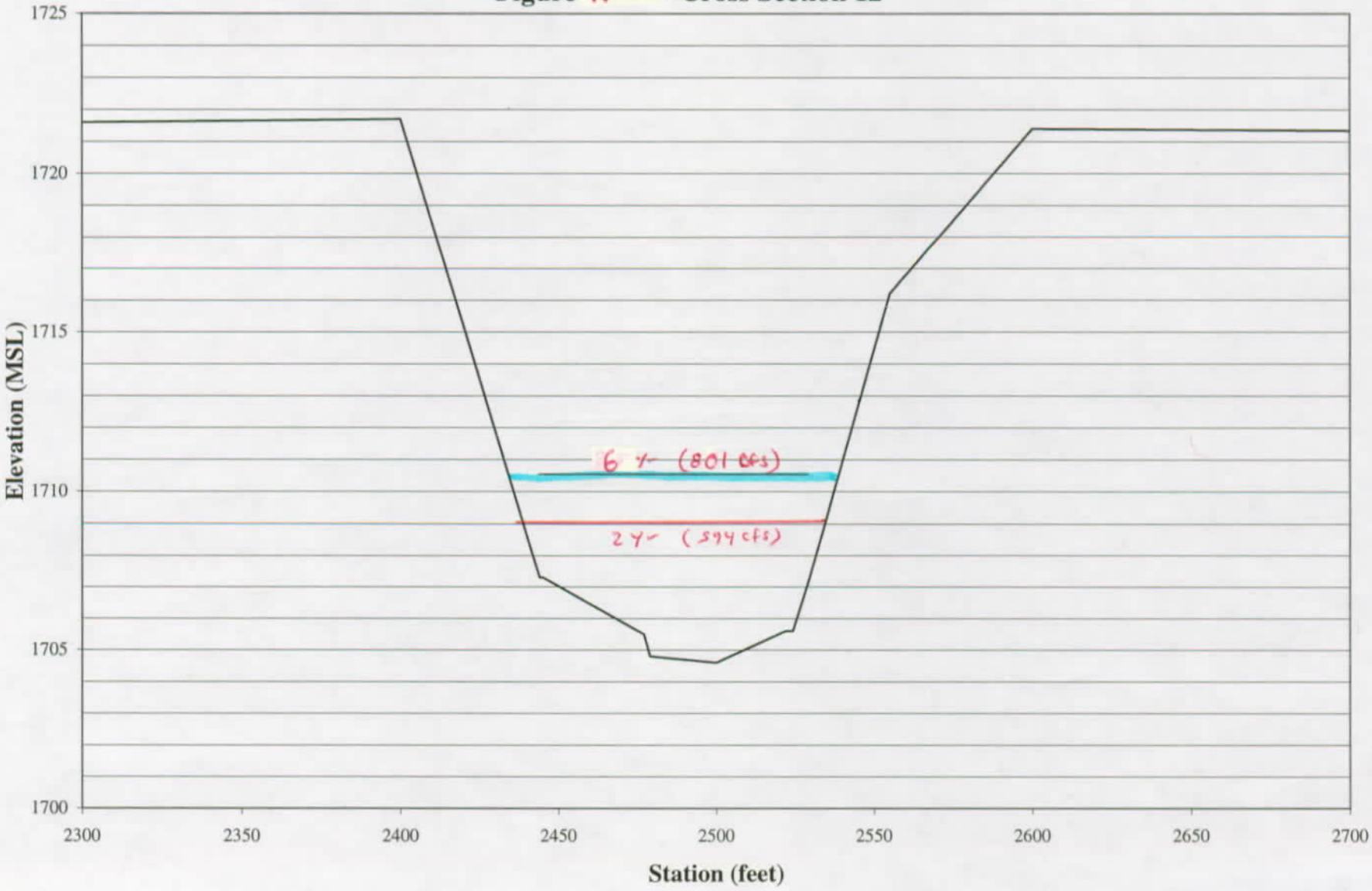


Figure 12 - Cross Section 14

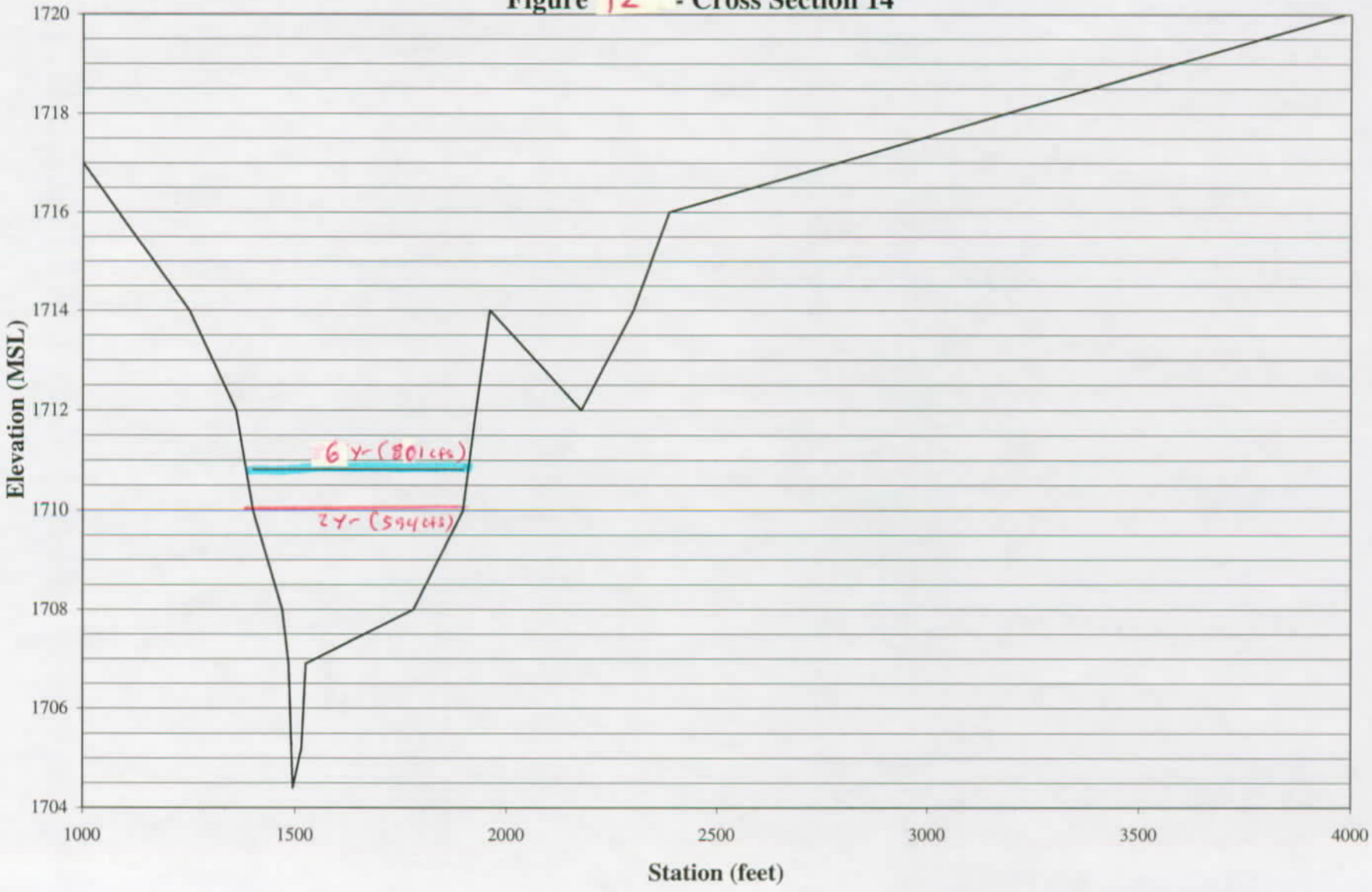


Figure 13 - Cross Section 16

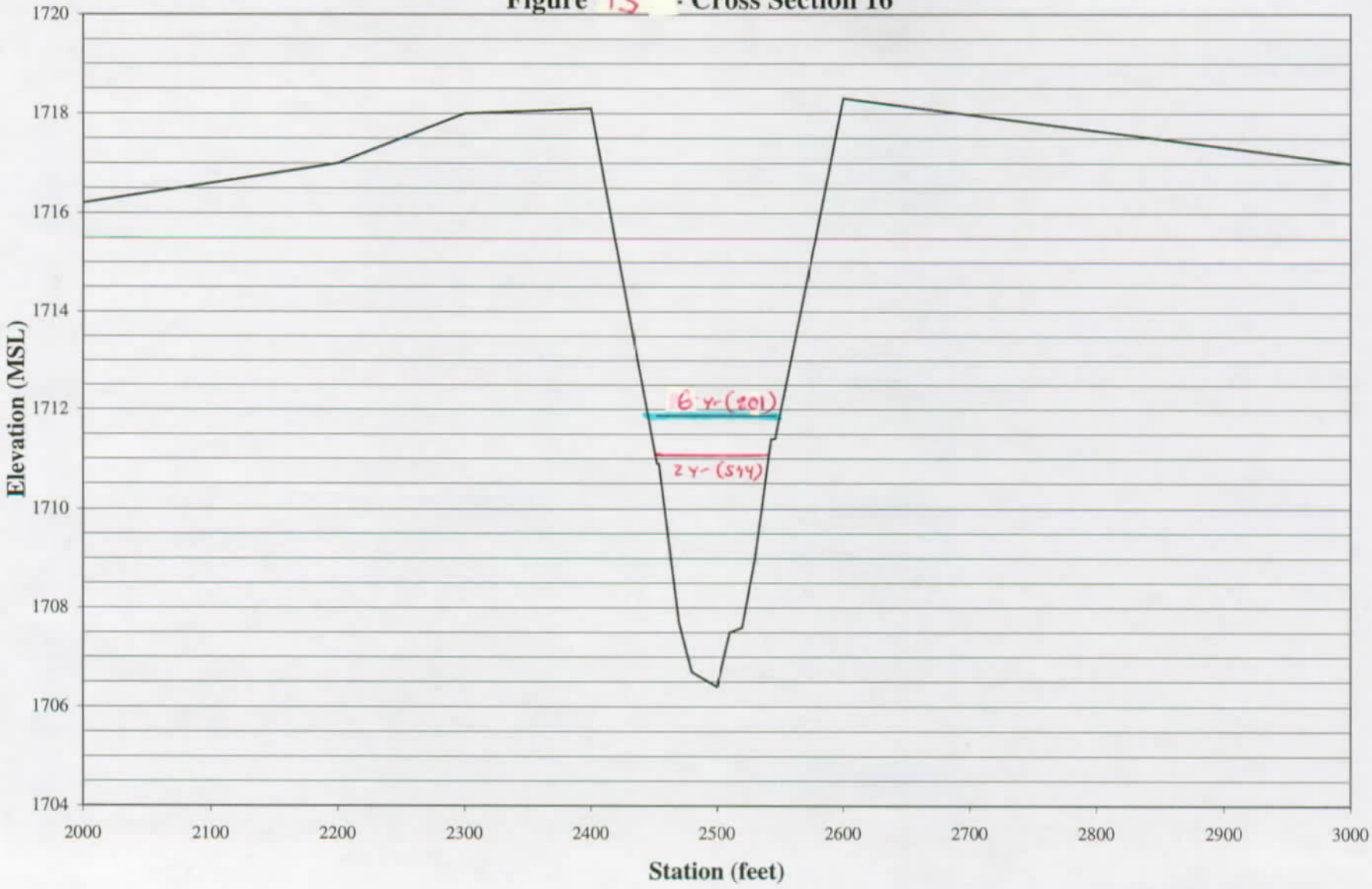


Figure 14 · Cross Section 18

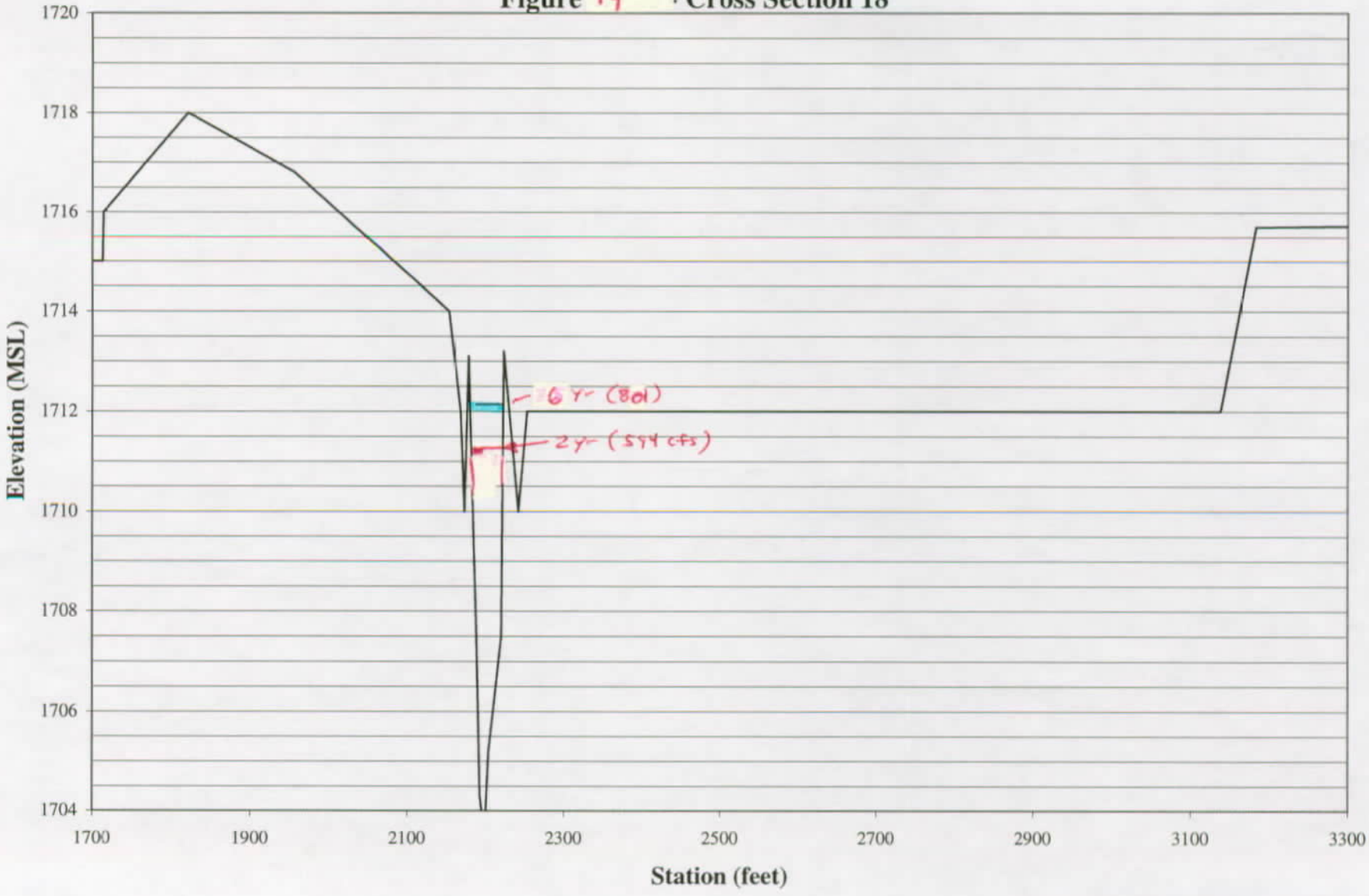


Figure 15 - Cross Section 22

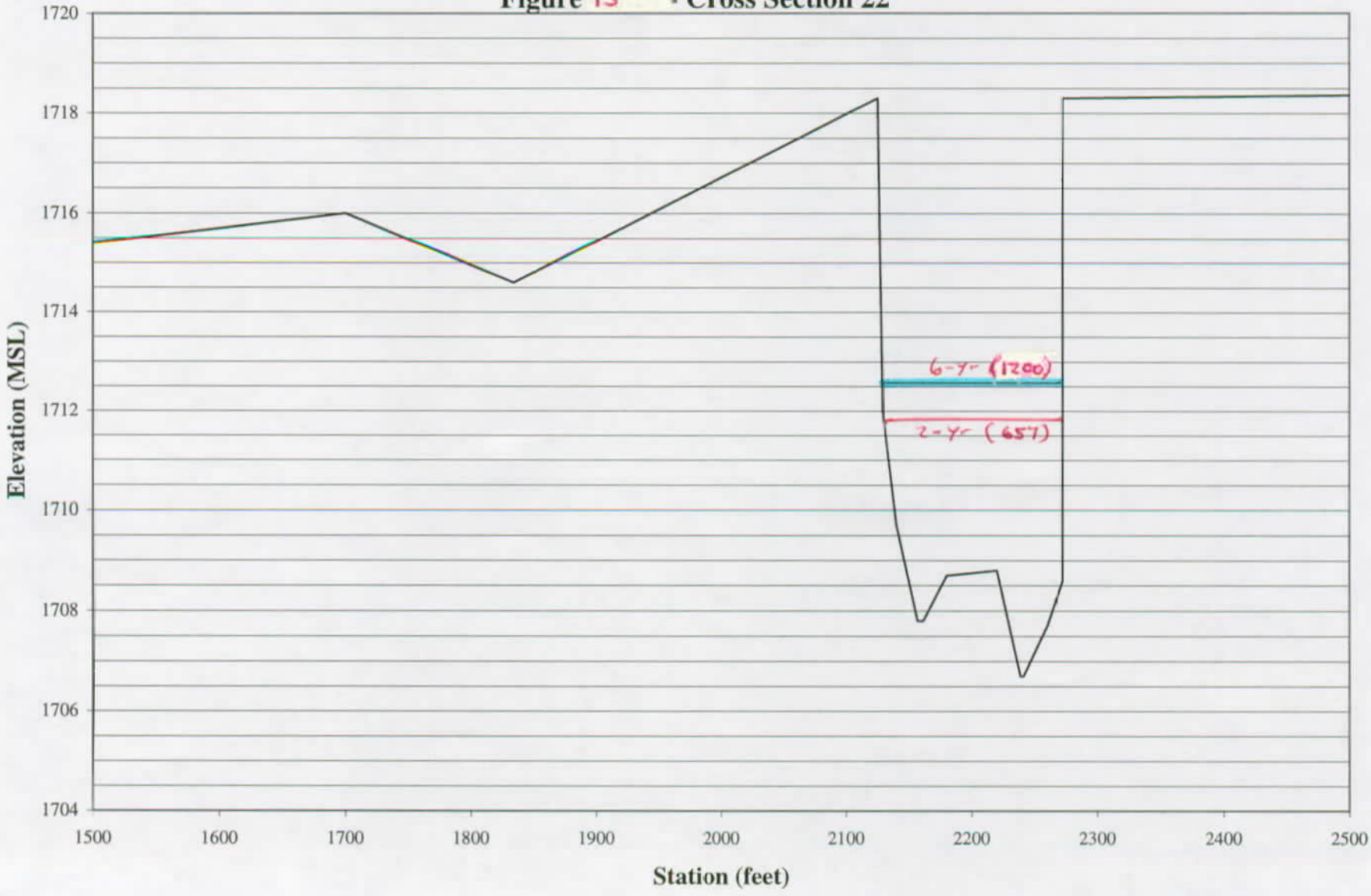


Figure 16 - Cross Section 24

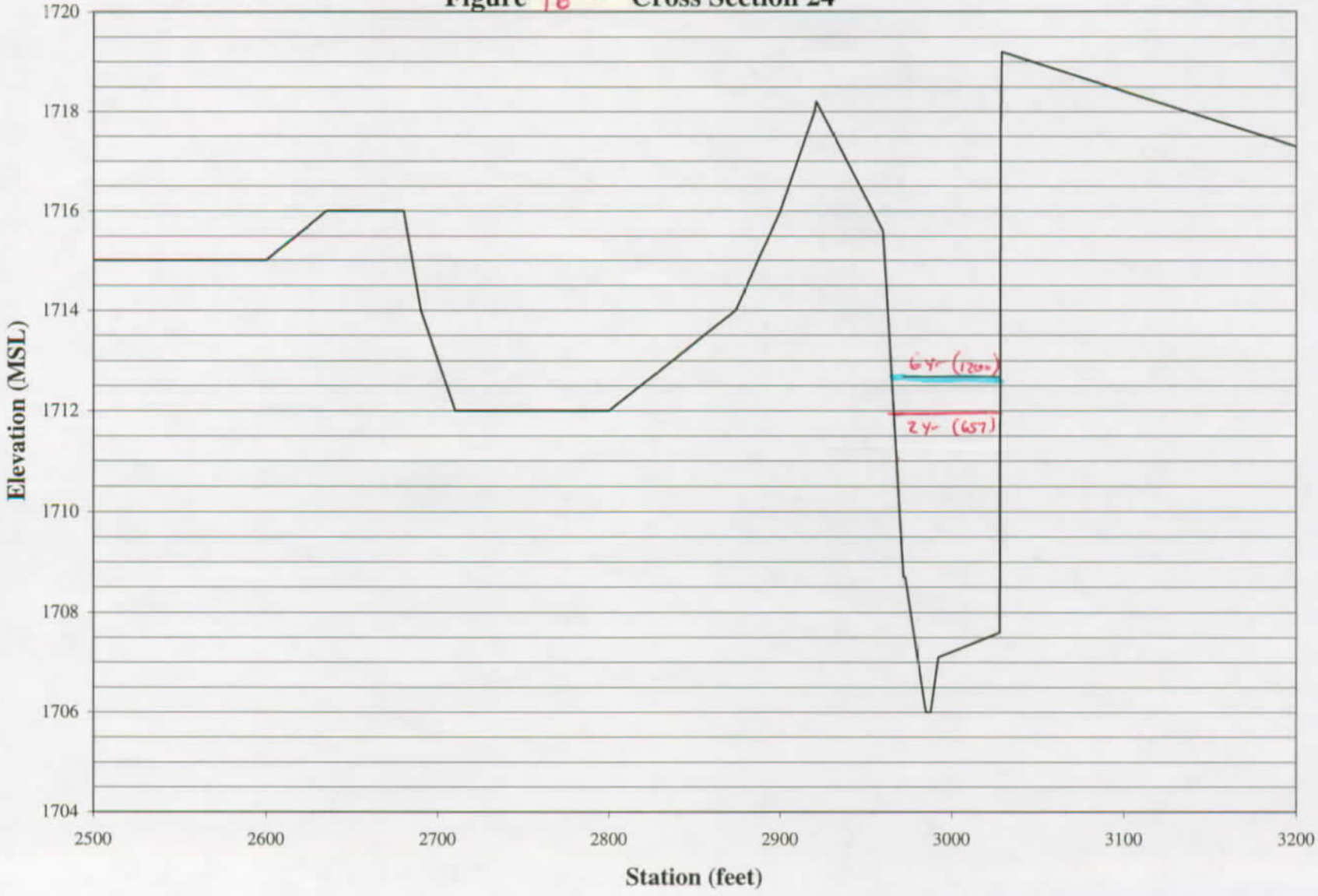


Figure 17 - Cross Section 30

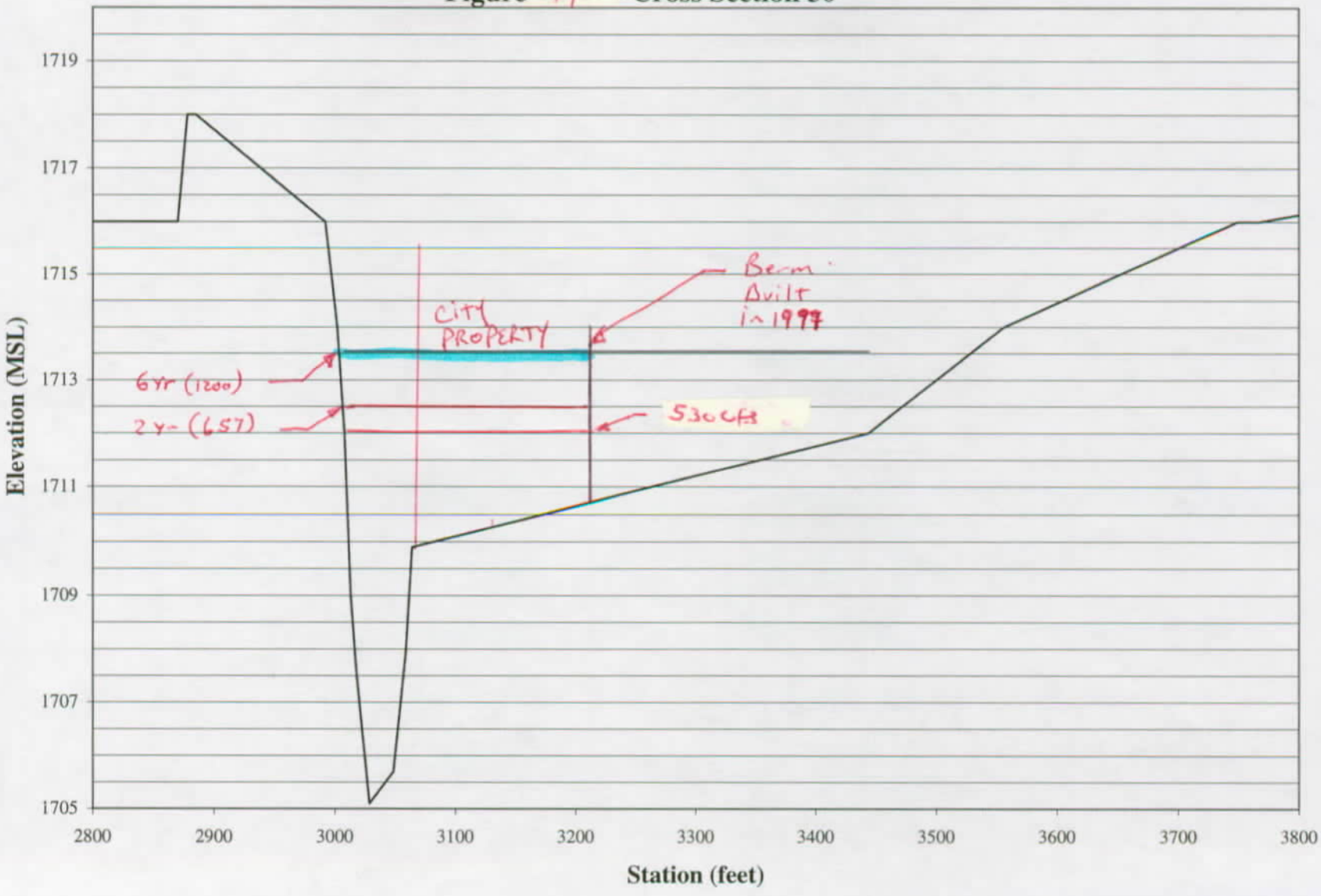


Figure 18 Cross Section 32

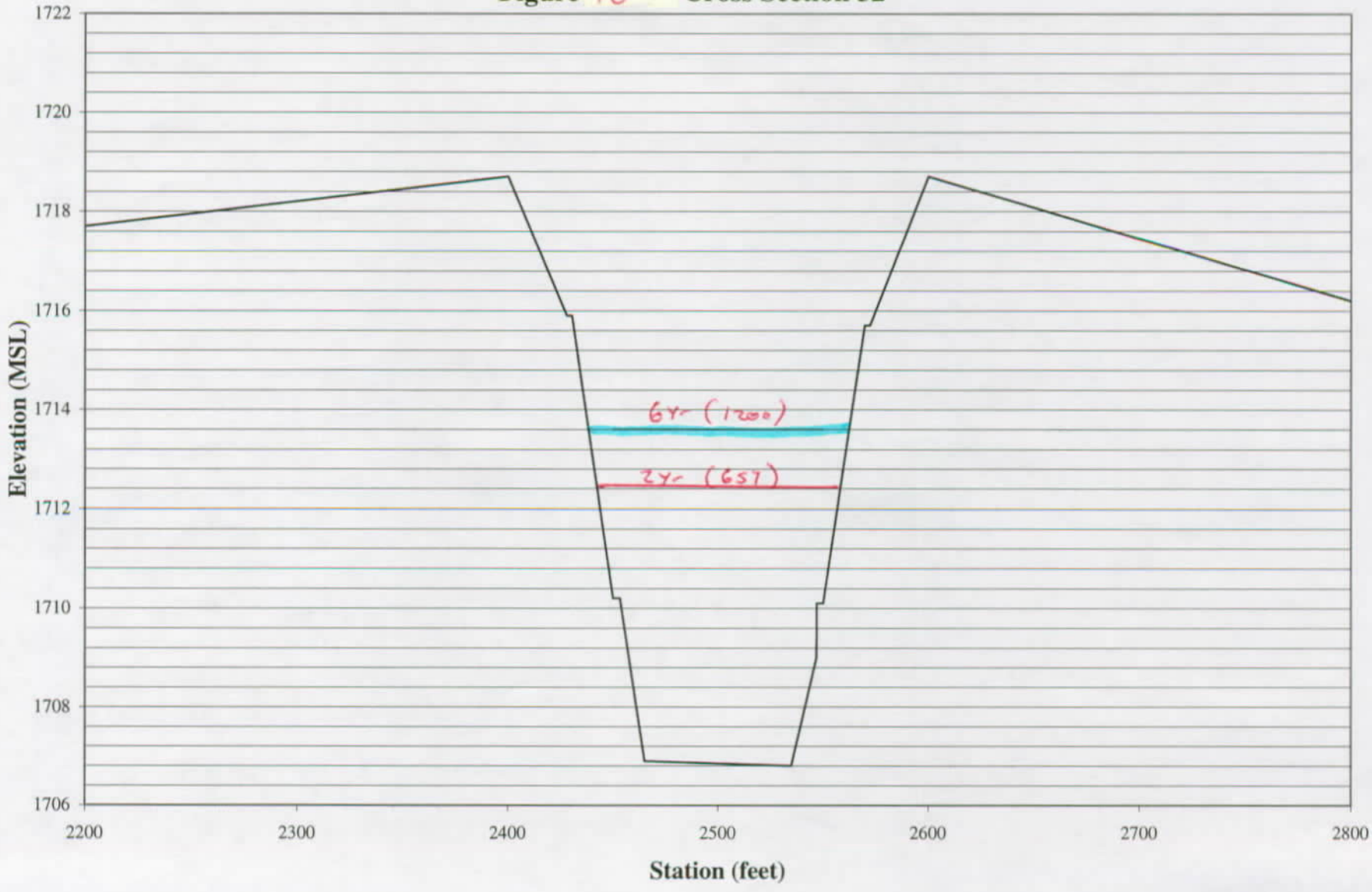


Figure 19 · Cross Section 34

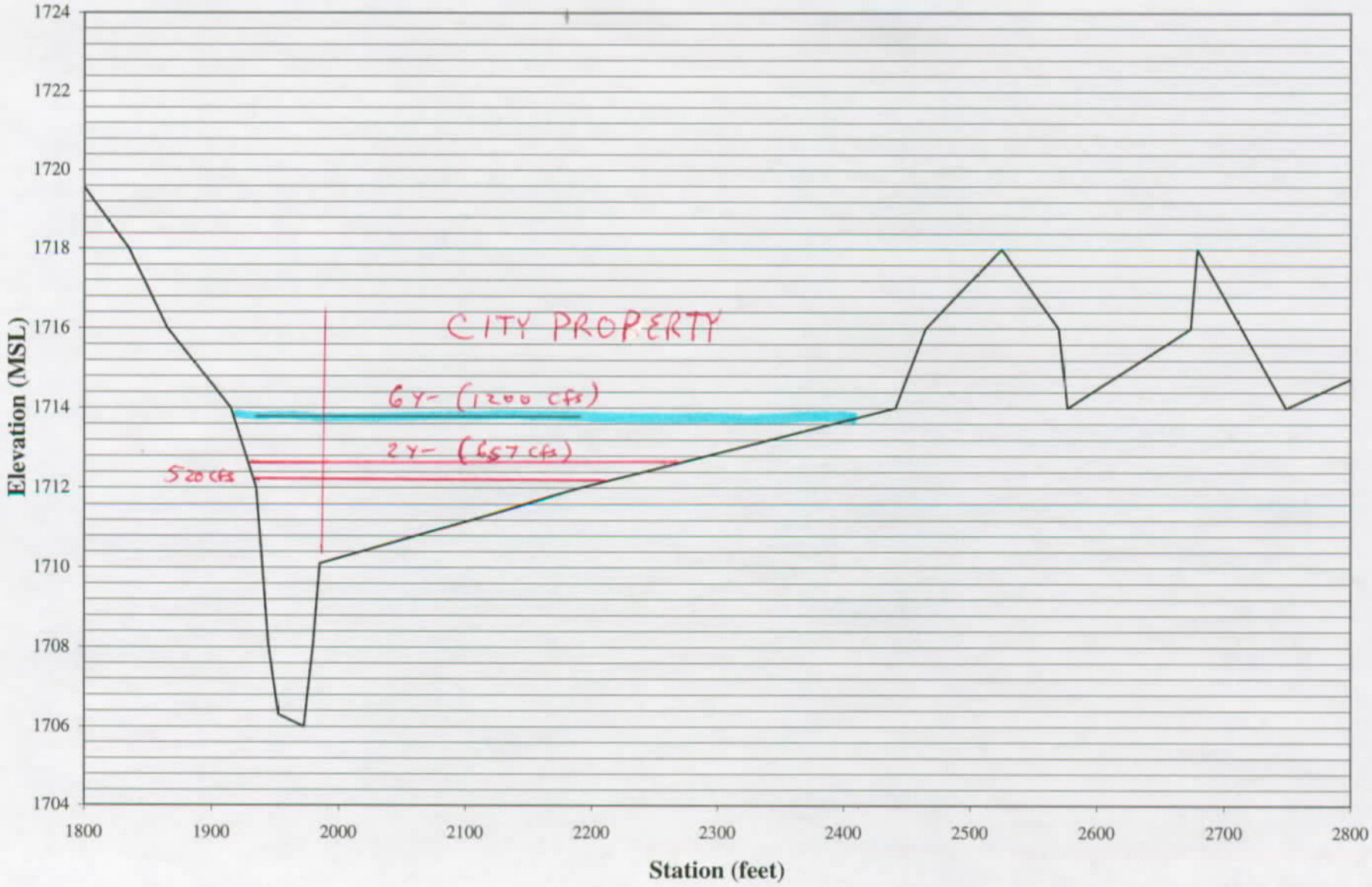


Figure 20 · Cross Section 36

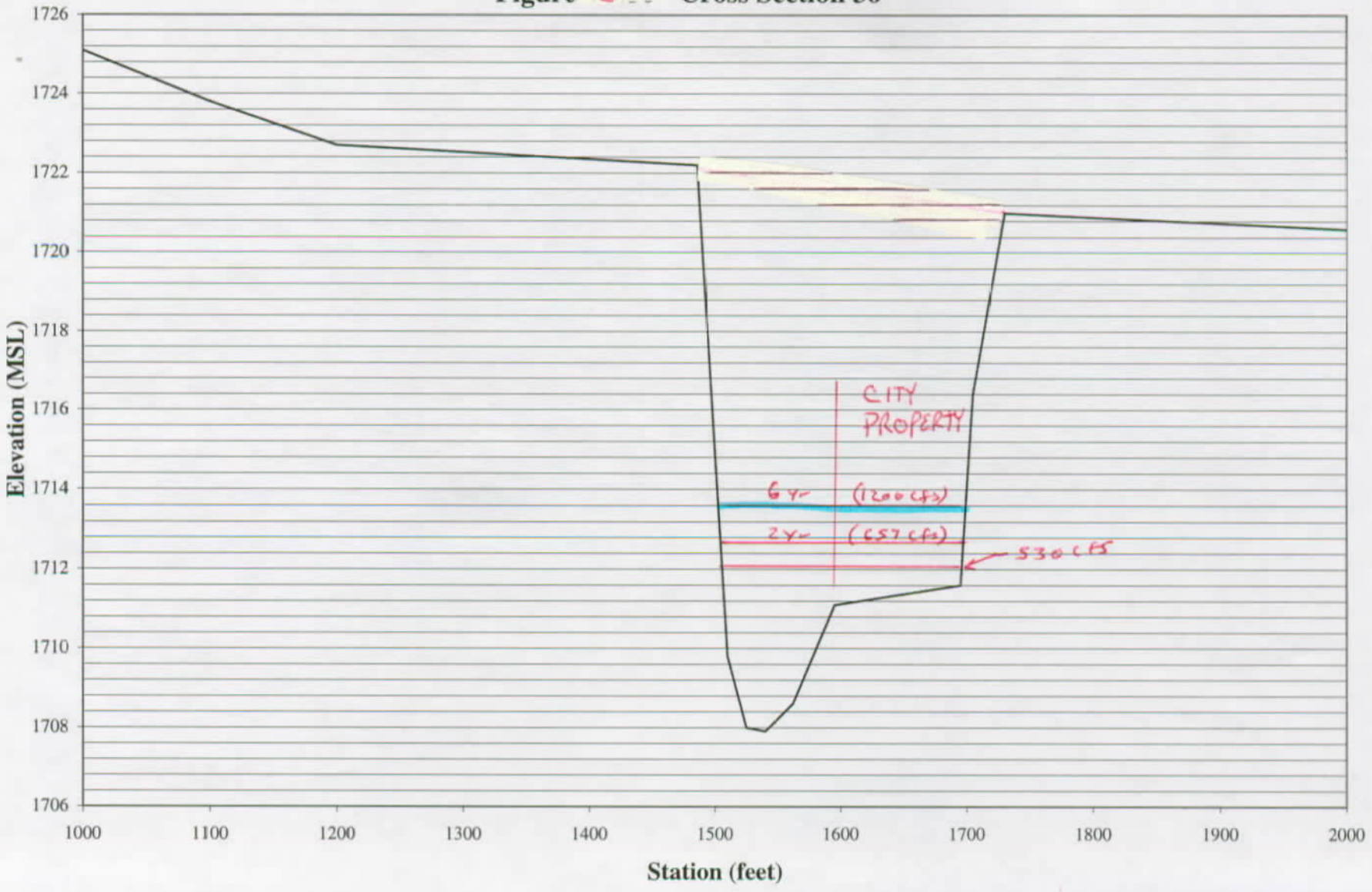


Figure 21 – Cross Section 38

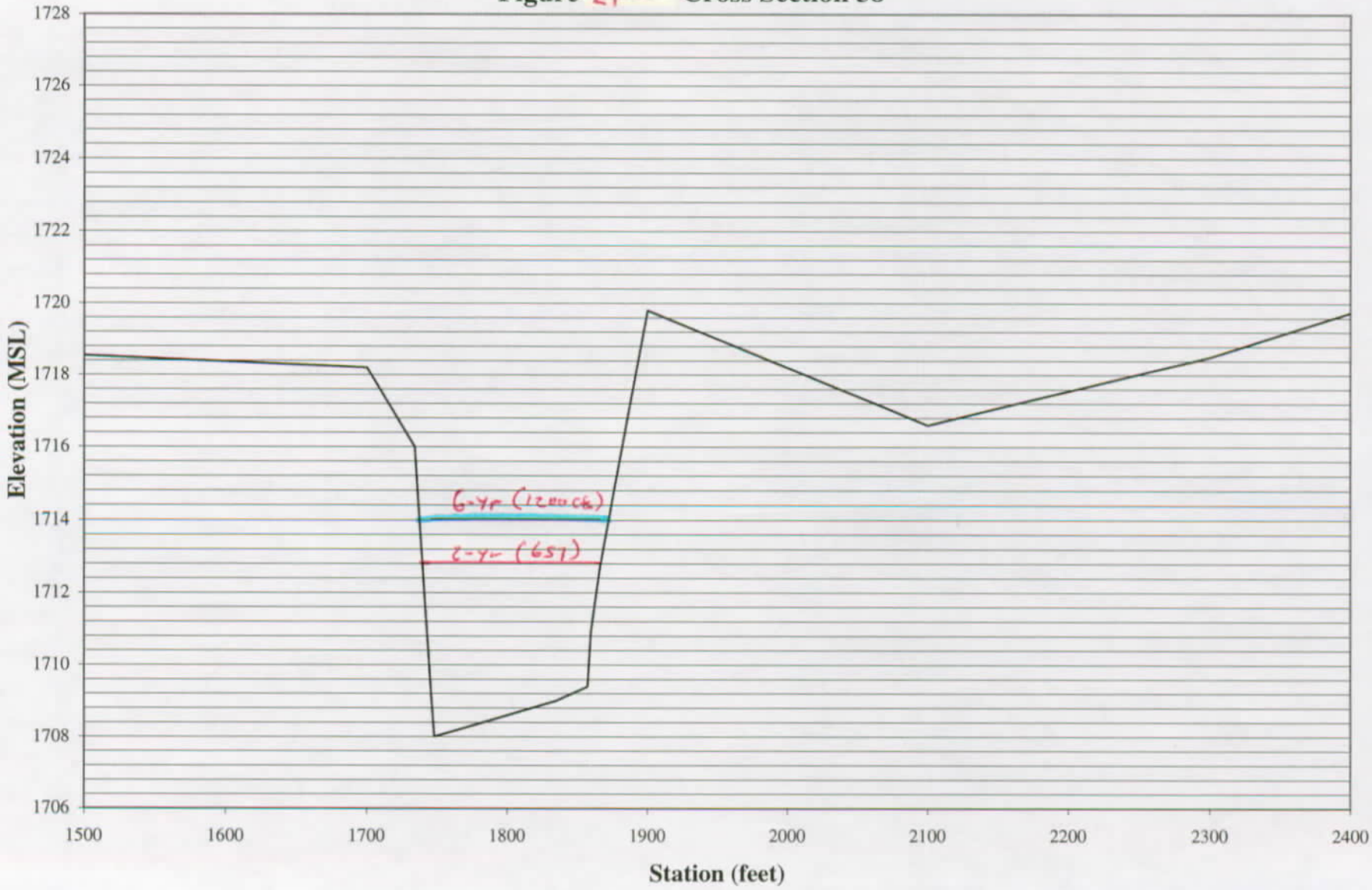


Figure 22 - Cross Section 40

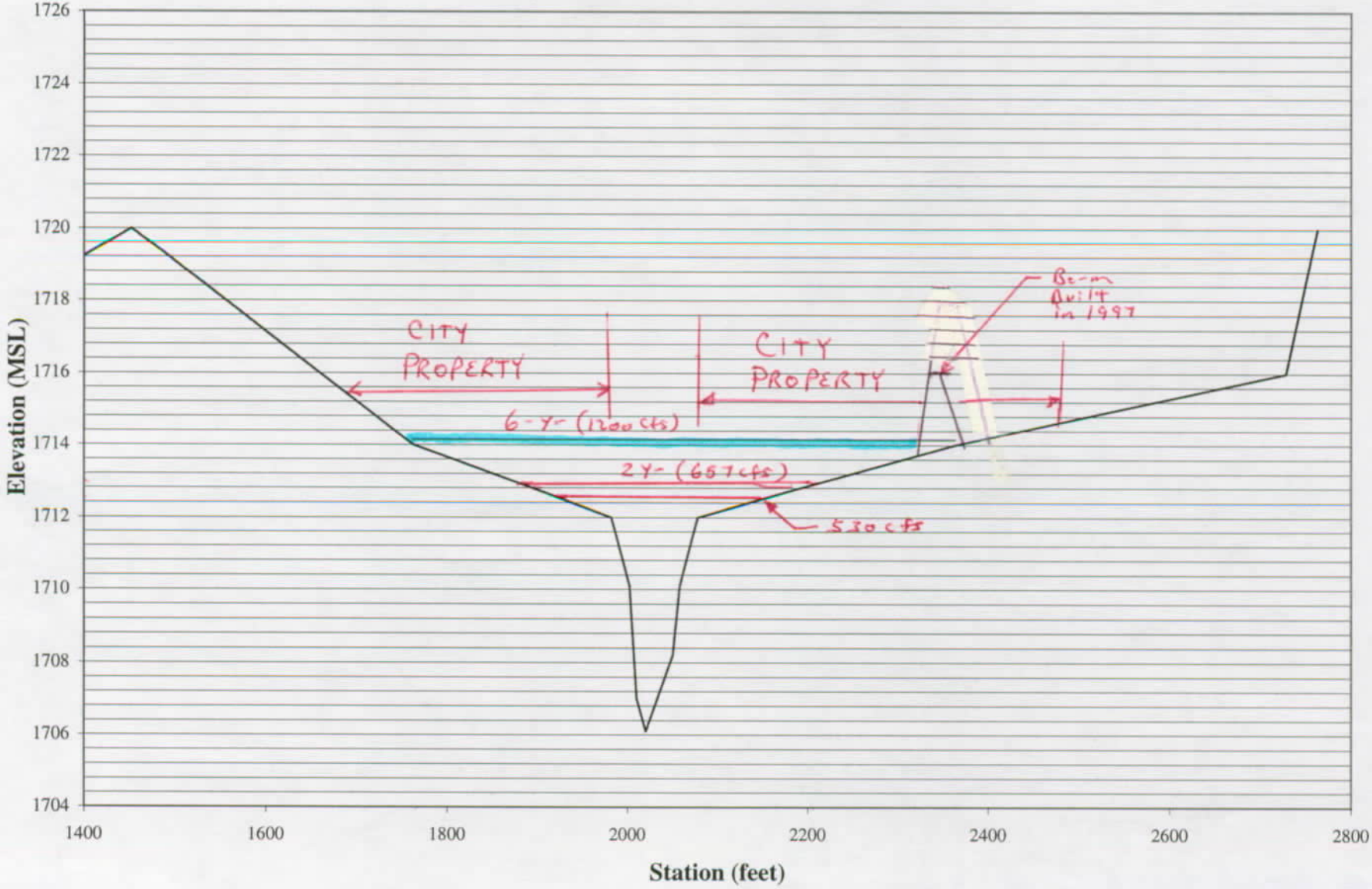


Figure 23 Cross Section 42

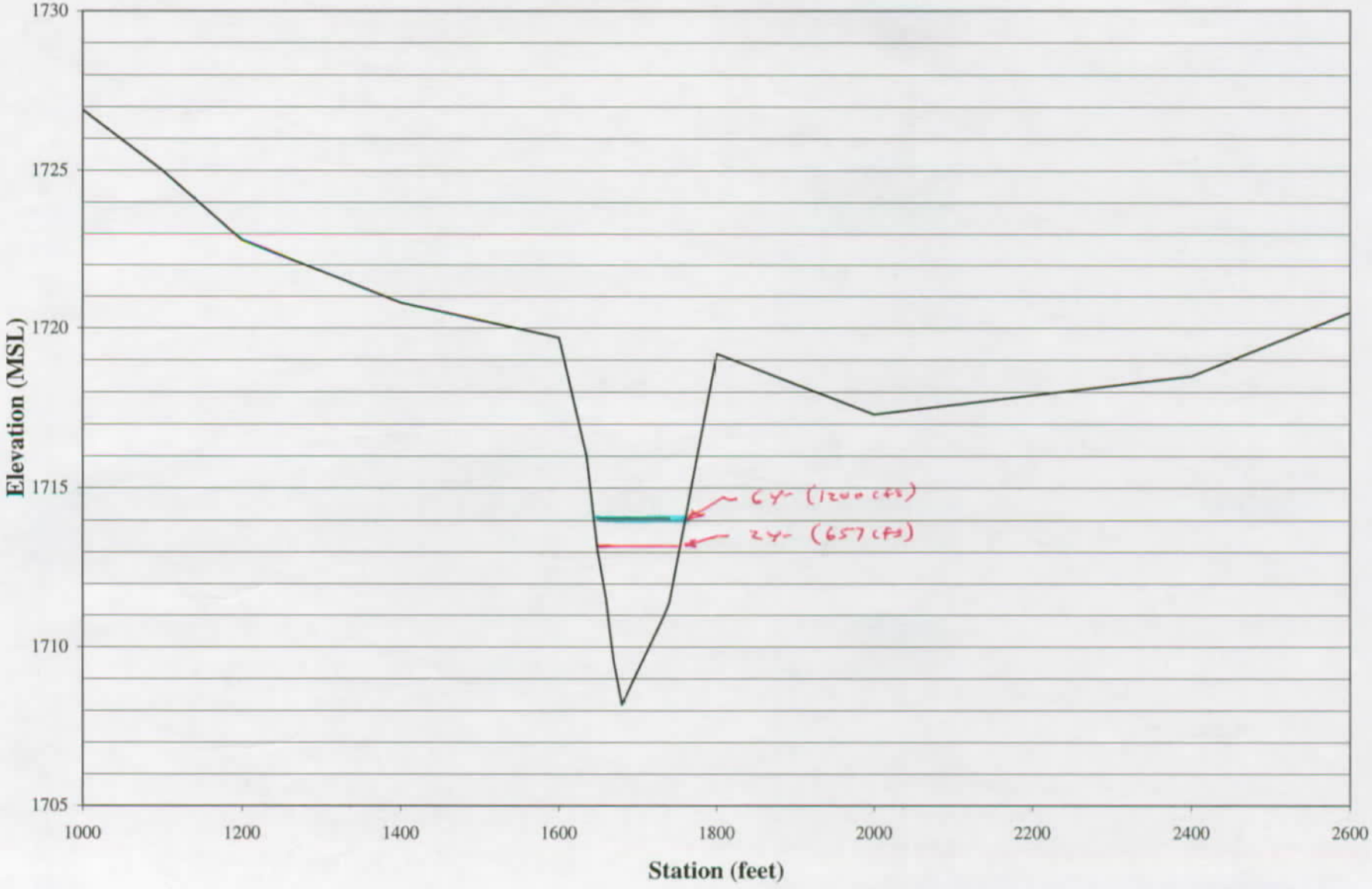


Figure 24 - Cross Section 44



Figure 25 – Cross Section 50

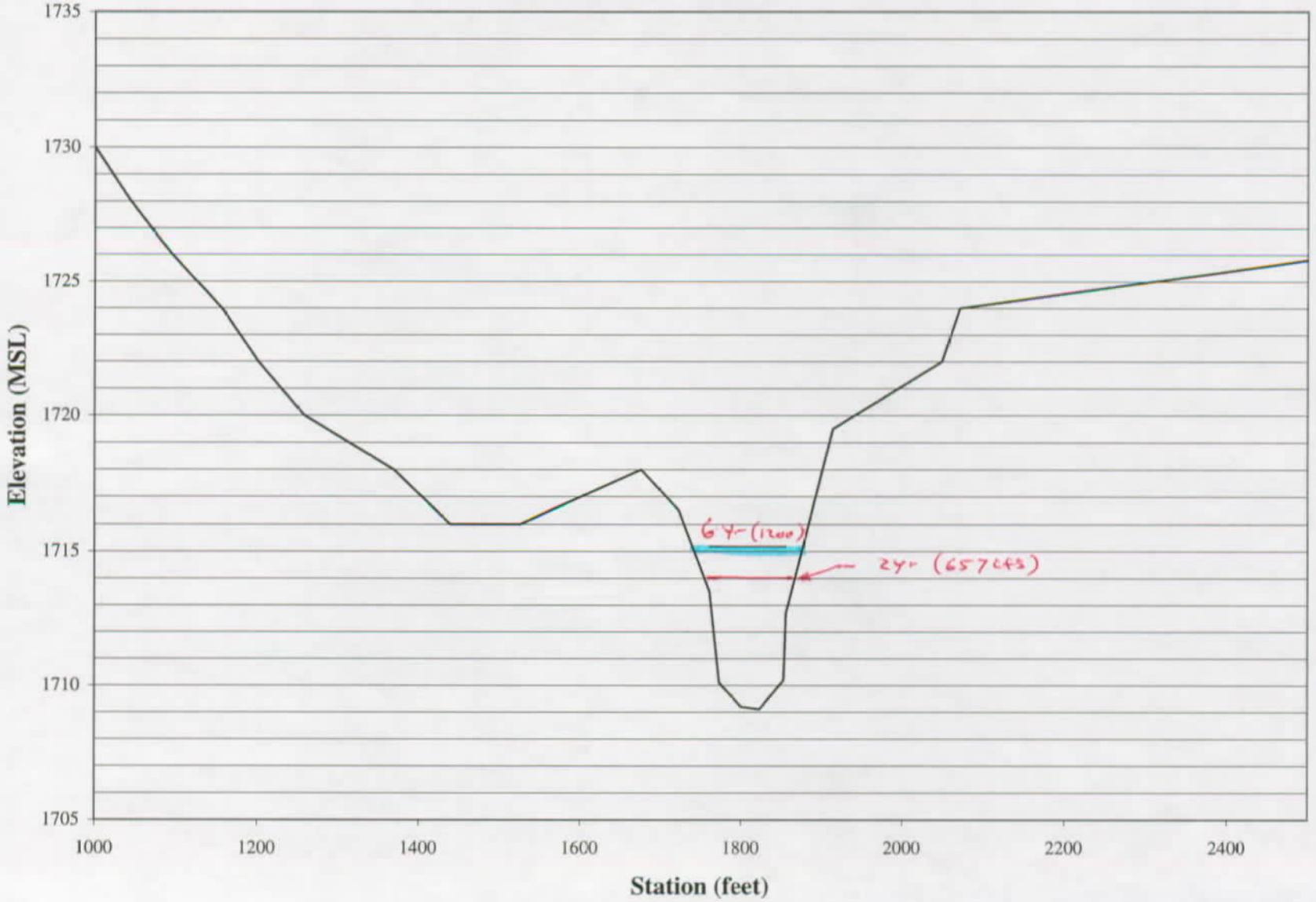
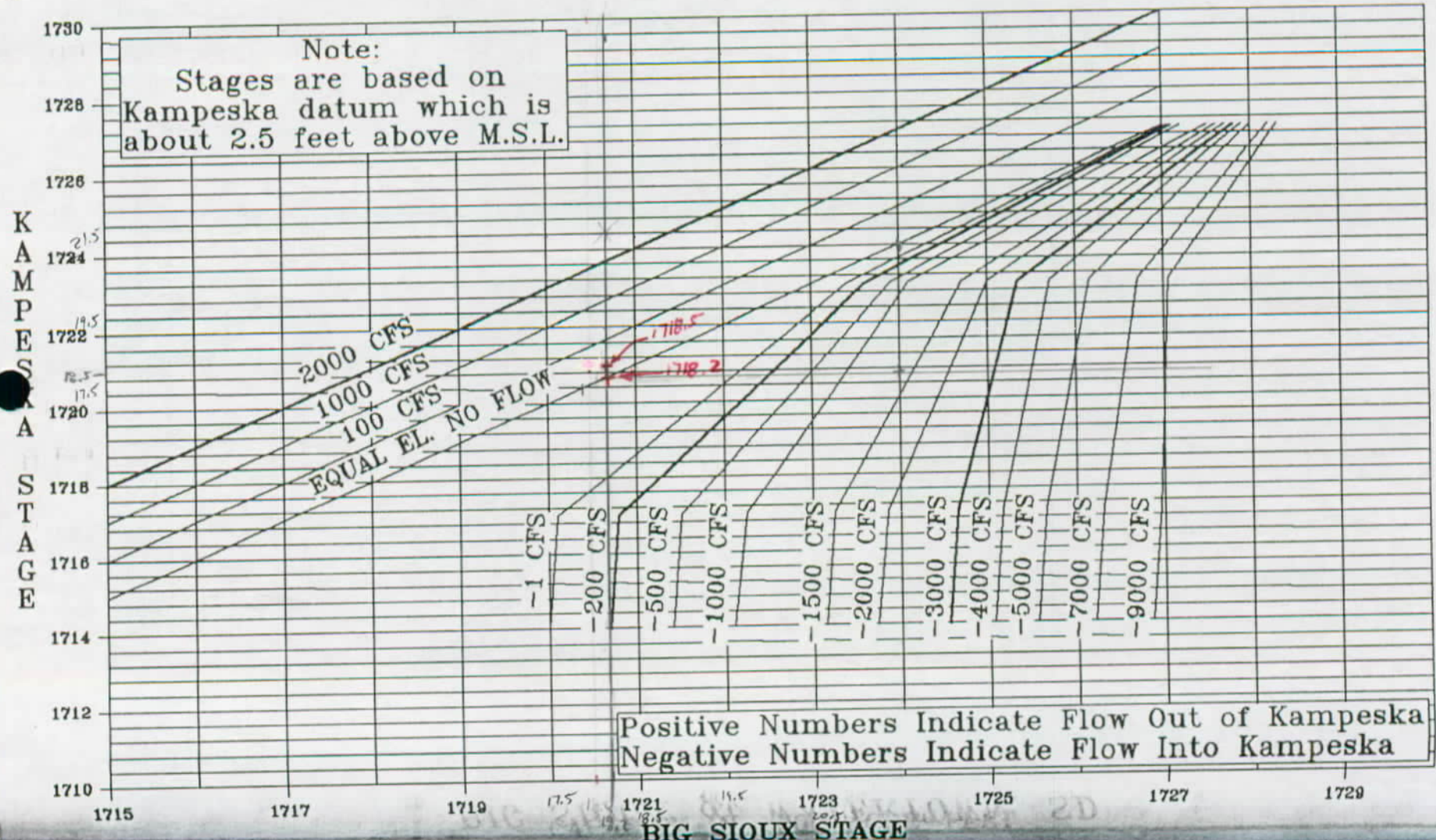
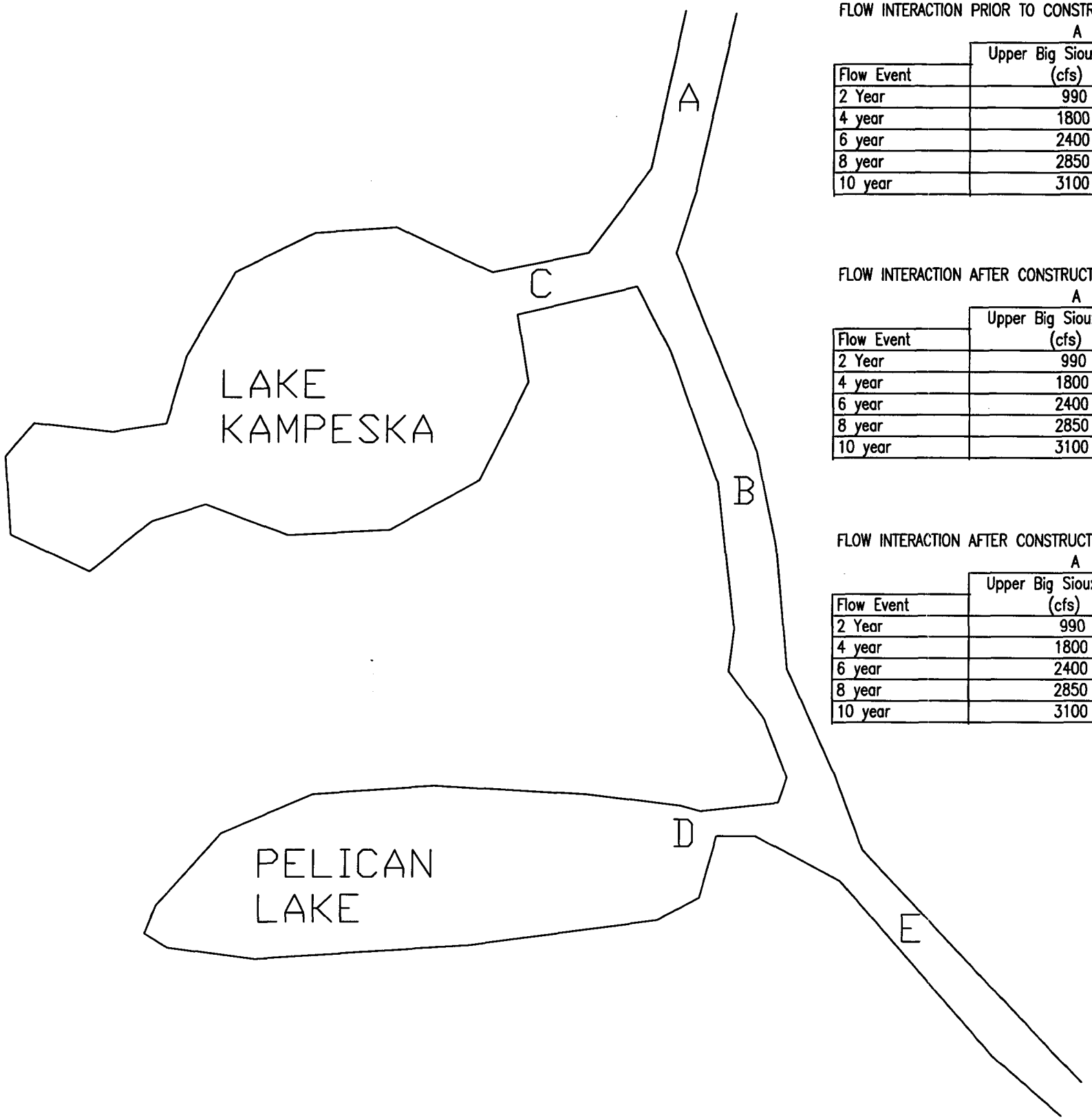


Figure 27

BIG SIOUX AND KAMPESKA LAKE
RELATIONSHIP BETWEEN STAGE VS FLOW





FLOW INTERACTION PRIOR TO CONSTRUCTION OF PELICAN WEIR

	A	B	C	D	E
Flow Event	Upper Big Sioux (cfs)	Though Watertown (cfs)	Lake Kampeska (cfs)	Pelican Lake (cfs)	Lower Big Sioux (cfs)
2 Year	990	530	460	280	250
4 year	1800	950	850	475	475
6 year	2400	1200	1200	560	640
8 year	2850	1450	1350	690	760
10 year	3100	1600	1500	730	870

FLOW INTERACTION AFTER CONSTRUCTION OF PELICAN WEIR

	A	B	C	D	E
Flow Event	Upper Big Sioux (cfs)	Though Watertown (cfs)	Lake Kampeska (cfs)	Pelican Lake (cfs)	Lower Big Sioux (cfs)
2 Year	990	530	460	50	480
4 year	1800	900	900	170	730
6 year	2400	1200	1200	399	801
8 year	2850	1450	1400	620	830
10 year	3100	1600	1500	730	870

FLOW INTERACTION AFTER CONSTRUCTION OF LAKE KAMPESKA

	A	B	C	D	E
Flow Event	Upper Big Sioux (cfs)	Though Watertown (cfs)	Lake Kampeska (cfs)	Pelican Lake (cfs)	Lower Big Sioux (cfs)
2 Year	990	657	333	63	594
4 year	1800	925	875	175	750
6 year	2400	1200	1200	399	801
8 year	2850	1450	1400	620	830
10 year	3100	1600	1500	730	870

NA
–

HDR Engineering, Inc.

FLOW RELATIONSHIPS
LAKE KAMPESKA WEIR PROJECT
WATERTOWN, SOUTH DAKOTA

Date
4/20/00

Sheet
26

DEPARTMENT OF GAME, FISH AND PARKS
Foss Building
523 East Capitol
Pierre, South Dakota 57501-3182

GREAT FACES. GREAT PLACES.



April 21, 2000

Mr. Garland Erbele, Chief Engineer
Water Rights Program
SD Department of Environment and Natural Resources
Foss Building, 523 East Capitol Ave.
Pierre, SD 57501

RE: City of Watertown Flood Control Permit Application No. FC-29
Petition to Become Party of Record

Dear Mr. Erbele:

The South Dakota Department of Game, Fish and Parks (GF&P) has reviewed the notice of hearing, report and Chief Engineer's recommendation regarding the above referenced flood control permit application by the City of Watertown.

Pursuant to SDCL 1-26 we request that GF&P be made a party of record in the proceedings for this application. GF&P is an interested and potentially affected party by virtue of our vested water right (No. 890-3) to store water to the outlet elevation of Lake Kampeska for fish and wildlife conservation and recreational purposes. GF&P also owns a considerable amount of land in the vicinity of the current weir structure and where the proposed structure may be constructed. These lands are managed as Game Production Areas and Recreation Areas. We may also be affected by virtue of our statutory authority to manage fish and wildlife resources of the state (SDCL Chapter 41).

Thank you for the opportunity to comment.

Sincerely,

Tim Olson

Tim Olson
Water Permits Coordinator

cc: Richard Schlechter, City of Watertown

Office of Secretary: 605/773-3387 Wildlife Division: 605/773-3381 Parks and Recreation Division: 605/773-3391 FAX: 605/773-6245
TDD: 605/773-3485

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

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Watertown Community Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water Treatment Facility
605-882-6243
FAX 605-882-6242

April 24, 2000

Garland Erbele, Chief Engineer
Water Rights Program
Foss Building
523 E. Capitol
Pierre, SD 57501



Dear Mr. Erbele:

The City of Watertown, as applicant, supports the application for flood control permit no. FC-29. Watertown also supports the Chief Engineer's recommendation of "DEFERRAL of Application No. FC-29 to allow the applicant to address concerns presented in the Water Rights Program staff report before the Water Management Board".

Watertown has welcomed your staff's comments and the opportunity to address those concerns with the proposed project. We believe that issues and concerns of any interested party(ies), in addition to the comments detailed in the staff report, are satisfactorily addressed by the application information and the supplemental information submitted on Watertown's behalf by HDR Engineering, Inc. in their letter and report dated April 20, 2000. We are confident that any additional specific concerns of interested parties can be addressed to their satisfaction, and that of the Chief Engineer, in informational meetings between interested parties and the City of Watertown prior to, and without, the scheduled hearing of the Water Management Board.

This proposed project is under an extremely tight timeline over which Watertown had very little control. The public notice states "The hearing date will be automatically delayed for at least 20 days upon written request to the Chief Engineer from the applicant or any interested person opposing the application". If a delay in the hearing is necessary, Watertown requests that the hearing be rescheduled as soon as possible. Please contact this office before the May 4 hearing is rescheduled to discuss with us declaratory rulings the department and the Water Management Board are authorized to make in regard to Flood Control Application FC-29, and the impacts in terms of timeliness that requests for declaratory rulings may have on the issuance of the permit.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

75

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3181
www.state.sd.us/denr

April 26, 2000

NOTICE

TO: Richard L Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910
and Parties of Record (see attached list)

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Automatic Delay of Hearing on Flood Control Permit Application No. FC-29, City of Watertown

A petition requesting an automatic delay has been submitted by the Lake Pelican Water Project District in response the notice of hearing published for Watertown's Flood Control Permit Application No. FC-29. This application proposes a weir and gate system located in the inlet/outlet channel between the Big Sioux River and Lake Kampeska. The hearing on Application No. FC-29 is automatically delayed pursuant to SDCL 46-2A-4 and 46-2A-5 and will not be held on May 3, 2000.

The Water Rights Program will request at the May 3rd meeting that the Water Management Board appoint a member as the pre-hearing chairman. The pre-hearing chairman can then rule on any pre-hearing motions should need arise.

A special Water Management Board meeting will now be held in Watertown on May 25, 2000 to consider this application. The hearing will begin at 8:30 AM in the meeting room at the Guest House, 101 Broadway Street North, Watertown, SD. The meeting may continue on the morning of May 26th if necessary to complete testimony.

Applicable provisions of the Notice of hearing published April 5 and 12, 2000, in the Watertown Public Opinion will still apply at this hearing. This hearing is an adversary proceeding. Any party of record has the right to be present and to be represented by a lawyer. These and other due process rights will be forfeited if they are not exercised. Decisions of the Board may be appealed to the Circuit Court and State Supreme Court as provided by law.

Contact Eric Gronlund at (605) 773-3352, if you have any questions on the hearing process, to assure access to the hearing by the handicapped or to obtain an interpreter for the hearing impaired.

c: Diane Best, Assistant Attorney General

PARTIES OF RECORD
FLOOD CONTROL PERMIT APPLICATION NO. FC-29

APPLICANT

Richard L. Schlechter
City of Watertown
P. O. Box 910
Watertown, SD 57201-0910

PETITIONERS

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

Rick Trupe, Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
Watertown, SD 57201

Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

Marge and Bill Swaboda
1730 38th Avenue NW
Watertown, SD 57201

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

SD Dept. of Game, Fish and Parks
c/o Tim Olson
523 East Capitol Ave.
Pierre, SD 57501-3182

CERTIFICATION

I hereby certify that on April 26, 2000, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated April 26, 2000, along with a copy of the Parties of Record List, regarding Automatic Delay of Hearing on Flood Control Permit Application No. FC-29, City of Watertown, addressed as stated below, and on the attached Parties of Record List:

Richard L. Schlechter, City of Watertown, P.O. Box 910, Watertown, SD 57201-0910.

A copy of the above described Notice and attachment was sent Inter-office to:

Diane Best, Assistant Attorney General, Capitol Building.

Tim Olson, Department of Game, Fish & Parks, Joe Foss Building.

Cheryl F. Frost
Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 27th day of April, 2000

Karen Schlaak
Notary Public

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL

KAREN SCHLAAK, Notary Public
My Commission Expires
April 1, 2001

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
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May 2, 2000

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Watertown Community Recreation Center
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Waste Water Treatment Facility
605-882-6243
FAX 605-882-6242

Tim Olson
SD Dept. of Game Fish and Parks
523 East Capitol Avenue
Pierre, SD 57501-3182

Re: Flood control permit application FC-29

Dear Mr. Olson:

As you know, the public hearing for consideration of Watertown's flood control permit application FC-29 has been rescheduled for a special meeting of the Water Management Board to be held in Watertown on May 25. It is my hope that Watertown and our consultant, HDR Engineering, Inc. can learn more specifically the concerns of all parties of record, as well as provide the opportunity to meet personally with the Department of Game Fish & Parks to discuss and address any Department concerns prior to the May 25 hearing.

In doing some recent property ownership research regarding the project, and in a personal visit to the GF&P's Watertown regional office, I have become more aware of the land ownership issues that need to be addressed particularly at the site on which the structure is proposed to be built. Following my meeting with GF&P representatives in Watertown today, I left a message with Dave McGuigan of the GF&P Pierre staff in an effort to start working out details in terms of land ownership, construction easements, and maintenance easements. I am also interested to learn more about the specific concerns the Department of Game Fish and Parks may have regarding the proposed project as referenced in your April 21 letter to Chief Engineer Erbele.

Watertown is trying to get a day of meetings with the parties of record to get all issues and concerns on the table. We would appreciate the opportunity to discuss your specific concerns in a meeting in the afternoon of Wednesday, May 17, 2000 in the upstairs meeting room at City Hall. In order that we can be fully prepared, and to ensure that Watertown can be productive in the use of your time for the meeting, please forward your written concerns to my attention by Thursday, May 11. Please feel free to contact me with regard to your specific additional information needs as well.

Realizing that information flow may have been a problem in the past on this project, I have enclosed a copy of HDR Engineering's April 20 letter to DENR for your additional information, review, and comment. The letter was prepared in response to concerns listed in DENR's April 4, 2000 staff report.

I look forward to hearing from you soon.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Garland Erbele, Chief Engineer, Water Rights Program
Al Erickson, PE, HDR Engineering, Inc.

CITY OF WATERTOWN

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May 2, 2000

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Julian Wick
Lake Pelican Water Project District
4002 – 20th Avenue SW
Watertown, SD 57201-7033



Re: Flood control permit application FC-29

Dear Mr. Wick:

As you know, the public hearing for consideration of Watertown's flood control permit application FC-29 has been rescheduled for a special meeting of the Water Management Board to be held in Watertown on May 25. It is my hope that Watertown and our consultant, HDR Engineering, Inc. can learn more specifically the concerns of all parties of record, as well as provide the opportunity to meet personally with Lake Pelican Water Project District to discuss and address the District's concerns prior to the May 25 hearing.

The District's April 14 letter to the Department of Environment and Natural Resources stated that the project information provided to you by DENR to date was not sufficient to allow you to make an assessment of the affects the project may have on Pelican Lake and flood control permit No. FC-19. I trust the enclosed copy of HDR Engineering's April 20 letter to DENR will provide you the information you need.

The District's April 19 petition in support of the Chief Engineer's recommendation for deferral references "certain issues that need to be addressed prior to the approval of the application." We would appreciate the opportunity to discuss your specific concerns in a meeting at 8:00 p.m., Wednesday, May 17, 2000 in the upstairs meeting room at City Hall. In order that we can be fully prepared, and to ensure that Watertown can be productive in the use of your time for the meeting, please forward your written concerns to my attention by Thursday, May 11. Please feel free to contact me with regard to your specific additional information needs as well.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Garland Erbele, Chief Engineer, Water Rights Program
Al Erickson, PE, HDR Engineering, Inc.

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Treatment Facility
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May 3, 2000

Rick Trupe, Mayor
City of Castlewood
204 East Main Street
PO Box 17
Castlewood, SD 57223

Re: Flood control permit application FC-29

Dear Mayor Trupe:

As you probably know, the public hearing for consideration of the above referenced permit application has been rescheduled for a special meeting of the Water Management Board to be held in Watertown on May 25. It is my hope that Watertown and our consultant, HDR Engineering, Inc. can learn more specifically the concerns of all parties of record on this flood control permit application. I would like to meet personally with you, and others from Castlewood as you deem appropriate, to discuss and address Castlewood's specific concerns prior to the May 25 hearing.

Watertown is trying to get a day of meetings with the parties of record to get all issues and concerns on the table. We would appreciate the opportunity to discuss your specific concerns in a meeting in the afternoon of Wednesday, May 17, 2000 in the upstairs meeting room at City Hall. In order that we can be fully prepared, and to ensure that Watertown can be productive in the use of your time for the meeting, please forward any additional specific written concerns to my attention by Thursday, May 11.

I have included a copy of the project's March 2000 *"Amendment and Executive Summary for Technical Memorandum No. 1"* and a copy of HDR Engineering's April 20 letter to DENR for your information.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Garland Erbele, Chief Engineer, Water Rights Program
Al Erickson, PE, HDR Engineering, Inc.

CITY OF WATERTOWN

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May 3, 2000

Kay Farris
Judy and Larry Picht
Charles Rector
Troy and Karen Breitag
Susan and Mark Rieb
Ava Jo Holmes
Marge and Bill Swaboda
Trudy Rector

Re: Flood control permit application FC-29

Dear Ladies and Gentlemen:

The SD Department of Environment and Natural Resources has listed each of you as parties of record in the matter of Watertown's flood control permit application FC-29 for the Big Sioux River/Lake Kampeska Diversion Project. As you know, the public hearing for consideration of the above referenced permit application has been rescheduled for a special meeting of the Water Management Board to be held in Watertown on May 25.

It is my hope that Watertown and our consultant, HDR Engineering, Inc. can meet personally with you as a group to discuss your common concern regarding the increased potential for flooding your properties as a direct result of the proposed project prior to the May 25 hearing.

Watertown is trying to get a day of meetings with the parties of record to get all issues and concerns on the table. We would appreciate the opportunity to discuss your specific concerns in a meeting at 6:00 p.m. in the evening of Wednesday, May 17, 2000 in the upstairs meeting room at City Hall. In order that we can be fully prepared, and to ensure that Watertown can be productive in the use of your time for the meeting, please forward any additional specific written concerns to my attention by Thursday, May 11.

Not all of you need to respond to this letter if you continue to share the same common concerns. Ms. Farris, or someone else in your group, could be appointed as your spokesperson. Or, if you prefer, you may feel free to contact me on your own behalf.

I have included a copy of the project's March 2000 *"Amendment and Executive Summary for Technical Memorandum No. 1"* and a copy of HDR Engineering's April 20 letter to DENR for your information.

I have also included figure 4.5.1 of the project's October 1999 *"Technical Memorandum No. 1"*. I thought this figure might be of particular interest to you since it includes the outline of the water surface attributable to a river flow rate of 1500 cfs downstream of the Lake Kampeska inlet/outlet. In our meeting on May 17, we will discuss that for flows in the river reach downstream of the Lake Kampeska inlet/outlet below 1500 cfs, we anticipate seeing a little higher flows more often as a result of the proposed project. However, in that same river reach for flows of 1500 cfs or more, the proposed project has no additional flood impact beyond what exists today.

I look forward to the opportunity to have our engineering consultant explain this in further detail in our 6:00 p.m. meeting on Wednesday, May 17.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Garland Erbele, Chief Engineer, Water Rights Program
Al Erickson, PE, HDR Engineering, Inc.

enclosure

STATE OF SOUTH DAKOTA

OFFICE OF ATTORNEY GENERAL
500 EAST CAPITOL AVENUE
Pierre, South Dakota 57501-5070
Phone (605) 773-3215
FAX (605) 773-4106

MARK BARNETT
ATTORNEY GENERAL

LAWRENCE LONG
CHIEF DEPUTY ATTORNEY GENERAL

MAY 2000 WATER RIGHTS PROGRAM Pierre, SD

May 4, 2000

Re: In re Flood Control Permit Application No. FC-29, City of Watertown

Parties of Record:

I am writing to you in my capacity as counsel for the South Dakota Department of Environment and Natural Resources, Water Rights Program.

According to the records of the South Dakota Department of Environment and Natural Resources, you are listed as a party in the above-entitled matter. On May 3, 2000, a hearing chairman was appointed to hear any prehearing motions that may arise in this matter. I am enclosing a copy of the Board's Order. If you file any motions of this nature, please send any original documents to Chief Engineer Garland Erbele, Water Rights Program, Foss Building, 523 East Capitol Avenue, Pierre, South Dakota 57501. Also, please provide copies to myself and to all parties of record. A copy of the list is enclosed.

Further, if any of you are represented by an attorney, please provide this correspondence to your lawyer. Your lawyer will want to file a Notice of Appearance in order to ensure that he or she receives all prehearing documents in this matter. Corporations, associations, foundations, and other similar entities are required to obtain the services of attorneys in order to appear before South Dakota administrative agencies. This statement is not intended to suggest, of course, that individuals are required to hire an attorney in order to appear before the South Dakota Water Management Board.

If you have any questions about this correspondence, please feel free to contact me.

Sincerely,

Diane Best

Diane Best
Assistant Attorney General

DB:nan
Enclosure
cc: Garland Erbele, Chief Engineer

BEFORE THE

SOUTH DAKOTA WATER MANAGEMENT BOARD

IN RE FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	)))	APPOINTMENT OF HEARING CHAIRMAN

The South Dakota Water Management Board hereby appoints Rodney Freeman to act as Hearing Chairman in the above-entitled contested case proceeding. This appointment includes the authority to set hearing for and act upon motions involving prehearing discovery, scheduling, briefing, continuances, or other prehearing matters. Further, this appointment includes the authority to make recommended rulings on substantive prehearing motions. The Board retains full authority to make final binding decisions with regard to substantive matters.

Dated this 3rd day of April, 2000.

BY THE BOARD:

Francis E Brink

Francis Brink, Chairman
South Dakota Water Management Board
(on behalf of the Board)

pld41900.db(nan)

PARTIES OF RECORD
FLOOD CONTROL PERMIT APPLICATION NO. FC-29

APPLICANT

Richard L. Schlechter
City of Watertown
P. O. Box 910
Watertown, SD 57201-0910

Vincent A. Foley
City Attorney
P.O. Box 845
Watertown, SD 57201-0845

PETITIONERS

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

Rick Trupe, Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
Watertown, SD 57201

Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

Marge and Bill Swaboda
1730 38th Avenue NW
Watertown, SD 57201

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

SD Dept. of Game, Fish and Parks
c/o Tim Olson
523 East Capitol Ave.
Pierre, SD 57501-3182

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star

May 4, 2000

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing
Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec &
Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

Garland Erbele, Chief Engineer
Water Rights Program
523 East Capitol
Pierre, SD 57501



Dear Mr. Erbele:

Attached is a set of draft and preliminary plans for the construction of the proposed weir at the Lake Kampeska inlet/outlet and the replacement of the Lake Kampeska outlet control structure. I would greatly appreciate your staff's time in reviewing the enclosed preliminary plans so that we can incorporate any staff suggestions, or address design concerns, through minor design changes at this point in the project.

I look forward to hearing from you or your staff soon in this regard. Please feel free to contact me or HDR Engineering's project manager, Al Erickson, with any questions or comments.

I also have specification books complete with contract forms, etc. if you need them to facilitate your review.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

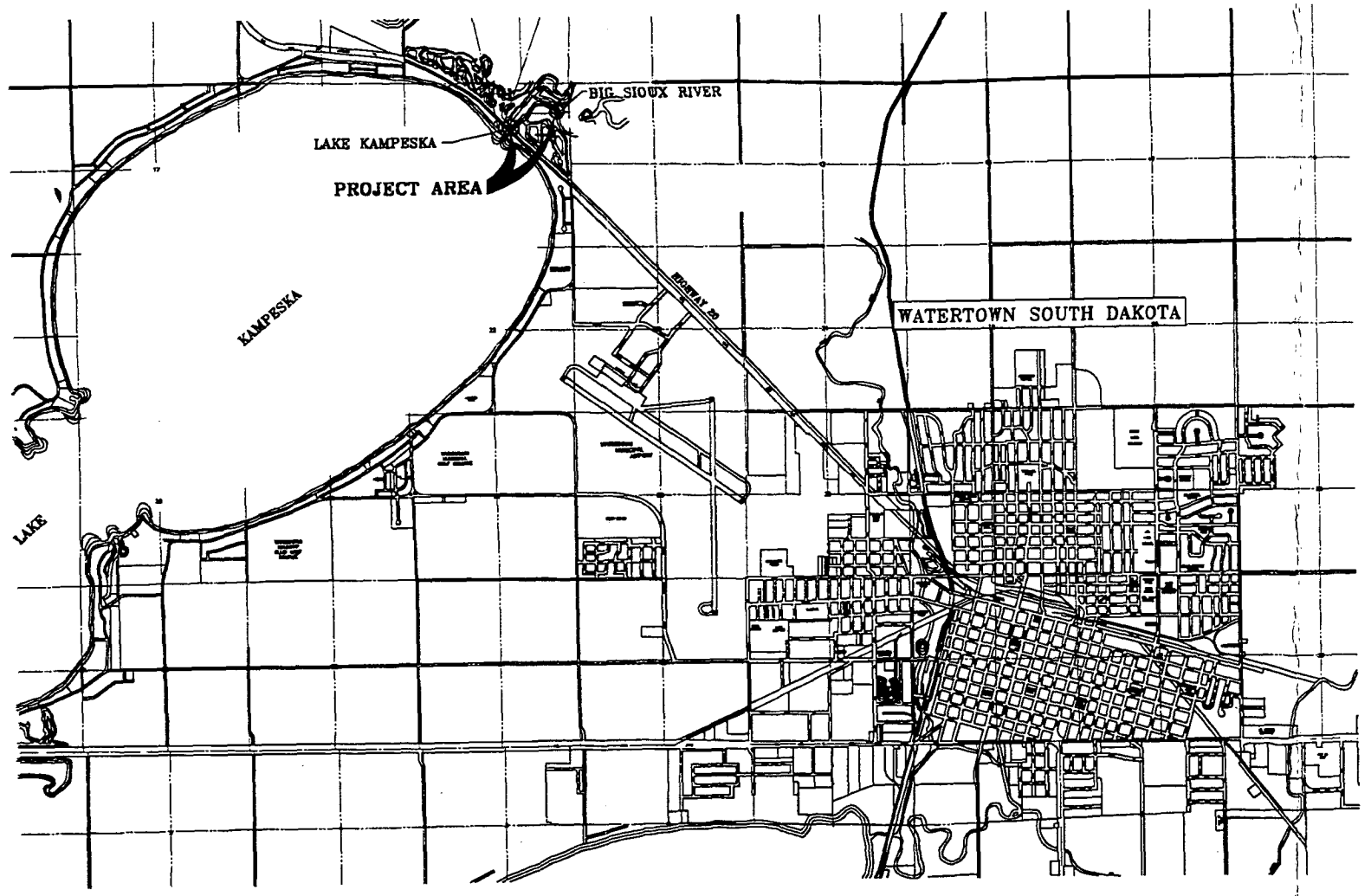
MAY 2000
WATER RIGHTS
PROGRAM
Pierre, SD

CITY OF WATERTOWN, SOUTH DAKOTA

LAKE KAMPESKA AND BIG SIOUX RIVER WATER QUALITY DIVERSION WEIR PROJECT

HDR Project No. 08080-007-135
Watertown Project #XX-XX
April 2000

DRAFT



INDEX OF DRAWINGS

C-1 LOCATION MAP, GENERAL NOTES AND SCHEDULE OF QUANTITIES
C-2 LAYOUT PLAN - LAKE KAMPESKA
C-3 LAYOUT PLAN - BIG SIOUX RIVER
C-4 TYPICAL WEIR SECTION AND FISH OPENING
S-1 GATE STRUCTURE PLAN, SECTION AND NOTES
S-2 GATE STRUCTURE PLAN, SECTIONS AND DETAILS

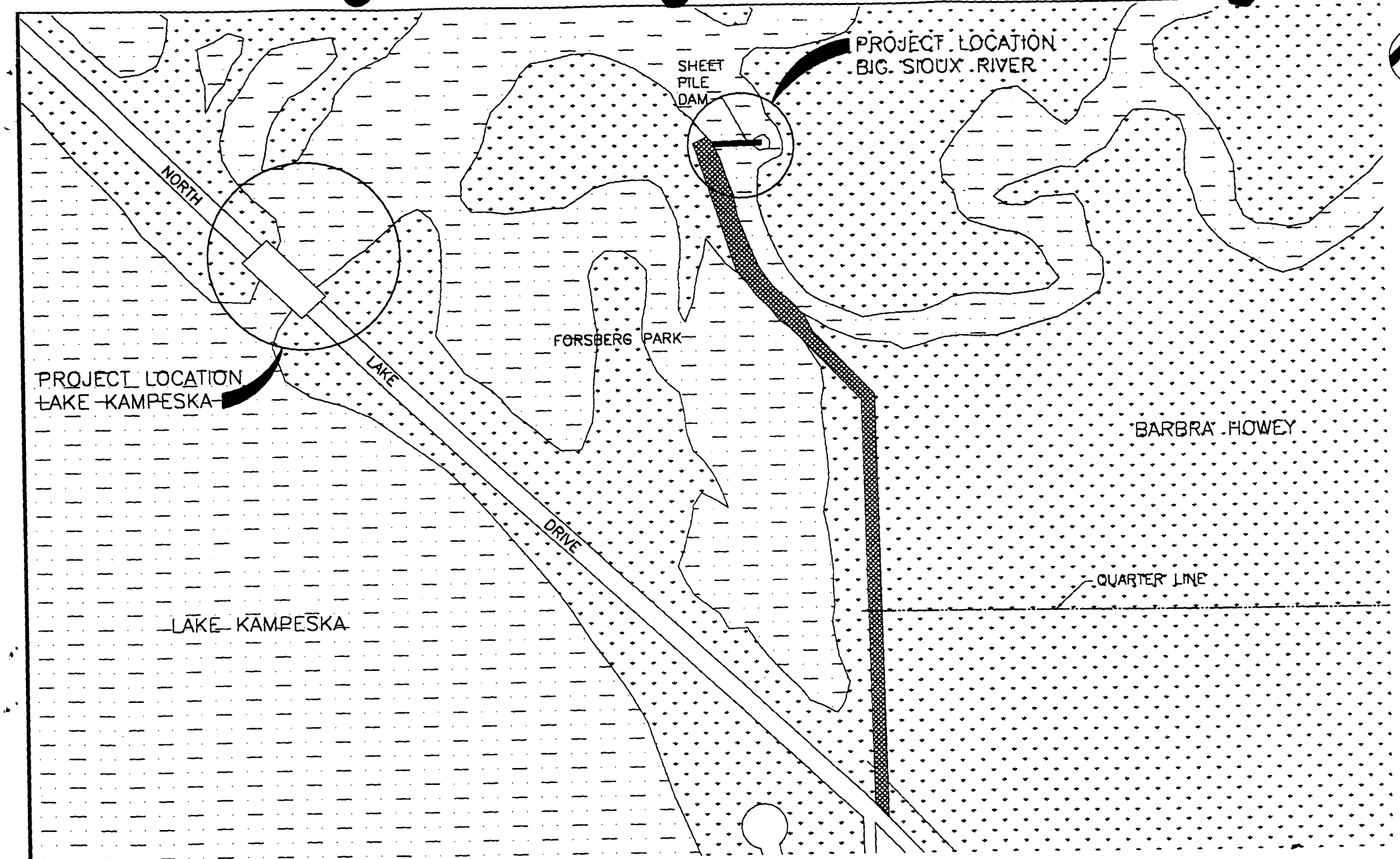
HDR
HDR Engineering, Inc.

600 SOUTH CLIFF AVENUE
SUITE 106
SIOUX FALLS, SOUTH DAKOTA 57104
(605) 338-2660
FAX: (605) 338-2695

I HEREBY CERTIFY THAT THESE PLANS AND THE SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.

_____ REG. NO. _____

DRAFT



LOCATION MAP

N

GENERAL NOTES:

1. EXISTING TOPOGRAPHY AND SURVEY INFORMATION SHOWN ON PLANS ARE BASED ON SURVEY PERFORMED BY AASON ENGINEERING CO. INC.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL UTILITIES AND PROTECT THEM FROM DAMAGE. UNDERGROUND UTILITIES, WHETHER INDICATED OR NOT, WILL BE LOCATED AND FLAGGED BY THE UTILITIES AT THE REQUEST OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT BEGIN EXCAVATION UNTIL UTILITIES HAVE BEEN LOCATED AND IDENTIFIED AND THEN ONLY WITH CARE TO AVOID ANY POSSIBILITY OF DAMAGE TO THE UTILITY FACILITY. THE CONTRACTOR SHALL BEAR THE TOTAL EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES DAMAGED BY OPERATION IN CONNECTION WITH PROSECUTION OF THE WORK. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION EFFORTS WITH ALL OTHER LOCAL UTILITY COMPANIES PERTINENT TO PROSECUTION OF THE WORK.
3. CONTRACTOR SHALL APPLY FOR AND OBTAIN ALL PERMITS NECESSARY TO PERFORM WORK EXCEPT THE U.S. ARMY CORPS OF ENGINEERS, SECTION 404 PERMIT AND SOUTH DAKOTA DEPARTMENT OF NATURAL RESOURCES FLOOD PERMIT. THESE PERMITS ARE PENDING AND HAVE BEEN SUBMITTED BY THE CITY.
4. CONTRACTOR STAGING AND STORAGE AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER THAN EXISTING UPON COMPLETION OF USE.
5. ALL PAVED HAUL ROUTES SHALL BE MAINTAINED FREE OF MUD AND DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS. ANY PAVEMENT DAMAGE RESULTING FROM HAULING OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
6. CONTRACTOR TO MAINTAIN SURVEY STATIONS AND CONTROL LOCATIONS.
7. CONTRACTOR SHALL PROVIDE A WORK SEQUENCE SCHEDULE TO THE ENGINEER WITHIN 10 DAYS AFTER NOTICE TO PROCEED. UPON ENGINEER'S APPROVAL OF THE SCHEDULE AND PLANS, WORK MAY COMMENCE.
8. THE GRADE SHALL BE MAINTAINED SO THAT THE SURFACE IS WELL DRAINED AT ALL TIMES. WHEN NECESSARY, TEMPORARY DRAINS AND DRAINAGE DITCHES SHALL BE INSTALLED TO INTERCEPT OR DIVERT SURFACE WATER WHICH MAY AFFECT THE WORK.
9. THE CONTRACTOR WILL BE REQUIRED TO FURNISH A SITE SATISFACTORY TO THE ENGINEER FOR THE DISPOSAL OF BROKEN CONCRETE, STEEL SHEETING AND OTHER OBJECTIONABLE MATERIAL REMOVED FROM THE PROJECT.

SCHEDULE OF QUANTITIES

		LAKE KAMPESKA	BIG SIOUX RIVER
DESCRIPTION	UNIT	QUANTITY	QUANTITY
SHEET PILE WEIR REMOVAL	LF		XXXX
RIPRAP	TONS	XXXX	XXXX
DRIVEN STEEL PIPE PILING	LF	1,000	
STEEL SHEET PILING	LF	XXXX	XXXX
CONCRETE GATE STRUCTURE	LS	XXXX	
ALUMINUM STRUCTURE	LS	XXXX	
SLUICE GATES	EA	2	
WOODEN STOP LOGS	LS		1
GRAVEL ACCESS ROAD	TONS	XXXX	

LEGEND

- LAND
- WATER
- HAUL ROUTE

DRAFT

HDR

HDR Engineering, Inc.

Project Manager	
A. ERICKSON	
Architect	I&C/Process
Civil	Mechanical
Electrical	Structural
Project Engineer	Drawn By
L. CARRETTE ZOOK	M. ERIKSEN

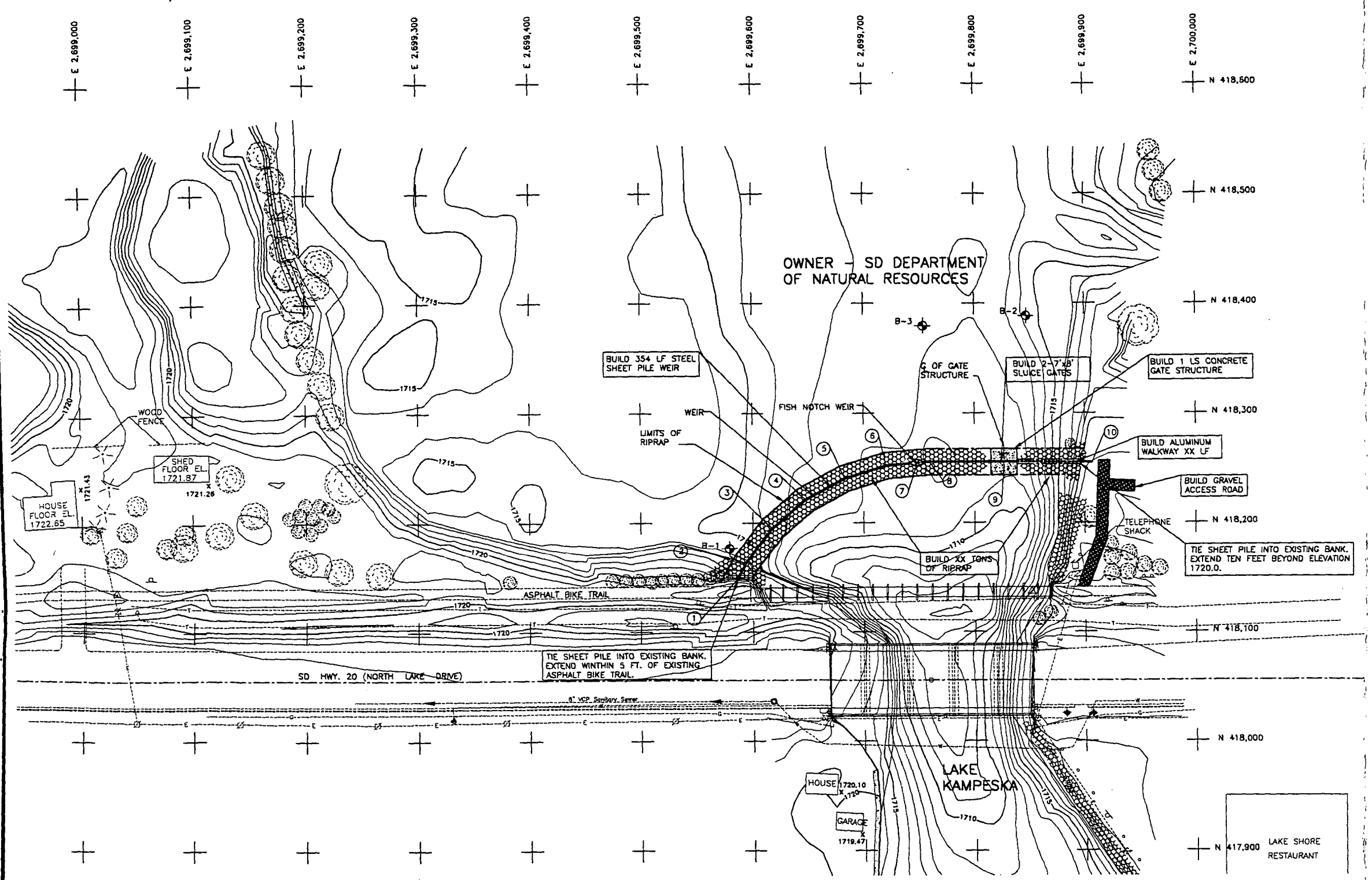
Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

Watertown, South Dakota

2000

LOCATION MAP, GENERAL NOTES AND SCHEDULE OF QUANTITIES

Date	Project No.	Drawing No.	Issue
APRIL 2000	08080-007-135	C-1	A
Scale: AS NOTED	File Name: C-1.DWG		



N

50 0 50 100
SCALE IN FEET

LEGEND
- WATER VALVE
- STEEL POST
- TELE. TERM.
- FIRE HYDRANT
- MANHOLE
- SIGN
- POWER POLE
- LIGHT POLE
- TREE
- GAS LINE
- WATER LINE
- OVERHEAD ELEC.
- EXIST. CONTOUR
- CONCRETE
- RIPRAP
- GRAVEL
- SHEET PILE
- B-1 APPROX. LOCATION OF BORING

COORDINATE TABLE

POINT NO.	NORTHING	EASTING	TOP OF WEIR ELEV. (NGVD)
1	418,148.16	2,699,585.30	1718.2
2	418,163.00	2,699,593.35	1718.2
3	418,194.89	2,699,617.38	1718.2
4	418,221.07	2,699,647.53	1718.2
5	418,240.39	2,699,682.47	1718.2
6	418,252.00	2,699,720.67	1718.2
7	418,254.47	2,699,749.61	1715.0
8	418,255.38	2,699,760.45	1718.2
9	418,255.35	2,699,826.97	1718.2
10	418,255.30	2,699,908.97	1718.2

NOTES:
1. COORDINATES ARE BASED ON AN ASSUMED LOCAL PLANE SYSTEM. A ⅜" REBAR IS LOCATED AT N XXX,XXX , E X,XXX,XXX.
2. BENCHMARK IS A STANDARD DISK IN CONCRETE SIDEWALK ON THE NORTH SIDE OF HIGHWAY 20 BRIDGE OVER LAKE KAMPESKA. ELEVATION= XXXX.XX (NGVD), N XXX,XXX E X,XXX,XXX.
3. SEE DRAWING C-4 FOR WEIR SECTION AND DETAILS.
4. SEE DRAWING S-1 FOR CONCRETE GATE STRUCTURE.

DRAFT

HDR

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

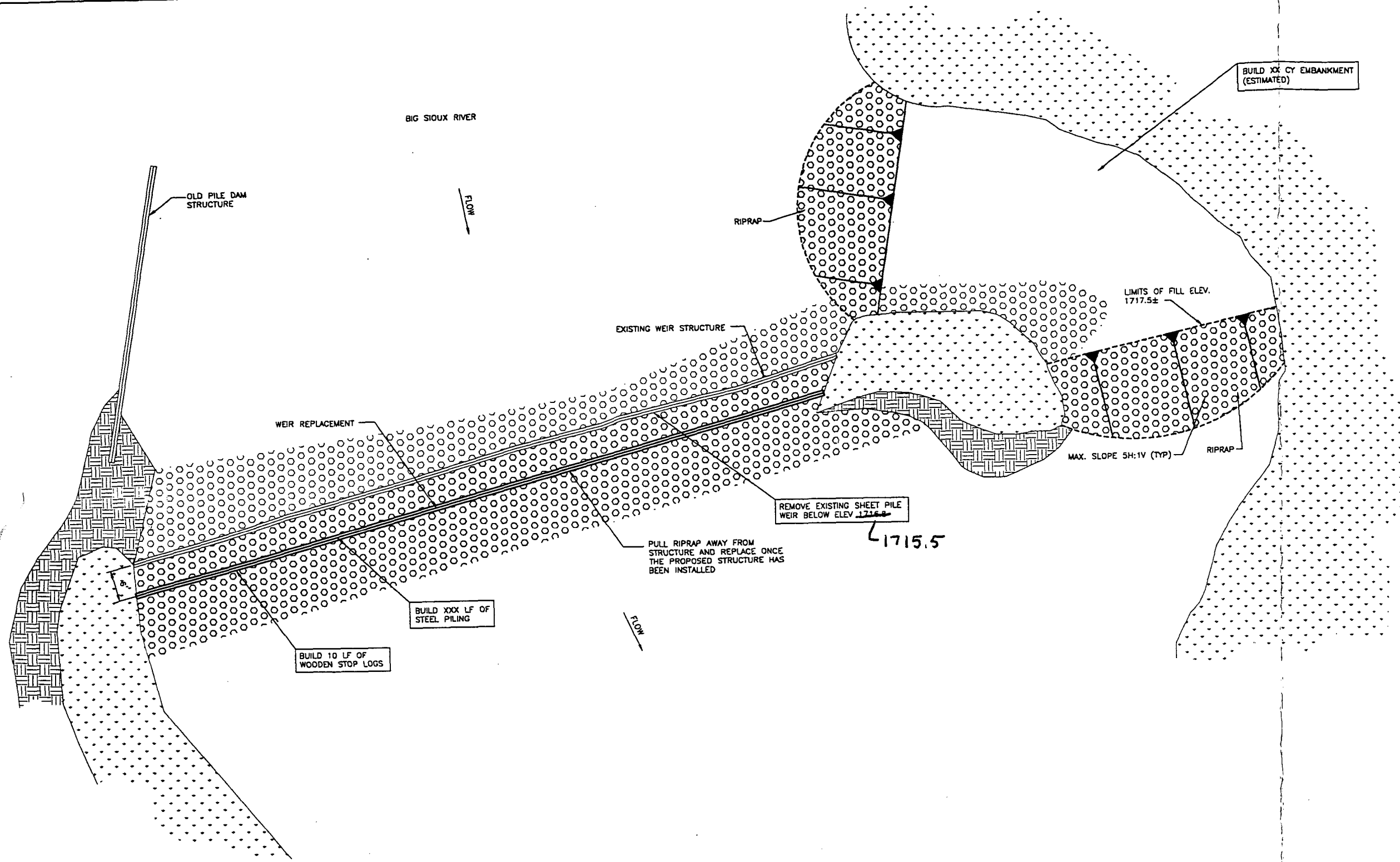
Project Manager: A. ERICKSON
Architect | MEC/Process
Civil | Mechanical
Electrical | Structural
Project Engineer: L. CARRETTE ZOOK | Drawn By: M. ERIKSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

Watertown, South Dakota 2000

SITE LAYOUT LAKE KAMPESKA

Date	Project No.	Drawing No.	Issue
APRIL 2000	08080-007-135	C-2	A
Scale: 1"=100'	File Name: C-2.DWG		



NOTES:
1. TOPOGRAPHIC INFORMATION BASED ON INFORMATION OBTAINED FROM THE CITY OF WATERTOWN NO DETAILED SURVEY CONDUCTED FOR THE WEIR REPLACEMENT. HORIZONTAL CONTROL WILL BE ESTABLISHED BY THE ENGINEER.
2. SEE DRAWING C-5 FOR WEIR SECTION. SEE DRAWING C-6 FOR WOODEN STOP LOG DETAIL.

DRAFT

HDR Engineering, Inc.

Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

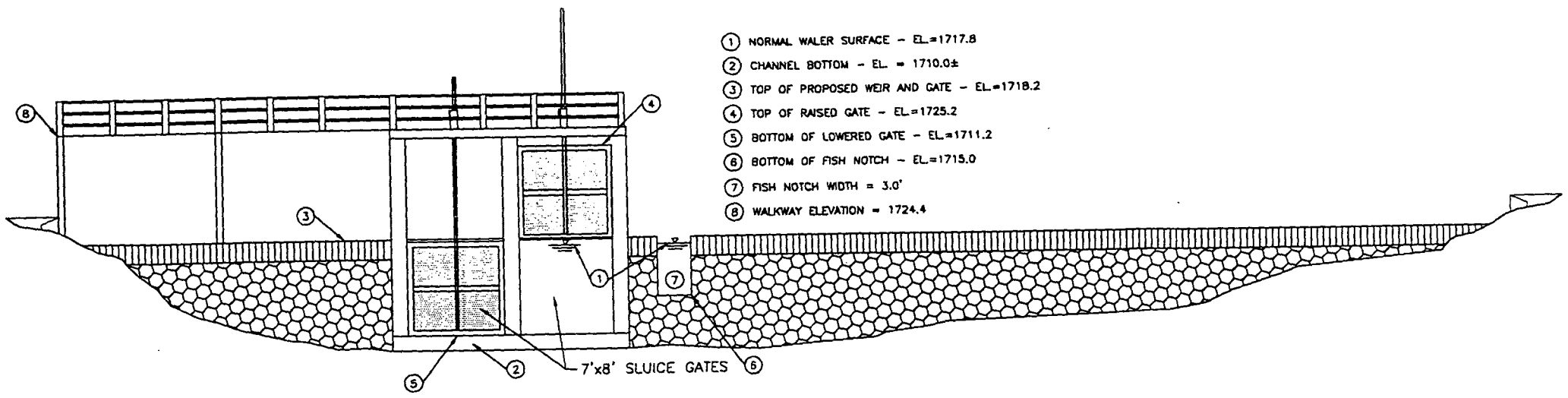
Project Manager: A. ERICKSON
Architect | I&C/Process
Civil | Mechanical
Electrical | Structural
Project Engineer: L. CARRETTE ZOOK | Drawn By: M. ERICSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project
Watertown, South Dakota
2000

SITE LAYOUT
BIG SIOUX RIVER

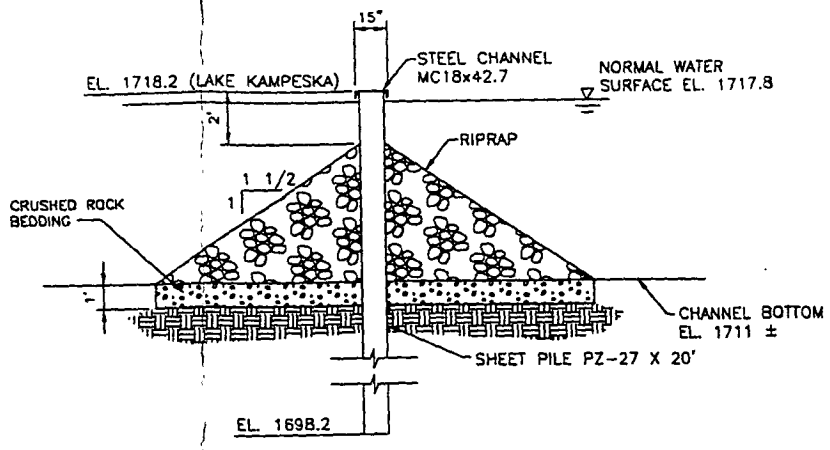
Date	Project No.	Drawing No.	Issue
APRIL 2000	08080-007-135	C-3	A
Scale: 1"=20'	File Name: C-3.DWG		

92



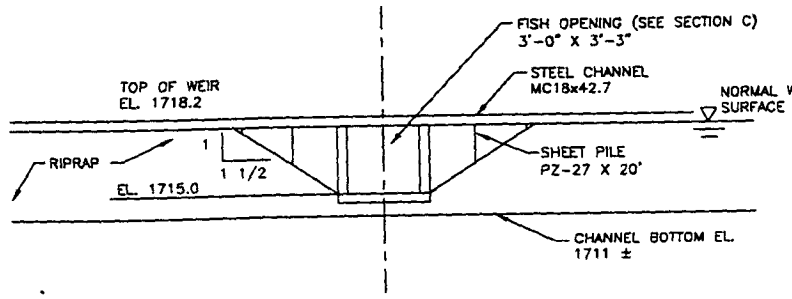
KAMPESKA SLUICE GATES AND FISH OPENING CROSS SECTION

NO SCALE



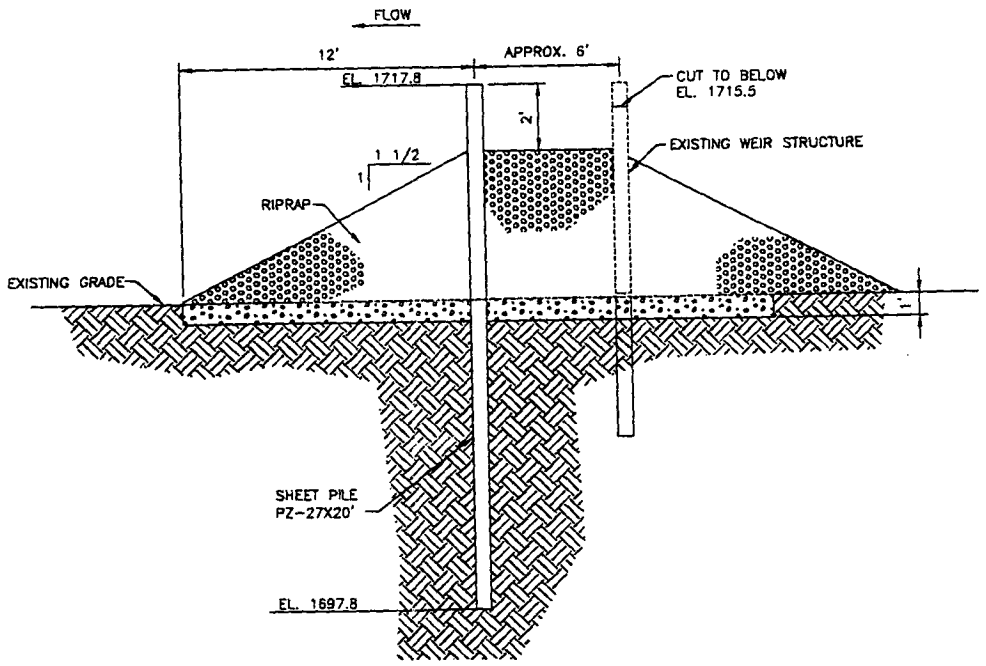
WEIR SECTION – LAKE KAMPESKA

NO SCALE



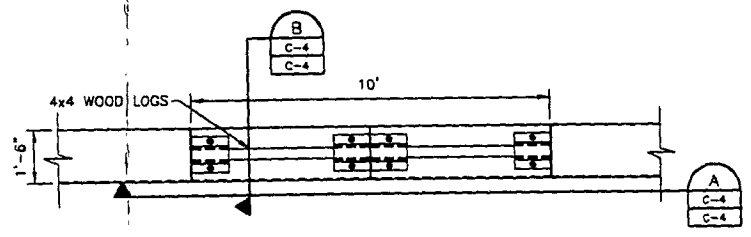
FISH OPENING ELEVATION

NO SCALE



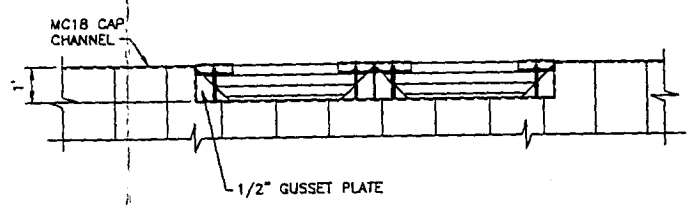
WEIR SECTION – BIG SIOUX RIVER

NO SCALE



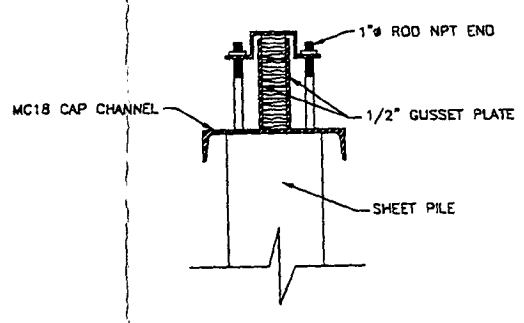
WOODEN STOP LOG DETAIL – PLAN

SCALE: 3/16"=1'-0"



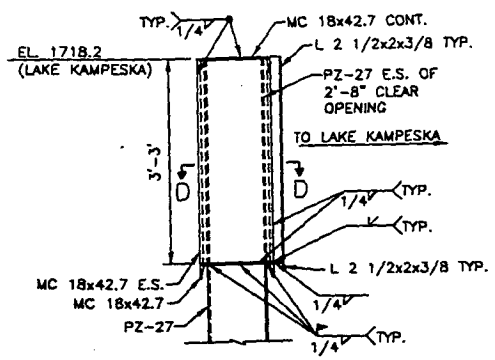
SECTION A (C-4 / C-4)

SCALE: 3/16"=1'-0"



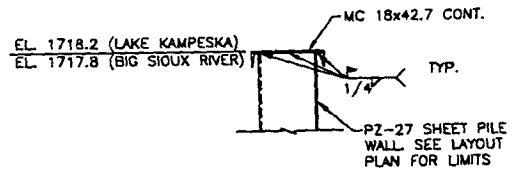
SECTION B (C-4 / C-4)

SCALE: 1/2"=1'-0"



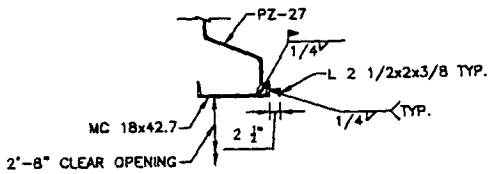
SECTION C

NO SCALE



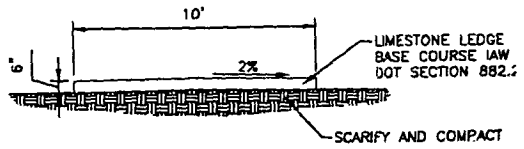
SECTION B

NO SCALE



SECTION D–D

NO SCALE



ROCK ACCESS ROAD

NO SCALE

NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR THE DEVELOPMENT OF METHOD OF STAGING OF CONSTRUCTION REQUIRED TO PLACE THE SHEET PILE WEIR, FISH OPENING AND RIPRAP.
2. DO NOT CUT OFF SHEET PILE TO FINAL ELEVATION UNTIL SETTLEMENT IS COMPLETE SEE SPECIFICATION SECTION 02361.

DRAFT

HDR Engineering, Inc.

Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

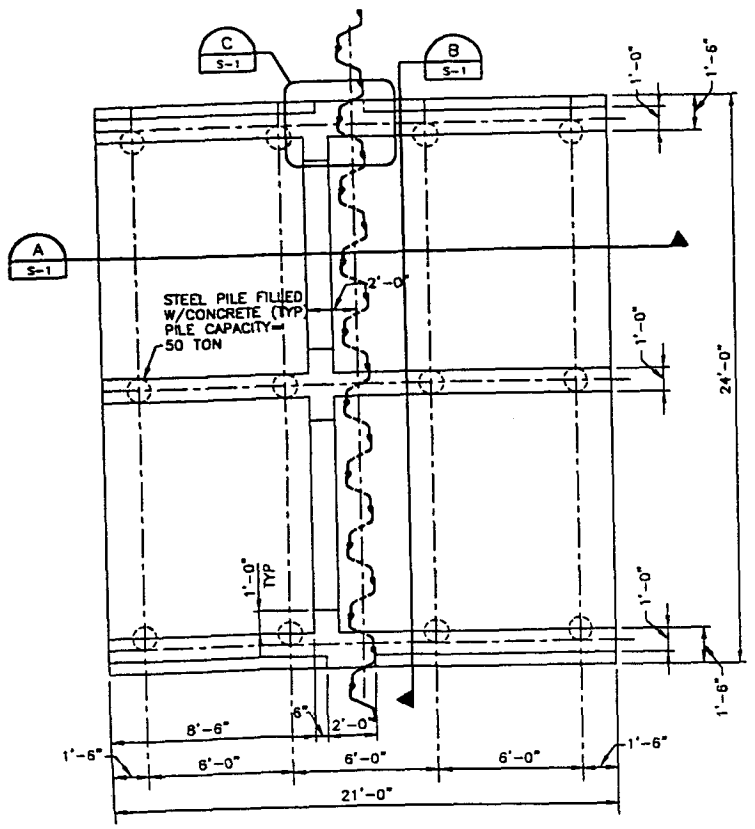
Project Manager: A. ERICKSON
Architect | MEC/Process
Civil | Mechanical
Electrical | Structural
Project Engineer: L. CARRETTE ZOOK | Drawn By: M. ERIKSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

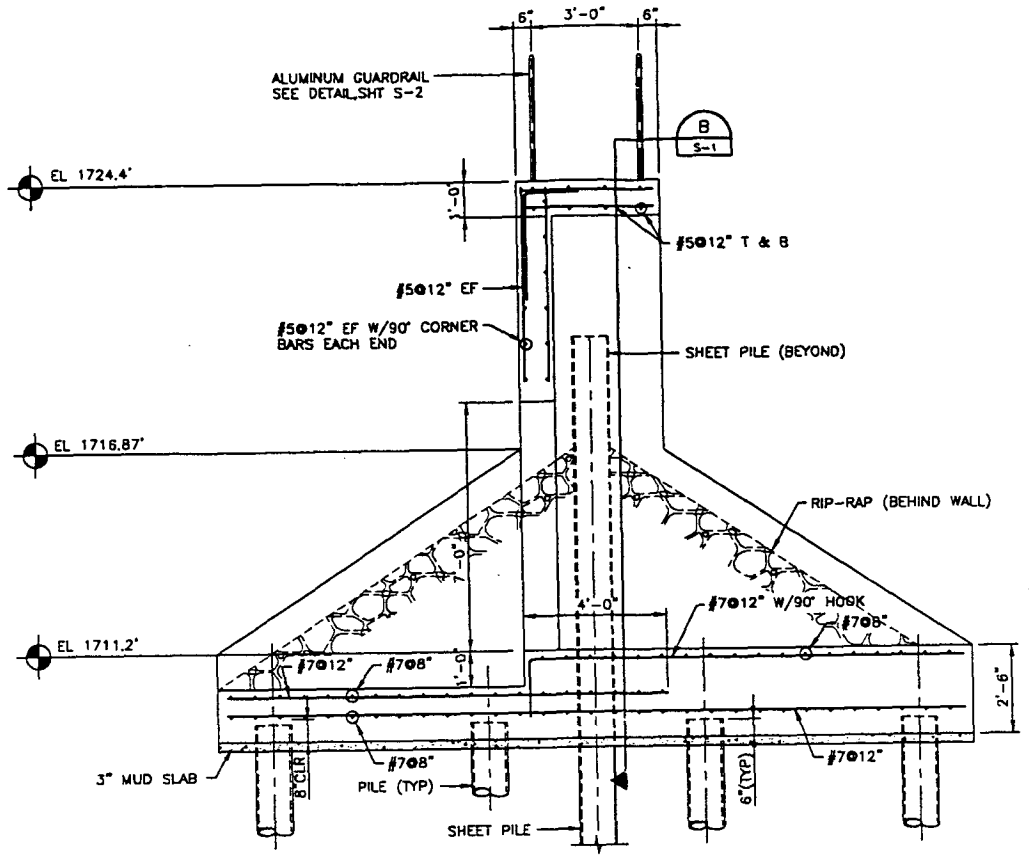
Watertown, South Dakota 2000

TYPICAL WEIR SECTION AND FISH OPENING

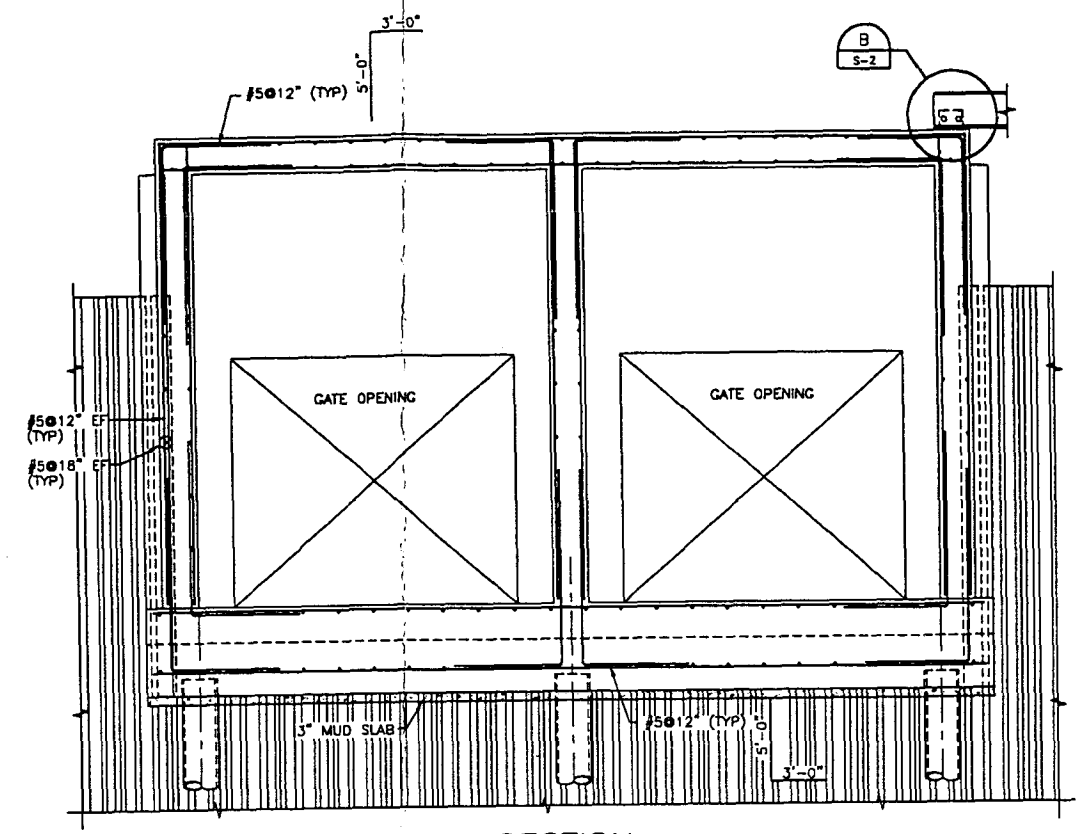
Date	Project No.	Drawing No.	Issue
APRIL 2000	08080-007-135	C-4	A
Scale: AS NOTED	File Name: C-4.DWG		



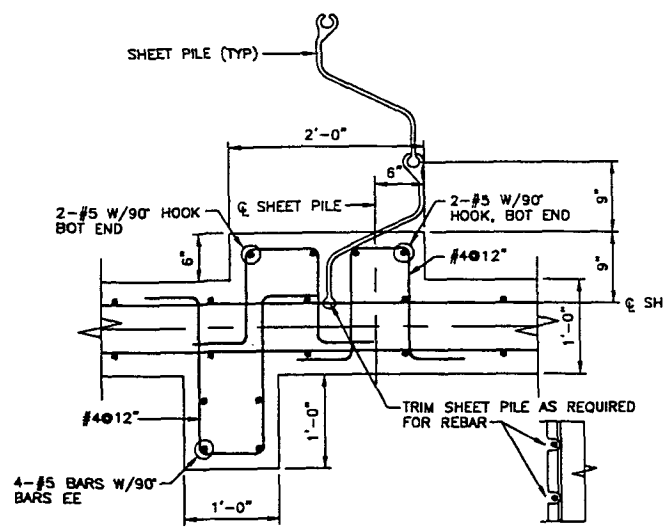
FOUNDATION PLAN
SCALE: 1/4"=1'-0"



SECTION A
SCALE: 3/8"=1'-0"



SECTION B
SCALE: 3/8"=1'-0"



EXPANDED PLAN
SCALE: 1"=1'-0"

APPLICABLE CODES AND STANDARDS

1. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318).
2. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN 9TH ED.
3. AMERICAN WELDING SOCIETY (AWS) D1.1, D1.2, D1.3, D1.4.

DESIGN LOADS

1. DEAD LOAD - ACTUAL WEIGHT OF MATERIALS USED
2. LIVE LOAD 100PSF FOR WALKWAY

FOUNDATION DESIGN

1. THE FOUNDATION DESIGN IS BASED ON 50 TON PILES

MATERIALS OF CONSTRUCTION

1. NORMAL WEIGHT CONCRETE	28 DAY COMPRESSIVE STRENGTH
GENERAL STRUCTURAL CONCRETE	F'c = 4500 PSI
2. REINFORCING STEEL - ASTM A615 - GRADE 60	Fy = 60 KSI
3. ALUMINUM 6061-T6	Fy = 11 KSI
4. STRUCTURAL STEEL	
CHANNELS AND PLATE - ASTM A 36	Fy = 36 KSI
BOLTS - ASTM A325	
ANCHOR BOLTS - ASTM A36 OR ASTM F1554	Fy = 36 KSI
WELDING ELECTRODES - E70XX	

CONSTRUCTION NOTES

A. GENERAL CONSTRUCTION NOTES

1. STRUCTURAL DRAWINGS SHALL NOT BE SCALED.
2. WHERE DIMENSIONS ARE PROVIDED FOR OPENINGS, BLOCKOUTS, AND CURBS, ETC, BUT MAY BE AFFECTED BY THE EQUIPMENT PURCHASED, THE CONTRACTOR SHALL VERIFY THE INFORMATION PROVIDED PRIOR TO CONSTRUCTION
3. CONTRACTOR SHALL VISIT SITE AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS, SHORING AND TEMPORARY BRACING.
   A. DO NOT PLACE CONSTRUCTION MATERIALS OR OTHER CONSTRUCTION LOADS ON THE STRUCTURE SUCH THAT THE LOADS PLACED EXCEED THE CAPACITY OF THE STRUCTURE.
   B. TAKE INTO CONSIDERATION THAT FULL STRUCTURAL CAPACITY OF MANY STRUCTURAL MEMBERS IS NOT REALIZED UNTIL STRUCTURAL ASSEMBLY IS COMPLETE.
   C. PROVIDE TEMPORARY BRACING AND GUYING TO PROVIDE STABILITY AND RESIST ALL LOADS TO WHICH THE PARTIALLY COMPLETED STRUCTURE MAY BE SUBJECTED INCLUDING ERECTION EQUIPMENT AND IT'S OPERATION. ADEQUACY OF TEMPORARY BRACING AND GUYING FOR THIS PURPOSE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

B. FOUNDATIONS

1. HORIZONTAL CONSTRUCTION JOINTS IN COLUMN, FOOTINGS, SLABS ON GRADE AND MAT FOUNDATIONS ARE NOT PERMITTED.
2. DOWELS FOR ALL WALLS EMBEDDED INTO MAT FOUNDATIONS SHALL BE THE SAME SIZE AND SPACING AS VERTICAL WALL REINFORCEMENT.

C. CONCRETE

1. ALL REINFORCEMENT SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315.
2. CONTINUOUS REINFORCEMENT IN WALLS AND FOOTINGS MAY BE SPLICED AS REQUIRED, PROVIDED THAT BARS ARE ON THE LONGEST PRACTICAL LENGTH AND ALL SPLICES ARE SHOWN ON THE REINFORCING BAR SHOP DRAWINGS. SPLICES ARE TO BE STAGGERED WHEN POSSIBLE. PROVIDE LAP SPLICES AND DEVELOPMENT LENGTHS IN ACCORDANCE WITH THE DEVELOPMENT LENGTH AND LAP SPLICE SCHEDULE.

F. EPOXY DOWELLED ANCHORS

1. REINFORCING, BAR DOWELS, REINFORCING BARS, THREADED RODS, BOLTS ETC. WHICH ARE INDICATED TO BE EPOXY DOWELLED INTO CONCRETE SHALL BE ACCOMPLISHED USING HIT HY-150 ADHESIVE BY HILTI FASTENING SYSTEMS OF TULSA, OK.(ICBO REPORT NO. ES AC58 OR ASTM E-1512), OR EQUAL.
2. DRILL AND CLEAN ALL HOLES, AND INSTALL ALL ANCHORS IN COMPLETE ACCORDANCE WITH MANUFACTURERS PUBLISHED RECOMMENDATIONS, AS WELL AS ALL APPLICABLE BUILDING CODES OR ENGINEERING REPORTS.

B. BOLTS OR THREADED RODS

DIAMETER	EMBEDMENT DEPTH
3/8"(10)	5" (125)
1/2"(12)	7" (175)
5/8"(16)	8" (200)
3/4"(19)	10"(250)
7/8"(22)	10"(250)
1" (25)	13"(330)

H. STRUCTURAL STEEL

1. ALL FIELD BOLTED SHEAR CONNECTIONS SHALL BE MADE WITH 7/8"(22) DIAMETER A307 BOLTS, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE
2. ALL GROOVE WELDS INDICATED ON PLANS AND SECTIONS SHALL BE COMPLETE JOINT PENETRATION WELDS (CJP) UNLESS SPECIFICALLY INDICATED TO BE PARTIAL PENETRATION WELDS.
3. E70XX ELECTRODES SHALL BE USED FOR ALL WELDING. ALL WELDING SHALL BE PERFORMED BY PROPERLY QUALIFIED WELDERS, AS PRESCRIBED UNDER "STANDARD QUALIFICATION PROCEDURE" OF THE AMERICAN WELDING SOCIETY.

M. QUALITY ASSURANCE

1. THE OWNER SHALL EMPLOY QUALIFIED SPECIAL INSPECTORS TO PERFORM INSPECTIONS IN ACCORDANCE WITH THE BUILDING CODE.

DRAFT

HDR

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager: A. ERICKSON
Architect | MEC/Process
Civil | Mechanical
Electrical | Structural
Project Engineer | Drawn By: D. DENTON

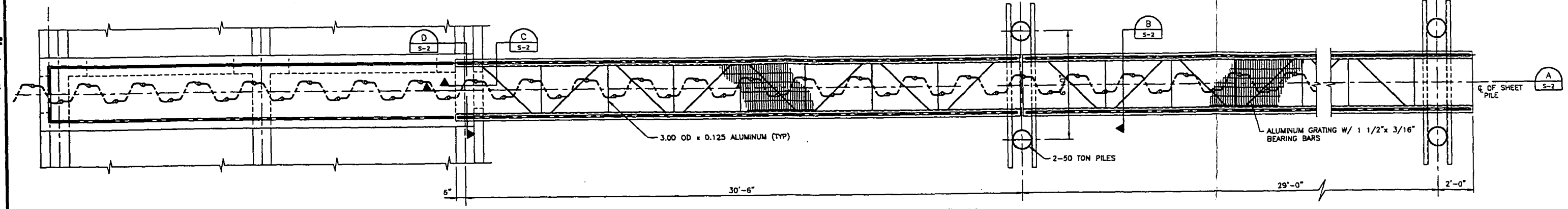
Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

Watertown, South Dakota 2000

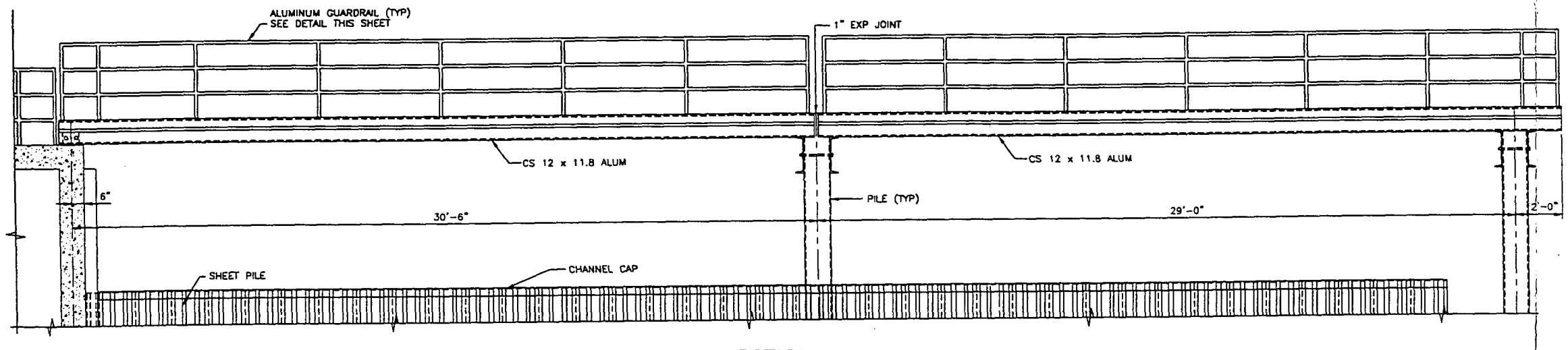
GATE STRUCTURE PLAN, SECTION AND NOTES

Date	Project No.	Drawing No.	Issue
APRIL 2000	08080-007-135	S-1	A
Scale: AS NOTED	File Name: S-1.DWG		

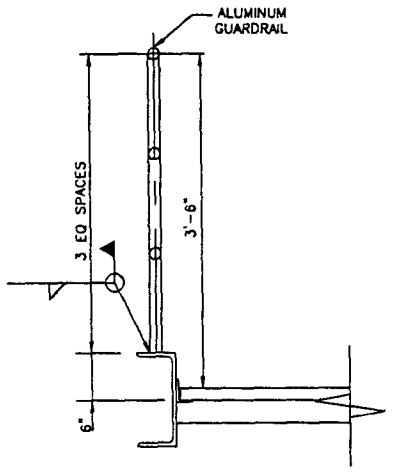
94



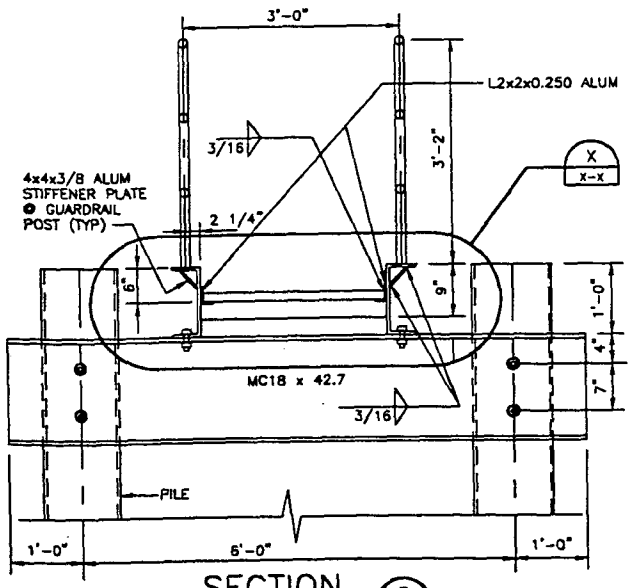
PLAN
SCALE: 3/8"=1'-0"



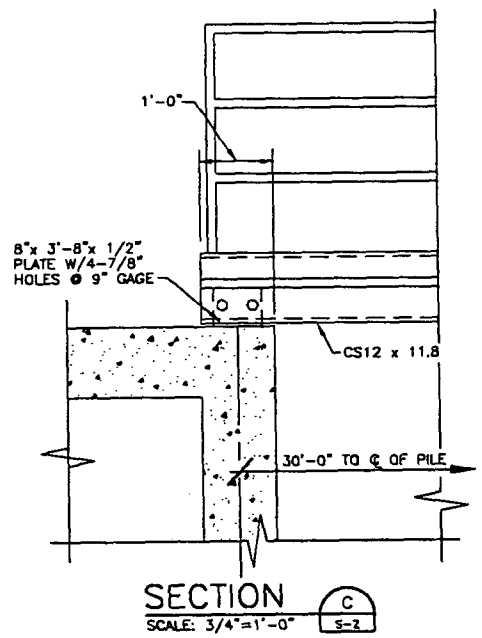
SECTION A
SCALE: 3/8"=1'-0" S-2



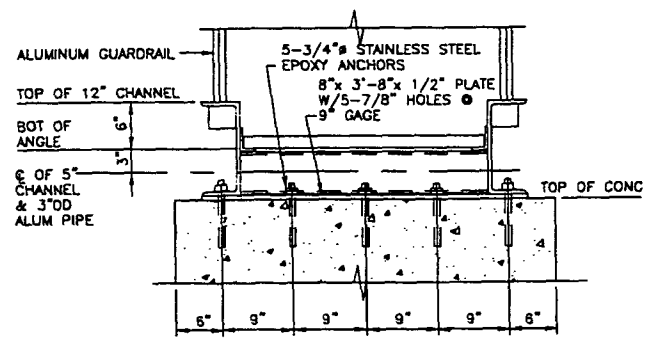
GUARDRAIL DETAIL
SCALE: 1"=1'-0"



SECTION B
SCALE: 3/4"=1'-0" S-2



SECTION C
SCALE: 3/4"=1'-0" S-2



SECTION D
SCALE: 1"=1'-0" S-1

GUARDRAIL DETAIL
SCALE: 1"=1'-0"

DRAFT

HDR Engineering, Inc.

Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager	A. ERICKSON
Architect	
Civil	
Electrical	
Project Engineer	
Mech/Process	
Mechanical	
Structural	
Drawn By	D. DENTON

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

Watertown, South Dakota 2000

GATE STRUCTURE PLAN, SECTIONS AND DETAILS

Date	Project No.	Drawing No.	Issue
APRIL 2000	08080-007-135	S-2	A
Scale: AS NOTED	File Name: S-2.DWG		

Lake Pelican Water Project District

RECEIVED
MAY 2000
CITY OF WATERTOWN
WATERTOWN, SD

May 8, 2000

Richard L. Schlechter
City of Watertown
P. O. Box 910
Watertown SD 57201-0910

Re: Flood control permit application FC - 29

We are in receipt of your letter dated May 2, 2000.

We have forwarded the information to our engineering consultant for review. However, because of prior committements, they will not be able to address this information before May 15, 2000.

Hopefully we will have the information by the May 17th meeting.

Sincerely,

Julian L. Wick
Chairman

cc: Jay Leibel, Ericsson, Ericsson & Leibel

4002 20th Avenue SW ✦ Watertown, SD 57201-7033 ✦ Phone: 605-882-6041 ✦ Email: jrwick@dailypost.com

DENR Water Rights

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star



May 10, 2000

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec & Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown Community Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water Treatment Facility
605-882-6243
FAX 605-882-6242

Julian Wick
Lake Pelican Water Project District
4002 – 20th Avenue SW
Watertown, SD 57201-7033

Re: Flood control permit application no. FC-29

Dear Mr. Wick:

This letter shall serve to confirm our meeting at 8:00 p.m. on Wednesday, May 17, 2000 to discuss the District's specific concerns regarding the above referenced flood control permit application. The meeting location is the upstairs meeting room of city hall.

It would be very helpful if the District would provide to me days prior to May 17 a list of the specific issues that need to be addressed prior to the approval of the application to which the District's April 19 petition referred. Knowing your concerns is important to Watertown, and to the timely completion of the project.

With the technical assistance of our engineering consultant, we have developed a great deal of information pertaining to the project. By comparing the District's list of concerns against the topics addressed in the project information developed to date, we can determine very quickly if we have missed something. We have also learned through the review process of this project that sometimes the answer to a concern has been included in the project information, but it is not easily found or understood due to no fault of the concerned or interested party. It is Watertown's preference to address as many of the District's specific issues now rather than later.

I understand that it may take additional time for the District's consultant to review the latest project information. Watertown and HDR Engineering welcome the opportunity to discuss with you at the May 17 meeting any additional concerns or issues that may remain, or present themselves, as a result of the District's review of the information recently submitted to you.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
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Waste Water Treatment Facility
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FAX 605-882-6242

May 10, 2000

Kay Farris
Judy and Larry Picht
Charles Rector
Troy and Karen Breitag
Susan and Mark Rieb
Ava Jo Holmes
Marge and Bill Swaboda
Trudy Rector

Re: Flood control permit application FC-29

Dear Ladies and Gentlemen:

I know I am jumping the gun by a day or so by sending out this meeting notice. Though I have not received any written comments as of this date, nor have I spoken to many of you, I have concluded from a conversation with Kay Farris that a meeting with Watertown's consultant, HDR Engineering, would be well received and a welcome opportunity for all of us to learn more about the project.

Please join me at **6:00 p.m. in the evening of Wednesday, May 17, 2000 in the upstairs meeting room at City Hall** to hear about the ***proposed Big Sioux River/Lake Kampeska Diversion project*** from HDR Engineering representatives, and to discuss your concerns and issues regarding the increased potential for flooding your properties as a direct result of the proposed project

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Garland Erbele, Chief Engineer, Water Rights Program
Al Erickson, PE, HDR Engineering, Inc.

Ericsson, Ericsson & Leibel

Richard L. Ericsson
Jay M. Leibel

Attorneys & Counselors at Law
P.O. Box 406
100 N. Egan Avenue
Madison, SD 57042
605-256-4597
Fax 605-256-2424

L.F. Ericsson (1909-1979)
Robert R. Spencer (1925-1986)



May 15, 2000

South Dakota Water Management Board
Deprtment of Environment and Natural Resources
Gale Selken
523 E. Capitol
Pierre, South Dakota 57501

Re: Flood Control Permit Application FC - 29

Dear Gale:

Please find enclosed herein a Notice of Appearance of Counsel in the above matter. This is simply to advise you of our representation of the Lake Pelican Water Project District. Please be advised under separate cover a notice has been sent to the parties of record in this matter.

Very truly yours,

Jay M. Leibel
FOR THE FIRM

JML/cd

rleric@hcpd.com

jmleibel@hcpd.com

BEFORE THE

SOUTH DAKOTA WATER MANAGEMENT BOARD

IN RE FLOOD CONTROL PERMIT	)	
APPLICATION NO. FC-29	)	NOTICE OF
CITY OF WATERTOWN	)	APPEARANCE OF COUNSEL

NOTICE IS HEREBY GIVEN that Jay M. Leibel is now appearing as counsel of record for the Lake Pelican Water Project District, in the above entitled action, and that all matters regarding the above action should be directed to:

Jay M. Leibel
Ericsson, Ericsson & Leibel
Attorneys-at-Law
PO Box 406
Madison, South Dakota 57042

Dated this 10th day of May, 2000.

Jay M. Leibel

CERTIFICATE OF SERVICE

This will certify that on the 10th day of May, 2000, I did serve a true and correct copy of the above and foregoing Notice of Appearance by mailing the same to them by first class mail, postage fully prepaid to the parties listed on the following page:

Jay M. Leibel

100

PARTIES OF RECORD
FLOOD CONTROL PERMIT APPLICATION NO. FC-29

APPLICANT

Richard L. Schlechter
City of Watertown
PO Box 910
Watertown, SD 57201-0910

Vincent A. Foley
City Attorney
PO Box 845
Watertown, SD 57201-0845

PETITIONERS

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

Marge and Bill Swaboda
1730 38th Avenue NW
Watertown, SD 57201

Rick Trupe, Mayor
City of Castlewood
PO Box 17
Castlewood, SD 57223

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
Watertown, SD 57201

SD Dept. of Game, Fish and Parks
c/o Tim Olson
Pierre, SD 57501-3182

Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Rodney Freeman
Hearing Chairman
PO Box 176
Huron, SD 57350

Ava Jo Holmes
1725 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

STATE OF SOUTH DAKOTA

OFFICE OF ATTORNEY GENERAL
500 EAST CAPITOL AVENUE
Pierre, South Dakota 57501-5070
Phone (605) 773-3215
FAX (605) 773-4106

MARK BARNETT
ATTORNEY GENERAL

LAWRENCE LONG
CHIEF DEPUTY ATTORNEY GENERAL

June 2, 2000

MEMORANDUM

TO: Members of the South Dakota Water Management Board and Interested Parties

FROM: John P. Guhin, Deputy Attorney General

Re: **Flood Control Permit Application FC-29**

Pursuant to the direction of the Board, the proposed Findings of Fact, Conclusions of Law and Final Decision are being faxed to the attorneys for the Lake Pelican water project district, and the City of Watertown as of this date. They are also being hand-delivered to the counsel for the Division of Water Rights and being sent interoffice to South Dakota Game, Fish and Parks. Finally, the proposed findings are being mailed by first class mail to members of this Board and to the remaining Petitioners, all as set out in the attached certificate of service.

Pursuant to the direction of the Board, the parties are reminded that the Hearing Chairman has requested that, should there be objections to these Findings of Fact and Conclusions of Law and Final Decision, that they be made in an expedited manner. The Hearing Chairman will issue an order as to that date in the next few days. Thereafter, a telephone conference call will be held to consider any objections and to finalize board action.

JPG:clr
c-memo53.jpg

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the proposed Findings of Fact, Conclusions of Law and Final Decision with regard to Flood Control Permit Application Number FC-29, City of Watertown, was sent by facsimile to the following persons on June 2, 2000.

Jay M. Leibel
Ericsson, Ericsson and Leibel
Attorneys at Law
P.O. Box 406
Madison, SD 57042
Facsimile: (605) 256-2424

Vincent A. Foley
City Attorney
P.O. Box 845
Watertown, SD 57201-0845
Facsimile: (605) 886-8310

In addition, the proposed findings were sent by United States Mail to:

Richard L. Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Vincent A. Foley
City Attorney
P.O. Box 845
Watertown, SD 57201-0845

to the members of the Water Management Board:

Marian Gunderson
811 W 3rd St
Yankton SD 57078-3702

Dwayne A Rollag
320 Lincoln Ln S
Brookings SD 57006-2741

Joel Rickenbach
Box 97
Oelrichs SD 57763-0097

Leo Holzbauer
RR 1 Box 170
Wagner SD 57380-9681

Bernita Loucks
219 42nd St
Rapid City SD 57702-2123

Francis E. Brink
1214 S Well St
Aberdeen SD 57401-7351

Rodney Freeman Jr (chair)
PO Box 176
Huron SD 57350-0176

and to Petitioners:

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

Marge and Bill Swaboda
1730 38th Avenue NW
Watertown, SD 57201

JUN-05-2000 15:53 SD ATTY GEN OFC 605 773 4106 P.16/18

Rick Trupe, Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
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Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

Finally, the proposed findings were hand delivered to:

Diane Best
Assistant Attorney General
500 East Capitol Avenue
Pierre, South Dakota 57501-5070

and sent interoffice to:

SD Dept. of Game, Fish and Parks,
c/o Tim Olson
Pierre, South Dakota 57501-3182

John P. Guhin
Deputy Attorney General

104

JUN-05-2000 15:53 SD ATTY GEN OFC 605 773 4106 P.17/18

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	))))	FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL DECISION

1. This is an application by the City of Watertown for Flood Control Permit No. FC-29. The City proposes to construct a weir and gate system on the inlet-outlet of Lake Kampeska.

2. The stated purpose of the project is to control the amount of sediment entering into Lake Kampeska. The weir is proposed to have an overflow elevation at 1718.2 fmsl. It is also proposed to have a fish passage weir or "fish notch" and two cast iron gates.

BACKGROUND--THE BIG SIOUX RIVER, LAKE PELICAN AND LAKE KAMPESKA

3. It is important to place this matter into context. The Big Sioux River Basin in southern Roberts, Grant, and Codington Counties has been faced with difficult sedimentation and water quality problems. The problems flow, presumably, from the fact that most of the basin is agricultural. As a result of the sedimentation in the Big Sioux River, the lakes adjoining the river also become faced with sedimentation challenges.

4. Federal, state, and private interests in the area have recognized the basin-wide character of the sedimentation and water quality problems.

5. Numerous grants have been made to assist in dealing with the water quality and sedimentation problems. At least

$800,000 has been invested in studies and efforts to deal with these problems.

6. A number of recent studies have addressed the sedimentation problem either directly or indirectly. These studies include the Upper Basin Hydrology Study of 1998, and the Diagnostic Feasibility Study--Lake Kampeska of January 1994 among others. In addition, HDR Engineering, Inc. compiled Amendment and Executive Summary for Technical Memorandum No. 1, DENR Exhibit No. 4, in the present controversy which deals with some aspects of the problem.

7. Lake Pelican is just south of Watertown, and Lake Kampeska is just north of Watertown. Both lakes are on the Big Sioux River, and both are faced with the sedimentation challenge. The Pelican Lake Association has assisted Lake Kampeska's study of the problem; the Lake Kampeska Association has assisted in the study of the Lake Pelican problem.

8. As part of the comprehensive approach to improving conditions in the watershed, the Lake Pelican Water District applied for Flood Control Permit No. FC-19 in 1996. The Board takes judicial notice that the official "Notice of Hearing on Flood Control Application No. FC-19," published in the Watertown Public Opinion in 1996, stated that the Lake Pelican Water District's application was to construct a "diversion weir located in the inlet-outlet channel to Lake Pelican . . . . The weir is to control sediment loading to Pelican Lake from the Big Sioux

River." Lake Pelican Water District's flood control permit was approved on December 26, 1996.

9. The Lake Pelican weir elevation was set at 1712.25 fmsl; the normal water source of Lake Pelican as set at 1709.7 fmsl. The Lake Pelican weir is thus 2.55 feet higher than the normal water surface.

10. The Lake Pelican weir constructed under the authority of FC-19 has been effective. The weir is effective because it is 2.55 feet higher than the normal water surface. The first flush of water in the spring carries a very large amount of sediment. The Lake Pelican weir operates to keep most of that sediment out of the lake because it is set at a higher level than the lake level and the river level. Instead of entering Lake Pelican, the sediment is deflected from Lake Pelican and sent downstream.

11. The result is that clear water is again appearing in Lake Pelican.

12. The present application is to allow Lake Kampeska to similarly deal with its sedimentation problem from the Big Sioux River. Various estimates have been made of the amount of sediment that has been deposited in Lake Kampeska. "Amendment and Executive Summary From Technical Memorandum No. 1, DENR Exhibit 4, prepared by HDR Engineering, Inc., states that the "sediment deposition into Lake Kampeska between 1994 and 1997 has been estimated at 71,200 tons."

13. Another estimate made by the city engineer for Watertown was 51 million cubic yards of sediment as having been deposited in Lake Pelican.

14. Further evidence indicated that the Department of Agriculture has estimated a maximum of 125 years left in the life of Lake Kampeska.

15. Reliable evidence indicates that 68% of Lake Kampeska is covered by sediment to a depth greater than 9 feet.

16. The quality of Lake Kampeska water is especially important to the City of Watertown because the city receives a substantial portion of its drinking water form the Lake.

17. The Board finds that the sedimentation and adverse water quality effects from the inflow of Big Sioux River water into Lake Kampeska constitute a serious threat to the viability of Lake Kampeska as a desirable public resource.

LAKE KAMPESKA PROJECT DESCRIPTION

18. The water flow to and from Lake Kampeska and the Big Sioux River is presently controlled by a structure known as Weir No. 3 in the Big Sioux River. Weir No. 3 is set at 1717.8 fmsl. This weir is located in the Big Sioux River just downstream of Lake Kampeska's inlet-outlet channel. Without Weir No. 3, the lake would simply empty into the Big Sioux River.

19. During the beginning stages of a flood event, Weir No. 3 diverts a major portion of the Big Sioux River flow into Lake Kampeska. As the duration of the flow then continues, the

level of Lake Kampeska rises, causing a larger portion of the flow in the river to be diverted downstream.

20. During the early stages of a flood event, a large portion of sediment is transported. As a result, Weir No. 3 diverts the initial flow into the lake when the water quality of the river is at its poorest condition and in which it carries the most sediment.

21. The proposed weir is, therefore, set at a higher level than Weir No. 3. The proposed weir is set to have an elevation of 1718.2 fmsl. The weir will thus preclude the entry of water from the Big Sioux River into Lake Kampeska during the early stages of a flood event. Because this stage is the stage at which most of the sediment is carried, the proposed weir will have the effects of lessening the amount of sediment which enters into the Big Sioux River and of sending more sediment downstream.

22. The weir is proposed to be 330 feet long. In addition the weir will include a gate structure of 24 feet. The length of the weir is justified because of the need to block all the low flow.

23. Beyond the basic operation of the weir, as described above, the application sets out operating criteria for the two cast iron gates, which will be built into the weir and which will be manually operated.

24. The gates will normally be closed. However, the gates can be opened during a very specific condition involving the conjunction of several events. These events would be internal

flooding or a flood event on the river together with a lake level above the stage of the river, together with a lake level of 1717.8. During this condition, the gates could be opened, allowing the excess water from Lake Kampeska to run into the Big Sioux River.

25. The gates could also be opened during a drought period when the lake level falls 30 inches below its normal elevation, i.e. 1715.3 fmsl. Opening the gates at this point would allow water to flow into Lake Kampeska during the drought.

26. As noted, the gates would be normally closed. However, the gates would obviously also be closed when the lake level reached its normal level during a draining operation. Moreover, the gates would also be closed during a drought period when the lake level is 24 inches below normal, i.e. 1715.8 fmsl.

27. In addition, the proposed weir has a fish-passage "notch" permanently open in the weir. This fish notch is a 3x3 foot structure with a bottom at 17.15.0 and a top at 1718.2 fmsl.

28. The fish notch will provide for the passage of fish between Lake Kampeska and the Big Sioux River, a passage which is necessary for some of the fish during the spawning season. During the period from March through June, Northern Pike will be able to move from Lake Kampeska to the Big Sioux River, and vice versa, 96 percent of the time; walleye up to 30 cm, 79 percent of the time; walleye up to 20 cm, 69 percent of the time; trout-perch, 70 percent of the time; yellow perch, 65 percent of the time; and channel catfish 33 percent of the time. The Board

credits the testimony of the Game, Fish and Parks representative that the fish notch adequately provides for the movement of fish during the critical spawning times.

29. The Board has also considered the limited evidence presented with regard to the trout-perch, a state listed endangered species. The trout-perch is a small fish, ranging from 3 to 4 inches at adulthood. The fish is neither a trout nor a perch but simply appears to have characteristics of both. Lake Kampeska is a stronghold of this fish in South Dakota.

30. The uncontradicted testimony of the Game, Fish and Parks representative indicates that the fish notch will provide an adequate means for this fish to pass to and from Lake Kampeska during the spawning season, and that the fish can be adequately protected, when the permit is conditioned as set forth below.

31. The Board finds that the proposed weir on Lake Kampeska will significantly decrease the amount of sediment entering Lake Kampeska. The Board further finds that the fish notch will adequately protect fish during the critical spawning times, and will in particular protect the trout-perch, especially when the flood control permit is conditioned as set forth below. Finally, the Board finds that the gates in the structure will enhance the utility of the weir and, therefore, should be included in the project.

REVIEW OF FACTUAL OBJECTIONS

32. A variety of objections have been raised with regard to the proposed flood control permit. It has been alleged that

the operation of the weir will cause flooding during a 2 to 6 year flood event. The evidence indicates, however, that there are only three locations at which the flow will not be in the channel, and all three are owned by the City, the applicant here.

33. An objection was made that the proposed weir will hold the Lake Kampeska lake levels higher for longer periods of time and, therefore, cause wind or wave damage. The Board rejects this objection. First, the operation of the gates will reduce the duration of time in which the lake level is held at a high level. In addition, the Corps of Engineers has set the elevation of 1719.0 as the elevation at which there are no measurable concerns with wave action. The top of the weir is proposed at 1718.2, .8 feet lower than the level at which measurable concerns will occur. Therefore, this objection is without merit.

34. The Lake Pelican intervenors correctly point out in their objections that certain of the graphs presented by the applicant were inconsistent with each other and inconsistent with the data which the applicants have presented. The Board finds, however, that these discrepancies do not make a difference. The data relied upon for the ultimate conclusions in this case are the actual numbers generated by the applicant and by the reports and not the graphs in question. The Board notes that the graphs are inconsistent because of differences in the operation of the computer-smoothing program based on scale.

35. Intervenor Lake Pelican raises a concern with regard to sediment which will build up behind the gates when the gates are

closed. Intervenor Lake Pelican suggests that in the event the gates are opened, the sediment which is built up will be substantial and, furthermore, that it will flow either into Lake Kampeska to the detriment of those living on Lake Kampeska or will flow back into the river, to the detriment of those downstream, depending upon the flow regime in the river and the lake at the time the gates are open. The Board does not find this to be a matter of substantial concern. The sediment at issue is certainly not created by the gates. Moreover, the volume is not quantified. Finally, the sediment represents only a very small portion of that which would have gone into the Lake Kampeska had the new weir not been built in any event.

36. The Lake Pelican intervenors also object to the gates because of the possibility that they may be opened inappropriately. The Board rejects this contention. First, the gates will be protected by a padlock and cannot be opened without a handle, which will not be attached except during the operation of the gates. These will be in the custody of the City of Watertown. Second, intervenors suggest that the real problem may not in any event be vandals, but might be an inappropriate action by a city official at a later date, when the conditions of the permit in question have been forgotten. The Board is unable to accept this as a viable attack on the proposed permit. Virtually every permit issued by the Board for water rights, flood control or for other purposes is encumbered by conditions. Almost all of the permits are for indefinite periods of time. Public officials

and private individuals can be expected, the Board believes, to comply with the conditions of the permit even over extended periods of time. In fact, no evidence has been presented to demonstrate that conditions of Flood Control permits or other permits are violated on a regular basis.

37. The Lake Pelican intervenors also attack the gates on the grounds that their operation may harm downstream interests, including Lake Pelican, when they are opened. Lake Pelican argues that during the times the gates will be opened, there will already be a very substantial amount of water in the river, and the additional water allowed out through the gates will be to the downstream party's detriment. Lake Pelican points out that the gates can be opened after a flood event on the river occurs, when the lake level is above the stage of the river and when the lake level is above its normal level of 1717.8 fmsl. The Board finds, however, that the impact of the opening of the gates under the conditions specified will not have detrimental effects argued by Lake Pelican. First, the weir will have no effect at high flood levels in any event. That is, once the flow of the river overtops the weir, it will be as if the weir is not there at all. Thus, in truly significant events, the weir will simply have no effect at all. Second, the difference between the weir level and the normal level of the river is only 5 inches. Thus, the effect of the opening is unlikely to cause any significant effects at low flow levels.

38. The State has also raised the concern, one apparently shared by Lake Pelican, that construction of the Lake Kampeska weir will have the effect of decreasing the amount of sediment entering Lake Kampeska and, therefore, increasing the amount of sediment which remains in the Big Sioux River; the increased sediment load in the river (along with increased flood frequencies in the approximate two- to eight-year precipitation event) might also increase the sediment loading in Lake Pelican. The Board finds, however, that any increase in the amount of sediment flowing into Lake Pelican would be negligible. The Board bases its conclusion on the analysis set out by HDR Engineers in City Exhibit 8, Item No. 4. First, the Board credits the analysis that demonstrates that flows greater than six-year events will have no impact on Lake Pelican in terms of flow increase into that lake. Second, the proposed Lake Kampeska weir will increase flow into Pelican Lake for the two-year and four-year events by only 13 cfs and 5 cfs respectively. The Board concurs that these increases are minor when compared to the 230 cfs and 305 cfs reduction that the Pelican weir attained for these same two flow events. A simple comparison of the flow data thus indicates that the amount of sediment transported by that flow into Pelican Lake will be negligible in the event the Lake Kampeska weir is constructed.

CONCLUSIONS OF LAW

1. This Board has jurisdiction to issue flood control permits and has jurisdiction of this matter.

2. The proposed flood control works will have the effect of reducing the damage from flooding or erosion in the area proposed to be benefited. The Board concludes that, pursuant to SDCL 46-2A-11, flooding controlled and erosion prevented need not be immediate. The Board finds that if the proposed project is constructed, the amount of sediment entering into Lake Kampeska will be significantly decreased. The long run effect will therefore be to decrease the damage from flooding in the Lake Kampeska area which would occur as the lake becomes more and more filled with sediment. The Board further finds much of the sediment which will be diverted from Lake Kampeska constitutes "erosion" and diversion of this eroded material downstream will benefit the project area and decrease "damage" from "erosion."

3. In arriving at the foregoing conclusion of law with regard to the operation of 46-2A-11, the Board recognizes that it takes a broad view of the legislative purpose in enacting the flood control statute. The Board concludes that the broad language of statute justifies the result reached. The Board further concludes that its action is consistent with its own prior actions. Moreover, its action is consistent with the grant of FC-19 to the Lake Pelican water project district. As found above, the purpose of FC-19 was to decrease sediment in Lake Pelican, just as the purpose here is to decrease sediment in Lake Kampeska. Each is justified, the Board concludes, by the broad language of SDCL 46-2A-11.

4. The Board concludes that the project will not increase the likelihood or severity of flood damages in the areas other than the project area or the area to be benefited. The Board finds that any additional flooding will be on city property and such flooding does not affect whether this permit can or cannot be granted.

5. The Board concludes, consistent with the above conclusion, that the project will not endanger human life or property.

6. The Board concludes that the project will not impair existing water rights. In coming to this conclusion, the Board relies upon its finding that the increased amount of sediment entering Lake Pelican as a result of the Lake Kampeska weir will be negligible. Because the amount of sediment is negligible, or, in other words, de minimis, there is no statutory impairment of any existing water right.

7. In addition, the Board takes note that any flood control permit which has the effect of diverting sediment from a lake and leaving it in a river will have the effect of increasing the potential for sedimentation downstream. Because of the factual finding made above that the amount of sediment entering Lake Pelican as a result of Lake Kampeska weir will be negligible, the Board finds it unnecessary to determine whether the purpose of SDCL 46-2A-11 would be served by concluding that increased downstream sedimentation caused by a flood control

permit which merely retains sedimentation in the stream is an adverse affect for the purpose of the statute.

8. In the further alternative, the Board concludes that it need not determine whether the Lake Pelican water project district is in fact a holder of a "water right" as defined by SDCL 46-2A-11 and so is in a portion to argue that its "water right" is impaired. The Lake Pelican water project district has identified itself as the holder of "Flood Control" Permit FC-19. The question of whether a Flood Control permit actually grants a "water right" is one unresolved in South Dakota water law. It need not be resolved here, however, because of the factual conclusion made above.

FINAL DECISION

1. The application for Flood Control Permit FC-29 on behalf of the City of Watertown is GRANTED subject to the following conditions.

2. That the construction, operation, maintenance and repair of the Lake Kampeska weir and gated control system is the responsibility of the city of Watertown. The operation of the gates shall be in accordance with the following criteria:

Open Gates

- During internal flooding or after a flood event on the river; and
- If lake level is above the stage in the river; and
- If lake level is above its normal level of 1717.8 fmsl; or
- During drought periods when the lake level falls 30 inches below its normal elevation (1715.3 fmsl).

Closed Gates

- Normal operating conditions; or
- When lake level reaches its normal level during draining operation; or
- When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

3. The prior water rights of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to use the water may not be unlawfully impaired by this flood control permit.

4. The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to 1) altering the established ordinary high water mark for Lake Kampeska; 2) flooding to Lake Kampeska properties; 3) detrimental sediment transport to downstream areas, 4) or detrimental effects to recreational fisheries or the State threatened trout-perch.

5. Before the gates are opened as described in paragraph 1, the silt load entering Lake Pelican shall be measured; the silt load shall also be measured during the time in which the gates are opened or at sometime thereafter. The Department of Environment and Natural Resources shall approve the operating plan for the silt measurement within a reasonable time after the grant of this permit. In any case, the applicant is responsible for the measurements which shall be supplied to the

Department of Environment and Natural Resources and which shall thereafter be available to the public, including Lake Pelican.

ALTERNATIVE PARAGRAPH 5

Alternative 5. Within a reasonable time after the grant of this permit, the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican. The Department of Environment and Natural Resources shall review the plan and approve the plan with or without modifications or, if the plan is unacceptable, shall formulate a new plan which shall be given effect within a reasonable period of time. Should the applicant or any other party be aggrieved by the action of Department of Environment and Natural Resources under this paragraph, the issue shall be advertised and scheduled for hearing before this Board.

Dated this ____ day of _____, 2000.

BY THE BOARD:

_____

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	)))	SCHEDULING ORDER

1. Pursuant to the directions of this Board, the Board's attorney served the proposed Findings of Fact and Conclusions of Law and a Final Decision in the above entitled matter on June 2, 2000.

2. Any party desiring to submit objections or alternative or additional proposals to the proposed Findings of Fact and Conclusions of Law and Final Decision shall serve them on the opposing parties, the members of the Water Management Board, and the attorney for the Board by June 12, 2000. The term "service," as used in this paragraph only, means that the submission should be mailed by June 12, 2000. In addition, each attorney making submissions shall fax (or had deliver them) them to each opposing attorney, and the counsel for the Water Management Board, on June 12, 2000. The fax number of Mr. Vincent Foley is (605) 886-8310. The fax number of Mr. Jay Leibel is (605) 256-2424. The fax number of Ms. Diane Best is (605) 773-4106. The fax number of counsel for the Board, John Guhin, is (605) 773-4106.

3. A telephone conference is set for consideration of the proposed Findings and any additional submissions at 1 p.m. Central Time on June 15, 2000. Any party or other person desiring to participate in this call shall, on or before June 12, 2000, contact Mr. Eric Gronland at (605) 773-3352 to notify him of his intention to participate in the telephone call.

4. This Order shall be sent by fax to the attorneys for the parties and shall be hand delivered to the counsel for the

division. It shall be mailed to members of the Board and persons on the service list for the proposed "Findings."

Dated this 7th day of June, 2000.

Rodney Freeman
Hearing Chairman

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the proposed Scheduling Order with regard to Flood Control Permit Application No. FC-29, City of Watertown, was sent by facsimile to the following persons on June 7, 2000.

Jay M. Leibel
Ericsson, Ericsson & Leibel
Attorneys at Law
P.O. Box 406
Madison, SD 57042
Facsimile: (605) 256-2424

Vincent A. Foley
City Attorney
P.O. Box 845
Watertown, SD 57201-0845
Facsimile: (605) 886-8310

In addition, the proposed findings were sent by United States Mail to:

Richard L. Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

to the members of the Water Management Board:

Marian Gunderson
811 W. Third St.
Yankton, SD 57078-3702

Dwayne A. Rollag
320 Lincoln Ln. S.
Brookings, SD 57006-2741

Joel Rickenbach
P.O. Box 97
Oelrichs, SD 57763-0097

Leo Holzbauer
RR 1, Box 170
Wagner, SD 57380-9681

Bernita Loucks
219 42nd St.
Rapid City, SD 57702-2123

Francis E. Brink
1214 S. Wells St.
Aberdeen, SD 57401-7351

Rodney Freeman Jr.
P.O. Box 176
Huron, SD 57350-0176

and to Petitioners:

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Ave. SW
Watertown, SD 57201-7033

Marge and Bill Swaboda
1730 38th Ave. NW
Watertown, SD 57201

The Honorable Rick Trupe
Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223-0017

Troy and Karen Breitag
1729B 38th Ave. NW
Watertown, SD 57201

Kay Farris
2003 38th Ave. NW
Watertown, SD 57201

Trudy Rector
1729A 38th Ave. NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd.
Watertown, SD 57201

Judy and Larry Picht
1824 38th Ave. NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Ave. NW
Watertown, SD 57201

Charles Rector
1729 38th Ave. NW
Watertown, SD 57201

Finally, the proposed findings were hand delivered to:

Diane Best
Assistant Attorney General
500 E. Capitol Ave.
Pierre, SD 57501-5070

and sent interoffice to:

Tim Olson
SD Dept. of Game, Fish & Parks
Foss Bldg.
Pierre, SD 57501

Garland Erbele
Chief Engineer
Division of Water Rights
Dept. of Environment &
Natural Resources
Foss Bldg.
Pierre, SD 57501

John P. Guhin
Deputy Attorney General
500 E. Capitol Ave.
Pierre, SD 57501-5070

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STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	) DENR RESPONSE TO PROPOSED)FINDINGS OF FACT, CONCLUSION) OF LAW, AND FINAL DECISION

COMES NOW, the Department of Environment and Natural Resources (DENR) and makes its response to the Proposed Findings of Fact, Conclusions of Law, and Final Decision prepared by the Board's attorney:

1. The DENR has no objection to the Proposed Findings of Fact, Conclusions of Law with the exceptions noted as follows.

2. On page 2, Finding of Fact No. 6 lists various studies. The DENR asks that the references reflect that the Army Corp of Engineers was the author of the 1994 Diagnostic Feasibility Study.

3. On page 3, Finding of Fact No. 9 refers to the normal source and normal water surface of Lake Pelican. The DENR submits that testimony presented at hearing refers to the elevation involved as the "outlet elevation." Accordingly, DENR asks that the words "outlet elevation of Lake Pelican" be inserted in lieu of the words "normal water source of Lake Pelican as set at" on line 2. Further, the words "outlet elevation" should be substituted for the words "normal water surface" on line four.

4. For page 3, Finding of Fact No. 10, the DENR asks that the words "outlet elevation" be substituted for the words "normal water surface" on line three. Also, on line six, the DENR asks that the word "normal" be inserted between the words "higher level than the" and "lake level." The DENR submits that evidence at hearing regarding the Lake Pelican weir notes that the elevation of

the weir is at a higher level than the normal lake level. Further, consistent with this evidence, the DENR submits that the words "and the river level" be deleted from line seven. Finally, on line seven, the DENR submits that the words "most of the" be substituted for the word "the." This proposed change reflects the fact that not all of the sediment can ever be deflected from Lake Pelican, but that the weir is intended to deflect most of the sediment.

5. The DENR proposes two changes to Finding of Fact No. 13. First, reference is made to the "city engineer." Although several engineers testified on behalf of the City of Watertown, none of those engineers carries the title of "city engineer." Accordingly, DENR suggests that the Finding be amended by referring to the person involved as "an engineer for the City of Watertown." Further, the DENR submits that the reference to Lake Pelican should be Lake Kampeska.

6. Finding of Fact No. 16 contains a typographical error in the third line. The word "form" should be changed to "from."

7. Finding of Facts Nos. 18, 19, 20, and 21 refer to Weir No. 3. Although some testimony may have been presented at hearing, which would suggest that the control structure involved is sometimes known as "Weir No. 3," the DENR asks that the weir structure be referenced by the date of construction in order to avoid any questions. Accordingly, the DENR asks that the first two sentences of Finding of Fact No. 18 read as follows: "The water flow to and from Lake Kampeska and the Big Sioux River is presently controlled by a sheet pile weir constructed on the Big Sioux River in 1941.

The elevation of the top of the weir is 1717.8 fmsl." Further, the final sentence of Finding of Fact No.18 should refer to "the 1941 weir" rather than Weir No. 3.

8. Similarly, references to Weir No.3 in Finding of Fact Nos. 19, 20, and 21 should be changed to "the 1941 weir." Also, the third line of Finding of Fact No. 21 should be changed by adding the word "proposed" before the word "weir."

9. Finding of Fact No.22 should reflect that the proposed gate structure is sixteen feet wide (two eight-feet-by-seven-feet gates) rather than twenty-four feet.

10. Finding of Fact No.27 contains a typographical error on the last line. The appropriate reference is 1715 fmsl.

11. The DENR has consulted with the South Dakota Department of Game, Fish & Parks regarding Finding of Fact Nos. 28, 29, 30, and 31. After reflecting on testimony presented at hearing, it is submitted that the final sentence of Finding of Fact No.28 should be changed to read "The Board credits the testimony of the Game, Fish & Parks representative that the fish notch <u>should</u> adequately provide for the movement of fish." This change eliminates the reference to spawning. The Game, Fish & Parks testimony pertained to the movement of fish during both spawning and other times. Also, the testimony was that the fish notch <u>should</u> provide for the movement of fish provided the proper condition is imposed. In other words. With the proper condition, the fish notch <u>will</u> provide for the movement of fish.

12. Finding of Fact No. 30 should be amended by deleting the words "during the spawning season."

13. Finding of Fact No. 31 also addresses the fish notch. The second sentence should be revised to read "The Board further finds that the fish notch should adequately allow for fish movement and will, in particular, protect the trout-perch, especially when the flood control permit is conditioned as set forth below.

14. The DENR submits that the final sentence of Finding of Fact No. 31 should, instead, be set forth as a separate new Finding No. 32. Further, this ultimate Finding regarding the utility of gates in the structure should also include a reference to the fish notch. Accordingly, the DENR submits that the sentence should read "Finally, the Board finds that the fish notch and the gates in the structure will enhance the utility of the weir and, therefore, should be included in the project."

15. Finding of Fact No.33 addresses the Corp of Engineer's analysis regarding wave or wind damage. The DENR submits that the third sentence should be changed to reflect that the Corp of Engineers has "concluded that at the elevation of 1719.0, there would be no measurable concerns with wave action." As drafted, the Finding appears to suggest that the Army Corp of Engineers has "set" an elevation in a manner that constitutes an adjudicative or legislative determination. The DENR submits that the Corp of Engineer's document is an engineering analysis. The DENR is not

suggesting, however, that the report is inappropriate or invalid in any manner. Indeed, the report represents considerable study of this area.

16. On page 14, Conclusion of Law No. 8 contains a typographical error on line 4. Accordingly, the word "position" should be substituted for the word "portion."

The DENR proposes that either version of Final Decision No. 5 include a provision requiring that City of Watertown provide its proposed Sediment Sampling Plan to the Lake Pelican Water District for comment.

Respectfully submitted,

Diane Best

Diane Best
Assistant Attorney General
Counsel for Department of
Environment and Nat. Resources

CERTIFICATE OF SERVICE

The undersigned hereby certifies that true and correct copies of the proposed Response to Proposed Findings of Fact, Conclusions of Law, and Final Decision with regard to Flood Control Permit Application No. FC-29, City of Watertown, were sent by facsimile to the following persons on June 12, 2000.

Jay M. Leibel
Ericsson, Ericsson & Leibel
Attorneys at Law
P.O. Box 406
Madison, SD 57042
Facsimile: (605) 256-2424

Vincent A. Foley
City Attorney
P.O. Box 845
Watertown, SD 57201-0845
Facsimiles: (605) 886-8310
(605) 882-5214

Rodney Freeman Jr.
P.O. Box 176
Huron, SD 57350-0176
Facsimile: (605) 352-2205

Francis E. Brink
1214 S. Wells St.
Aberdeen, SD 57401-7351
Facsimile: (605) 225-9181

In addition, the proposed findings were sent by United States Mail to:

Richard L. Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

to the members of the Water Management Board:

Marian Gunderson
811 W. Third St.
Yankton, SD 57078-3702

Dwayne A. Rollag
320 Lincoln Ln. S.
Brookings, SD 57006-2741

Leo Holzbauer
RR 1, Box 170
Wagner, SD 57380-9681

Bernita Loucks
219 42nd St.
Rapid City, SD 57702-2123

and to Petitioners:

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Ave. SW
Watertown, SD 57201-7033

Marge and Bill Swaboda
1730 38th Ave. NW
Watertown, SD 57201

The Honorable Rick Trupe
Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223-0017

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2003 38th Ave. NW
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1729A 38th Ave. NW
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1725 38th Ave. NW
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Charles Rector
1729 38th Ave. NW
Watertown, SD 57201

Finally, the proposed findings were hand delivered to:

John P. Guhin
Deputy Attorney General
500 E. Capitol Ave.
Pierre, SD 57501-5070

and sent interoffice to:

Tim Olson
SD Dept. of Game, Fish & Parks
Foss Bldg. 523 E. Capitol Ave
Pierre, SD 57501

and the original sent interoffice to:

Garland Erbele
Chief Engineer
Division of Water Rights
Dept. of Environment & Natural Resources
Foss Bldg. 523 E. Capitol Ave.
Pierre, SD 57501

Diane Best
Assistant Attorney General
500 E. Capitol Ave.
Pierre, SD 57501-5070

pld.db flood control permit
(mjj)

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	) PROPOSED ALTERNATIVE) SUGGESTIONS, OBJECTIONS, AND) ADDITIONAL PROPOSALS OF THE) CITY OF WATERTOWN

The City of Watertown presents the following alternative suggestions, objections, and additional proposals to the proposed Findings of Fact, Conclusions of Law, and Final Decision submitted by John P. Guhin, Deputy Attorney General, on June 2, 2000:

1. In paragraph 5 on page 2, the phrase "invested in" should be replaced by "awarded to the City of Watertown on behalf of water quality partners throughout the watershed for". At the end of paragraph 5, the following sentence should be added: "Total project investments for water quality improvements in the upper Big Sioux River watershed will be approximately $2 million when the current projects funded by the Environmental Protection Agency are complete."

2. Paragraph 13 on page 4 should be replaced with the following: "The Watertown Public Works Department staff engineer pointed out that according to the 1994 Lake Kampeska Diagnostic/Feasibility Study Report prepared by the South Dakota Department of Environment and Natural Resources' Clean Lakes Program, there is an estimated 51 million cubic yards of sediment stored in Lake Kampeska."

3. In the last sentence of paragraph 21 on page 5, the phrase "the Big Sioux River" should be replaced with "Lake Kampeska."

4. In the last sentence of paragraph 22 on page 5, the

portion of the sentence stating "is justified because of the need to block all the low flow" should be replaced with "is necessary to allow sufficient overflow capacity so that no impact will occur at higher flows".

5. Paragraph 24 should be amended to read:

The gates will normally be closed. However, the gates can be opened during very specific conditions involving the conjunction of several events. The gates can be opened following internal flooding on Lake Kampeska, or a flood event on the Big Sioux River, but only when the lake level is above the river stage and the lake level is above its normal outlet elevation of 1717.8. During these conditions, the gates could be opened, allowing the excess water from Lake Kampeska to run into the Big Sioux River.

6. Paragraph 25 should be amended to read:

The gates could also be opened during a drought period when the lake level falls to elevation 1715.3 fmsl, which is 30 inches below the lake's normal or outlet elevation. Opening the gates at this point allows water to flow into Lake Kampeska during the drought. The gates would remain open until the lake level rises to elevation 1715.8 fmsl, which is 24 inches below the lake's normal or outlet elevation.

7. Paragraph 26 should be amended to read:

As noted, the gates would normally be closed. However, the gates would also be closed when the lake level reaches its normal level during a draining operation following an internal flood on Lake Kampeska or a flood on the Big Sioux River. Moreover, the gates would also be closed when the allowable filling operation during a drought period returned the lake level to elevation 1715.8, which is 24 inches below the lake's normal or outlet elevation.

8. In paragraph 27 on page 6, the figure "17.15.0" should be replace by "1715.0".

9. In paragraph 28 at the bottom of page 6, after the phrase "yellow perch, 65 percent of the time;" please insert "small mouth bass, 48 percent of the time".

10. In paragraph 38 on page 11, the phrase "eight-year precipitation event" should be changed to "six-year precipitation event".

11. We propose the following language for paragraph 5 of the FINAL DECISION:

> 5. Within a reasonable time after the grant of this permit, the City of Watertown shall formulate a plan in an attempt to measure detectable effects on the sediment load in the Big Sioux River that may enter Lake Pelican due to the operation of the gates. Minimally, the plan shall include provisions that would cause water samples to be taken prior to the opening of the gates, during the time that the gates are open and Lake Kampeska is discharging into the Big Sioux River, and following the closing of the gates. The City of Watertown shall be responsible for collection and analysis of the water quality samples for sediment. Results of the analysis shall be supplied to the Department of Environment and Natural Resources, and the results shall thereafter be made available to the public. The Department of Environment and Natural Resources shall review the plan, recommend to the City Necessary revisions or modifications to the plan, and approve the plan upon being satisfied that the plan meets the intent of the Board's order.

Dated this 12th day of June, 2000.

Kevin J. Krull

Kevin J. Krull
Deputy City Attorney
City of Watertown
23 - 2nd Street NE
Watertown, SD 57201

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the proposed Alternative Suggestions, Objections, and Additional Proposals of the City of Watertown to the proposed Findings of Fact, Conclusions of Law, and Final Decision was sent via facsimile and U.S. mail on June 12 to the following:

Jay M. Leibel
Ericsson, Ericsson & Leibel
P.O. Box 406
Madison, SD 57042

John P. Guhin
Deputy Attorney General
500 East Capitol Avenue
Pierre, SD 57501-5070

Diane Best
Assistant Attorney General
500 East Capitol Avenue
Pierre, SD 57501-5070

In addition, the proposals of the City of Watertown were mailed via U.S. Mail on June 12 to the following:

Tim Olson
SD Dept. Game, Fish & Parks
Foss Building
Pierre, SD 57501

Marian Gunderson
811 W. Third St.
Yankton, SD 57078-3702

Dwayne A. Rollag
320 Lincoln Ln. S.
Brookings, SD 57006-2741

Joel Rickenbach
P.O. Box 97
Oelrichs, SD 57763-0097

Leo Holzbauer
RR 1, Box 170
Wagner, SD 57380-9681

Bernita Loucks
219 42nd Street
Rapid City, SD 57702-2123

Francis E. Brink
1214 S. Wells St.
Aberdeen, SD 57401-7351

Rodney Freeman, Jr.
P.O. Box 176
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136

STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN RE FLOOD CONTROL PERMIT APPLICATION NO. FC-29 CITY OF WATERTOWN	) LAKE PELICAN WATER PROJECT) PROPOSED FINDINGS OF FACT,) CONCLUSIONS OF LAW, AND FINAL DECISION

1. This is an application by the City of Watertown for Flood Control Permit No. FC-29. The City proposes to construct a weir and gate system on the inlet-outlet of Lake Kampeska.

2. The stated purpose of the project is to control the amount of sediment entering into Lake Kampeska. The weir is proposed to have an overflow elevation at 1718.2 fmsl. It is also proposed to have a fish passage weir or "fish notch" and two cast iron gates.

BACKGROUND—THE BIG SIOUX RIVER, LAKE PELICAN AND LAKE KAMPESKA

3. It is important to place this matter into context. The Big Sioux River Basin in southern Roberts, Grant, and Codington Counties has been faced with difficult sedimentation and water quality problems. As a result of the sedimentation in the Big Sioux River, the lakes adjoining the river also become faced with sedimentation challenges.

4. Federal, State, and private interests in the area have recognized the basin-wide character of the sedimentation and water quality problems.

5. A number of recent studies have addressed the sedimentation problem either directly or indirectly. These studies include the Upper Basin Hydrology Study of 1998, and the Diagnostic Feasibility Study- -Lake Kampeska of January 1994 among others. In addition, HDR Engineering, Inc. compiled Technical Memorandum No. 1, Diversion Structure Project, Draft Report. (January 1999.) HDR Engineering, Inc. Technical Memorandum No. 1, Diversion Structure Project, Final Report. (October 1999) and Amendment and Executive Summary for Technical Memorandum No. 1, DENR Exhibit No. 4, in the present controversy which deals with some aspects of the problem.

6. Lake Pelican is just south of Watertown, and Lake Kampeska is just north of Watertown. Both lakes are on the Big Sioux River, and both are faced with the sedimentation challenge.

7. Various estimates have been made of the amount of sediment that has been deposited in

Lake Kampeska. "Amendment and Executive Summary From Technical Memorandum No. 1, DENR exhibit 4, prepared by HDR Engineering, Inc., states that the "sediment deposition into Lake Kampeska between 1994 and 1997 has been estimated at 11,200 tons."

8. Further evidence indicated that the Department of Agriculture has estimated a maximum of 125 years left in the life of Lake Kampeska.

9. The City of Watertown because the city receives a substantial portion of its drinking water form the Lake.

10. The Board finds that the sedimentation and adverse water quality effects from the inflow of Big Sioux River water into Lake Kampeska constitute a serious threat to the viability of Lake Kampeska as a desirable public resource.

LAKE KAMPESKA PROJECT DESCRIPTION

11. The water flow to and from Lake Kampeska and the Big Sioux River is presently controlled by a structure known as Weir No. 3 in the Big Sioux River. Weir No. 3 was to be 1717.8 fmsl. This weir is located in the Big Sioux River just downstream of Lake Kampeska's inlet-outlet channel. Without Weir No. 3, a part of the lake would simply empty into the Big Sioux River.

12. During the beginning stages of a flood event, Weir No. 3 diverts a major portion of the Big
Sioux River flow into Lake Kampeska.

13. During the early stages of a flood event, a large portion of sediment is transported. As result, Weir No. 3 diverts the initial flow into the lake when the water quality of the river is at its poorest condition and in which it carries the most sediment.

14. The proposed weir is, therefore, set at a higher level than Weir No. 3. The proposed weir is set to have an elevation of 1718.2 fmsl. The weir will thus preclude the entry of water from the Big Sioux River into Lake Kampeska during the early stages of a flood event. Because this stage is the stage at which most of the sediment is carried, the proposed weir will have the effects of lessening the amount of sediment which enters into the Big Sioux River and of sending more sediment downstream.

15. The weir is proposed to be 330 feet long. In addition the weir will include a gate structure of 24 feet.

16. Beyond the basic operation of the weir, as described above, the application sets Out

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operating criteria for the two cast iron gates, which will be built into the weir and which will be manually operated.

17. The gates will normally be closed. However, the gates can be opened during a very specific condition involving the conjunction of several events. These events would be internal flooding or a flood event on the river together with a lake level above the stage of the river, together with a lake level of 1717.8. During this condition, the gates could be opened, allowing the excess water from Lake Kampeska to run into the Big Sioux River.

18. The gates could also be opened during a drought period when the lake level falls 30 inches below its normal elevation, i.e. 1715.3 fmsl. Opening the gates at this point would allow more water to flow into Lake Kampeska during the drought than is entering through the fish notch.

19. As noted, the gates would be normally closed. However, the gates would obviously also be closed when the lake level reached its normal level during a draining operation. Moreover, the gates would also be required to be closed during a drought period when the lake level is 24 inches below normal, i.e. 1715.8 fmsl.

20. In addition, the proposed weir has a fish-passage "notch" permanently open in the weir. This fish notch is a 3x3 foot structure with a bottom at 17.15.0 and a top at 1718.2 fmsl.

21. The fish notch will provide for the passage of fish between Lake Kampeska and the Big Sioux River, a passage which is necessary for some of the fish during the spawning season. During the period from March through June, Northern Pike will be able to move from Lake Kampeska to the Big Sioux River, and vice versa, 96 percent of the time; walleye up to 30 cm, 79 percent of the time; walleye up to 20 cm, 69 percent of the time; trout-perch, 70 percent of the time; yellow perch, 65 percent of the time; and channel catfish 33 percent of the time. The Board credits the testimony of the Game, Fish and Parks's representative that the fish notch adequately provides for the movement of fish during the critical spawning times.

22. The Board has also considered the limited evidence presented with regard to the trout-perch, a state listed endangered species. The trout-perch is a small fish, ranging from 3 to 4 inches at adulthood. The fish is neither a trout nor a perch but simply appears to have characteristics of both. Lake Kampeska is a stronghold of this fish in South Dakota.

23. The uncontradicted testimony of the Game, Fish and Parks representative indicates that the fish notch will provide an adequate means for this fish to pass to and from Lake Kampeska during

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the spawning season, and that the fish can be adequately protected, when the permit is conditioned as set forth below.

24. The Board finds that the proposed weir on Lake Kampeska will significantly decrease the amount of sediment entering Lake Kampeska. The Board further finds that the fish notch will adequately protect fish during the critical spawning times, and will in particular protect the trout-perch, especially when the flood control permit is conditioned as set forth below. Finally, the Board finds that the gates in the structure will enhance the utility of the weir and, therefore, should be included in the project.

REVIEW OF FACTUAL OBJECTIONS

25. A variety of objections have been raised with regard to the proposed flood control permit. It has been alleged that the operation of the weir will cause more flooding on the Big Sioux River and Lake Pelican during a 2 to 6 year flood event. The City of Watertown has identified at least three locations at which the flow will not be in the channel, and all three are owned by the City, the applicant herein. The City has not done an engineering review to determine the extent of downstream flooding on a parcel by parcel basis.

26. An objection was made that the proposed weir will hold the Lake Kampeska lake levels higher for longer periods of time and, therefore, cause wind or wave damage. The Board rejects this objection. First, the operation of the gates will reduce the duration of time in which the lake level is held at a high level. In addition, the Corps of Engineers has set the elevation of 1719.0 as the elevation at which there are no measurable concerns with wave action. The top of the weir is proposed at 1718.2, .8 feet lower than the level at which measurable concerns will occur. Therefore, this objection is without merit.

27. The Lake Pelican intervenors correctly point out in their objections that certain of the graphs presented by the applicant were inconsistent with each other and inconsistent with the data which the applicants have presented.

28. Intervenor Lake Pelican raises a concern with regard to sediment which will build up behind the gates when the gates are closed. Intervenor Lake Pelican suggests that in the event the gates are opened, the sediment which is built up will be substantial and, furthermore, that it will flew either into Lake Kampeska to the detriment of those living on Lake Kampeska or will flow back into the river, to

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the detriment of those downstream, depending upon the flow regime in the river and the lake at the time the gates are open. The Board does find the matter of sediment to be of substantial concern. The volume of sediment has not been quantified by the applicant. Monitoring of the sediment flow or sediment load should be done to determine the quantity of sediment and its effect on Lake Pelican and the Big Sioux River south of Watertown.

29. The Lake Pelican intervenors also object to the gates because of the possibility that they may be opened inappropriately. The Board rejects this contention. First, the gates will be protected by a padlock and cannot be opened without a handle, which will not be attached except during the operation of the gates. These will be in the custody of the City of Watertown. Second, intervenors suggest that the real problem may not in any event be vandals, but might be an inappropriate action by a city official at a later date, when the conditions of the permit in question have been forgotten. The Board is unable to accept this as a viable attack on the proposed permit. Virtually every permit issued by the Board for water rights, flood control or for other purposes is encumbered by conditions. Almost all of the permits are for indefinite periods of time. Public officials and private individuals can be expected, the Board believes, to comply with the conditions of the permit even over extended periods of time. Evidence was presented to the State witness of DENR that consistently structures which are built to be controlled have more problems in operation and cause more difficulty than those that are uncontrolled.

30. The Lake Pelican intervenors also attack the gates on the grounds that their operation may harm downstream interests, including Lake Pelican, when they are opened. When the gates are opened and the water is flowing from Lake Kampeska into the Big Sioux River the sediment load will be increased significantly due to the fact sediment was allowed to accumulate near the weir and then allowed to wash down the Big Sioux River in unnatural amounts with water flowage not sufficient to continue its movement on down the river.

31. The State has also raised the concern, one apparently shared by Lake Pelican, that construction of the Lake Kampeska weir will have the effect of decreasing the amount of sediment entering Lake Kampeska and, therefore, increasing the amount of sediment which remains in the Big Sioux River; the increased sediment load in the river (along with increased flood frequencies in the approximate two- to eight-year precipitation event) might also increase the sediment loading in Lake Pelican. The Board finds, however, that the amount of sediment flowing or load has not been determined. Therefore, the impact as to the river south of Watertown or the impact on Lake Pelican has

not been ascertained.

CONCLUSIONS OF LAW

1. This Board has jurisdiction to issue flood control permits and has jurisdiction of this matter.

2. The proposed flood control works will have the effect of reducing the damage from flooding or erosion in the area proposed to be benefited, to-wit: Lake Kampeska. The Board finds that if the proposed project is constructed, the amount of sediment entering into Lake Kampeska will be significantly decreased. The long run effect will therefore be to decrease the damage from flooding in the Lake Kampeska area which would occur as the lake becomes more and more filled with sediment. The Board further finds much of the sediment which will be diverted from Lake Kampeska constitutes "erosion" and diversion of this eroded material downstream will benefit the project area and decrease "damage" from "erosion."

3. The Board has concluded that there is not sufficient evidence or studies to determine the impact south of Watertown and the Big Sioux River specifically, including but not limited to Lake Pelican. Pursuant to 46-2A-11 a permit for Flood Control works may be issued only if the project will reduce damage from flooding or erosion near or proposed to be benefit and the project will not increase the likelihood or severity of damage in areas other than the project area as there is not sufficient information or data to determine that there will not be damage to the Big Sioux River south of Watertown and specifically again including but not limited to Lake Pelican FC-29 permit should not be granted until further study is completed and the water board has had an opportunity to review the same.

4. In arriving at the foregoing conclusion of law with regard to the operation of 46-2A-ll, the Board recognizes that it takes a broad view of the legislative purpose in enacting the flood control statute. The Board concludes that the broad language of statute ***justifies*** the result reached. The Board further concludes that its action is consistent with its own prior actions. Moreover, its action is consistent with the grant of FC-19 to the Lake Pelican water project district. As found above, the purpose of FC-19 was to decrease sediment in Lake Pelican, just as the purpose here is to decrease sediment in Lake Kampeska. Each is justified, the Board concludes, by the broad language of SDCL 46-2A-11.

5. The Board concludes that there is not sufficient evidence or data to conclude whether there is a likelihood or severity of flood damages in the areas other than the project area or the area to be

benefited.

6. The Board concludes, consistent with the above conclusion, there is not sufficient evidence at this time to determine that the project will not endanger human life or property.

7. In addition, the Board takes note that any flood control permit which has the effect of diverting sediment from a lake and leaving it in a river will have the effect of increasing the potential for sedimentation downstream. Because of the factual finding testing and documentation is needed to determine the amount of sediment entering into Lake Pelican and the effect that it will have thereon.

FINAL DECISION

1. The application for Flood Control Permit FC-29 on behalf of the City of Watertown is DEFERRED due to the necessity to obtain additional information

2. The prior water rights of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to use the water may not be unlawfully impaired by this flood control permit.

3. The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to 1) altering the established ordinary high water mark for Lake Kampeska; 2) flooding to Lake Kampeska properties; 3) detrimental sediment transport to downstream areas, 4) or detrimental effects to recreational fisheries or the State threatened trout-perch.

4. Before the gates are opened as described in paragraph 1, the silt load entering Lake Pelican shall be measured; the silt load shall also be measured during the time in which the gates are opened or at sometime thereafter. The Department of Environment and Natural Resources shall approve the operating plan for the silt measurement within a reasonable time after the grant of this permit. In any case, the applicant is responsible for the measurements which shall be supplied to the Department of Environment and Natural Resources and which shall thereafter be available to the public, including Lake Pelican.

5. In order to quantify the level of sediment entering Lake Pelican before, during and after the

gates of the Kampeska weir are operated, water quality sampling equipment and flow sensing equipment shall be installed on the bottom of the fish notch in the Lake Pelican weir. This equipment will quantify the specific amount of sediment and nutrients entering the Lake Pelican before, during and after the gates are operated. We suggest the water quality sampling equipment be an American Sigma Series 900 Water Quality Sampler, with its strainer located on the lake side of the weir, as close to the bottom of the notch as possible. The flow sensing devise should be an American Sigma model #920AV Flow Meter, equipped with two probes. One probe shall be placed on the river side of the fish notch on the Lake Pelican weir and one probe should be placed on the lake side of the fish notch, so that a head differential can be determined, indicating flow direction from the river to the lake, or from the lake to the river.

Flow and water quality samples are to be taken for at least a four-hour period before the Lake Kampeska weir gates are opened and for at least three hours past the time the weir gates have been closed. In addition, automated flow measurements and water quality samples need to be taken during the entire time the gates are open on the Kampeska weir.

The equipment should be set up to take automatic water quality samples; at least one per hour during all water quality sampling periods. Because the water sampling equipment has a container for a maximum of 24 bottles. The sample bottles will need to be changed out if the flow sampling period is to last more than 24 hours. The equipment will need to be appropriately calibrated to sense flows and take water quality samples. In addition, a quality assurance/quality control (QA/QC) process should be established to make sure the equipment is operating as required and/or has not lost it calibrations. A bag of ice should be placed in the middle of the sampler pod when the sampler is turned on and all samples should be put on ice during transport. Each water sample should be analyzed individually as opposed to being composited. Each sample should be analyzed for total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN), and any other parameters the City may desire. All samples shall be collected, shipped, and analyzed in a timely fashion, so that each sample can be appropriately analyzed. To that extent, the lapsed time from which a sample is taken by the equipment to the time it is analyzed should

be no longer than seven days. Samples shall be shipped to a testing laboratory approved by both the South Dakota DENR and the Lake Pelican Water Project District (LPWPD). Both the DENR and LPWPD shall be provided with copies of all flow data, sampling data, and reporting performed.

If through the flow monitoring, water quality sampling, and laboratory analysis process, the DENR or the LPWPD believes appropriate measurements have not been obtained due to poorly functioning equipment, poor QA/QC procedures in maintaining the sampling and flow samples, the City shall be required to take the appropriate actions necessary to ensure the intent of the directives of this paragraph 5 are met.

The Water Board, the Department of Environment and Natural Resources, and the Lake Pelican Water Project District shall be supplied copies of all data obtained and reports prepared where analyses have been made by or for the City and/or the Lake Kampeska Water Project District no later than two months after the gates have been shut on the Kampeska Weir.

Dated this 12 day of June 2000.

/s/Jay M. Leibel
Jay M. Leibel
Ericsson, Ericsson & Leibel
PO Box 406
Madison, SD 57042

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the proposed Findings of Fact, Conclusions of Law and Final Decision with regard to Flood Control Permit Application Number FC-29, City of Watertown, was sent by facsimile to the following persons on June 12, 2000.

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In addition, the proposed findings were sent by United States Mail to:

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STATE OF SOUTH DAKOTA

BEFORE THE WATER MANAGEMENT BOARD

IN THE MATTER OF FLOOD CONTROL PERMIT APPLICATION NO. FC-29, CITY OF WATERTOWN	))))	FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL DECISION

1. This is an application by the City of Watertown for Flood Control Permit No. FC-29. The City proposes to construct a weir and gate system on the inlet-outlet of Lake Kampeska.

2. The stated purpose of the project is to control the amount of sediment entering into Lake Kampeska. The weir is proposed to have an overflow elevation at 1718.2 fmsl. It is also proposed to have a fish passage weir or "fish notch" and two cast iron gates.

BACKGROUND--THE BIG SIOUX RIVER, LAKE PELICAN, AND LAKE KAMPESKA

3. It is important to place this matter into context. The Big Sioux River Basin in southern Roberts, Grant, and Codington Counties has been faced with difficult sedimentation and water quality problems. The problems flow, presumably, from the fact that most of the basin is agricultural. As a result of the sedimentation in the Big Sioux River, the lakes adjoining the river also become faced with sedimentation challenges.

4. Federal, state, and private interests in the area have recognized the basin-wide character of the sedimentation and water quality problems.

5. Numerous grants have been made to assist in dealing with the water quality and sedimentation problems. At least $800,000 has been awarded to the City of Watertown on behalf of

water quality partners throughout the watershed for studies and efforts to deal with these problems.

6. A number of recent studies have addressed the sedimentation problem either directly or indirectly. These studies include the Upper Basin Hydrology Study of 1998, the Diagnostic Feasibility Study--Lake Kampeska of January 1994 authored by DENR and the 1994 Flood Control for Watertown and Vicinity Study authored by the U.S. Corps of Engineers, among others. In addition, HDR Engineering, Inc. compiled Amendment and Executive Summary for Technical Memorandum No. 1, DENR Exhibit No. 4, in the present controversy which deals with some aspects of the problem.

7. Lake Pelican is just south of Watertown, and Lake Kampeska is just north of Watertown. Both lakes are on the Big Sioux River, and both are faced with the sedimentation challenge. The Pelican Lake Association has assisted Lake Kampeska's study of the problem; the Lake Kampeska Association has assisted in the study of the Lake Pelican problem.

8. As part of the comprehensive approach to improving conditions in the watershed, the Lake Pelican Water District applied for Flood Control Permit No. FC-19 in 1996. The Board takes judicial notice that the official "Notice of Hearing on Flood Control Application No. FC-19," published in the Watertown Public Opinion in 1996, stated that the Lake Pelican Water District's application was to construct a "diversion weir located in the inlet-outlet channel to Lake Pelican . . . . The weir is to control sediment loading to Pelican Lake from the Big Sioux

River." Lake Pelican Water District's flood control permit was approved on December 26, 1996.

9. The Lake Pelican weir elevation was set at 1712.25 fmsl; the outlet elevation of Lake Pelican as set at 1709.7 fmsl. The Lake Pelican weir is thus 2.55 feet higher than the outlet elevation.

10. The Lake Pelican weir constructed under the authority of FC-19 has been effective. The weir is effective because it is 2.55 feet higher than the outlet elevation. The first flush of water in the spring carries a very large amount of sediment. The Lake Pelican weir operates to keep most of that sediment out of the lake because it is set at a higher level than the normal lake level. Instead of entering Lake Pelican, most of the sediment is deflected from Lake Pelican and sent downstream.

11. The result is that clear water is again appearing in Lake Pelican.

12. The present application is to allow Lake Kampeska to similarly deal with its sedimentation problem from the Big Sioux River. Various estimates have been made of the amount of sediment that has been deposited in Lake Kampeska. "Amendment and Executive Summary From Technical Memorandum No. 1, DENR Exhibit 4, prepared by HDR Engineering, Inc., states that the "sediment deposition into Lake Kampeska between 1994 and 1997 has been estimated at 71,200 tons."

13. Another estimate made by an engineer for the City of Watertown based upon a report in evidence was that 51 million cubic yards of sediment has been deposited in Lake Kampeska.

15

14. Further evidence indicated that the Department of Agriculture has estimated a maximum of 125 years left in the life of Lake Kampeska.

15. Reliable evidence indicates that 68% of Lake Kampeska is covered by sediment to a depth greater than 9 feet.

16. The quality of Lake Kampeska water is especially important to the City of Watertown because the city receives a substantial portion of its drinking water from the Lake.

17. The Board finds that the sedimentation and adverse water quality effects from the inflow of Big Sioux River water into Lake Kampeska constitute a serious threat to the viability of Lake Kampeska as a desirable public resource.

LAKE KAMPESKA PROJECT DESCRIPTION

18. The water flow to and from Lake Kampeska and the Big Sioux River is presently controlled by a sheet pile weir constructed on the Big Sioux River in 1941. The elevation of the tope of the weir is 1717.8 fmsl. This weir is located in the Big Sioux River just downstream of Lake Kampeska's inlet-outlet channel. Without the 1941 weir, the lake would simply empty into the Big Sioux River.

19. During the beginning stages of a flood event, the 1941 weir diverts a major portion of the Big Sioux River flow into Lake Kampeska. As the duration of the flow then continues, the level of Lake Kampeska rises, causing a larger portion of the flow in the river to be diverted downstream.

20. During the early stages of a flood event, a large portion of sediment is transported. As a result, the 1941 weir

diverts the initial flow into the lake when the water quality of the river is at its poorest condition and in which it carries the most sediment.

21. The proposed weir is, therefore, set at a higher level than the 1941 weir. The proposed weir is set to have an elevation of 1718.2 fmsl. The weir will thus preclude the entry of water from the Big Sioux River into Lake Kampeska during the early stages of a flood event. Because this stage is the stage at which most of the sediment is carried, the proposed weir will have the effects of lessening the amount of sediment which enters into Lake Kampeska and of sending more sediment downstream.

22. The weir is proposed to be 330 feet long. In addition the weir will include a gate structure of 24 feet (including two 8 by 7 feet gates). The length of the weir is necessary to allow sufficient overflow capacity so that no impact will occur at higher flows.

23. Beyond the basic operation of the weir, as described above, the application sets out operating criteria for the two cast iron gates, which will be built into the weir and which will be manually operated.

24. The gates will normally be closed. However, the gates can be opened during very specific conditions involving the conjunction of several events. The gates can be opened following internal flooding on Lake Kampeska, or a flood event on the Big Sioux River, but only when the lake level is above the river stage and the lake level is above its normal outlet elevation of 1717.8. During these conditions, the gates could be opened,

allowing the excess water from Lake Kampeska to run into the Big Sioux River.

25. The gates could also be opened during a drought period when the lake level falls to elevation 1715.3 fmsl, which is 30 inches below the lake's normal or outlet elevation. Opening the gates at this point allows more water to flow into Lake Kampeska during the drought than is entering through the fish notch. The gates would remain open until the lake level rises to elevation 1715.8 fmsl, which is 24 inches below the lake's normal or outlet elevation.

26. As noted, the gates would normally be closed. However, the gates would also be closed when the lake level reaches its normal level during a draining operation following an internal flood on Lake Kampeska or a flood on the Big Sioux River. Moreover, the gates would also be closed when the allowable filling operation during a drought period returned the lake level to elevation 1515.8, which is 24 inches below the lake's normal or outlet elevation.

27. In addition, the proposed weir has a fish-passage "notch" permanently open in the weir. This fish notch is a 3x3 foot structure with a bottom at 1715.0 and a top at 1718.2 fmsl.

28. The fish notch will provide for the passage of fish between Lake Kampeska and the Big Sioux River, a passage which is necessary for some of the fish during the spawning season. During the period from March through June, Northern Pike will be able to move from Lake Kampeska to the Big Sioux River, and vice versa, 96 percent of the time; walleye up to 30 cm, 79 percent of

the time; walleye up to 20 cm, 69 percent of the time; trout-perch, 70 percent of the time; yellow perch, 65 percent of the time; small-mouth bass, 48 percent of the time; and channel catfish 33 percent of the time. The Board credits the testimony of the Game, Fish and Parks representative that the fish notch should adequately provide for the movement of fish.

29. The Board has also considered the limited evidence presented with regard to the trout-perch, a state listed endangered species. The trout-perch is a small fish, ranging from 3 to 4 inches at adulthood. The fish is neither a trout nor a perch but simply appears to have characteristics of both. Lake Kampeska is a stronghold of this fish in South Dakota.

30. The uncontradicted testimony of the Game, Fish and Parks representative indicates that the fish notch will provide an adequate means for this fish to pass to and from Lake Kampeska during the spawning season, and that the fish can be adequately protected, when the permit is conditioned as set forth below.

31. The Board finds that the proposed weir on Lake Kampeska will significantly decrease the amount of sediment entering Lake Kampeska. The Board further finds that the fish notch will adequately allow for fish movement, and will, in particular, protect the trout-perch, especially when the flood control permit is conditioned as set forth below.

32. Finally, the Board finds that the fish notch and the gates in the structure will enhance the utility of the weir and, therefore, should be included in the project.

REVIEW OF FACTUAL OBJECTIONS

33. A variety of objections have been raised with regard to the proposed flood control permit. It has been alleged that the operation of the weir will cause flooding during a 2 to 6 year flood event. The evidence indicates, however, that there are only three locations at which the flow will not be in the channel, and all three are owned by the City, the applicant here.

34. An objection was made that the proposed weir will hold the Lake Kampeska lake levels higher for longer periods of time and, therefore, cause wind or wave damage. The Board rejects this objection. First, the operation of the gates will reduce the duration of time in which the lake level is held at a high level. In addition, the Corps of Engineers has concluded that at the elevation of 1719.0, there would be no measurable concerns with wave action. The top of the weir is proposed at 1718.2, .8 feet lower than the level at which measurable concerns will occur. Therefore, this objection is without merit.

35. The Lake Pelican intervenors correctly point out in their objections that certain of the graphs presented by the applicant were inconsistent with each other and inconsistent with the data which the applicants have presented. The Board finds, however, that these discrepancies do not make a difference. The data relied upon for the ultimate conclusions in this case are the actual numbers generated by the applicant and by the reports and not the graphs in question. The Board notes that the graphs are inconsistent because of differences in the operation of the computer-smoothing program based on scale.

36. Intervenor Lake Pelican raises a concern with regard to sediment which will build up behind the gates when the gates are closed. Intervenor Lake Pelican suggests that in the event the gates are opened, the sediment which is built up will be substantial and, furthermore, that it will flow either into Lake Kampeska to the detriment of those living on Lake Kampeska or will flow back into the river, to the detriment of those downstream, depending upon the flow regime in the river and the lake at the time the gates are open. The Board does not find this to be a matter of substantial concern. The sediment at issue is certainly not created by the gates. Moreover, the volume is not quantified. Finally, the sediment represents only a very small portion of that which would have gone into the Lake Kampeska had the new weir not been built in any event.

37. The Lake Pelican intervenors also object to the gates because of the possibility that they may be opened inappropriately. The Board rejects this contention. First, the gates will be protected by a padlock and cannot be opened without a handle, which will not be attached except during the operation of the gates. These will be in the custody of the City of Watertown. Second, intervenors suggest that the real problem may not in any event be vandals, but might be an inappropriate action by a city official at a later date, when the conditions of the permit in question have been forgotten. The Board is unable to accept this as a viable attack on the proposed permit. Virtually every permit issued by the Board for water rights, flood control or for other purposes is encumbered by conditions. Almost all of

the permits are for indefinite periods of time. Public officials and private individuals can be expected, the Board believes, to comply with the conditions of the permit even over extended periods of time. While it is true that structures which are controlled are susceptible to problems which structures which are not controlled do not face, no evidence has been presented to demonstrate that conditions of Flood Control permits or other permits are violated on a regular basis.

38. The Lake Pelican intervenors also attack the gates on the grounds that their operation may harm downstream interests, including Lake Pelican, when they are opened. Lake Pelican argues that during the times the gates will be opened, there will already be a very substantial amount of water in the river, and the additional water allowed out through the gates will be to the downstream party's detriment. Lake Pelican points out that the gates can be opened after a flood event on the river occurs, when the lake level is above the stage of the river and when the lake level is above its normal level of 1717.8 fmsl. The Board finds, however, that the impact of the opening of the gates under the conditions specified will not have detrimental effects argued by Lake Pelican. First, the weir will have no effect at high flood levels in any event. That is, once the flow of the river overtops the weir, it will be as if the weir is not there at all. Thus, in truly significant events, the weir will simply have no effect at all. Second, the difference between the weir level and the normal level of the river is only 5 inches. Thus, the effect

of the opening is unlikely to cause any significant effects at low flow levels.

39. The State has also raised the concern, one apparently shared by Lake Pelican, that construction of the Lake Kampeska weir will have the effect of decreasing the amount of sediment entering Lake Kampeska and, therefore, increasing the amount of sediment which remains in the Big Sioux River; the increased sediment load in the river (along with increased flood frequencies in the approximate two- to six-year precipitation event) might also increase the sediment loading in Lake Pelican. The Board finds, however, that any increase in the amount of sediment flowing into Lake Pelican would be negligible. The Board bases its conclusion on the analysis set out by HDR Engineers in City Exhibit 8, Item No. 4. First, the Board credits the analysis that demonstrates that flows greater than six-year events will have no impact on Lake Pelican in terms of flow increase into that lake. Second, the proposed Lake Kampeska weir will increase flow into Pelican Lake for the two-year and four-year events by only 13 cfs and 5 cfs respectively. The Board concurs that these increases are minor when compared to the 230 cfs and 305 cfs reduction that the Pelican weir attained for these same two flow events. A simple comparison of the flow data thus indicates that the amount of sediment transported by that flow into Pelican Lake will be negligible in the event the Lake Kampeska weir is constructed.

CONCLUSIONS OF LAW

1. This Board has jurisdiction to issue flood control permits and has jurisdiction of this matter.

2. The proposed flood control works will have the effect of reducing the damage from flooding or erosion in the area proposed to be benefited. The Board concludes that, pursuant to SDCL 46-2A-11, flooding controlled and erosion prevented need not be immediate. The Board finds that if the proposed project is constructed, the amount of sediment entering into Lake Kampeska will be significantly decreased. The long run effect will therefore be to decrease the damage from flooding in the Lake Kampeska area which would occur as the lake becomes more and more filled with sediment. The Board further finds much of the sediment which will be diverted from Lake Kampeska constitutes "erosion" and diversion of this eroded material downstream will benefit the project area and decrease "damage" from "erosion."

3. In arriving at the foregoing conclusion of law with regard to the operation of 46-2A-11, the Board recognizes that it takes a broad view of the legislative purpose in enacting the flood control statute. The Board concludes that the broad language of statute justifies the result reached. The Board further concludes that its action is consistent with its own prior actions. Moreover, its action is consistent with the grant of FC-19 to the Lake Pelican water project district. As found above, the purpose of FC-19 was to decrease sediment in Lake Pelican, just as the purpose here is to decrease sediment in Lake

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Kampeska. Each is justified, the Board concludes, by the broad language of SDCL 46-2A-11.

4. The Board concludes that the project will not increase the likelihood or severity of flood damages in the areas other than the project area or the area to be benefited. The Board finds that any additional flooding will be on city property and such flooding does not affect whether this permit can or cannot be granted.

5. The Board concludes, consistent with the above conclusion, that the project will not endanger human life or property.

6. The Board concludes that the project will not impair existing water rights. In coming to this conclusion, the Board relies upon its finding that the increased amount of sediment entering Lake Pelican as a result of the Lake Kampeska weir will be negligible. Because the amount of sediment is negligible, or, in other words, de minimis, there is no statutory impairment of any existing water right.

7. In addition, the Board takes note that any flood control permit which has the effect of diverting sediment from a lake and leaving it in a river will have the effect of increasing the potential for sedimentation downstream. Because of the factual finding made above that the amount of sediment entering Lake Pelican as a result of Lake Kampeska weir will be negligible, the Board finds it unnecessary to determine whether the purpose of SDCL 46-2A-11 would be served by concluding that increased downstream sedimentation caused by a flood control

permit which merely retains sedimentation in the stream is an adverse affect for the purpose of the statute.

8. In the further alternative, the Board concludes that it need not determine whether the Lake Pelican water project district is in fact a holder of a "water right" as defined by SDCL 46-2A-11 and so is in a position to argue that its "water right" is impaired. The Lake Pelican water project district has identified itself as the holder of "Flood Control" Permit FC-19. The question of whether a Flood Control permit actually grants a "water right" is one unresolved in South Dakota water law. It need not be resolved here, however, because of the factual conclusion made above.

FINAL DECISION

1. The application for Flood Control Permit FC-29 on behalf of the City of Watertown is GRANTED subject to the following conditions.

2. That the construction, operation, maintenance and repair of the Lake Kampeska weir and gated control system is the responsibility of the city of Watertown. The operation of the gates shall be in accordance with the following criteria:

Open Gates

- During internal flooding or after a flood event on the river; and
- If lake level is above the stage in the river; and
- If lake level is above its normal level of 1717.8 fmsl; or
- During drought periods when the lake level falls 30 inches below its normal elevation (1715.3 fmsl).

Closed Gates

- Normal operating conditions; or
- When lake level reaches its normal level during draining operation; or
- When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

3. The prior water rights of all persons who, by compliance with the laws of the State of South Dakota, have acquired a right to use the water may not be unlawfully impaired by this flood control permit.

4. The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to 1) altering the established ordinary high water mark for Lake Kampeska; 2) flooding to Lake Kampeska properties; 3) detrimental sediment transport to downstream areas, 4) or detrimental effects to recreational fisheries or the State threatened trout-perch.

5. Within a reasonable time after the grant of this permit, the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican. The plan shall be supplied to Lake Pelican Water Project District, which may comment as it believes to be appropriate. The Department of Environment and Natural Resources shall review the plan and approve the plan with or without modifications or, if the plan is unacceptable, shall formulate a new plan which shall be given effect within a reasonable period of time. Should the applicant or any other party be aggrieved by

the action of Department of Environment and Natural Resources under this paragraph, the issue shall be advertised and scheduled for hearing before this Board.

Dated this 16th day of June, 2000.

BY THE BOARD:

Francis E. Burch

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DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

June 20, 2000

NOTICE

TO: Richard L Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910
and Parties of Record (see attached list)

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Adoption of Findings of Fact, Conclusions of Law and Final Decision

This is to notify you that the Final Decision, including Findings of Fact and Conclusions of Law, were adopted June 15, 2000 by the Water Management Board for Flood Control Permit Application No. FC-29. A copy of the signed Findings of Fact, Conclusions of Law and Final Decision is enclosed.

South Dakota statutes provide that decisions of the Board may be appealed to the Courts. Notice of appeal of the Board's decision must be filed within thirty days of this notice and be in accordance with procedures established in SDCL 1-26-31.

enclosure

c: Diane Best, Assistant Attorney General
John Guhin, Deputy Attorney General

PARTIES OF RECORD
FLOOD CONTROL PERMIT APPLICATION NO. FC-29

APPLICANT

Richard L. Schlechter
City of Watertown
P. O. Box 910
Watertown, SD 57201-0910

represented by:

Kevin J. Krull
Deputy City Attorney
City of Watertown
23 – 2nd Street NE
Watertown, SD 57201

PETITIONERS

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201-7033

represented by:

Jay M. Leibel
Ericsson, Ericsson and Leibel
P.O. Box 406
Madison, SD 57042

Rick Trupe, Mayor
City of Castlewood
P.O. Box 17
Castlewood, SD 57223

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
Watertown, SD 57201

SD Dept. of Game, Fish and Parks
c/o Tim Olson
523 East Capitol Ave.
Pierre, SD 57501-3182

Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Marge and Bill Swaboda
1730 38th Avenue NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

CERTIFICATION

I hereby certify that on June 20, 2000, I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated June 20, 2000, along with a copy of the Parties of Record List, and a copy of the Findings of Fact, Conclusions of Law and Final Decision, regarding Adoption of Findings of Fact, Conclusions of Law and Final Decision for Flood Control Permit Application No. FC-29, addressed as stated below, and on the attached Parties of Record List:

Richard L. Schlechter, City of Watertown, P.O. Box 910, Watertown, SD 57201-0910.

A copy of the above described Notice and attachments was sent Inter-office to:

Tim Olson, Department of Game, Fish & Parks, Joe Foss Building.

Diane Best, Assistant Attorney General, Capitol Building.

John Guhin, Deputy Attorney General, Capitol Building.

Cheryl F. Frost
Secretary

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 21st day of June, 2000

Karen Schlaak
Notary Public

KAREN SCHLAAK
SEAL NOTARY PUBLIC SOUTH DAKOTA SEAL
KAREN SCHLAAK, Notary Public
My Commission Expires
April 1, 2001

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CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star



July 19, 2000

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing
Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec &
Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

Jay M. Leibel
Ericsson, Ericsson & Leibel
PO Box 406
Madison, SD 57042

Re: Flood control permit application FC-29, City of Watertown

Dear Mr. Leibel:

Enclosed is one (1) copy of Watertown's proposed monitoring plan prepared as required in paragraph 5 of the Water Management Board's June 16, 2000 Final Decision in the matter of FC-29 referenced above. Watertown has prepared the proposed plan with a great deal of technical assistance and guidance from the Department of Environment and Natural Resources. In conversations with Department staff today, I believe the Department agrees with the proposed monitoring plan as having met the Water Management Board's intent, but the Department is reserving final approval of the plan until they have received review comments from Lake Pelican Water Project District.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

enclosure

cc: Diane Best, Assistant Attorney General
Vince Foley, City Attorney
Garland Erbele, Chief Engineer, Water Rights Program

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Lake Kampeska Diversion Weir

A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas

July 13, 2000

Introduction

The Upper Big Sioux River watershed in extreme southern Roberts, western Grant, and east-central Codington Counties has been faced for years with difficult sedimentation and other water quality problems. Lakes Pelican and Kampeska are direct reflections of their watershed and have also fallen victim to water quality impairments due to sediment accumulation and other water quality impacts.

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As part of a comprehensive approach to improving conditions in the watershed, a diversion structure was constructed across the canal leading to Lake Pelican in 1998. The Lake Pelican weir was constructed under the authority of Flood Control Permit FC-19 granted by the South Dakota Water Management Board on December 26, 1996. The purpose of the weir is to control the amount of sediment entering Lake Pelican from the Big Sioux River.

This current proposal by the City of Watertown is to construct a similar structure in the inlet/outlet channel of Lake Kampeska to reduce the amount of sediment entering the lake from the Big Sioux River. The South Dakota Water Management Board on June 15, 2000 granted Flood Control Permit FC-29. This monitoring plan has been prepared as required in paragraph #5 of the Water Management Board's final decision that states in part "...the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load..."

Acknowledgments

Acknowledgment is particularly made to Chief Engineer Garland Erbele, Mr. Gale Selken, and Mr. Eric Gronlund of the South Dakota Department of Environment and Natural Resources' (DENR) Water Rights Program for their wise advice and sound judgment throughout the flood control permit application process; to Mr. Bill Stewart of DENR's Watershed Protection Program for his contribution of experience and technical expertise in the development of this water and sediment monitoring plan; and to the Wastewater Treatment and Municipal Utilities Departments of the City of Watertown, and their respective staffs, for their assistance in developing this plan and who will be largely responsible for implementation of this plan and the operation of the gates.

Post-it® Fax Note 7671 | Date 7/14/00 | # of pages ▶ 5
To B. Stewart | From R. Sibbernsen
Co./Dept. DENR | Co. CW
Phone # 773-5682 | Phone # 882-6204 x29
Fax # 773-4068 | Fax # 882-5214

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Plan Development

This plan has been developed to meet the intent of the Water Management Board to measure the effect of the proposed weir regarding sediment load and transport to downstream areas as given in paragraphs #4 and #5 of the Board's Final Decision adopted on June 15, 2000.

- "The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to ...3) detrimental sediment transport to downstream areas..."
- "... the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican."

The Lake Kampeska Diversion Weir has two manually operated slide gates as integral and necessary components of the structure. It is apparent from the Board's deliberations during the May 25, 2000 flood control application hearing that this plan be developed to monitor the effect that operating the gates, and the subsequent releases from Lake Kampeska, may have on sediment load to downstream areas of the Big Sioux River. Additionally, although there were no philosophical concerns expressed during the hearing regarding the construction of the weir to divert sediment away from Lake Kampeska, the Board's deliberations indicated a need for background or baseline data as a means of indicating and understanding the sediment dynamics of the immediate lake and river system.

This monitoring plan will provide strong baseline data through continuous monitoring of the Big Sioux River during the open water periods of the year, most generally March 1 through October 31. The plan will effectively demonstrate the effects of the operation of the gates through intensified sampling frequency at the time of gate operation. The plan will allow for the computation of total sediment load at a point downstream from Lake Kampeska.

As was discussed at the May 25, 2000 Water Management Board hearing, part of the difficulty in studying the effects of this weir is the number of factors that can affect the concentration of total suspended solids in the Big Sioux River downstream of the Lake Kampeska Diversion Weir. To the maximum extent practicable, this plan has been developed to minimize, isolate, or account for these other influences such as urban stormwater runoff, events in the upper Big Sioux River watershed that cause runoff to occur, and management of the river and changes in land use practices throughout the upper watershed that may have an effect on sediment load in the Big Sioux River.

Finally, this plan also addresses the Board's intent regarding notifications prior to operation of the gates, recordkeeping, and reporting.

Sampling Site Location

The sampling site for this monitoring plan is located 1.5 miles (an estimated 15,000 feet measured along the channel) downstream of the proposed Lake Kampeska Diversion Weir on the

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downstream side of the bridge over the Big Sioux River on Sioux Conifer Road in the northwest ¼ of section 13, township 117 north, range 53 west. The site is approximately 2 miles upstream of Watertown's urbanized areas. This is the same location of DENR's Clean Water Act Section 106 long-term water quality monitoring program monitoring site WQM55.

Section 106 water quality monitoring at WQM55 has been ongoing on a monthly basis since December 1972. As of June 15, 2000, a total of 224 total suspended solids samples have been collected from WQM55 and analyzed. The time period over which the significant number of samples were collected and analyzed provides tremendous baseline information

WQM55 is also the location of USGS streamflow gaging station #06479500 otherwise known as the "Big Sioux River at Watertown" gage. This gaging station was in operation from 1946 through 1972, and portions of 1997 during the flood. The period of record for this station is reasonably long and includes an extreme flood event. The stage-discharge curve established by USGS for this station is quite reliable. USGS station #06479500 ("Big Sioux River at Watertown") has been reactivated as a full-time streamflow gaging station in Watertown's enhanced flood-forecasting system.

Watertown's flood forecasting system includes precipitation gages and streamflow gages throughout the entire watershed (see map) all equipped with satellite communication equipment which allows for direct download of data to the USGS Internet site. The USGS home page can be found at the following Internet address: *http://sdwater.usgs.gov*. Real-time streamflow and rainfall data is available at *http://sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg*. Data from this network may offer explanations to unanticipated monitoring results by providing a window of information to describe occurrences in the watershed that may affect water quality in the Lake Kampeska, Watertown, and Lake Pelican vicinity.

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Sample collection and frequency of sampling

Water samples will be collected continuously at the sampling site throughout the open water season. It is anticipated that monitoring will occur most generally from March 1 through October 31, but the annual monitoring period will be adjusted as necessary dependent upon the weather, lake level, and streamflow conditions.

An automated sampler equipped to cool and heat the composite water sample to 4 degrees Celsius will be used for collection and storage of the sample. The suction line and strainer will be installed so that the strainer is located near the bottom of the streambed either in the thalweg of the channel or the center of the channel at the discretion of DENR at the time the sampling equipment is installed.

For general continuous sampling, the sample will consist of individual sample portions collected in a single composite container 5 times during each 24-hour day of a 7-day sampling period. At the time the criteria for operating the gates are met, the length of the sampling period will be reduced to 1day. One day prior to, during and 3 days following, the opening of the gates, a 5-sample 24-hour daily composite sample will be collected for analysis. Thereafter, the sampling frequency will return to the weekly schedule.

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Sample pickup and transport

Personnel of Watertown's Wastewater Department will pick up the sample at the end of each sampling period and transport the sample to the Wastewater Department's laboratory. Chain of custody procedures will be employed to trace the possession of the sample from the time it is collected and picked up until the lab analysis has been completed. This procedure will demonstrate that the samples have not been tampered with during collection, pickup, transport, storage, and analysis.

At the time the sample is picked up, Watertown Wastewater Department personnel will record stage-discharge-rainfall information available from the City's flood forecasting system. This information is available by accessing the Internet at the home page of USGS (*http//:sd.water.usgs.gov*). The real-time streamflow and rainfall data can be found most specifically at *http//:sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg.*

Observations regarding precipitation, wind, cloud cover, water odor, septic conditions, presence of dead fish, noticeable films or sheens, turbidity, color, and the presence of wildlife or domestic animals near the sampling site will be recorded at the time the sample is picked up. Additionally, portable hand-held meters will be used to measure and record field measurements for dissolved oxygen, pH, conductivity, and water temperature.

Sample analysis

The Watertown Wastewater Department laboratory staff will analyze the water sample for Total Suspended Solids. The analysis will be conducted according to EPA method 160.2 and the Department's standard operating procedure for analyzing for Total Suspended Solids. This is the same methodology and procedure used by the Wastewater Department to determine and document compliance with the City's National Pollutant Discharge Elimination Permit issued by the Environmental Protection Agency.

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Duplicate sample analyses will be conducted for every 5th sample to demonstrate laboratory quality assurance and quality control. Duplicate samples for QA/QC analysis will be representative sample portions obtained after splitting the sufficiently-mixed, homogeneous composite sample delivered to the laboratory for analysis.

The results of duplicate sample analyses shall be reported in the same manner as normal samples.

Notification

Prior to operating gates, the City of Watertown shall contact the chairperson of Lake Pelican Water Project District by telephone. This verbal communication shall be followed up with a notification/confirmation letter. A form letter for this notification may be developed and used to facilitate this notification process. The notification/confirmation letter will be delivered via certified mail, return receipt requested.

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Report Monitoring Results

Watertown will provide one (1) copy of each summary reporting form to Chief Engineer, Water Rights Program, SD Department of Environment and Natural Resources. The summary reporting form will contain the results of total suspended solids analyses, field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, chain of custody record, and pertinent information regarding the operation and status of the gates.

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Maintain Monitoring Records

Watertown will maintain a file and electronic database containing the results of total suspended solids analyses, field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, chain of custody record, and pertinent information regarding the operation and status of the gates.

Review of data

After completing not less than 2 annual monitoring periods of sampling, analysis and reporting, Watertown may review the results of the monitoring program with the South Dakota Department of Environment and Natural Resources and the Water Management Board for the purpose of determining the usefulness of the data, and to discuss any necessary modifications to the monitoring plan as the data may so dictate.

DB Attorney General
20070180
JUL 28 2000

Ericsson, Ericsson & Leibel

Richard L. Ericsson
Jay M. Leibel
Amy Langner Bozzell

Attorneys & Counselors at Law
P.O. Box 406
100 N. Egan Avenue
Madison, SD 57042
605-256-4597
Fax 605-256-2424

L.F. Ericsson (1909-1979)
Robert R. Spencer (1925-1986)

July 25, 2000

JUL 2000
WATER RIGHTS
PROGRAM
Pierre, SD

Richard L. Schlechter
City Engineer
PO Box 910
Watertown, South Dakota 57201-0910

Re: Flood Control Permit Application No. FC-29

Dear Mr. Schlechter:

Please be advised the proposed monitoring plan sent to us by letter dated July 19, 2000 is not acceptable to the Lake Pelican Water Project District. We do not believe this monitoring plan meets the water management board's stated objective and there are significant deficiencies in this proposal.

In your letter of July 19th you make reference to paragraph 5 of the Final Decision. We concur this particular paragraph is significant. However, in our opinion the Watertown plan misses the operative words in that paragraph. Specifically, "...City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment loading *entering Lake Pelican*". It is the district's position the plan does not meet that stated objective. It is our understanding your proposed plan places the monitoring station 1.5 miles downstream from the proposed diversion weir. (Approximately 2 miles upstream from Watertown's urbanized areas.) The proposed station is at least that far and probably farther from the Lake Pelican weir.

The proposed location seems to defeat the stated purpose of measuring the sediment load entering Lake Pelican. As a matter of fact it appears that placing the monitoring equipment near the Lake Pelican weir may better serve Watertown. Locating the station a number of miles from the Lake Kampeska weir would allow for sediment to settle out prior to reaching the monitoring station.

The district does not feel that sampling five times a day when the gates are opened is sufficient. This is almost five hours between each testing sample and especially during a short-term event there can be significant differences as to the sediment loading. Secondly, due to the duration between samples the risk of manipulation of the sampling results is present. In other words, the gates could be closed for a period of time prior to the sampling which could reduce the sediment loading at the time of testing and subsequently opened and closed in such a sequence as to inaccurately portray the sediment loading.

One of the major concerns of all parties is the cost of monitoring to the taxpayers. The district has advised it is Watertown's position that the district's proposal is too expensive. We were

rleric@hcpd.com *jmleibel@hcpd.com* *alangner@hcpd.com*

advised that if there was a repeat of the 1997 event it would require testing of twenty-four samples per day for 90 consecutive days at an estimated cost of approximately $118,000.00. We strongly disagree with this conclusion. Under the operating plan the gates would only be opened when the water level of the lake is within specified perimeters. When the water in the river is higher than the lake the gates would not be opened. In the 1997 event it is reported the river was approximately a half a foot higher than the lake. If there is a repeat the gates would be closed and therefore monitoring would provide information on the effect of the gates and accumulated sediment. The district believes it would be wise to obtain some sediment loading documentation at that time, but it does not believe it would be necessary in those circumstances to have hourly monitoring.

Our last comment has to do with measuring of sediment loading in a situation when the gates are open in a very low flow condition. The question exists as to whether or not accurate measurements of the flow can be made under the operating plan at the proposed gauging station.

In summary we do not believe the proposed City of Watertown's plan meets the requirements of the Water Board for measuring the effect of sediment loading on Lake Pelican. We would ask the City and State adopt the proposal previously made by the district.

Very truly yours,

Jay M. Leibel
FOR THE FIRM

JML/cd

cc: Diane Best
Vince Foley
Garland Erbele c/o Diane Best
Julian Wick, Lake Pelican Water Project District

The City of Watertown's Exhibits Nos. 2 through 7 are large posterboards. They were located on May 29, 2001 in the area between Genny McMath's cubicle and the wall leading upstairs (east stairwell) of the Foss Building.

ROBERTS

Big Sioux River

Upper Sioux

DAY

GRANT

CODINGTON

Soo Creek

Middle Sioux

Still Lake

Mud/Gravel Creek

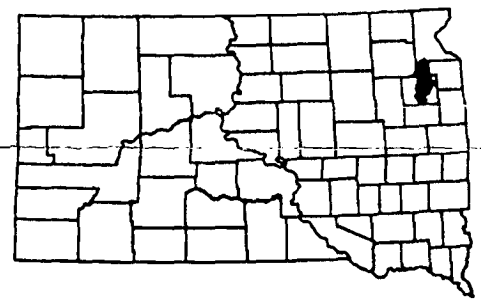
Lake Kampe

Watertown

Pelican Lake

Big Sioux River

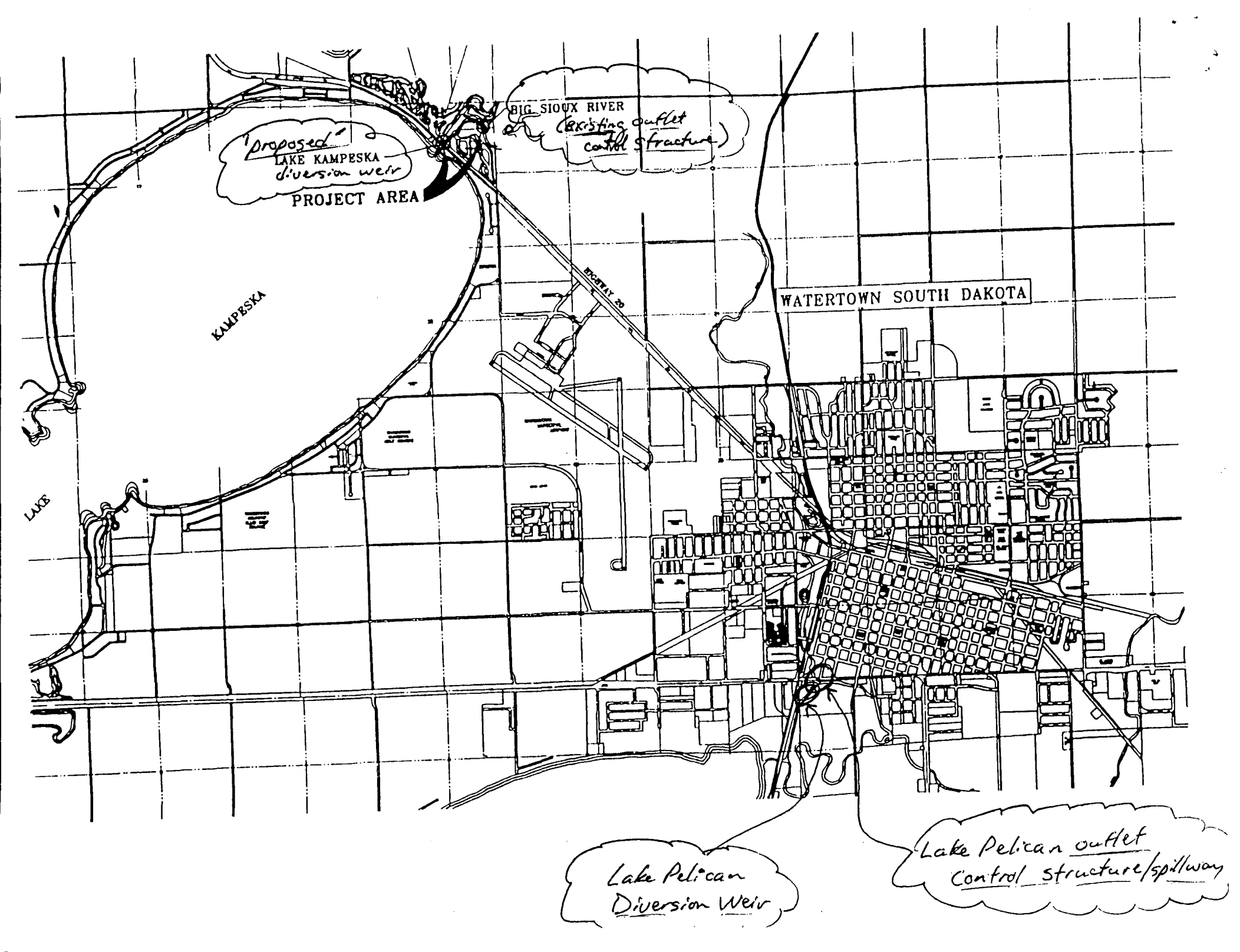
SOUTH DAKOTA

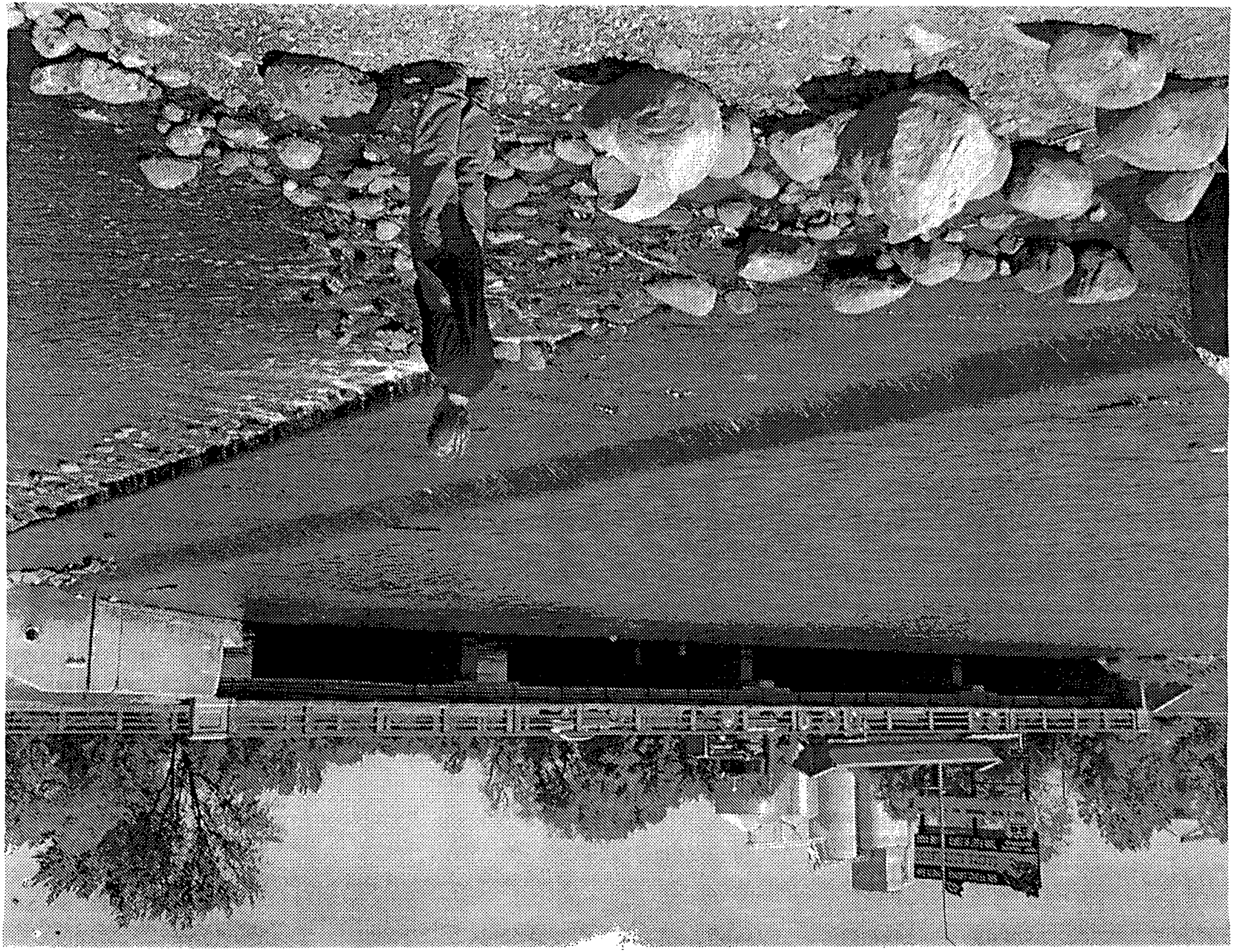


EXHIBIT

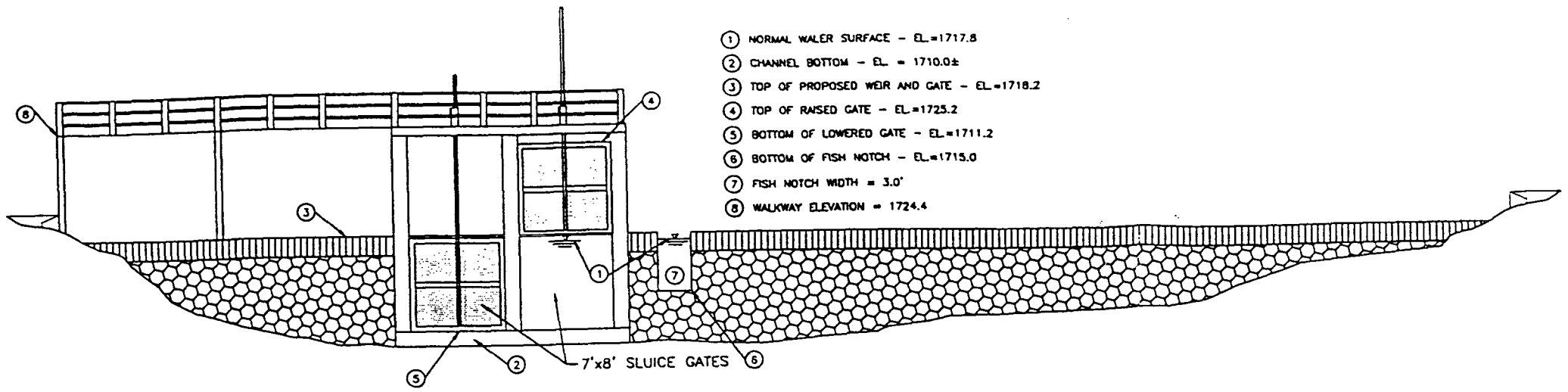
1

5-25-2010


BIG SIOUX RIVER
(existing outlet control structure)
proposed
LAKE KAMPESKA
diversion weir
PROJECT AREA
KAMPESKA
LAKE
EXCETAY 20
WATERTOWN SOUTH DAKOTA
Lake Pelican
Diversion Weir
Lake Pelican outlet
control structure/spillway

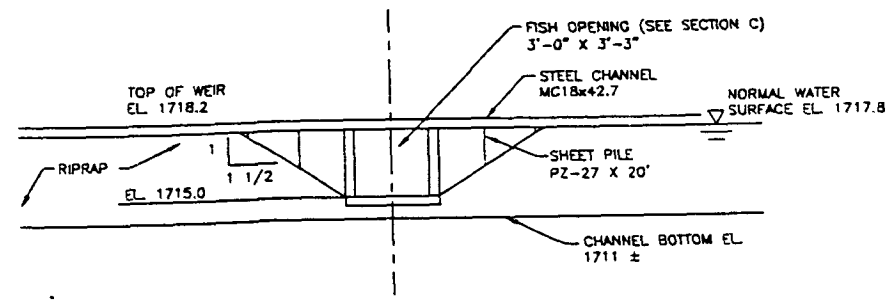






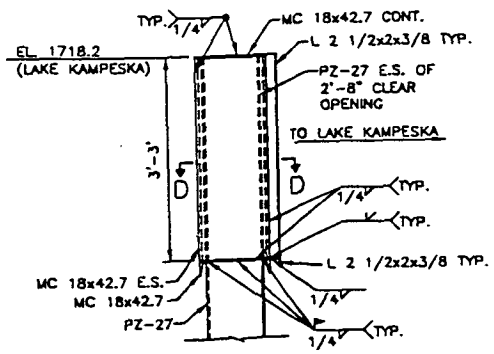
KAMPESKA SLUICE GATES AND FISH OPENING CROSS SECTION

NO SCALE



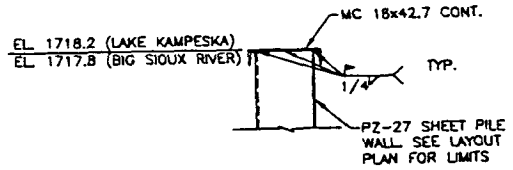
FISH OPENING ELEVATION

NO SCALE



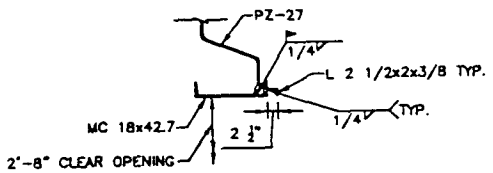
SECTION C

NO SCALE



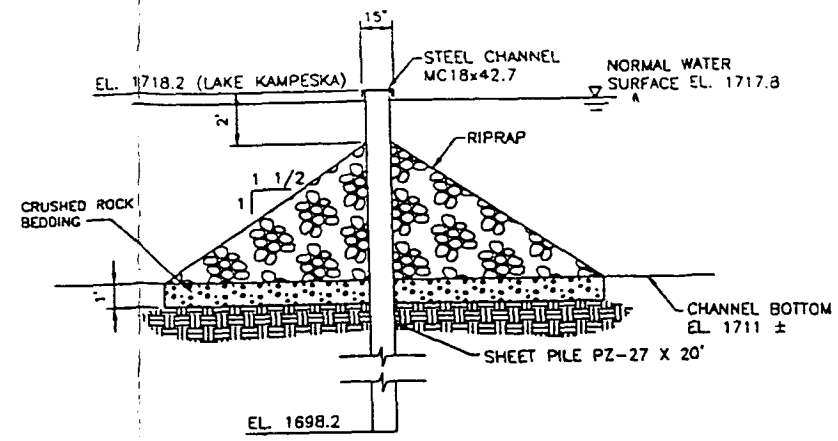
SECTION B

NO SCALE



SECTION D-D

NO SCALE



WEIR SECTION - LAKE KAMPESKA

NO SCALE

DRAFT

HDR

HDR Engineering, Inc.

No.	Description	Date	Drawn	Check	Design Engr.	Proj. Mgr.

Project Manager: A. ERICKSON
Assistant | Mtl/Pressure
Civil | Attachment
Structural | Structural
Project Engineer: L. CARRETTE ZOOK | Drawn By: M. ERIKSEN

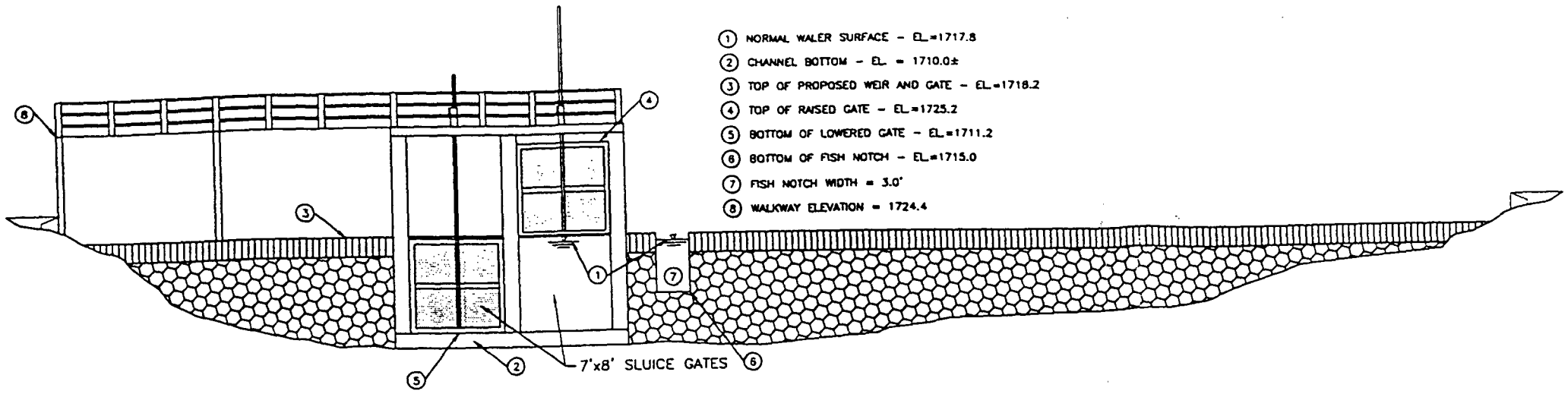
Lake Kampeska and Big Sioux River
Water Quality Diversion Weir Project

Watertown, South Dakota

2000

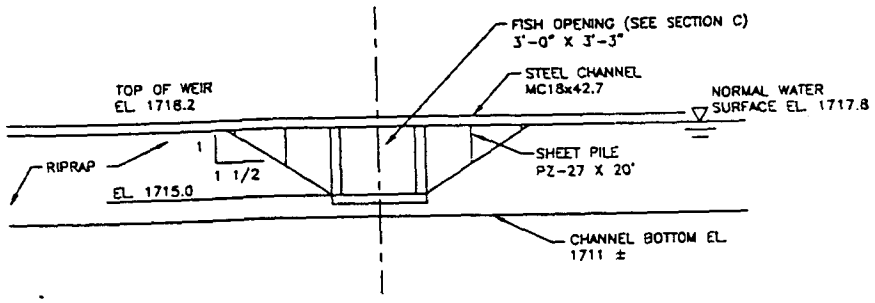
TYPICAL WEIR SECTION
AND FISH OPENING

Date	Project No.	Drawing No.
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Scale: AS NOTED	File Name: C-4.DWG	



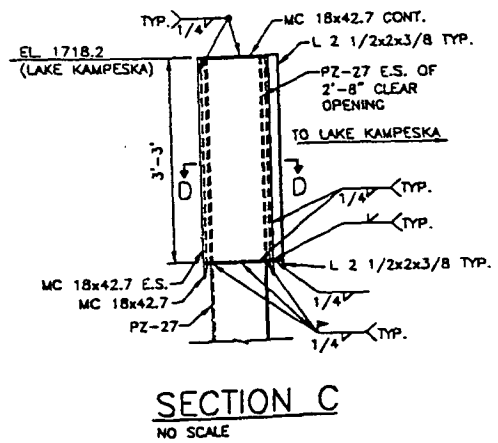
KAMPESKA SLUICE GATES AND FISH OPENING CROSS SECTION

NO SCALE



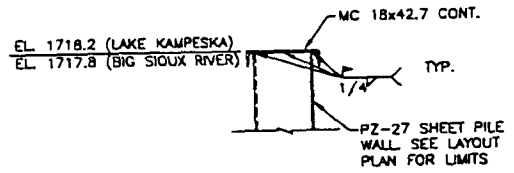
FISH OPENING ELEVATION

NO SCALE



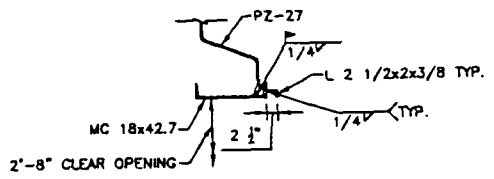
SECTION C

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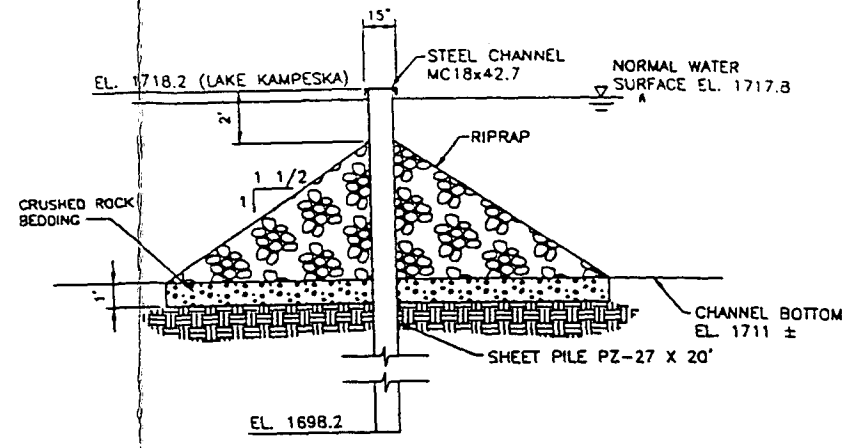
SECTION B

NO SCALE



SECTION D–D

NO SCALE



WEIR SECTION – LAKE KAMPESKA

NO SCALE

DRAFT

HDR

HDR Engineering, Inc.

No.	Description	Date	Drawn	Check	Resp. Engr.	Proj. Mgr.

Project Manager	A. ERICKSON
Architect	QC/Process
Civil	Mechanical
Electrical	Structural
Project Engineer	L. CARRETTE ZOOK
Drawn By	M. ERICKSEN

Lake Kampeska and Big Sioux River
Water Quality Diversion Weir Project

Watertown, South Dakota

2000

TYPICAL WEIR SECTION AND FISH OPENING

Date: APRIL 2000	Project No.: 08080-007-135	Drawing No.: C-4
Scale: AS NOTED	File Name: C-4.DWG	

April 20, 2000

Gale Selken
Division of Water Rights
SDDENR
Joe Foss Building
523 East Capitol Ave.
Pierre, SD 57501

RE: Big Sioux River/Lake Kampeska Diversion Project
Permitting Concerns with Application No. FC-29

Dear Mr. Selken:

This letter is to address the concerns with the permit application that you presented in your correspondence to Rick Schlechter on April 4th, 2000. We have restated your concerns in this response, in italics, with our response following.

Item No. 1 of the list of concerns states:
The proposed weir will be set 0.1 feet below Lake Kampeska's established ordinary high water mark of 1718.3 fmsl. The proposed project may impact Lake Kampeska by establishing a new high water mark and could affect private lands. The Water Management Board approved Flood Control Application No. FC-19 for the Lake Pelican Water District in 1996. Flood Control Permit FC-19 allowed construction of an inlet/outlet weir with the overflow elevation of 1712.25 fmsl, which is 2.05 feet over the established ordinary high water mark for Lake Pelican. The Board retained jurisdiction over the weir if there was flooding problems on Lake Pelican. In addition, Lake Pelican can re-establish the original channel from the lake and leave the weir in place. Since construction of the Lake Pelican weir, the Water Rights Program has received no complaints from landowners regarding the project.

As per our discussion, you had presented this as background information, and did not need a response from HDR.

Item No. 2 of the list of concerns states:
The "Amendment and Executive Summary for Technical Memorandum No. 1" submitted with the application states "There are a few low areas where the 2 and 10-year events exceed the channel capacity but these areas are mostly parkland or undeveloped." If these areas are privately owned, flood easements will need to be obtained before construction of the proposed project.

We have reviewed our files and the information provided by the Corps of Engineers to determine if additional information exists with respect to hydrology and hydraulics in the downstream reaches from the project. During the Pelican Weir study we found that the Corps of Engineers had modeled flows of 560 cfs and 820 cfs for extensive distances downstream of Willow Creek. This information is not available to HDR in detailed form. Their study was based on surveyed cross sections taken between 1 and 5 miles apart for reaches between Willow Creek and Brookings. The Corps of Engineers may be able to evaluate these sections and determine the extent of increased flooding, if any, resulting from the proposed project. However, we feel the wide section spacing will not add significantly to the understanding of downstream reaches.

We have reviewed data available to us for the reaches between Willow Creek and five miles north of Lake Kampeska, and have numerous sections in this study area. The reach between Willow Creek and Lake Kampeska provides the best indication of flow changes in the channel. As distance downstream increases, the flow contribution from this project will be attenuated or lessened with distance. In addition, increased drainage areas downstream will add additional flows from other sub-basins which will proportionately reduce the impact of flow changes. It can be generally assumed that channel capacities increase as one proceeds downstream.

City
EXHIBIT
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5-25-2000 MM

We have prepared a number of exhibits that help visualize the impact of the increased water depths to the Big Sioux River channel. The Corps of Engineers had prepared a Frequency Analysis, for the Big Sioux River, in which they showed the change in flow based on pre-project conditions for a variety of recurrence intervals. We have prepared two graphs shown in Figure 1, which shows the flow change through Watertown (between Pelican Lake and Lake Kampeska) for all recurrence intervals between 0 and 10 years, and Figure 1B, which shows the flow change downstream of Pelican Lake. For the Lake Pelican to Lake Kampeska reach, shown in Figure 1, it appears that the maximum increase in flow is at about the 2 year recurrence interval at 657 cfs. The increase reduces to 0 at 1,200 cfs, which is currently equal to approximately the 6 year recurrence interval. For the reach below Pelican Lake, shown in Figure 1B, it appears that the maximum increase in flow is at about the 2 year recurrence at 594 cfs. The increase reduces to 0 at 801 cfs, which is approximately the 6 year recurrence interval. Figure 2 and Figure 2B show the same information plotted on the scale showing the 100 year recurrence interval to provide a perspective of other plausible flood events.

The extent of increased inundation due to these flows can be determined by evaluating available downstream sections between Lake Kampeska and Willow Creek. From the 1996 Pelican Weir study conducted by HDR Engineering, Inc. natural sections were plotted and rating curves calculated at the following sections:

- Section 364, located at the mouth of Willow Creek
- Section 10, located approximately 1200 ft downstream of U.S. Highway 81
- Section 14 located approximately 1200 ft. upstream of U.S. Highway 81
- Section 16, located just downstream of 20th Avenue (refer to Figures 3 to 10).

Rating curves were plotted showing the various low flows as well as the 50, 100, and 500 year flows as determined by the Corps of Engineers.

Additional sections were also plotted between Watertown and Lake Kampeska:

- Section 18, located between Broadway Ave. and the Big Sioux River weir
- Section 22, located at Hwy. 212 bridge
- Section 24, located at River Street bridge
- Section 30, located between RR bridge and 4th Ave. South
- Section 32, located at 4th Ave. South bridge
- Section 34, located between 4th Ave. South and NW RR bridge
- Section 36, located at Chicago and Northwest RR bridge
- Section 38, located at Kemp Ave. bridge
- Section 40, located between Kemp Ave. and 3rd Ave. North
- Section 42, located at 3rd Ave. North bridge
- Section 44, located between 3rd Ave. North and RR bridge
- Section 48, located between RR bridge and 10th Ave. North
- Section 50, located at 10th Ave. North bridge

Evaluation of these sections indicates that all flows in the range that may be impacted with the proposed project are essentially confined to the channel with the exception of four sections: Section 10, Section34, Section 40, and Section 44. Downstream of Pelican Lake Inlet/Outlet Channel, channel flows between 480 (existing 2 year event) and 801 cfs (6 year event – no additional impact) results in an increase in channel surface, topwidth, from 230 ft. to 360 ft at Section 10 (Figure 10). The maximum channel width increase for a given frequency occurs at the 2 year event with an increase in channel width of 20 feet. Upstream of Pelican Lake Inlet/Outlet Channel, channel flows between 530 (existing 2 year event) and 1200 cfs (6 year event – no additional impact) results in an increase in channel surface from 284 ft to 500 ft at Section 34 (Figure 19), and from 220 ft to 552 ft at Section 40 (Figure 22), and from 144 ft to 440 ft at Section 44 (Figure 24). Of the 17 sections studied, 4 indicate an increase in channel width. The width increases range from 20 ft to 120 ft. for the range of flows studied. These areas will experience inundation at an increased

frequency if the proposed weir is constructed. The three sections upstream of Pelican Lake that experience an increase in channel width occur within property owned by the City of Watertown. The fourth section, downstream of Lake Pelican, was also noted as being impacted in the Lake Pelican permitting process.

Based on these sample sections the impacts of the proposed weir have been well identified. The frequency of a given flow between 0 and 1200 cfs will become more frequent, varying between 0 and 1 year more frequent. Figure 1 shows that the shift in frequency between Pelican Lake and Lake Kampeska is greatest (less than 1 year) between the 3 year and 4 year events. Maximum increase in flow impact will be approximately 114 cfs at approximately the 2 year recurrence interval.

It should be noted that the recurrence intervals used here are for the current channel condition, with the Big Sioux River weir, near Lake Kampeska Inlet/Outlet channel, in operation.

The existing Big Sioux weir was constructed to maintain a minimum water surface elevation in Lake Kampeska during drought periods. A secondary benefit of the existing weir was reduced flooding in the downstream reaches for all frequencies of events. A negative impact of the existing Big Sioux River weir was to cause sedimentation and water quality problems in Lake Kampeska. The proposed Lake Kampeska weir project is intended to reduce the negative impact of sedimentation and water quality deterioration by excluding only the low flows from the Big Sioux River. With the proposed project flows higher than 400 cfs begin to overtop the Lake Kampeska weir. The flow exchange between the Big Sioux River and Lake Kampeska will return to the Pre-project Condition at approximately the 6 year event, meaning that the 1,200 cfs event will continue to be diverted into Lake Kampeska retaining the flow reduction benefits of the existing Big Sioux River weir.

Item No. 3:
Reducing the flow capacity through the inlet/outlet with the use of the weir and gates could cause wind/wave damage by holding lake levels higher for longer periods of time. The "Amendment and Executive Summary for Technical Memorandum No. 1" references the U.S. Army Corps of Engineers report "Feasibility Report and Environmental Assessment Flood Control for Watertown and Vicinity, South Dakota August 1994. The Corps report on page 51 figure 18 shows a two year wind setup and wave run-up elevation of at least 1.1 feet at still pool (1717.8 fmsl). The Executive Summary states "Local interests indicated that problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above normal lake elevation of 1717.8 fmsl." This is a direct contradiction to the Corps report and needs to be resolved.

The statement addressed in the Executive Summary "*Local interests indicated that the problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above the normal lake elevation of 1717.8 fmsl*" can be found on page 65 of the Corps report "Feasibility Report and Environmental Assessment Flood Control for Watertown and Vicinity, South Dakota August 1994". The report goes on to say "Thus, wind-wave effects on Lake Kampeska flood stages is only applied if the lake exceeds elevation 1719.0 m.s.l.". Figure 26, page 66, of the same report shows the Stage-Damage Curve for Lake Kampeska Still Pool Elevations.

The proposed weir elevation has been established 0.8 feet below the elevation, defined by the Corps of Engineers, that damage occurs from wave-wind action. In order for the lake level to rise to 1719.0 m.s.l. the stage of the Big Sioux River would have to be at or greater than 1719.0 m.s.l. At this elevation the weir would have been submerged, having no impact on the lake elevation. As the stage of the Big Sioux River decreases the lake would drain at the same rate as it does under the existing condition until the river stage reaches the elevation of the top of the weir, elevation 1718.2. At this point the lake would drain at a rate allowed by the flow over the weir and through the gates.

Internal drainage alone can not cause the lake level to rise to 1719.0. The river stage would have to be above the top of the weir, submerging the weir. At a lake elevation of 1719.0 the storage volume of the lake above the normal lake level (1717.8 m.s.l.) is 5,760 acre-feet, assuming no flow is allowed leave the lake over the weir or through the gates. The flow from a 500-year event within the basin, over a 24 hour

period, produces a volume of 5,031 acre-feet. Again this assumes no flow is allowed to leave the lake over the weir or through the gates. This would not be the case unless the stage of the river was at the same elevation, submerging the weir (acting under the condition that exists today).

Looking at the scenario of the lake level, prior to the internal flood event, being at the top of the weir (1718.2 m.s.l.) the available storage volume in the lake, between elevation 1718.2 and 1719.0, would be 3,840 acre-feet. This available storage is greater than the volume produced from a 100-year event, 3,136 acre-feet, occurring over a 24 hour period. Again, this assumes no flow is leaving the lake.

Item No. 4:
Although the purpose of Application No. FC-29 is to reduce sediment into Lake Kampeska; there is very little documentation in the Executive Summary or in the original report by HDR Engineering Inc concerning the benefits. The original report page 18 states "Therefore, for comparison purposes only, the sediment load diverted from the lake is based on a constant peak discharge." The report gives an amount of the sediment moved downstream but does not reference how this sediment load would affect the existing Flood Control Permit No. FC-19 for Lake Pelican. The report does indicate that the flood frequency would be increased from a 2-year frequency to a 1.3-year event and the 8-year recurrence interval would be increased to a 5.5-year event. The increase of the flood frequencies may have a corresponding increase in sediment loading.

There has been very little information available that could be used to accurately quantify the amount of sediment that would be diverted with the construction of the proposed weir. The "Upper Big Sioux River Hydrology" report, dated June 1998, refers to sampling suspended sediment and estimating the total sediment load occurring to Lake Kampeska in a certain time period. From page 3 of the report:

> "During the flood, James Hanson and the author *(Jack R Little)* collected five suspended sediment samples at the Lake Kampeska Inlet/Outlet gage. The concentrations found in the water flowing into the lake ranged from 50-98 milligrams per liter; and for the water flowing out ranged from 14-18 milligrams per Liter. Using these data and the streamflow data from the Inlet/Outlet gage it is estimated that 35,500 tons of sediment were carried into and 6,700 tons of sediment were carried out of Lake Kampeska during the 1997 water year. For the period of record, October 1, 1993 to September 30, 1997, at the Inlet/Outlet gage; 71,200 tons of sediment have been carried into the lake, and 9,500 tons have been carried back out. Also, it is estimated that 36% of the sediment was carried into the lake during the 62% of the time when the flow varied between zero and 1,490 cfs; and 64% of the sediment was carried into the lake during the 0.6% of the time when the flow exceeded 1,490 cfs."

Quantifying the actual amount of sediment diverted requires an extensive sedimentation transport study and would be a significant undertaking. We do believe that the amount of sediment transported would be somewhat proportional to the amount of flow. Therefore, in addressing the impacts to Flood Control Permit No. FC-19 for Lake Pelican, due to sediment load transfer, we believe that examining the flow interaction between Lake Kampeska, Big Sioux River, and Pelican Lake indicates that impacts are negligible.

The Big Sioux River/Lake Kampeska/Pelican Lake system is shown in Figure 26 along with three tables:

1. Flow interaction between the Big Sioux River, Lake Kampeska, and Pelican Lake prior to the construction of the Pelican Lake weir.
2. Flow interaction between the Big Sioux River, Lake Kampeska, and Pelican Lake after the construction of the Pelican Lake weir.
3. Flow interaction between the Big Sioux River, Lake Kampeska, and Pelican Lake after the construction of the Lake Kampeska weir.

Analysis shows that flows greater than 6 year events has no impact on the Pelican Lake (no flow increase into the lake). Comparing the tables for "Flow Interaction after Construction of the Pelican Weir" verses "Flow Interaction after Construction of the Lake Kampeska Weir" indicates that the construction of the

Lake Kampeska weir increases flow into Pelican Lake for 2 year and 4 year event by 13 cfs and 5 cfs, respectively. These increases are minor when compared to the 230 cfs and 305 cfs reduction that the Pelican weir attained for these two flow events. The additional amount of sediment transported into Pelican Lake from an increase of 13 cfs would be negligible.

Construction of the Lake Kampeska weir provides the biggest benefit to Lake Kampeska for flow events at or less than the 2 year event. The weir would reduce flow into the lake by 127 cfs for the 2 year event and would divert all flow events less than 400 cfs occurring in the Big Sioux River.

While construction of the Kampeska weir causes a small increase in flow to Pelican Lake for the 2 year and 4 year events, the amount of sediment transported into the lake from the increase would be negligible. Therefore, while Lake Kampeska realizes a benefit from the construction of its inlet/outlet weir, the weir causes no significant impact on Pelican Lake.

Item No. 5:
The Amendment and Executive Summary attempted to address the internal flooding from the 28.8 square mile drainage area disregarding flow contributions from the Big Sioux River. The Summary used a 24-hour period for inflows, outflows and lake accumulations. There should be a reservoir routing for various recurrence interval storms to determine impacts to Lake Kampeska's water level. In addition the analysis in the Summary uses 1717.8 fmsl for the river elevation while there is a 25, 50, 100 event in the Lake Kampeska internal drainage. The river stages will probably not be at 1717.8 fmsl or no discharge when the various frequencies storms are in the adjacent drainage areas.

In order to conduct reservoir routing analysis a hydrology study would need to be conducted for the Lake Kampeska inner-basin to develop a hydrograph for the basin. The time or resources is not available for this type of analysis and therefore a worst-case scenario will be examined and discussed below.

In establishing coincidental occurrence of flow events between the Big Sioux River and Lake Kampeska an area ratio method was used. For the case of a tributary stream (Lake Kampeska Inlet/Outlet), its relative independence may be qualitatively evaluated by a comparison of its drainage area with that of the mainstream, that being the Big Sioux River. A short duration storm which causes peak discharge on a small basin may not be critical for a larger basin. Also, it may safely be assumed that if the same storm causes peak discharges on both basins, the peaks will be out of phase.

As an aid to the evaluation of joint probabilities, the following criteria was used:

	Frequencies for Coincidental Occurrence			
Area Ratio	10-year Design		100-year Design	
	Main Stream	Tributary	Main Stream	Tributary
10,000 to 1	1	10	2	100
	10	1	100	2
1,000 to 1	2	10	10	100
	10	2	100	10
100 to 1	5	10	25	100
	10	5	100	25
10 to 1	10	10	50	100
	10	10	100	50
1 to 1	10	10	100	100
	10	10	100	100

The design frequencies suggested in the table above represents the extreme combinations of frequencies for each event.

The Lake Kampeska basin is 28.8 square miles and the Corps report "Flood Control for Watertown and Vicinity – August 1994, page 8" lists the Big Sioux River drainage area upstream of Watertown as being 510 square miles. This gives an area ratio of 17.7 to 1 and therefore the 10 to 1 criteria ratio would apply. This indicates that a 2 year flow event in the Big Sioux River basin occurs at the same time that a 2 year event occurs in the Lake Kampeska basin and 25 year event in the Big Sioux River basin occurs concurrently with a 25 year in the lake basin.

Recurrence Interval: Coincidental 2-year events
The 2 year event on the Big Sioux River produces a stage of 1718.74, which is 0.54 feet above the crest of the proposed Lake Kampeska weir. This produces an inflow into the lake, over the weir, of 405 cfs. At this flow rate it would take 57 hours to raise the level of the lake from 1717.8 to the crest of the weir. This seems to be an excessive duration, 57 hours, but without a 2 year hydrograph for the Big Sioux River for this analysis we will assume that this will occur.

A 2 year event in the lake basin produces a peak flow of 118 cfs. Without a hydrology study the shape of a 2 year hydrograph can not be determined. It is not known if the peak flow last only a few minutes or a few hours. To be conservative a peak flow duration of 24 hour will be assumed. This assumption would produce a flow volume of 234.05 acre-feet and cause a rise in the lake level (with no flow leaving the lake) of only 0.05 feet. The maximum lake level would be obtained if the end of the 24 hour period coincides with the end of the 57 hour duration period. This would produce a lake level of 1718.25. If the stage in the river settled to the elevation equivalent to the crest of the weir at the end of the 57 hours the lake level would lower from 1718.25 to 1718.2 in approximately 47 hours. This is an average outflow of 60 cfs which is greater than that indicated in Figure 7 of the Corps report. It takes 22 of the 47 hours to fall from 1718.21 to 1718.20 (equilibrium between the lake and the river).

Inner Basin Flow Events For the 5, 10, and 25-year events
Submergence of the weir occurs in less then 24 hours for flood events on the Big Sioux River with a recurrence intervals in excess of the 2 year event. The 10 year event on the Big Sioux River produces a stage of approximately 1719.67, which is 1.47 feet above the crest of the proposed Lake Kampeska weir. The weir has an overflow capacity of 2473 cfs in an unsubmerged condition. At this stage it would only take 9 hours to raise the level of the lake from 1717.8 to 1718.2. Once the weir becomes submerged the interaction between the lake and the river would return to its pre-project condition. The weir would not have an influence over the exchange of flow between the lake and the river while in the submerged condition. As the river stage decreases the lake level would begin to drain at the same rate it does under the existing conditions until the river stage reaches the top of the weir.

In order to examine what effects the weir would have on letting inner basin flows pass the weir structure the river stage was set to equal the weir crest. This analysis was conducted for the 2, 5, 10, and 25 year storm events occurring in the Lake Kampeska basin. Again, if the same recurrence interval was used for the Big Sioux River the weir would become submerged in less than 24 hours for those intervals of 5, 10, and 25 years, and the system would return to the existing operating conditions.

The table below shows the total volume produced by the event, the lake level if no discharge through the weir were to occur, total discharge volume through gates and over weir, total runoff volume within the lake, and the lake level with discharge over the weir and through the gates.

Recurrence Interval	Peak Flow (cfs)	Total Storm Vol. (acre-feet)	Lake Level Without Discharge	Max. Discharge Weir/Gate (cfs)	Vol. Discharged Through Structure (acre-feet)	Total Vol. Stored in Lake (acre-feet)	Lake Level with Discharge
2 year	118	234	1718.25	85	125	109	1718.22
5 year	338	670	1718.34	15	255	416	1718.29
10 year	554	1099	1718.43	357	386	713	1718.35
25 year	908	1801	1718.58	418	527	1274	1718.47

Analysis shows that the maximum lake level that would occur under these conditions is 1718.58 if no discharge was allowed passed the weir structure and 1718.47 if discharge were allowed to occur. The following tables indicates how long it would take to lower the lake level to the crest of the weir (equivalent with the river stage).

2-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.22	3.56	81.79	85.35	0.0020	109.1	
1718.21	1.02	53.93	54.95	0.0013	50.22	10.16
1718.2	0	0	0	0.0000	0	22.12
					Total Time =	32.27

5-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.29	26.19	159.06	185.25	0.0043	415.76	
1718.28	22.66	151.57	174.23	0.0040	376.87	2.62
1718.27	18.9	142.68	161.58	0.0037	335.23	3.00
1718.26	15.37	133.19	148.56	0.0034	290.42	3.50
1718.25	11.41	120.59	132	0.0030	242.1	4.17
1718.24	8.16	107.86	116.02	0.0027	189.72	5.11
1718.23	5.84	96.47	102.31	0.0023	152.48	4.13
1718.22	2.67	74.33	77	0.0018	92.04	8.16
1718.21	1.02	53.93	54.95	0.0013	48.15	8.05
1718.2	0	0	0	0.0000	0	21.21
					Total Time =	59.93

10-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.35	58.1	207.46	265.56	0.0061	712.59	
1718.3	32.27	170.53	202.8	0.0047	480.46	11.99
1718.25	10.73	118.15	128.88	0.0030	228.19	18.41
1718.2	0	0	0	0.0000	0	42.85
					Total Time	73.25

25-year Recurrence Interval

Lake Level	Weir Flow	Gate Flow	Total Flow cfs	Total Flow ac-ft/sec	Storage Volume ac-ft	Incremental Time to Drain (hours)
1718.47	140	278.13	418.13	0.0096	1274.66	
1718.4	92.65	242.38	335.03	0.0077	970.92	9.76
1718.35	59.88	209.56	269.44	0.0062	723.52	9.90
1718.3	34.72	174.75	209.47	0.0048	505.15	11.03
1718.25	13.16	126.47	139.63	0.0032	266.03	16.58
1718.21	1.87	66.05	67.92	0.0016	69.43	22.92
1718.2	0	0	0	0.0000	0	24.74
					Total Time	75.27

The August 1994 U.S. Army Corps of Engineers report "Flood Control for Watertown and Vicinity" on page 37, Figure 5, shows the Big Sioux River and Lake Kampeska relationship between stage and flow. This figure has been renumbered as Figure 27 and is included with this letter. The figure was based on Kampeska datum. In order to convert it to Mean Sea Level the stages must be reduced by 2.5 feet.

Figure 27 indicates that it takes a stage difference of 1 foot difference for the flow out of Lake Kampeska to reach 100 cfs and a difference of 3 feet for outflow to reach 2,000 cfs. The weir structure allows 130 cfs to pass through the gates and over the weir with only 0.1 feet of head difference and 6,200 cfs to pass with 3 feet head difference. This indicates that the weir does not negatively impact outflow from the lake.

Thank you for providing your concerns and allowing us to address them. If you have any questions feel free to call Jerry Stevens or me at this office.

Sincerely

Allan D. Erickson, P.E.
Project Manager
aerickso@hdrinc.com

Jerry L. Stevens, P.E.
Hydraulics Engineer
jstevens@hdrinc.com

Attachments

cc: Rick Schlechter - City of Watertown
File

BARR

Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 952-832-2600 • Fax: 952-832-2601

Minneapolis, MN • Hibbing, MN • Duluth, MN • Ann Arbor, MI • Jefferson City, MO

May 24, 2000

Mr. Julian L. Wick
Pelican Lake Water Project District
4002 20th Avenue Southwest
Watertown, SD 57201-7033

Re: Lake Kampeska Weir Study Concerns

Dear Mr. Wick:

We have completed our review of the Lake Kampeska Diversion Structure Project, with an emphasis on evaluating the potential impacts on Pelican Lake. We have compiled this letter to respond to issues raised while reviewing the reports and to address concerns of the District board.

We reviewed the following documents pertaining to the proposed Kampeska Weir:

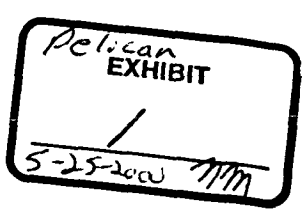
- HDR Engineering Inc., Technical Memorandum No. 1, Diversion Structure Project, Draft Report. Prepared for Lake Kampeska Water Project District, Watertown, South Dakota. January 1999.

- HDR Engineering Inc., Technical Memorandum No. 1, Diversion Structure Project, Final Report. Prepared for Lake Kampeska Water Project District, Watertown, South Dakota. October 1999.

- HDR Engineering Inc., Ammendment and Executive Summary for Technical Memorandum No. 1, Diversion Structure Project. Prepared for Lake Kampeska Water Project District, Watertown, South Dakota. March, 2000.

- HDR Engineering Inc., Letter to Gale Selken, South Dakota Department of Environment and Natural Resources (SDDENR). RE: Big Sioux River/ Lake Kampeska Diversion Project Permitting Concerns with Application No. FC-29. April 20, 2000.

Our review of the various reports raised several concerns about the proposed structure. There are some issues that may likely require further analysis to define the precise impacts. The concerns involve the methodologies used for the study, inconsistencies within the reports, and potential problems associated with the proposed diversion structure that were not addressed adequately in the reports. The following is a list and discussion of concerns:



1. **A detailed hydrologic analysis should be completed to better define lake levels throughout flood events on the Big Sioux River in order to assess the realistic impact of the proposed structure on flood levels and flows.** The study compares the flood profiles for the proposed project with pre-project flood profiles to evaluate the effects of the proposed structure on the peak channel discharge. Two pre-project flow conditions were evaluated. The first assumes that Pelican Lake and Lake Kampeska are at their normal elevations during the Big Sioux River flow events, and a significant amount of flow gets diverted to the lakes. The second assumes that the lakes are at their peak flood levels during the flow events, based on reservoir routing models completed by the Corps. For this case, much less flow is diverted to the lakes and more flow occurs in the river channel (see section 4.6.1 in the Final Report, and Figure 4.6.1). Generally, when citing impacts HDR compares the post-project flow rates to the pre-project, *peak* flow condition flow rates. However, the impacts are more severe when the post-project flood conditions are compared to the pre-project flow rates assuming *normal* lake levels.

   Whether the lake achieves a peak flood elevation is highly dependent on the timing of the flow event. Generally, the lake elevation will peak after the river flow begins to recede. The April 1997 flood event was nearly a 50-year flow event (according to Figure 4.6.1 in the final report), with a peak flow of 6,400 cfs in the upper Big Sioux River. Gage records from Lake Kampeska indicate that the lake was at a near normal condition prior to the flood event, with very little inflow. Inflow to the lake peaked at 4,100 cfs for the event, implying that the lake did not reach the peak flood level assumed in the final report for a 50-year event. This implies that the Corps model may be conservative in estimating peak lake levels. More information needs to be provided regarding the Corps analysis, and the post-project flow rates need to be compared with pre-project flow rates for both normal and peak lake levels.

2. **There are inconsistencies with the described return frequencies in this report.** For example, the pre-project return frequency curves shown in Figures 4.6.2 and 4.7.2 in the Final Report are inconsistent with each other; the pre-project frequency curves should be identical. Additional information would be required to determine which curve is correct, and thereby assess the true frequency of impacts.

3. **The impact on the water quality of Lake Kampeska has not been addressed in the study.** The proposed weir structure could potentially have a significant effect on the water quality of Lake Kampeska because flow will enter the lake less frequently. With the high loading of nutrients to the lake, this could result in stagnation and more frequent algal blooms. Opening of the gates during drought conditions could flush large amounts of nutrient laden sediments from the river to the lake. The water quality impacts from the proposed weir need to be examined in more detail, especially for drought conditions.

4. **Impacts of increased flood levels downstream of Pelican Lake were not adequately addressed, and we believe that it is necessary for the City to submit a Conditional Letter of Map Revision (CLOMR) to FEMA for the proposed weir project.** With less flow entering Lake Kampeska, downstream riparian land will experience increased flooding. This issue was addressed in more detail in the April 20 letter from HDR to the SDDENR. HDR addresses flooding concerns by evaluating cross-sections between Lake Kampeska and Willow Creek that they surveyed as part of the Pelican Lake study. They state that detailed cross-section information downstream of Pelican Lake is not available to them from the Corps. Of the seventeen cross-sections that were analyzed, four will

experience more frequent flooding due to the proposed Kampeska weir. Three of those sections are on city-owned property, while one is on private property.

The analysis was limited to the cross-sections that were available to HDR, and thus doesn't address the flooding concerns for areas downstream of Willow Creek, areas closer to Lake Kampeska, or areas that were not covered by cross-sections. It would be more useful if the flood levels were plotted on a topographic map, as would be done for a FEMA study. This submittal would require a map of flood profiles and existing and proposed flood boundaries. FEMA is currently in the process of revising the maps for this reach for existing conditions.

5. **Mitigation of impacts to Pelican Lake was not addressed.** If a weir is built at Lake Kampeska, the flow that is diverted from Lake Kampeska will likely result in more frequent overtopping of the Pelican Lake weir. It is not clear how these impacts will be mitigated.

   The Pelican weir structure was designed to divert river flows past the lake until river flows exceed 746 cfs, at which point flow will overtop the weir and begin flowing into the lake. When the river flows exceed 1,600 cfs, the weir allows flow to enter Pelican Lake in a similar manner to that which occurred prior to installation of the weir. It appears that the uncontrolled weir at Kampeska would increase the frequency that the Pelican weir overtops, from about once in 3.5 years to once in 2.5 years (although the frequency curves are not consistent, as described in Point 2). This assumes that the lakes are at their peak flood level for the modeled flood events. More frequent overtopping of the Pelican weir will increase the sediment loading to the lake.

6. **The sediment load benefits to Lake Kampeska and the impacts to Pelican Lake from the proposed weir structure have not been adequately presented and a detailed sediment load study should be completed.** The biggest benefit to Lake Kampeska was stated as occurring during flow events at or less than the 2-year event. The Upper Big Sioux River Hydrology Report by John R. Little (June 1998) is quoted in the Final Report, noting that about 1/3 of the sediment inflow to Lake Kampeska occurs when the flows are less than 1,490 cfs. It would seem logical that if the Pelican weir will overtop more frequently (as discussed in Point 5) and if more sediment is diverted by the Kampeska weir, that more sediment will be entering Pelican Lake. It is not clear what this impact will be. Therefore, a more detailed study is necessary.

7. **The rate at which Lake Kampeska is filled by opening the gates could impact downstream water levels. Maintaining minimum flow to the Big Sioux River below Lake Kampeska needs to be addressed.** Downstream flow would be impacted when the gates are opened to allow river water to enter the lake during drought conditions. According to the operation plan, the gates may be opened when the lake level falls 30 inches below normal, to elevation 1715.2. This could significantly reduce flow to the Big Sioux River below Lake Kampeska, and have a negative impact on fish communities. Presently, the lake level is controlled by the Big Sioux River weir, which has had sections cut out well below the official crest elevation of 1717.8. This structure will be rebuilt to original specifications at the same time as the Kampeska weir construction, and will allow more water to enter the lake than under existing conditions.

8. **The need for gates at the proposed Kampeska weir is not clearly justified, and their operation could be detrimental to Lake Kampeska.** It is understood that the weirs will

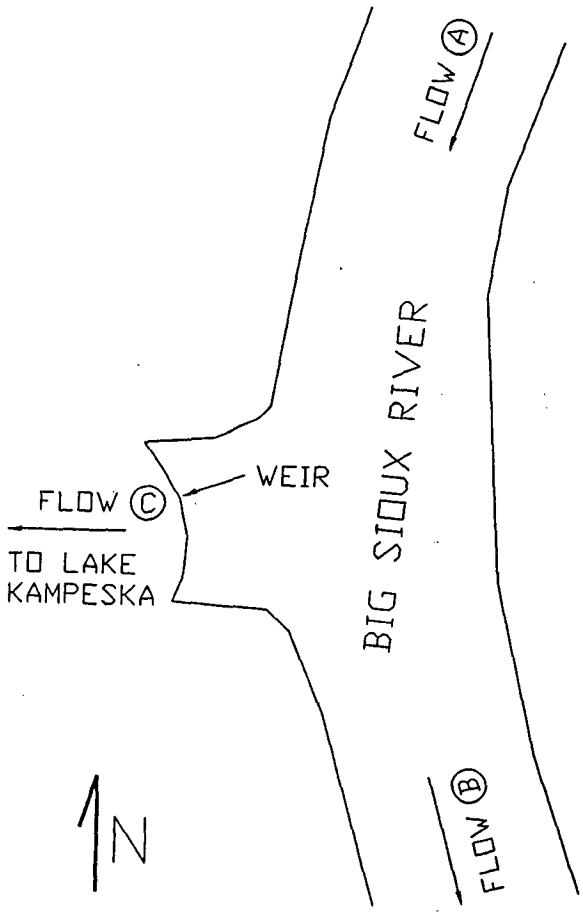
allow higher inflow rates to Lake Kampeska during drought conditions, and higher outflow rates from the lake following flooding. However, outflow from Lake Kampeska (including water supplied to the City of Watertown) must exceed inflow rates through the fish notch before additional inflow is needed. The need for augmenting Lake Kampeska is not clearly justified.

Further, the bottom of the proposed gates will be at elevation 1711.2, and will be subject to sediment accumulation behind the Big Sioux River weir. Opening the gates will introduce sediment to Lake Kampeska. Finally, having the gates introduces the risk that they can be used inappropriately at some point in the future.

Please let us know if you would like to discuss these issues or have additional comments or concerns. Nancy can be reached at 612 832-2806, and Tom can be reached at 612 832-2729.

Sincerely,

Steve Klein
Vice President



PRE-PROJECT - NORMAL LAKE LEVEL CONDITIONS

	A	B	C
FLOW EVENT	UPPER BIG SIOUX	LOWER BIG SIOUX	LAKE KAMPSEKA
2-YEAR	990	6	984
10-YEAR	3100	225	2875
50-YEAR	6700	1173	5527
100-YEAR	8700	1800	6900
500-YEAR	16000	4227	11773

PRE-PROJECT - PEAK FLOW CONDITIONS

	A	B	C
FLOW EVENT	UPPER BIG SIOUX	LOWER BIG SIOUX	LAKE KAMPSEKA
2-YEAR	990	530	460
10-YEAR	3100	1600	1500
50-YEAR	6700	3400	3300
100-YEAR	8700	4300	4400
500-YEAR	16000	6800	9200

UNCONTROLLED WEIR - UNSUBMERGED WEIR CONDITION

	A	B	C
FLOW EVENT	UPPER BIG SIOUX	LOWER BIG SIOUX	LAKE KAMPSEKA
2-YEAR	990	699	291
10-YEAR	3100	1480	1620
50-YEAR	6700	3400	3300
100-YEAR	8700	4300	4400
500-YEAR	16000	6800	9200

HDR Engineering, Inc.

FLOW SPLIT
LAKE KAMPESKA
WATERTOWN, SOUTH DAKOTA

Date 1/99

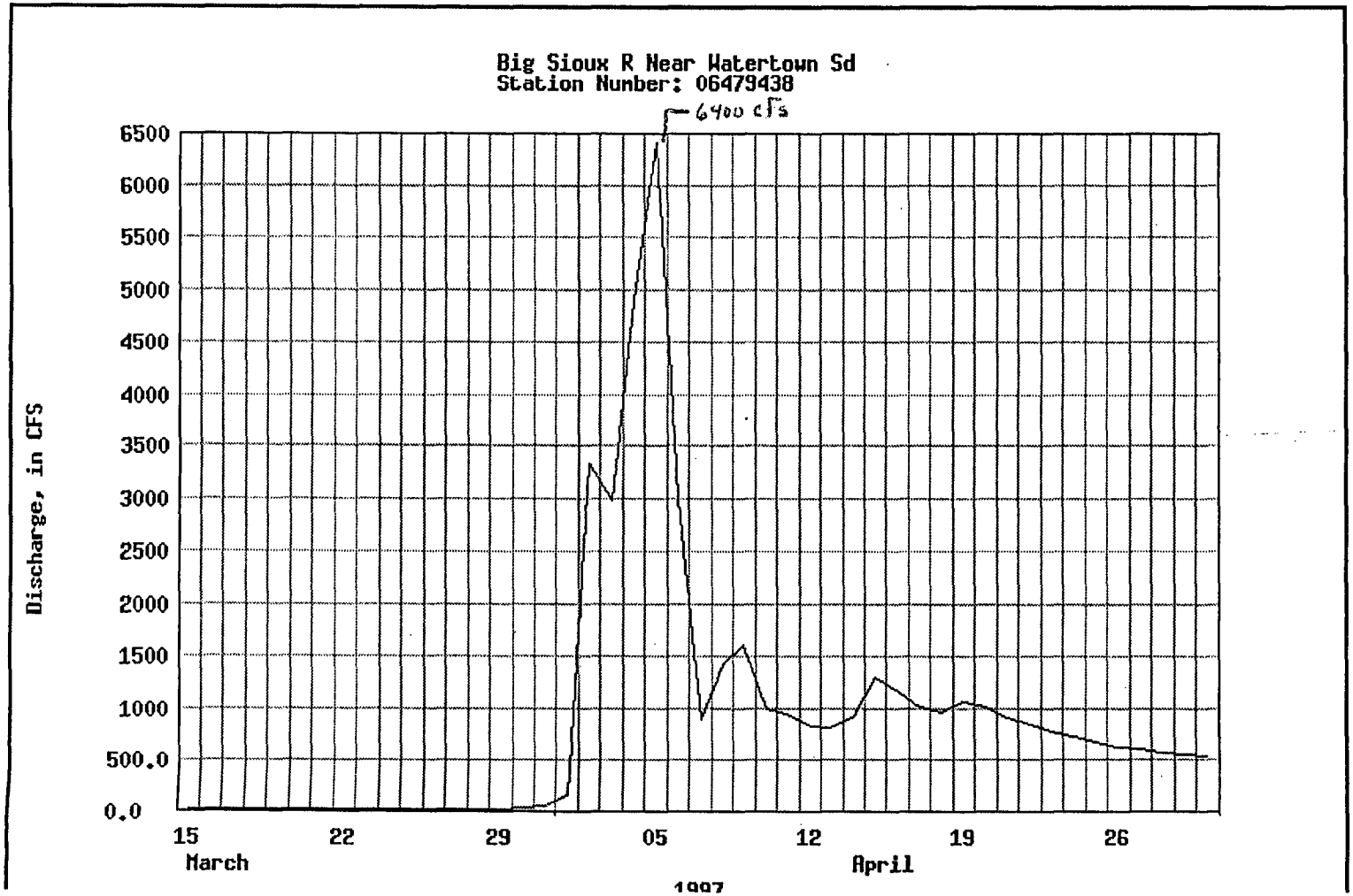
Sheet FIG. 4.6.1

USGS science for a changing world

1997 Flood

Historical Streamflow Daily Values Graph for Big Sioux R Near Watertown Sd (06479438)

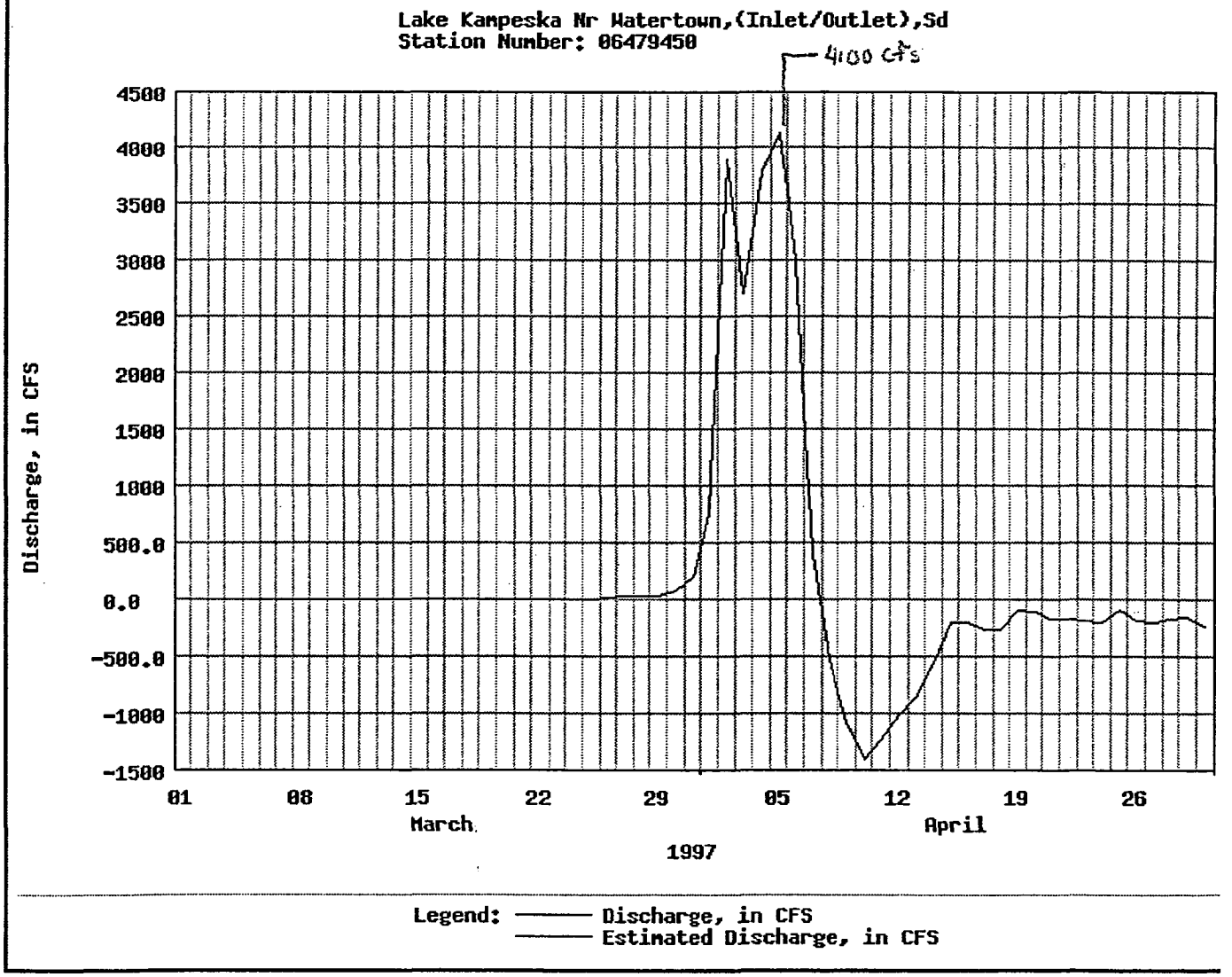
Upstream of Kampeska



1997 Flood

Historical Streamflow Daily Values Graph for Lake Kampeska Nr Watertown,(Inlet/Outlet),Sd (06479450)

Lake Levels



Some stations have red data points. These represent days for which data were estimated, rather than recorded.

Force this graph to be redrawn Why you might press this button

Figure 4.6.2 - Big Sioux River Discharge Frequency Relationship between Pelican Lake and Lake Kampeska

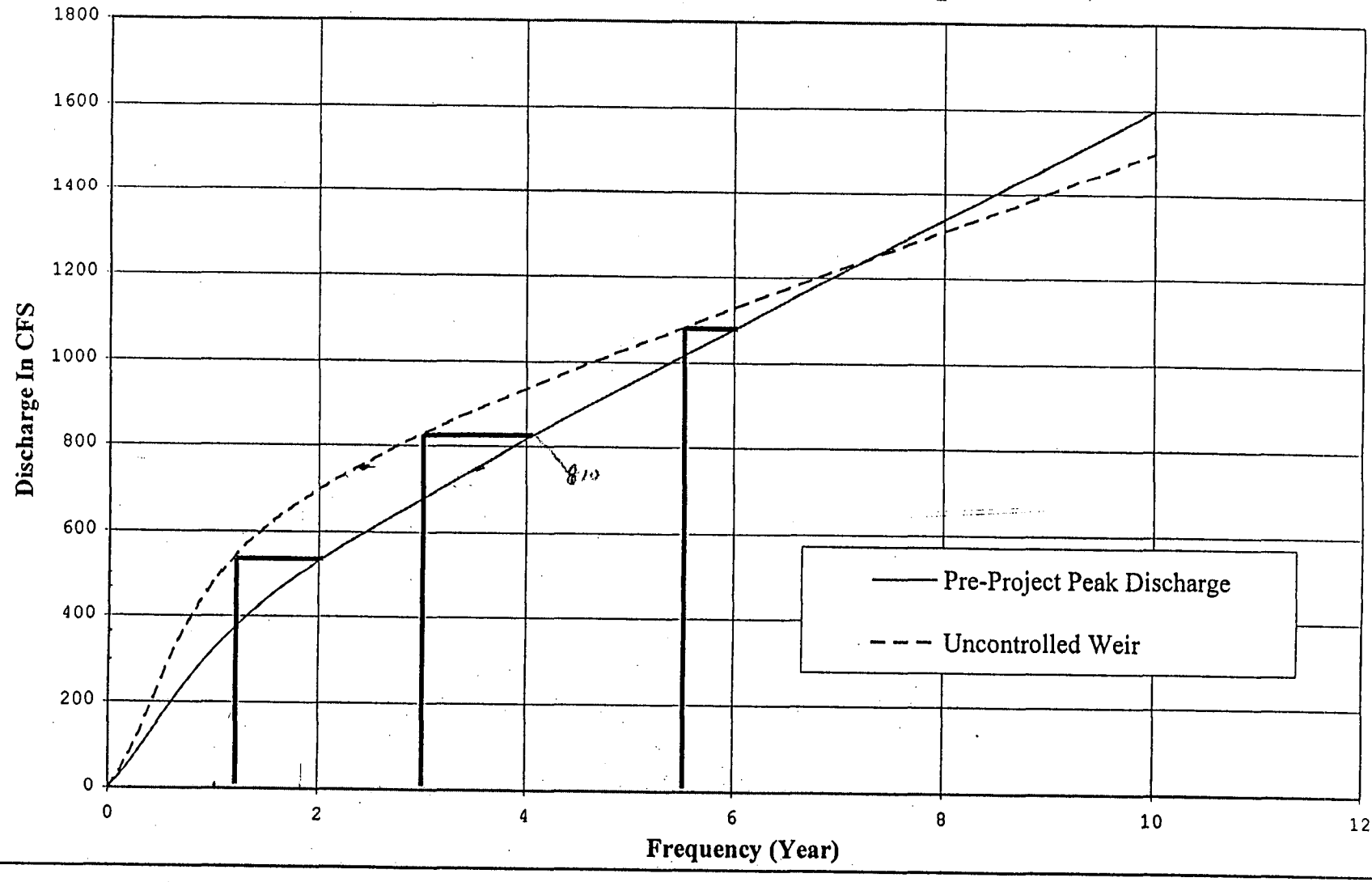
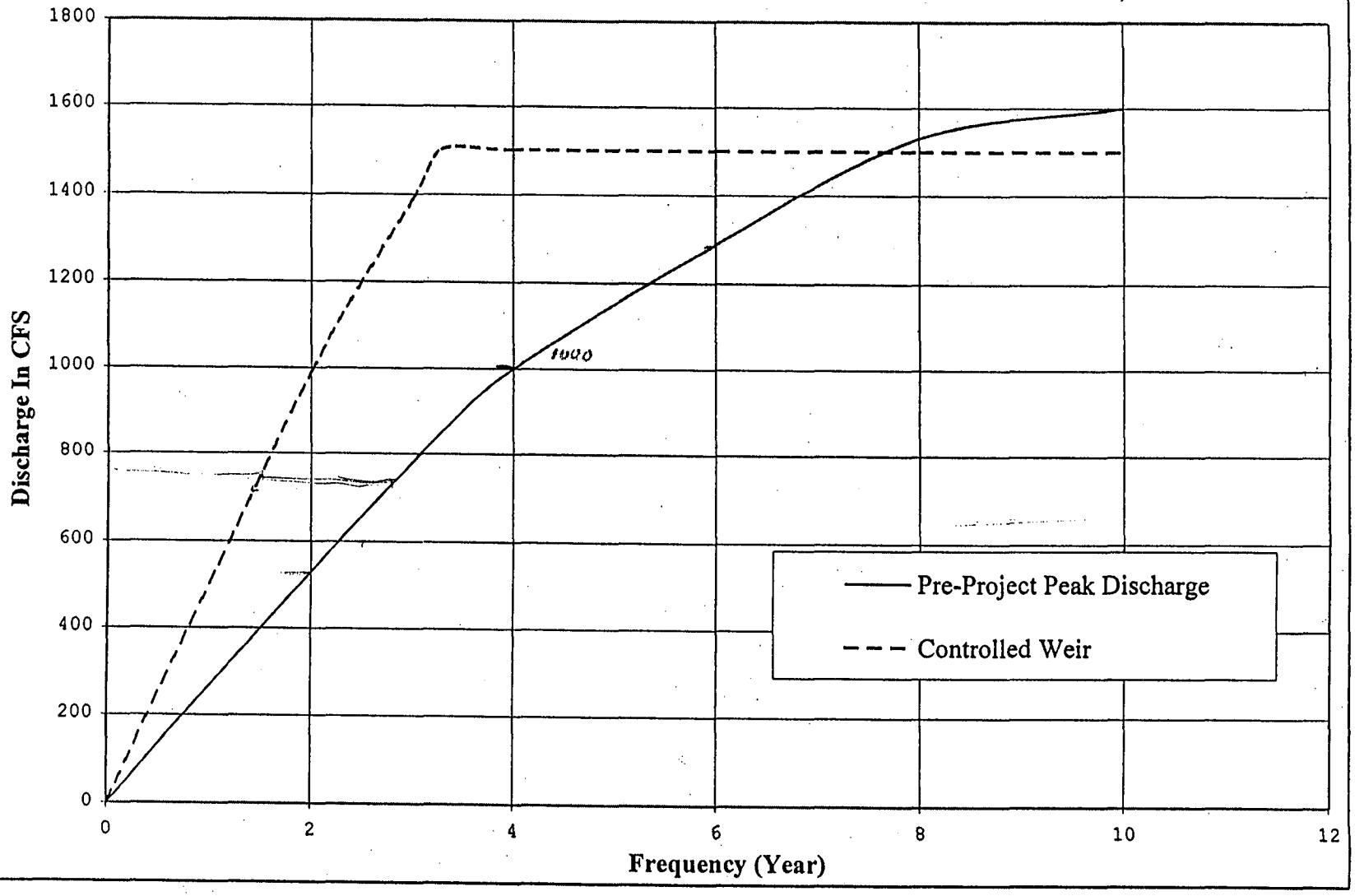


Figure 4.7.2 - Big Sioux River Discharge Frequency Relationship between Pelican Lake and Lake Kampeska



Amendment and Executive Summary

For

Technical Memorandum No. 1

CIV 00-0333

Diversion Structure Project

Prepared for:

Lake Kampeska Water Project District

and

The City of Watertown South Dakota

March 2000

FILED

CLERK OF COURTS
CODINGTON COUNTY
DATE 8-16-00

Prepared by:

HDR Engineering, Inc.

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Amendment and Executive Summary
For
Technical Memorandum No. 1
Diversion Structure Project – Final Report
Dated October 1999

1.0 INTRODUCTION

The purpose of this letter report is to; (1) summarize the information found in Technical Memorandum No. 1 – Diversion Structure Project, dated October 1999, (2) discuss design changes and address issues brought forth through the permitting process.

2.0 PROJECT BACKGROUND

HDR Engineering, Inc. (HDR) was selected by the Lake Kampeska Water Project District to provide engineering services for permitting and conceptual design of a proposed flow-regulating structure located at the inlet/outlet of Lake Kampeska and the Big Sioux River located near the City of Watertown, South Dakota.

The purpose of the proposed project is to reduce sediment deposition into the Lake Kampeska by keeping first flushes and low flows within the Big Sioux River.

Lake Kampeska provides off-stream storage for the Big Sioux River. The lake and river are interconnected by an inlet-outlet channel, and the flow into or out of the lake can be defined as a function of the stage in the Big Sioux River and the lake level in Lake Kampeska. When the stage in the Big Sioux River is higher than the water level in Lake Kampeska, there is flow into the lake. When lake levels are higher than the stage in the Big Sioux River, water is withdrawn from storage in Lake Kampeska and outflow to the Big Sioux River occurs.

A weir in the Big Sioux River, located just downstream of the lakes inlet/outlet channel, causes the cycle of inflow and outflow between the lake and the river to occur during each flood event. This river weir controls and maintains the level of Lake Kampeska. Without this weir the lake would empty into the river. During the beginning stages of a flood event, the river weir diverts a major portion of the Big Sioux River flow into the lake. As the duration of the flow event continues, the lake level rises, causing a larger portion of the flow in the river to be diverted downstream.

Lake Kampeska is experiencing a large amount of sediment deposition from flow events occurring in the Big Sioux River. The sediment deposition into the lake between the period of 1994 to 1997 has been estimated at 71,200 tons. During the initial stages of a flood event, a large portion of sediment is transported. As discussed earlier, the river weir diverts the initial flow into the lake when the water quality of the river is in its poorest condition. As the flow event proceeds and begins to recede, the sediment within the river begins to settle, lessening the amount of sediment transported.

3.0 PROJECT DESCRIPTION

An uncontrolled weir structure was found to reduce sediment loading to Lake Kampeska by diverting the low flows downstream. The following are the characteristics of the Diversion Weir Structure:

Total Length of Structure:	330 ft.
Crest Elevation of Weir:	1718.2 (MSL)
Height of Weir:	± 7.3 ft.
Weir Construction:	Sheet Piling & 12" Rip Rap

Fish Weir Length:	3.0 ft.
Bottom of Fish Weir Elevation:	1715.0 (MSL)
Top of Fish Weir Elevation:	1718.2
Number of Gates:	2 Each
Size of Gates:	7' X 8'
Type of Gate:	Sluice Gates
Purpose of Gates:	- Allow lowering of the lake after flood events - Filling of the lake during drought periods
Ordinary High Water Mark:	1718.3
Normal Lake Level:	1717.8

4.0 PROJECT OPERATION

The uncontrolled weir structure provides hands-off operational approach to sediment control. During normal operation the weir structure gates would be closed. Only during certain events will the gates be opened. The criteria for operation of the gates are listed below:

- Open Gates:

  During internal flooding or after a flood event on the river occurs
  And
  Lake level is above the stage in the river
  And
  Lake level is above it normal level (1717.8)
  OR
  During drought period when lake level falls 30" below its normal elevation (1715.2)

- Close Gates:

  Normal Operating Condition
  OR
  When lake level reaches its normal level during draining Operation
  OR
  When filling during drought period close gates when lake level is 24" below normal (1715.8)

The City of Watertown Municipal Utilities Department will administer operation of the weir gates.

The proposed operational modes for this type of structure would be with the gates normally closed, allowing for passive diversion when the river or lake stages dictate. When the river stage reaches the weir elevation, flow would be diverted to the lake. With the position of the weir, the diverted flow comes from the upper surface of the river, which has a lower sediment load than the lower levels, still providing a sediment reduction to the lake.

5.0 PROJECT IMPACTS

Increased Flows

Modeling of the river and the lake inlet/outlet channel indicated that the flow split between the Big Sioux River and Lake Kampeska, under the existing conditions, is dependent on the lake level and the stage of the Big Sioux River. During the initial stages of a flood event, in which the lake is at its normal elevation, the stage in the river rises at a quicker rate than the lake level. This is due to the geometry of the river and the surface area of the lake. As the event progresses, the lake level begins to rise and the flow entering the lake and the flow diverted downstream of the lake become more evenly distributed.

Modeling shows that the installation of an uncontrolled weir at the inlet/outlet to the lake increases flow in the river downstream of the inlet/outlet channel, as expected, and the flow distribution is outside of the range (higher flow going downstream & less flow entering the lake) for pre-project condition for flows less than 1,000 cfs. The flow distribution, however, does return to its pre-project condition for flows exceeding 1,000 cfs (in Big Sioux River downstream of the lake). Modeling of the uncontrolled weir indicates that, up until the time the weir becomes submerged, the flow into the lake is greater than under the pre-project peak flow condition. Once the weir becomes submerged, the flow distribution once again follows the pre-project peak flow condition. The following table lists the flow distribution for the existing (or pre-project) condition and with the unsubmerged weir condition.

Big Sioux River Flow Upstream of Lake Kampeska	Big Sioux River Flow Downstream of Lake Kampeska	
	Pre-Project Condition	With Weir
500 cfs	250 cfs	365 cfs
900	450	604
1200	600	755
1400	700	816
1500	750	845
1800	900	925
2000	1000	974
2400	1200	1069
3100 (10-year flood event)	1600	1230

Analysis indicates that for flows in the Big Sioux River of 2,000 cfs and above, upstream of the lake, more flow enters the lake with the weir in-place than it does without the weir. This is true only for the unsubmerged weir condition. With a flow of 2,000 cfs in the Big Sioux River, upstream of the lake, and a flow of 1,026 cfs entering the lake, the weir will become submerged in 22.6 hours, assuming the lake was at it's normal elevation prior to the flow event. Increasing the flow to 3,100 cfs (10-year flood event) in the Big Sioux River upstream of the lake, and 1,870 cfs entering the lake, the length of time that the weir becomes submerged is reduced down to 12.42 hours. Once the weir is submerged, the flow will approach a more even distribution between the lake and the river downstream of the lake, as it does in its pre-project condition.

The technical appendix to the U.S. Army Corps of Engineers feasibility report "Flood Control for Watertown and Vicinity, South Dakota – August 1994, page 5-36" states "The 2 and 10-year events are mostly confined to the channel through Watertown. There are a few low areas where the 2 and 10-year events exceed the channel capacity but these areas are mostly parkland or undeveloped." Under the pre-project condition the 10-year flood event produces a flow of 3,100 cfs in the Big Sioux River upstream of Lake Kampeska and 1,600 cfs downstream of the lake. With the elevation of the weir established at elevation 1718.2 the flow distribution returns to its pre-project condition for flow events of 2,000 cfs (in Big Sioux River upstream of the lake) and therefore the City of Watertown should experience minimal impact from the weir project.

Flow Frequency

A comparison was made of the discharge-frequency curves for the Big Sioux River, between Pelican Lake and Lake Kampeska, under existing conditions verses with the weir in-place. Comparison of the curves indicates that the weir increases the existing 2-year flows in the Big Sioux River from 530 cfs to 657 cfs this translates to a 1.5-year event. The discharge from a 4-year event increases from 900 cfs to 924 cfs, which translates to approximately a 3.75-year event.

The discharge-frequency curve for the uncontrolled weir intersects the pre-project discharge-frequency curve at approximately 4.25-year event. This means that a change in frequency would result for the flood events occurring less than once every 4.25 years or a discharge of approximately 950 cfs.

While the weir will increase the frequency of low flow events the duration of these events will be shortened. Under existing conditions some of the flow enters the lake and then exits as the river levels subside. With the weir in-place a major portion of the flow is diverted downstream rather than stored in the lake.

Impact on Pelican Lake

Diverting the low flow downstream causes Pelican Lake to experience a slight increase in inflow. Initial analysis indicated that flow of 734 cfs or less has no impact on inflow into Pelican Lake and that channel improvement just downstream of Pelican Lake, between U.S. Highway 212 and Broadway, would further reduce the impacts. Upon field survey it was determined that this section of the river has already been improved, when compared to the Corps model, and the sideslopes rip rapped. The original HEC-2 model did not reflect this improvement. Adjusting the roughness values, inserting surveyed cross-sections within this reach and lowering the proposed weir height reduced the inflow to Pelican Lake under various flows for both existing and proposed conditions. The following table lists the inflow into Pelican Lake under various flow events.

Upper Big Sioux River Flow (cfs)	Pelican Lake Flows		Inflow Increase (cfs)
	Existing Conditions	Uncontrolled Weir	
500	26	34	8
900	41	55	14
1200	57	70	13
1400	68	95	27
1500	77	113	36
1800	176	164	-
2000	246	198	-
2400	400	268	-
3100 (10-yr Event)	623	389	-

Sedimentation

The proposed weir project would greatly benefit the water quality in Lake Kampeska by reducing inflow into the lake during the low flow periods and during initial high flow periods when high sediment transport occurs. The sediment that normally enters the lake will stay in the river where it originated. At the current rate at which sediment deposition is occurring in the lake, the lake will fill to a level that will increase winter fish kill rates and decrease the inflow/outflow interaction with the lake and the river. Eventually the inflow/outflow interaction will essentially end and all of the sediment will stay in the river. The weir project will not prevent all sediment from entering the lake but will reduce the amount entering and thereby help protect water quality of the lake.

Internal flooding

Through analysis it has been determined that weir structure does not cause an impact above the Ordinary High Water Mark of lake due to internal flooding. The internal drainage basin of Lake Kampeska is comprised of 28.8 Square Miles. The storage volume of the lake from normal lake level 1717.8 to the top of the weir 1718.2 is 1,920 acre-feet.

Recurrence Interval: 25-year

Estimating basin flows from regional regression equations a storm event with a recurrence interval of 25 years produces a peak flow of 908 cfs. If duration of this peak flow occurred over a 24-hour time period the total volume from this event would be 1,801 acre-feet. This is less than the storage volume available between the normal lake level and the top of the weir.

Recurrence Interval: 50-year

Estimating basin flows from regional regression equations a storm event with a recurrence interval of 50 years produces a peak flow of 1,225 cfs. If duration of this peak flow occurred over a 24-hour time period

the total volume from this event would be 2,430 acre-feet. As discussed in Section 4.0, the gates would be opened under these conditions (lake level above normal level). If the stage in the river were at the lakes normal level (1717.8) the discharge through the gates would be 341 cfs when the lake level reached the top of the weir. The gates would pass a volume of 676 acre-feet in 24-hour period. Adding the storage volume of the lake (1,920 acre-feet) with the volume of water discharged through the gates (676 acre-feet) gives a system capacity of 2,596 acre-feet. This is greater than what is produced from a 50-year storm event.

Recurrence Interval: 100-year

Estimating basin flows from regional regression equations a storm event with a recurrence interval of 100 years produces a peak flow of 1,581 cfs. If duration of this peak flow occurred over a 24-hour time period the total volume from this event would be 3,136 acre-feet. If the stage in the river is at the lakes normal level (1717.8) and the lake level reached its Ordinary High Water Mark (1718.3) the discharge through the gates (open as per Section 4.0) would be 381 cfs. The gates would pass a volume of 756 acre-feet in 24-hour period. With the lake level 0.1 feet above the top of the weir, a discharge of 32 cfs passes over the weir. Over a 24-hour period a volume of 64 acre-feet passes over the weir. The storage volume of the lake at the Ordinary High Water Mark is 2,400 acre-feet. Adding the storage volume of the lake (2,400 acre-feet) with the volume of water discharged through the gates (756 acre-feet) and the volume passing over the weir gives a system capacity of 3,220 acre-feet. This is greater than what is produced from a 100-year storm event.

The table below lists the flow volume produced from a 24-hour storm event for various recurrence intervals versus the capacity of the lake/weir system.

			At Weir Top			At Ordinary High Water Mark			
Recurrence Interval (years)	Peak Flow (cfs)	Volume for 24 hr Event (Ac-Ft)	Storage Vol to Weir Top (Ac-Ft)	Vol Through Gate (Ac-Ft)	System Capacity (Ac-Ft)	Storage Vol. At OHWM (Ac-Ft)	Vol Through Gate (Ac-Ft)	Vol Over Weir (Ac-ft)	System Capacity (Ac-Ft)
2	118	235	1920	676	2596	2400	756	64	3219
5	338	670	1920	676	2596	2400	756	64	3219
10	554	1099	1920	676	2596	2400	756	64	3219
25	908	1801	1920	676	2596	2400	756	64	3219
50	1225	2430	1920	676	2596	2400	756	64	3219
100	1581	3136	1920	676	2596	2400	756	64	3219
500	2537	5031	1920	676	2596	2400	756	64	3219

Wind/Wave action

Wind-wave analysis was completed by the U.S. Army Corps of Engineers and discussed in the August 1994 Feasibility Report and Environmental Assessment "Flood Control for Watertown and Vicinity, South Dakota". Local interests indicated that problems with wind-wave action did not occur until the lake elevation reached 1.2 feet above normal lake elevation of 1717.8 (MSL). Thus, the wind-wave effects on Lake Kampeska flood stages were only applied if the lake level exceeded elevation 1719.0 (MSL). This corresponds to a 4-year stage on Lake Kampeska.

The proposed weir elevation is established at elevation 1718.2 (MSL) which is 0.8 feet below the damage elevation from wind/wave action. A lake level of 1719.0 submerges the weir and the lake will drain as the river subsides.

6.0 FISH PASSAGE DESIGN

Approach

Critical Velocity and Discharge

Utilizing the stage-discharge rating curve for the Big Sioux River Weir near Lake Kampeska inlet/outlet and the stage-discharge relationship for the Lake Kampeska Diversion Weir, the velocity in the inlet/outlet channel is determined.

The following are the characteristics of the Diversion Weir:

Bottom of Fish Weir Elevation:	1715.0
Top of Fish Weir Elevation:	1718.2

Fish Weir Length:	3.0 ft.
Fish Weir Discharge Coefficient:	3.1
Diversion Weir Length:	327 ft.
Diversion Weir Discharge Coefficient:	3.0

Duration Analysis

The mean, maximum, and minimum daily USGS stream flow records were retrieved from WATSTORE for the three (3) USGS gages in and near Watertown on the Big Sioux River. The gages and period of record are listed below.

USGS Gage Station	Location on the Big Sioux River	Period of Record
06479438	6.5 miles upstream of Lake Kampeska	Oct 1972 – Jun 1995
06479450	Lake Kampeska inlet/outlet	Nov 1993 – Sept 1994
06479525	Near Castlewood	Oct 1976 – Sept 1995

Results

Critical Velocity and Discharge

At the top of the fish weir, elevation 1718.30 (MSL) the flow upstream of the inlet/outlet is 400 cfs. Using the weir equation, with the bottom of the fish weir set at 1715.0 (MSL), the fish flow is 56 cfs under free discharge conditions. The bottom of the fish weir is submerged under normal conditions because of lake levels in Lake Kampeska. The weir flow into the lake is reduced because of this submergence. Using a reduction equation for submerged sharp-crested weirs, the free discharges were reduced for submerged conditions. The elevation of Lake Kampeska was assumed to be 1717.8 (MLS). The following table summarizes the results.

	FISH WEIR						
		Elevation	Elevation		Fish Weir Length	Fish Flow	Submerg, Fish Flow
Comment	WSEL*	Bottom	Top	C	(ft)	(cfs)	(cfs)
WSEL = normal lake level	1717.8	1715	1718.3	3.1	3.0	44	0
	1718.3	1715	1718.3	3.1	3.0	56	31
10-yr with normal lake level	1719.66	1715	1718.3	3.1	3.0	94	73
	1720	1715	1718.3	3.1	3.0	104	84
	1721	1715	1718.3	3.1	3.0	137	118
Corps. 10-yr WSEL & Lake level	1722.4	1715	1720.1	3.1	3.0	187	169
Corps. 50-yr WSEL & Lake level	1723.7	1715	1721.1	3.1	3.0	239	221
Corps. 100-yr WSEL & Lake level	1724.4	1715	1721.5	3.1	3.0	268	250

*WSEL = water surface elevation (MSL)

The velocities and discharges in the inlet/outlet channel are shown in Figures 1 and 2. These figures assume that Lake Kampeska is at elevation 1717.8. Figure 1 represents the maximum velocity at the fish weir using the channel flows, while Figure 2 represents the maximum velocity at the fish weir using the Big Sioux River flows. Comparing the critical velocities for fish species with Figure 2, we can find the Big Sioux River flow that hinders fish passage. For example, a 30 cm walleye has a critical velocity of 2.43 feet per second (fps). This velocity corresponds to a flow of 730 cfs in the Big Sioux River. This is the worst case condition because, as Lake Kampeska fills, the fish weir velocity would be reduced for this flow.

The largest critical velocity for a fish species is that of the northern pike, while the smallest critical velocity is that of the channel catfish. The critical velocity for northern pipe is less than 4.9 fps, which corresponds to 2625 cfs in the Big Sioux River. The critical velocity of channel catfish is less than 0.49 fps, which corresponds to 75 cfs in the Big Sioux River.

Duration Analysis

A review of the daily flows for the period of record for the 'Big Sioux River Near Watertown' gage, 'Lake Kampeska Inlet/Outlet' gage, and the 'Big Sioux River Near Castlewood' gage indicates that the average mean daily discharge upstream of Lake Kampeska for the months of March, April, May and June is 109, 104, 45, and 45 cfs, respectively. Gage records were only kept at the Lake Kampeska inlet/outlet from November 1993 to September 1994. The mean and minimum daily values contained some negative numbers. The average mean daily discharge near Castlewood for the months of March, April, May and June is 145, 259, 154, and 107 cfs, respectively.

Critical velocities were provided for walleyes, yellow perch, smallmouth bass, channel catfish, and northern pipe. Based on the average values at the gage upstream of Lake Kampeska and the mean daily values, channel catfish would be able to enter Lake Kampeska during the months of May and June. These were the two months in which the average mean daily discharge in the Big Sioux River was below 75 cfs, with 45 cfs occurring for each month. The maximum average values for March, April, May, and June is 862, 389, 142, and 292, respectively. Based on these maximum averages, the walleye would be able to enter the lake three of the four months (April, May, and June). Yellow Perch would be able to enter the lake during the months of May and June. Small Mouth Bass would be able to enter the lake only during the month of May. Channel Catfish would not be able to enter the lake under these maximum average discharges.

7.0 EXISTING INLET/OUTLET CONTROL WEIR

Project Location

The location of the flood control project is in Codington County, South Dakota, 1,080 feet south and 400 feet west from the NE corner of Section 15-T117N-R53W (NE ¼ NE ¼).

Flood control permit

On November 7, 1985 the City of Watertown made an application for a flood control permit, FC-3, for modifications to the Inlet/Outlet Weir on the Big Sioux River. The modifications were to include the cutting of a rectangular notch in the weir 1 foot deep by 10 feet long to reduce flooding effects in Lake Kampeska. The removed section was to have a moveable control gate installed, to be used as a control structure.

Purpose of the Weir

In order to raise the water level of the lake, in 1941 a sheet pile dam was constructed across the Big Sioux River. The purpose of the inlet/outlet weir was to aid in the management of the lake levels by increasing the water flow into the lake, and decrease the discharge from the lake.

The Inlet/Outlet weir plays an integral role in the operation of the proposed Lake Kampeska diversion weir. Without the Inlet/Outlet weir the diversion weir would not function as described in Section 4.0 of this report. The Inlet/Outlet weir is allows the lake to fill and maintain a normal lake level at 1717.8 MSL.

Current Condition of the Weir

The Inlet/Outlet weir is currently in poor condition. The weir is severely deformed, contains numerous holes (appears to be rusting at points of fatigue where bending has occurred) and the weir has had sections cut out well below the weir elevation (1717.8 MSL) established in the flood control permit FC-3.

Proposed Project

The City of Watertown is obligated to maintain the inlet/outlet weir in accordance to the Flood Control Water License No. FC-3. The current condition of the weir warrants remedial action. Due to the severity of the existing weir condition the City of Watertown is proposing to replace the sheet pile weir. Under the proposed project a new sheet pile weir will be constructed just upstream (approximately 10') of the exiting weir. The existing weir will be cut down to ground elevation and covered with rip rap. The proposed weir

will be constructed with a crest elevation of 1717.8 MSL and will contain a 1 foot by 10 foot notch equipped with water tight stop logs in compliance with the flood control water license. Site location and typical section figures can be found at the end of this report.

8.0 PROJECT COST

Proposed Lake Kampeska Diversion Weir

The table below presents the probable opinion of construction costs, at a preliminary level for the proposed weir structure. All costs include materials and labor and are in 1999 dollars.

ESTIMATE OF COST FOR LAKE KAMPESKA DIVERSION WEIR

DESCRIPTION	NO. OF UNITS	UNITS	UNIT COST	TOTAL COST
MOBILIZATION, PERMITS, BONDS, ETC.	1	LS	$ 57,184	$ 57,184
CONCRETE	60	CY	$ 500	$ 30,000
GATES (7'X8')	2	EA	$ 45,000	$ 90,000
WEIR (SHEET PIPING W/ RIP RAP)	330	LF	$ 525	$ 173,250
			TOTAL =	$ 350,434

Lake Kampeska Inlet/Outlet Control Weir (Big Sioux River)

The table below presents the probable opinion of construction costs, at a preliminary level for replacement of the existing weir structure. All costs include materials and labor and are in 1999 dollars.

ESTIMATE OF COST FOR BIG SIOUX RIVER WEIR REPLACEMENT

DESCRIPTION	NO. OF UNITS	UNITS	UNIT COST	TOTAL COST
MOBILIZATION, PERMITS, BONDS, ETC.	1	LS	$ 19,210	$ 19,210.00
CUTTING OF OLD WEIR	170	L.F.	$ 40	$ 6,800.00
WEIR (SHEET PILING W/RIP RAP)	170	L.F.	$ 525	$ 89,250.00
			TOTAL =	$ 115,260.00

9.0 REPORT AMENDMENT

Due to field investigations and comments made during the permitting process several changes to the report document are recommended. These changes are as follows:

- The Lake Kampeska Weir height shall be established at elevation 1718.2. Concerns were expressed that the original weir height being set to the Ordinary High Water Mark (1718.3) would establish a new High Water Mark. It is our opinion that establishing the weir height 0.1' below Ordinary High Water Mark will allow enough flow to pass through the weir structure during internal storm events that structure will not create a new High Water Mark.

- Due to field investigations and hydraulic model evaluation of the Big Sioux River channel near Pelican Lake inlet/outlet channel, channel improvement option has been removed from our project recommendation.

- A permanent Fish Notch Weir is recommended.

- Replacement of the Inlet/Outlet Weir on the Big Sioux River.

BIG SIOUX RIVER USGS GAGE RECORDS
SUMMARY OF MEAN, MAXIMUM, MINIMUM DAILY VALUES FOR PERIOD OF RECORD

06479438	BIG SIOUX RIVER NR WATERTOWN	OCT 1972-JUN 1995
06479450	LAKE KAMPESKA INLET/OULET	NOV 1993-SEP 1994
06479525	BIG SIOUX RIVER NR CASTLEWOOD	OCT 1976-SEP1995

06479438 BIG SIOUX RIVER NR WATERTOWN
MAR 1972-JUN 1995
MEAN DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1973	120	36.9	45.1	11.8
1974	31.2	22.4	13.2	4.24
1975	0.26	68.3	16.9	5.84
1976	50.1	11.1	1.87	0.035
1977	60	27.6	8.26	32.9
1978	292	297	58.2	23.8
1979	35.6	399	44.7	53.1
1980	56	28.6	10.5	34
1981	5.09	4.66	0.57	8.82
1982	17.1	36.6	13.5	12
1983	3.03	50.3	12.9	2.35
1984	157	123	41.1	155
1985	278	42.1	32.5	5.59
1986	321	403	170	121
1987	111	66	17.4	7.56
1988	28.8	10.3	8.56	1.32
1989				
1990	2.67	2.95	9.52	11.2
1991	2.22	11.5	29.1	157
1992	46.6	35.8	16.6	63.3
1993	187	183	60.7	93.5
1994	310	131	94.1	139
1995	283	306	290	---
AVG.	109	104	45	45

06479438 BIG SIOUX RIVER NR WATERTOWN
MAR 1972-JUN 1995
MAXIMUM DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1973	306	59	136	45
1974	180	116	18	11
1975	1	250	65	9
1976	229	30	5.6	0.23
1977	400	67	45	259
1978	3450	2140	146	107
1979	150	1390	86	247
1980	300	88	13	116
1981	14	7.3	3.2	78
1982	230	180	30	41
1983	13	278	23	4.2
1984	950	326	86	1180
1985	1500	100	143	9.1
1986	4300	1230	924	607
1987	532	114	34	36
1988	90	17	15	5.9
1989				
1990	9	8.1	20	27
1991	6.5	25	68	1800
1992	122	63	47	408
1993	2500	548	213	323
1994	1890	328	258	824
1995	1790	1190	735	---
AVG.	862	389	142	292

06479438 BIG SIOUX RIVER NR WATERTOWN
MAR 1972-JUN 1995
MINIMUM DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1973	52	27	12	2
1974	0.8	8.8	9.6	0.27
1975	0.02	0.35	5.4	2.9
1976	0	5.6	0.12	
1977	0	11	0.25	0.06
1978	0.03	96	22	6.8
1979	0	85	19	13
1980	0	13	5.1	8.3
1981	0.93	3	0.11	0.15
1982	1.1	9.6	7.6	1
1983	0.37	18	4.2	0.8
1984	8.9	36	19	14
1985	40	25	8.6	2.4
1986	0.7	108	54	37
1987	12	36	7.9	3.2
1988	11	6.6	3.8	0.17
1989				
1990	0	1.6	4.2	
1991	0.01	2	8.9	19
1992	23	19	4.9	2.8
1993	3	54	29	25
1994	8.5	83	33	21
1995	4	69	168	---
AVG.	8	33	19	8

06479450 LAKE KAMPESKA INLET/OUTLET
MAR 1994-JUN 1994
MEAN DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1994	199	-63.9	-41.6	6.88

06479450 LAKE KAMPESKA INLET/OUTLET
MAR 1994-JUN 1994
MAXIMUM DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1994	1400	169	93	573

06479450 LAKE KAMPESKA INLET/OUTLET
MAR 1994-JUN 1994
MINIMUM DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1994	-165	-160	-157	-165

06479525 BIG SIOUX RIVER NR CASTLEWOOD
MAR 1977-JUN 1995
MEAN DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1977	26.6	16.5	3.28	56.3
1978	238	420	217	87
1979	28.5	639	280	164
1980	98.5	28.6	13.6	98.2
1981	26.9	17.1	5.4	12.6
1982	28.9	29	18.2	18.3
1983	30.6	39.7	22.4	6.3
1984	106	177	145	380
1985	502	266	88.6	24.8
1986	280	1310	613	247
1987	123	170	65.2	18.8
1988	37.5	13.7	9.54	3.11
1989	63.9	28.8	12.1	5.66
1990	1.54	7.6	7.89	45.2
1991	14.6	11.2	23.2	155
1992	62.5	55.6	35.5	131
1993	150	508	252	185
1994	562	436	272	283
1995	379	741	833	---
AVG.	145	259	154	107

06479525 BIG SIOUX RIVER NR CASTLEWOOD
MAR 1977-JUN 1995
MAXIMUM DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1977	200	27	10	706
1978	1600	1700	386	187
1979	110	1330	560	906
1980	380	98	18	419
1981	56	29	8.6	98
1982	350	199	64	62
1983	42	169	57	12
1984	700	304	229	1110
1985	1770	457	164	45
1986	2020	1820	1260	470
1987	449	195	122	45
1988	170	21	19	10
1989	350	105	33	15
1990	14	11	15	216
1991	30	44	56	1150
1992	82	84	69	517
1993	1200	628	471	395
1994	1200	655	399	779
1995	1670	1380	1120	---
AVG.	652	487	266	397

06479525 BIG SIOUX RIVER NR CASTLEWOOD
OCT 1976-AUG 1995
MINIMUM DAILY VALUES

YEAR	MAR	APR	MAY	JUN
1977	0	7	0.48	0.06
1978	0	259	95	42
1979	0	100	141	89
1980	6.6	17	7	15
1981	11	9.4	1.8	3.7
1982	10	12	10	6.5
1983	19	22	9	1.4
1984	16	122	62	55
1985	75	178	44	13
1986	20	808	310	171
1987	34	117	36	5.9
1988	10	9.6	4.7	[illegible]
1989	2	11	4.6	3.1
1990	0	4	5.6	5.6
1991	0.05	4.9	10	18
1992	40	33	15	16
1993	9	335	147	100
1994	90	252	137	111
1995	50	365	678	---
AVG.	21	140	90	37

Figure 1 - Maximum Velocity at Fish Weir Using Lake Flows

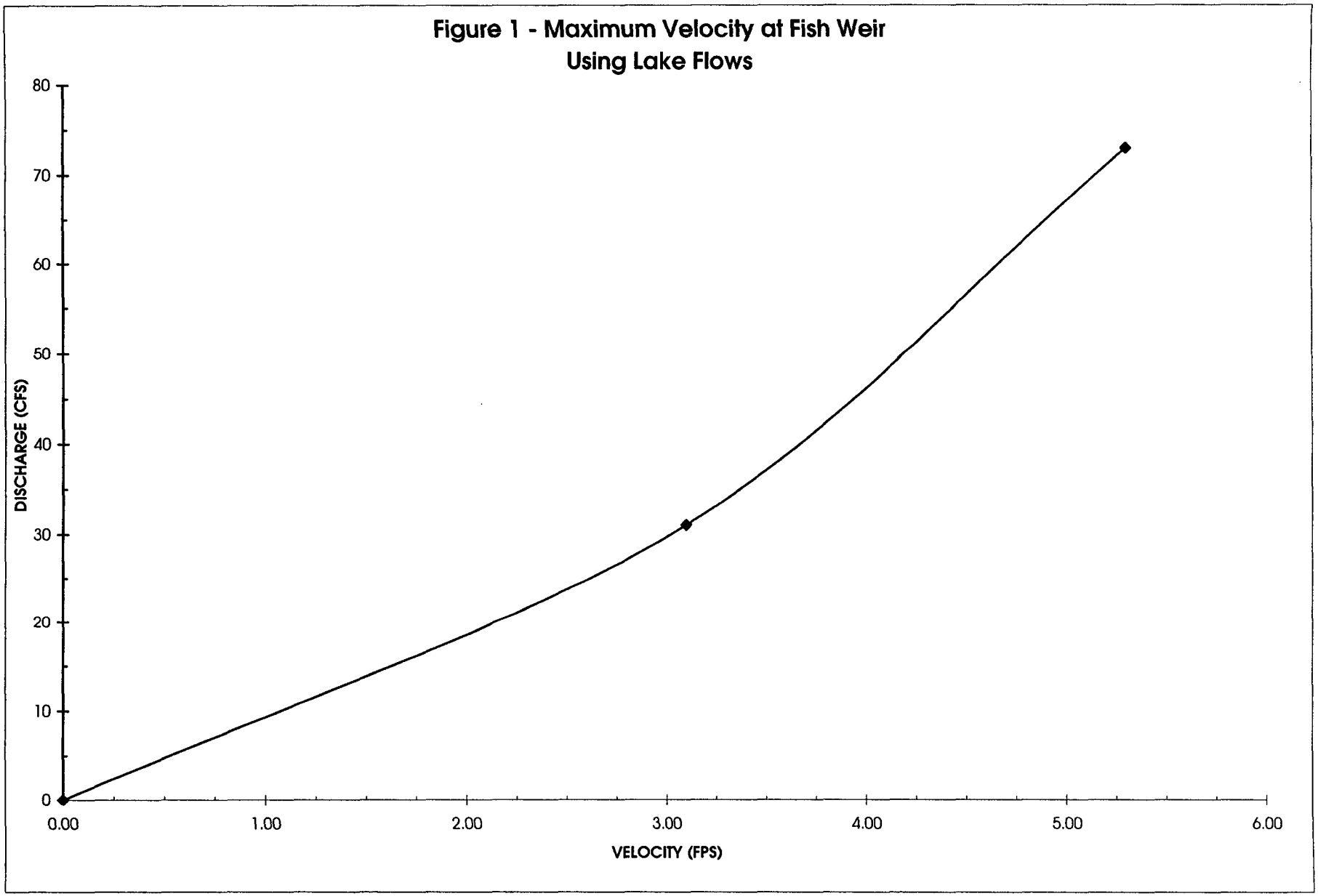
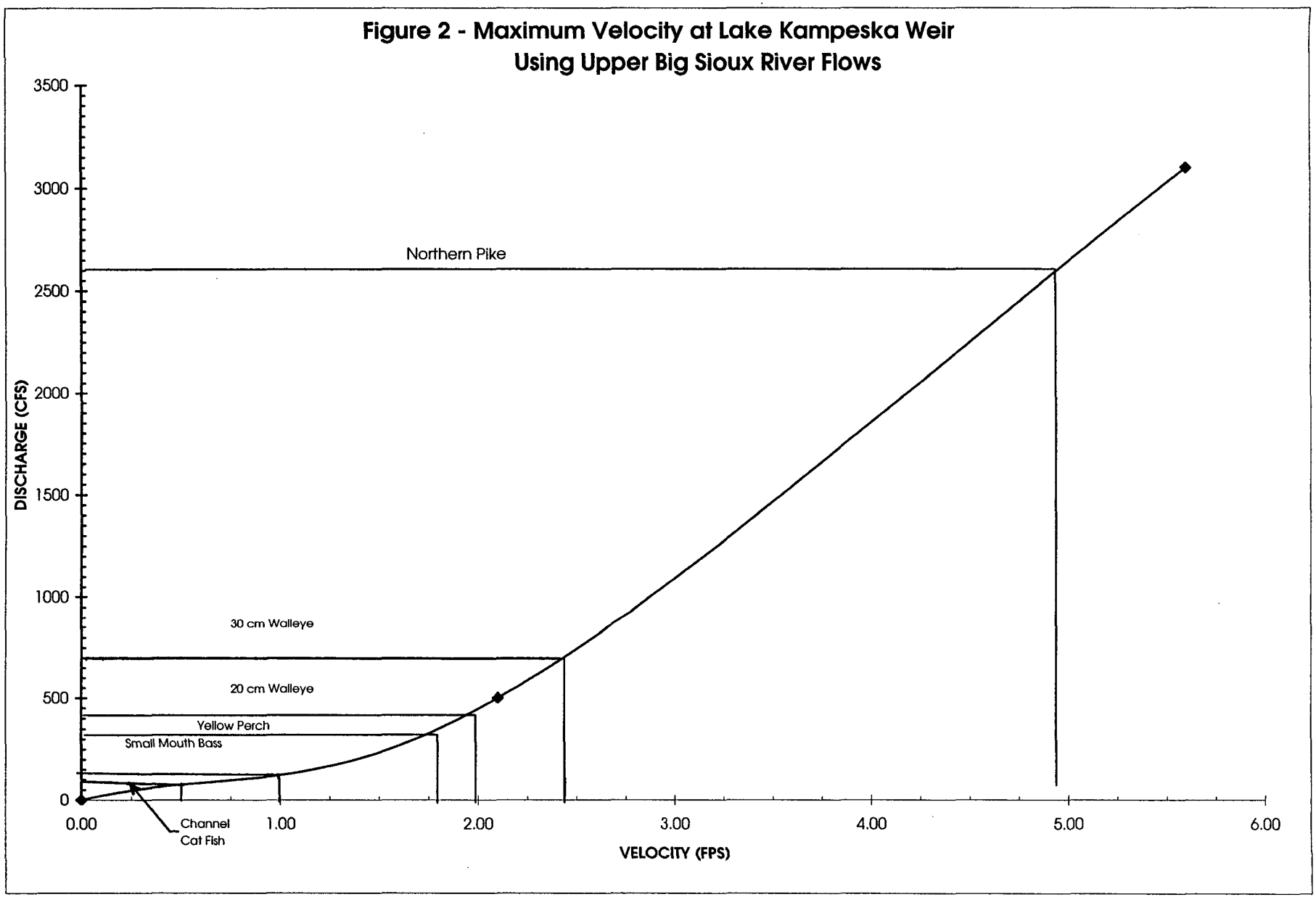
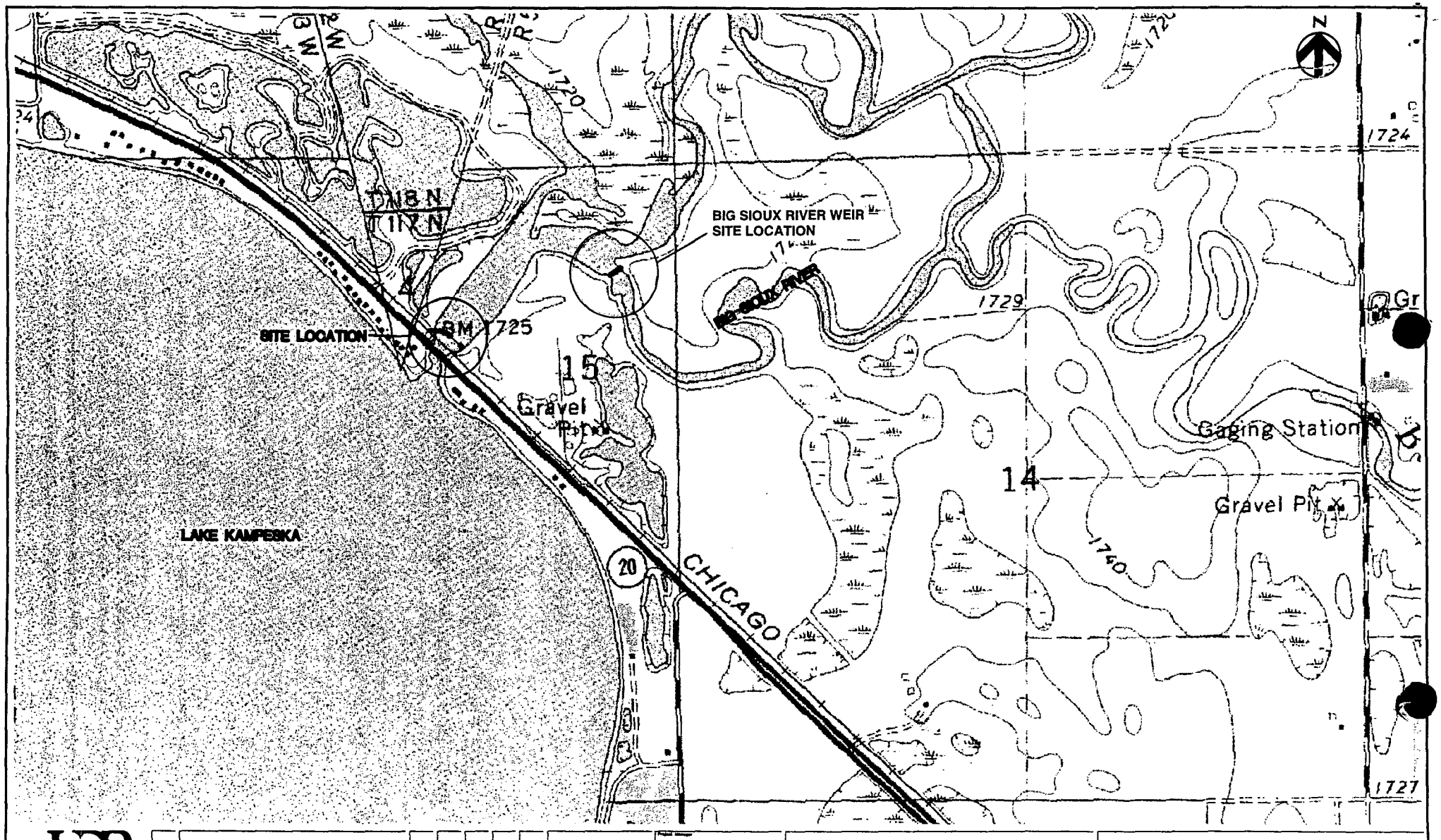


Figure 2 - Maximum Velocity at Lake Kampeska Weir Using Upper Big Sioux River Flows





HDR

HDR Engineering, Inc.

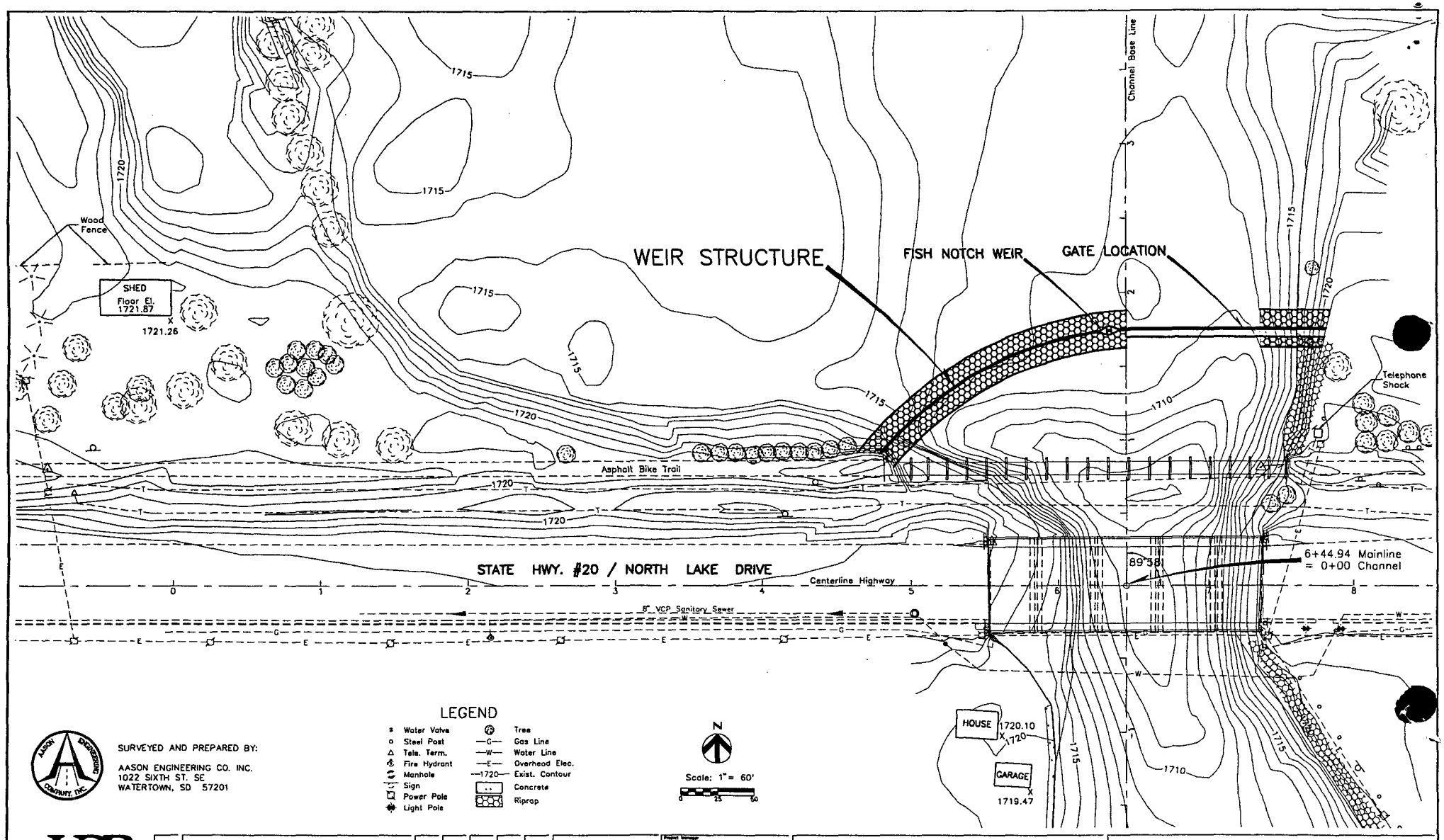
Lake Kampeska Water Project District
Lake Kampeska Water Quality
Diversion Weir Project

Watertown, South Dakota

SITE LOCATION

FEBRUARY 2000

08080-005-135



LEGEND

Water Valve	Tree
Steel Post	Gas Line
Tele. Term.	Water Line
Fire Hydrant	Overhead Elec.
Manhole	Exist. Contour
Sign	Concrete
Power Pole	Riprap
Light Pole	

N

Scale: 1" = 60'

0 25 50

SURVEYED AND PREPARED BY:

AASON ENGINEERING CO. INC.
1022 SIXTH ST. SE
WATERTOWN, SD 57201

HDR Engineering, Inc.

Project Manager: ALLAN ERICKSON
Drawn By: BRENDA MILLER

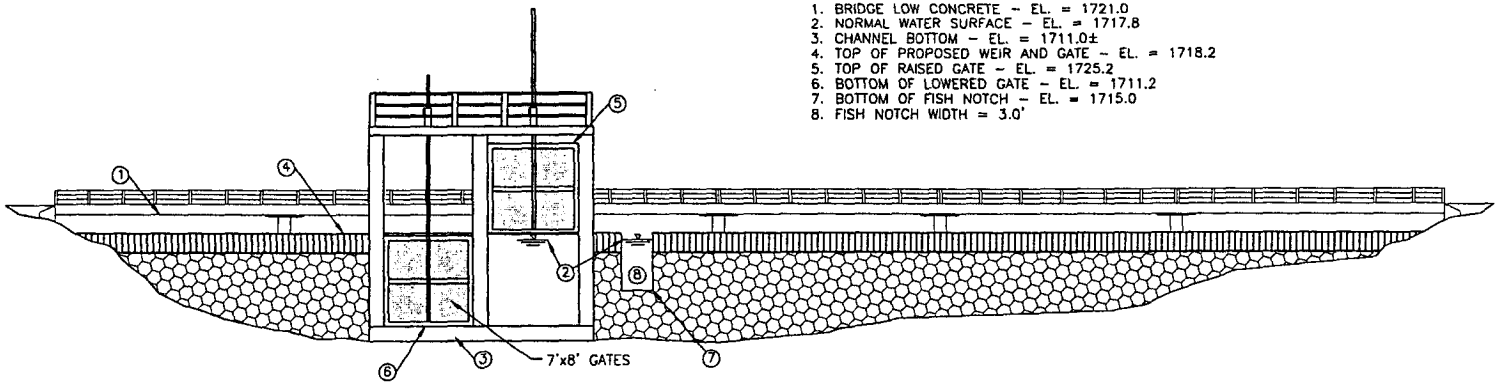
Lake Kampeska Water Project District
Lake Kampeska Water Quality
Diversion Weir Project

Watertown, South Dakota 1998

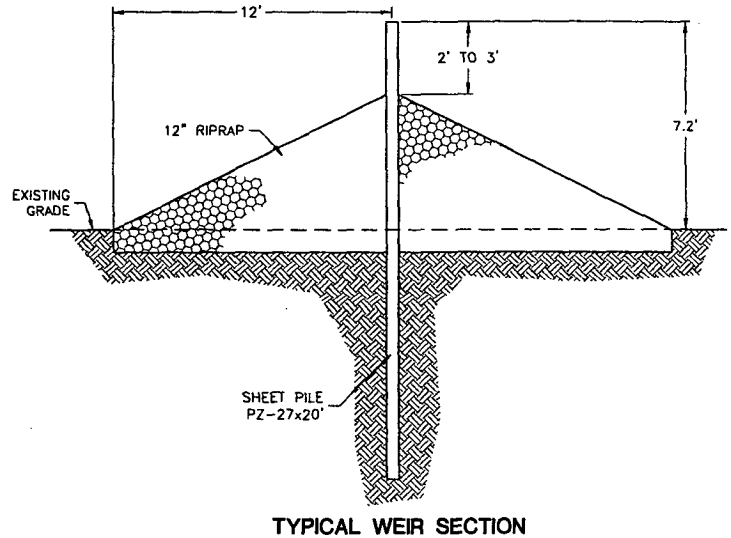
SITE LAYOUT

Date: FEBRUARY 2000
Project No.: 08080-005-135
Drawing No.: P-2

1. BRIDGE LOW CONCRETE – EL. = 1721.0
2. NORMAL WATER SURFACE – EL. = 1717.8
3. CHANNEL BOTTOM – EL. = 1711.0±
4. TOP OF PROPOSED WEIR AND GATE – EL. = 1718.2
5. TOP OF RAISED GATE – EL. = 1725.2
6. BOTTOM OF LOWERED GATE – EL. = 1711.2
7. BOTTOM OF FISH NOTCH – EL. = 1715.0
8. FISH NOTCH WIDTH = 3.0'



TWIN GATE WEIR OPTION
FISH OPENING
ELEVATION



TYPICAL WEIR SECTION

HDR

HDR Engineering, Inc.

ALLAN ERICKSON
JERRY STEVENS
BRENDA MILLER

Lake Kampeska Water Project District
Lake Kampeska Water Quality
Diversion Weir Project

Watertown, South Dakota

1998

TYPICAL SECTIONS

FEBRUARY 2000
NO SCALE
08080-005-135
P-3

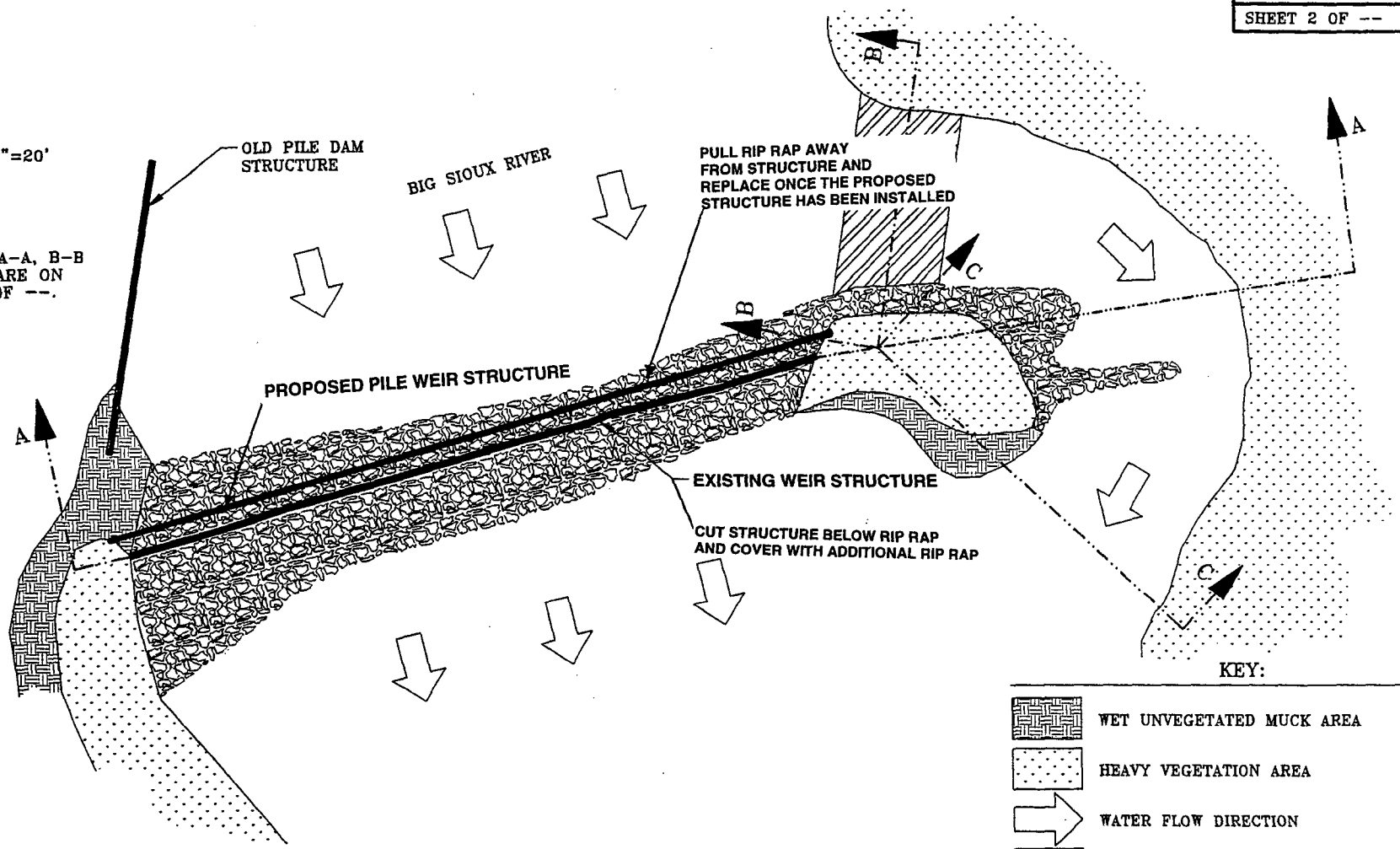
LAYOUT OF INLET-OUTLET STRUCTURE

OFFICE OF THE CITY ENGINEER
ENGINEER: LARRY LITTLE
DRAWN BY: ROB BEYNON
DATE: 9-20-96
WATERTOWN, S.D.

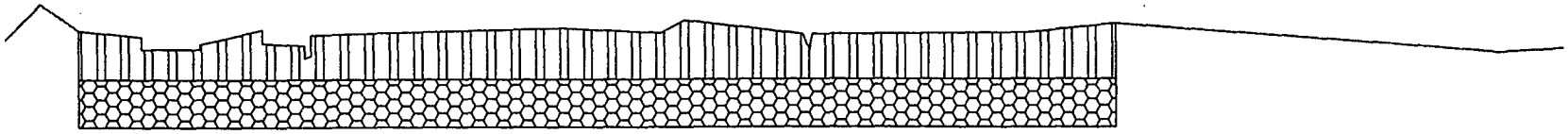
SHEET 2 OF --

SCALE: 1"=20'

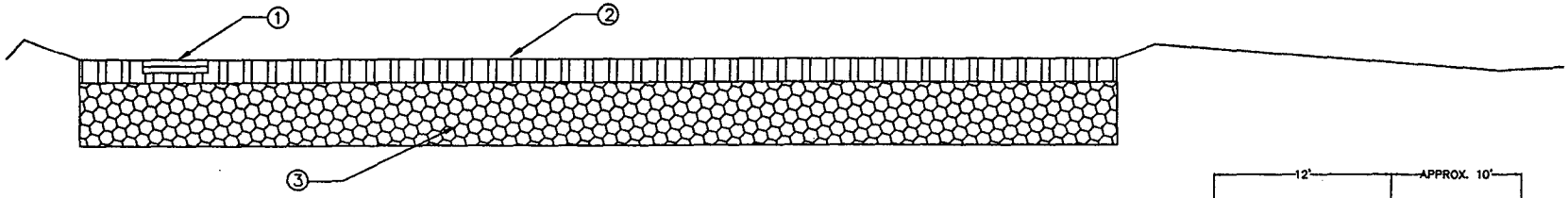
NOTE:
SECTIONS A-A, B-B AND C-C ARE ON SHEET 3 OF --.



EXISTING WEIR STRUCTURE

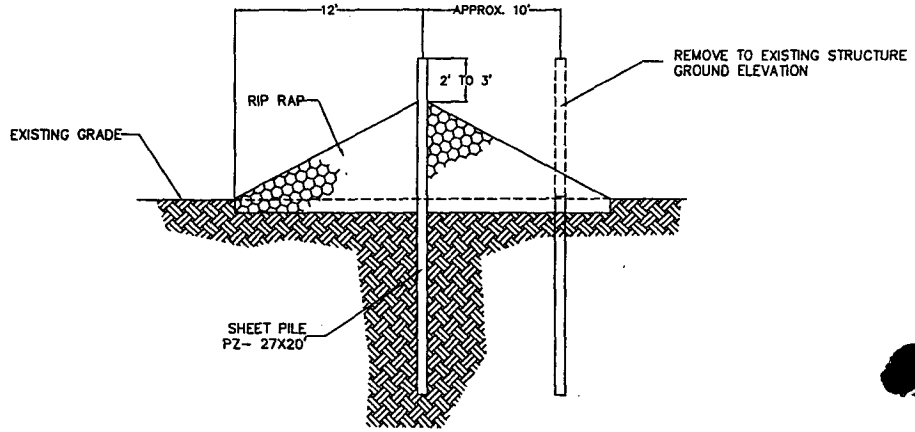


PROPOSED WEIR STRUCTURE



1. 1'–0" BY 10'–0" NOTCH WITH WATER TIGHT STOP LOGS
2. SHEET PILE WEIR WITH CREST ELEVATION 1717.8
3. RIP RAP

EXISTING & PROPOSED TYPICAL WEIR CROSS SECTION



TYPICAL WEIR SECTION

HDR

HDR Engineering, Inc.

Project Manager: ALLAN ERICKSON
Author:
QA/Reviewer:
Civil: JERRY STEVENS
Structural:
Mechanical:
Drawn By: BRENDA MILLER

Lake Kampeska Water Project District
Lake Kampeska Water Quality
Diversion Weir Project

Watertown, South Dakota 1998

INLET/OUTLET WEIR TYPICAL SECTIONS

Date: FEBRUARY 2000
Project No.: 08080-005-135

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star

August 16, 2000

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
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FAX 605-882-6218

Fire Department
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Watertown Community Recreation Center
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FAX 605-882-6254

Waste Water Treatment Facility
605-882-6243
FAX 605-882-6242

Jay Leibel
Ericsson, Ericsson & Leibel
P. O. Box 406
Madison, SD 57042

Re: Flood Control Permit FC-29
Lake Kampeska Diversion Weir

Dear Mr. Leibel:

I received your July 25 letter containing comments from the Lake Pelican Water Project regarding Watertown's draft *"Lake Kampeska Diversion Weir – A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas, July 13, 2000"*.

As you know, representatives of Watertown and Lake Pelican Water Project District have since then met informally to discuss the monitoring plan as well as the District's goals of acquiring water quality data in support of their objective of protecting and preserving Lake Pelican. Watertown left the meeting committed to pursuing partnering opportunities whereby the monitoring plan can be supplemented to meet the objectives of Lake Pelican Water Project District.

Under the cover of my letter also dated August 16, Watertown submitted the monitoring plan to the South Dakota Department of Environment and Natural Resources, Water Rights Program, for final approval. We look forward to hearing from you soon regarding the District's suggestion of mediation or other alternative format to resolve issues remaining in this matter.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE
Public Works Operations Manager

cc: Diane Best
Garland Erbele
Julian Wick
Kevin Krull

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
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WATERTOWN
South Dakota's Rising Star

July 11, 2000

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Waste Water Treatment Facility
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FAX 605-882-6242

Eric Gronlund
SD Department of Environment & Natural Resources
523 East Capitol Avenue
Pierre, SD 57201

Post-it® Fax Note 7671	Date 7-10-00	# of pages ▶ 4
To Eric Gronlund	From Schlechter	
Co./Dept.	Co. Watertown	
Phone # 773-3352	Phone # 882-6204 x 29	
Fax # 605-773-4068	Fax # 882-5214	

Dear Eric:

I spoke with Bill Stewart on July 7 regarding his recommendations for revisions to the monitoring plan that is required by permit FC-29 for the Lake Kampeska Diversion Weir. You and I also spoke on that same day specifically about the sampling location proposed in the draft plan. This letter is written to present justification for selecting the downstream side of the Sioux Conifer Road bridge over the Big Sioux River as the sampling site for the monitoring plan in terms of both good science and the intent of the Water Management Board.

I put a considerable amount of thought into the draft monitoring plan that I submitted to Bill Stewart on July 6. I developed the plan to meet the intent of the Water Management Board by combining good science, common sense, available baseline data, and systems of watershed monitoring equipment that are already in place.

The proposed sampling site is located 1.5 miles (an estimated 15,000 feet measured along the channel) downstream of the proposed Lake Kampeska Diversion Weir on the downstream side of the bridge over the Big Sioux River on Sioux Conifer Road in the northwest ¼ of section 13, township 117 north, range 53 west. The site is approximately 2 miles upstream of Watertown's urbanized areas.

I have proposed that the referenced sampling site be used because:

- It is downstream of the proposed Lake Kampeska Diversion Weir
- It is upstream of Watertown's urbanized areas.
- There is a significant amount of historical baseline water quality, hydrologic and hydraulic information.
- The site is outfitted with streamflow gaging equipment complete with satellite communication equipment.
- The streamflow gaging site is a component of an existing comprehensive watershed monitoring and flood warning network.

I believe the Board's intent is to measure the **effect of the proposed weir** regarding sediment load and transport to downstream areas as given in paragraphs #4 and #5 of the Final Decision, not necessarily the explicit and discreet amount of sediment entering Lake Pelican.

- *"The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to ...3) detrimental sediment transport to downstream areas..."*

- *"... the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican."*

There is currently sediment either entering Lake Pelican now or that has the opportunity to enter Lake Pelican. I believe the Board is most interested in the change of sediment availability that can be associated with the implementation of the proposed project. I believe it was the Board's intent for Watertown to work with the technical experts at DENR to develop a monitoring plan giving full consideration to the lake and river systems in the Watertown vicinity, available baseline data, and existing monitoring systems. I further believe it is the Board's intent to rely on the technical expertise within the Department to ensure that the approved monitoring plan will meet the Board's objectives for requiring a monitoring plan.

The Board's suggestions during the hearing were made in good faith but without the benefit of adequate time and appropriate effort to explore and research the watershed system and the availability of existing equipment and data. The Board's suggestions during the hearing should be used to describe and define general objectives, not to dictate the methodology by which the objectives are attained.

I do not believe it was the Board's intent to dictate how and where the monitoring would be conducted. I do not believe the Board anticipates any significant impacts as a result of the proposed project. I do not believe the Board intends for the monitoring plan to be a financial and physical burden to the city of Watertown because it has been required only to placate intervenors in this matter, and a similar monitoring requirement was not required of the Lake Pelican Water Project District for flood control permit FC-19.

I offer the following excerpts from the May 25 hearing for your consideration in support of my position.

- Mr. Brink stated in his remarks during the Board's deliberation "..keep the gates closed, when the gates are opened, take some monitoring reports – because we don't have any now, no baseline data to determine what's gonna happen to silt at Pelican. My suggestion ... conditions... be such that before the gates are opened, silt load be tested at Pelican and a certain period after gates are opened they be checked again. At least we could get some background data to see if there is any effect of the releases at Kampeska back into the Big Sioux."

- Mr. Rollag stated during his deliberation remarks that he "recognizes limited or no data of impact on Pelican. Evaluate this as the project is operated...Would like to see some sort of sampling be conducted during the times of operation so that, even though data will be limited and maybe not be...reliable, we can get some indication of what the sediment dynamics are."

In further Board discussion, Mr. Rollag stated "Usually,...the plan would be developed by the City and approved by staff."

- Mr. Freeman added "Would like to see conditions attached to the permit, if granted, that would hopefully satisfy the intervenors to avoid the necessity of an appeal...Gonna take a little time to figure out how to do this monitoring – how often, is it necessary after a year or two."

In order to measure the **effect of the proposed weir**, it is very helpful, perhaps necessary, to have long term baseline data for comparison purposes. Additionally, to the maximum extent practicable, the plan should be developed to minimize, isolate, or account for other parameters that may affect sediment load, i.e. urban stormwater runoff, events in the upper Big Sioux River watershed that cause runoff, and changes in land use practices throughout the upper watershed that may have an effect on sediment load in the Big Sioux River. The plan I proposed to DENR on July 6 accomplishes both.

The sampling site for the monitoring plan is the same location of DENR's Clean Water Act Section 106 long term water quality monitoring program monitoring site WQM55. Section 106 water quality monitoring at WQM55 has been ongoing on a monthly basis since December 1972. Data available to me as of June 15 indicates a total of 224 total suspended solids have been collected from WQM55 and analyzed. The time period over which the significant number of samples were collected and analyzed provides tremendous baseline information.

WQM55 is also the location of USGS streamflow gaging station #06479500 otherwise known as the "Big Sioux River at Watertown" gage. This gaging station was in operation from 1946 through 1972, and portions of 1997 during the flood. The period of record for this station is reasonably long and includes an extreme flood event. The stage-discharge curve established by USGS for this station is considered quite reliable.

USGS station #06479500 ("Big Sioux River at Watertown") has been reactivated as part of Watertown's enhanced flood-forecasting system. Watertown's flood forecasting system includes precipitation gages and streamflow gages throughout the entire watershed all equipped with satellite communication equipment which allows for direct download of data to the USGS Internet site. Data from this network may help provide explanations to unanticipated monitoring results by providing a window of information to describe occurrences in the watershed that may affect water quality in the Lake Kampeska, Watertown, and Lake Pelican vicinity.

The location of the proposed sampling site, and WQM55, offers a great opportunity to eliminate one of the factors that affect downstream sediment load and other water quality parameters. By monitoring at a site upstream of Watertown's urbanized area, the effect of the city's stormwater runoff is eliminated from the evaluation of the **effect of the proposed weir**.

The proposed monitoring plan calls for the analysis of water samples collected at WQM55 for total suspended solids at numerous and various times during a runoff event that triggers the operation of the gates. Sediment load can be computed from the results of those analyses and the discharge rate acquired from streamflow data made available through the USGS gaging equipment at the site.

The monitoring plan also calls for water level measurements on each side of the Lake Pelican diversion weir. Flow rate and direction through the fish notch of the Lake Pelican diversion weir can be determined using these recorded water level measurements. Then, sediment load into Lake Pelican due to upstream, non-urban factors can be computed from those same water quality analytical results and the calculated flow rate through the Lake Pelican diversion weir fish notch.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

CITY OF WATERTOWN

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Waste Water Treatment Facility
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August 16, 2000



Garland Erbele, Chief Engineer
Water Rights Program
523 East Capitol
Pierre, SD 57501-3182

Re: Flood Control Permit FC-29
Lake Kampeska Diversion Weir

Dear Mr. Erbele:

Enclosed is one (1) copy of *"Lake Kampeska Diversion Weir – A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas, Flood Control Permit FC-29, August 10, 2000"*. The monitoring plan is hereby submitted for your approval in accordance with paragraph #5 of the Water Management Board's final decision in the above referenced matter.

The monitoring plan was submitted in draft form to the Lake Pelican Water Project District via fax on July 19 as well as hardcopy under my July 19, 2000 cover letter. I refer you to Mr. Jay Leibel's July 25 letter that contained comments from the District regarding the plan.

Representatives of Watertown and Lake Pelican Water Project District have since then met informally to discuss how the plan was developed and the thought process behind it. Watertown came away from the meeting with a better understanding of the District's needs for water quality monitoring at Lake Pelican. Watertown left the meeting committed to pursuing partnering opportunities whereby the monitoring plan can be supplemented to meet the objectives of Lake Pelican Water Project District. We are encouraged by, and look forward to, the District's suggestion of mediation or other alternative format to resolve issues remaining in this matter.

I look forward to receiving your written approval of the enclosed monitoring plan in the near future.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE
Public Works Operations Manager

cc: Diane Best
Julian Wick
Jay Leibel
Kevin Krull

Lake Kampeska Diversion Weir

A Plan to Measure the Effect of the Weir On Sediment Load and Transport to Downstream Areas

Flood Control Permit FC-29

August 10, 2000

Introduction

The Upper Big Sioux River watershed in extreme southern Roberts, western Grant, and east-central Codington Counties has been faced been with difficult sedimentation and other water quality problems. Lakes Pelican and Kampeska are direct reflections of their watershed and have also fallen victim to water quality impairments due to sediment accumulation and other water quality impacts.

As part of a comprehensive approach to improving conditions in the watershed, a diversion structure was constructed across the canal leading to Lake Pelican in 1998. The Lake Pelican weir was constructed under the authority of Flood Control Permit FC-19 granted by the South Dakota Water Management Board on December 26, 1996. The purpose of the weir is to control the amount of sediment entering Lake Pelican from the Big Sioux River.

This current proposal by the City of Watertown is to construct a similar structure in the inlet/outlet channel of Lake Kampeska to reduce the amount of sediment entering the lake from the Big Sioux River. The South Dakota Water Management Board on June 15, 2000 granted Flood Control Permit FC-29. This monitoring plan has been prepared as required in paragraph #5 of the Water Management Board's final decision that states in part "...the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load..."

Acknowledgments

Acknowledgment is particularly made to Chief Engineer Garland Erbele, Mr. Gale Selken, and Mr. Eric Gronlund of the South Dakota Department of Environment and Natural Resources' (DENR) Water Rights Program for their wise advice and sound judgment throughout the flood control permit application process; to Mr. Bill Stewart of DENR's Watershed Protection Program for his contribution of experience and technical expertise in the development of this water and sediment monitoring plan; and to the Wastewater Treatment and Municipal Utilities Departments of the City of Watertown, and their respective staffs, for their assistance in developing this plan and who will be largely responsible for implementation of this plan and the operation of the gates.

Plan Development

This plan has been developed to meet the intent of the Water Management Board to measure the effect of the proposed weir regarding sediment load and transport to downstream areas as given in paragraphs #4 and #5 of the Board's Final Decision adopted on June 15, 2000.

- "The Water Management Board retains jurisdiction of Flood Control Permit No. FC-29 in the event that additional information shows the weir and gated control system causes adverse upstream or downstream impacts, including but not limited to ...3) detrimental sediment transport to downstream areas..."
- "... the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican."

The Lake Kampeska Diversion Weir has two manually operated slide gates as integral and necessary components of the structure. It is apparent from the Board's deliberations during the May 25, 2000 flood control application hearing that this plan be developed to monitor the effect that operating the gates, and the subsequent releases from Lake Kampeska, may have on sediment load to downstream areas of the Big Sioux River. Additionally, although there were no philosophical concerns expressed during the hearing regarding the construction of the weir to divert sediment away from Lake Kampeska, the Board's deliberations indicated a need for background or baseline data as a means of indicating and understanding the sediment dynamics of the immediate lake and river system.

This monitoring plan will provide strong baseline data through continuous monitoring of the Big Sioux River during the open water periods of the year, most generally March 1 through October 31. The plan will effectively demonstrate the effects of the operation of the gates through intensified sampling frequency at the time of gate operation. The plan will allow for the computation of total sediment load at a point downstream from Lake Kampeska.

As was discussed at the May 25, 2000 Water Management Board hearing, part of the difficulty in studying the effects of this weir is the number of factors that can affect the concentration of total suspended solids in the Big Sioux River downstream of the Lake Kampeska Diversion Weir. To the maximum extent practicable, this plan has been developed to minimize, isolate, or account for these other influences such as urban stormwater runoff, events in the upper Big Sioux River watershed that cause runoff to occur, and management of the river and changes in land use practices throughout the upper watershed that may have an effect on sediment load in the Big Sioux River.

Finally, this plan also addresses the Board's intent regarding notifications prior to operation of the gates, recordkeeping, and reporting.

Sampling Site Location

The sampling site for this monitoring plan is located 1.5 miles (an estimated 15,000 feet measured along the channel) downstream of the proposed Lake Kampeska Diversion Weir on the

downstream side of the bridge over the Big Sioux River on Sioux Conifer Road in the northwest ¼ of section 13, township 117 north, range 53 west. The site is approximately 2 miles upstream of Watertown's urbanized areas. This is the same location of DENR's Clean Water Act Section 106 long-term water quality monitoring program monitoring site WQM55.

Section 106 water quality monitoring at WQM55 has been ongoing on a monthly basis since December 1972. As of June 15, 2000, a total of 224 total suspended solids samples have been collected from WQM55 and analyzed. The time period over which the significant number of samples were collected and analyzed provides tremendous baseline information

WQM55 is also the location of USGS streamflow gaging station #06479500 otherwise known as the "Big Sioux River at Watertown" gage. This gaging station was in operation from 1946 through 1972, and portions of 1997 during the flood. The period of record for this station is reasonably long and includes an extreme flood event. The stage-discharge curve established by USGS for this station is quite reliable. USGS station #06479500 ("Big Sioux River at Watertown") has been reactivated as a full-time streamflow gaging station in Watertown's enhanced flood-forecasting system.

Watertown's flood forecasting system includes precipitation gages and streamflow gages throughout the entire watershed (see map) all equipped with satellite communication equipment which allows for direct download of data to the USGS Internet site. The USGS home page can be found at the following Internet address: *http://sd.water.usgs.gov.* Real-time streamflow and rainfall data is available at *http://sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg.* Data from this network may offer explanations to unanticipated monitoring results by providing a window of information to describe occurrences in the watershed that may affect water quality in the Lake Kampeska, Watertown, and Lake Pelican vicinity.

Sample collection and frequency of sampling

Water samples will be collected continuously at the sampling site throughout the open water season. It is anticipated that monitoring will occur most generally from March 1 through October 31, but the annual monitoring period will be adjusted as necessary dependent upon the weather, lake level, and streamflow conditions.

An automated sampler equipped to cool and heat the composite water sample to 4 degrees Celsius will be used for collection and storage of the sample. The suction line and strainer will be installed so that the strainer is located near the bottom of the streambed either in the thalweg of the channel or the center of the channel at the discretion of DENR at the time the sampling equipment is installed.

For general continuous sampling, the sample will consist of individual sample portions collected in a single composite container 5 times during each 24-hour day of a 7-day sampling period. At the time the criteria for operating the gates are met, the length of the sampling period will be reduced to 1 day. One day prior to, and 3 days following, the opening of the gates, a 5-sample 24-hour daily composite sample will be collected for analysis. Thereafter, the sampling frequency will return to the weekly schedule.

Sample pickup and transport

Personnel of Watertown's Wastewater Department will pick up the sample at the end of each sampling period and transport the sample to the Wastewater Department's laboratory. Chain of custody procedures will be employed to trace the possession of the sample from the time it is collected and picked up until the lab analysis has been completed. This procedure will demonstrate that the samples have not been tampered with during collection, pickup, transport, storage, and analysis.

At the time the sample is picked up, Watertown Wastewater Department personnel will record stage-discharge-rainfall information available from the City's flood forecasting system. This information is available by accessing the Internet at the home page of USGS (*http//:sd.water.usgs.gov*). The real-time streamflow and rainfall data can be found most specifically at *http//:sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg.*

Observations regarding precipitation, wind, cloud cover, water odor, septic conditions, presence of dead fish, noticeable films or sheens, turbidity, color, and the presence of wildlife or domestic animals near the sampling site will be recorded at the time the sample is picked up. Additionally, portable hand-held meters will be used to measure and record field measurements for dissolved oxygen, pH, conductivity, and water temperature.

Sample analysis

The Watertown Wastewater Department laboratory staff will analyze the water sample for Total Suspended Solids. The analysis will be conducted according to EPA method 160.2 and the Wastewater Department's standard operating procedure for analyzing for Total Suspended Solids. This is the same methodology and procedure used by the Wastewater Department to determine and document compliance with the City's National Pollutant Discharge Elimination System permit issued by the Environmental Protection Agency.

Duplicate sample analyses will be conducted for every 5th sample to demonstrate laboratory quality assurance and quality control. Duplicate samples for QA/QC analysis will be representative sample portions obtained after splitting the sufficiently mixed, homogeneous composite sample delivered to the laboratory for analysis.

The results of duplicate sample analyses shall be reported in the same manner as normal samples.

Notification

Prior to operating gates, the City of Watertown shall contact the chairperson of Lake Pelican Water Project District by telephone. This verbal communication shall be followed up with a notification/confirmation letter. A form letter for this notification may be developed and used to facilitate this notification process. The notification/confirmation letter will be delivered via certified mail, return receipt requested.

Report Monitoring Results

Watertown will provide one (1) copy of each summary reporting form to Chief Engineer, Water Rights Program, SD Department of Environment and Natural Resources. The summary reporting form will contain the results of total suspended solids analyses, field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, chain of custody record, and pertinent information regarding the operation and status of the gates.

Maintain Monitoring Records

Watertown will maintain a file and electronic database containing the results of total suspended solids analyses, field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, chain of custody record, and pertinent information regarding the operation and status of the gates.

Review of data

After completing not less than 2 annual monitoring periods of sampling, analysis and reporting, Watertown may review the results of the monitoring program with the South Dakota Department of Environment and Natural Resources and the Water Management Board for the purpose of determining the usefulness of the data, and to discuss any necessary modifications to the monitoring plan as the data may so dictate.

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

September 1, 2000

Richard L. Schlechter, PE
Public Works Operations Manager
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Dear Mr. Schlechter:

The department has received a copy of the city of Watertown's monitoring plan developed as a condition of approval to Flood Control Permit No. 29. This permit authorizes the construction of a weir/control structure on the inlet/outlet of Lake Kampeska. It is apparent that a great deal of thought has gone into devising a plan to measure the effect of the weir on sediment load and transport in the Big Sioux River.

Your letter requesting written approval of the plan mentions the city is pursuing opportunities with the Lake Pelican Water Project District for supplementing the monitoring plan. It appears that the monitoring plan as submitted may not be in its final form. All components of the monitoring plan should be set forth prior to DENR's consideration for approval. Therefore, I am withholding written approval of this monitoring plan at this time.

I remain supportive of City and District's effort to resolve their differences. Please keep us apprised of your progress.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Diane Best
Jay Leibel
Kevin Krull
Julian Wick

BARR

Barr Engineering Company
4700 West 77th Street • Minneapolis, MN 55435-4803
Phone: 952-832-2600 • Fax: 952-832-2601

Minneapolis, MN • Hibbing, MN • Duluth, MN • Ann Arbor, MI • Jefferson City, MO

December 18, 2000



Mr. Richard L. Schlechter, P.E.
Public Works Operations Manager
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910

Re: Inflow Water Quality Monitoring at the Lake Pelican Outlet Weir

Dear Mr. Schlechter:

Late last week I was able to talk with Steve Klein of our staff about the proposed monitoring of inflow water quality at the Lake Pelican weir. He informed me that officials of the Lake Pelican Water Project District are adamant about collecting data sufficient to ***quantify*** the amounts of sediment and phosphorus entering the lake via Big Sioux River backflows ***before***, ***during***, and ***after*** the planned Lake Kampeska weir would be operated. This indicates to me that sampling at the Lake Pelican weir will be necessary, even if your proposed river monitoring is also conducted between the Lake Kampeska weir and the urbanized areas of the city of Watertown. Although your proposed monitoring program should be sufficient to document sediment and total phosphorus transport rates in the river at your gaging station, I do not see any way to translate those data into mass loading estimates for Lake Pelican. Therefore, monitoring at the Lake Pelican weir will also be necessary to quantify sediment and phosphorus loads.

I agree with your contention that passage of the river through the urban area of Watertown has the potential to alter both its suspended sediment and phosphorus concentrations. These changes could be both positive, due to contributions from urban runoff during wet periods, or negative because of suspended particle settlement during low flow periods. Materials deposited in the river channel between your proposed gaging station and the Lake Pelican weir at relatively low flows are susceptible to resuspension during subsequent high flow events and will be transported further downstream. If, at high river flows, backflow into Lake Kampeska is prevented by a new weir, then more river water at higher flow rates, and proportionally greater sediment carrying capacities, will pass downstream, toward the Lake Pelican weir. While it is unclear how much of this river flow would enter Lake Pelican, that is what our monitoring program is intended to quantify.

Therefore, I do not see a convenient alternative to monitoring at the Lake Pelican weir, if mass loads of suspended sediment and phosphorus are required. The monitoring program we recommended previously included sensing of lake and river stage, and concurrent flow velocity and direction, and flow-activated water sampling. Sampling would only be conducted at times when backflows from the river were entering the lake. This sampling would be automated and flow-paced, with equal volume aliquots delivered into a compositing bottle in the automatic sampler base. Pacing can be adjusted to match expected hydrograph conditions and sample holding times. I would suggest the

monitored water quality parameters include total suspended solids, volatile suspended solids, total phosphorus, and total dissolved phosphorus, at a minimum.

Because you prefer to use ISCO flow gaging and automatic sampling equipment, I contacted the ISCO Manufacturer's Representative, Tech Sales, here in Minneapolis, to obtain the enclosed literature concerning the types of their equipment that would be necessary to conduct this monitoring.

Please telephone me if you wish to discuss these matters further. Thank you.

Sincerely,

BARR ENGINEERING COMPANY

/Hal Runke

Henry M. (Hal) Runke, Ph.D.
Limnologist

HMR/lah
Enclosure
c: Julian Wick
Steve Klein

::ODMA\PCDOCS\DOCS\222408\1

CITY OF WATERTOWN

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WATERTOWN
Dakota's Rising Star

December 29, 2000

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City Attorney
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Watertown Community Recreation Center
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FAX 605-882-6254

Waste Water Treatment Facility
605-882-6243
FAX 605-882-6242

Mr. Henry M. (Hal) Runke, Ph.D.
Barr Engineering Company
4700 West 77th Street
Minneapolis, MN 55435-4803



Dear Mr. Runke:

Thank you for your December 18 letter regarding inflow water quality monitoring at the Lake Pelican Outlet Weir. I agree with you that it seems it will be necessary to sample at the Lake Pelican weir in addition to implementing Watertown's proposed monitoring plan at the upstream site to meet the water quality monitoring needs associated with the objectives of both Watertown and Lake Pelican Water Project District in this matter.

Paragraph 5 of the Water Management Board's June 15 Final Decision on flood control permit number FC-29 directs that "*...the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican.*" As we have recently discussed, Watertown and the Lake Pelican Water Project District interpret the Water Management Board's direction somewhat differently. Watertown interprets the Board's intent to mean the measurement of the effect of the proposed project, whereas the District interprets the Board's direction to mean the explicit measurement of sediment load entering Lake Pelican.

I don't anticipate this difference in opinion being resolved without another hearing before the Water Management Board, and I don't believe this course of action is an effective use of the limited amount of time available to complete the proposed project. Furthermore, resolution of this issue by the Water Management Board may not change the need to meet the separate water quality monitoring objectives of Watertown and Lake Pelican Water Project District in this matter. Therefore, I will recommend to my Council that Watertown furnish and install automated monitoring equipment at the 2 separate sites.

I was surprised, however, to learn from your letter that the Lake Pelican Water Project District is insisting that data be collected to quantify both sediment and phosphorus. It was my impression from the August 2 and October 5 meetings with Mr. Wick, Mr. Egge and Mr. Miller of the District that there seemed to be agreement that the parameter of concern was limited to sediment only. From Watertown's perspective, this conclusion would be consistent with the testimony and discussion at the May 25 Water Management Board flood control permit hearing as well as with the Board's direction found in paragraph 5 of their final decision referenced above.

The Water Management Board intended only for sediment to be monitored. That is not to say that other water quality parameters can not be monitored, but I'm sure you understand Watertown's concern that including additional parameters in the monitoring effort will require additional financial and human resources. Watertown suggests that financial participation by Lake Pelican Water Project District may be appropriate in light of the District's additional water quality monitoring needs.

In your letter you suggested that the parameters to be monitored include at least the following: total suspended solids, volatile suspended solids, total phosphorus, and total dissolved phosphorus. It is the recent addition of the total dissolved phosphorus parameter that raises a particular concern due to the need for immediate field filtering of the sample and the short 48-hour sample holding time. To meet the filtering requirement and sample holding time, the sample will have to be picked up and transported to a contract laboratory on a daily basis during those times when the gates of the Lake Kampeska Diversion Weir are open and the Big Sioux River is discharging into Lake Pelican. Watertown can not commit to this level of manpower and the potential financial exposure associated with daily sample analyses without financial participation on the part of Lake Pelican Water Project District.

I offer the following for your consideration, and that of Lake Pelican Water Project District, in an effort to find that middle ground that will allow the proposed project to move forward on a timely basis as well as meet the most primary water quality objectives of both organizations.

- Watertown will implement our previously proposed "Lake Kampeska Diversion Weir: A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas, Flood Control Permit FC-29, August 10, 2000". In addition, I appreciate your suggestion of monitoring volatile suspended solids and will incorporate this parameter into the monitoring effort at this upstream location. In brief and conceptual summary, this scope will include
  - Furnishing, installing, owning, operating and maintaining stationary automated sampling equipment with heating and cooling capabilities at a site on the Big Sioux River between Lake Kampeska and the urbanized areas of Watertown
  - Continuous time-based composite sampling during the open water periods of each year
  - Sample portions will be automatically collected 5 times each day of each 7-day composite sampling period
  - Sample pick-up and analysis frequency will be increased to daily 1 day before through the 3 days following the opening of the Lake Kampeska Diversion Weir gates
  - The samples will be picked up by Watertown's Wastewater Treatment Facility staff
  - The Watertown Wastewater Treatment Facility laboratory staff will analyze the samples for
    - ✓ total suspended solids
    - ✓ volatile suspended solids

- I propose that Watertown implement the following additional monitoring efforts at the fish notch of the Lake Pelican Diversion Weir in accordance with the suggestions contained in your December 18 letter (with the exception of monitoring total dissolved phosphorus). In brief and conceptual summary, this will include:
  - Furnishing, installing, owning, operating and maintaining stationary automated sampling equipment at the Lake Pelican Diversion Weir. Equipment capabilities will include
    - ✓ sensing of flow velocity, flow direction, and water stage (for computing flow area)
    - ✓ heating and/or cooling the sample for preservation purposes
    - ✓ flow-paced and/or time-based automatic sample collection
  - Flow-paced automatic composite sampling adjusted to match expected hydrograph conditions and sample holding times associated with the standard methods for determining concentrations of total suspended solids, volatile suspended solids, and total phosphorus
  - Sampling and analysis will only be conducted at times when flows from the Big Sioux River are entering Lake Pelican and the Lake Kampeska Diversion Weir gates are open.
  - Sample collection, pick-up, and analysis will be conducted on a composite daily basis from 1 day before to 3 days after the gates of the Lake Kampeska Diversion Weir are opened
  - Following the opening of the gates, sample collection, pick-up, and analysis during the extended periods during which the gates are open will coincide with the weekly frequency and schedule associated with the monitoring effort at the upstream location between Lake Kampeska and the urbanized areas of Watertown
  - Sample collection, pick-up, and analysis will continue at the Lake Pelican site for 1 day following the closure of the Lake Kampeska Diversion Weir gates
  - Samples will be picked up by Watertown's Wastewater Treatment Facility staff
  - Watertown's Wastewater Treatment Facility staff will send a representative sample portion to a qualified contract laboratory for the Total Phosphorus analysis at Watertown's cost
  - Watertown's Wastewater Treatment Facility laboratory staff will analyze the samples for
    - ✓ total suspended solids
    - ✓ volatile suspended solids

Thank you for your time, consideration and helpful suggestions in this matter. I look forward to hearing from you soon in this regard.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

CITY OF WATERTOWN

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January 3, 2001

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Waste Water Treatment Facility
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FAX 605-882-6242

Julian Wick
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201

Post-it® Fax Note 7671	Date 1/5/01	# of pages ▶ 2
To Hal Runke	From Rick Schlechter	
Co./Dept. Barr Engineering	Co. City of Watertown	
Phone #	Phone # 605-882-6204, x29	
Fax # 952-832-2601	Fax # 605-882-5214	

Dear Mr. Wick:

I have enclosed a copy of my December 29, 2000 letter to Mr. Hal Runke for your information and review. Mr. Runke, Mr. Steven Klein, and I have had the opportunity to visit and exchange written thoughts on several occasions over the last 2 months. We have been developing a monitoring plan to measure pertinent water quality parameters at the fish notch of the Lake Pelican Diversion Weir that will be implemented in conjunction with the Lake Kampeska Diversion Weir project.

I trust Watertown's December 29 conceptual proposal addresses the issues set forth in the District's October 18 proposal. Proposed revisions to the detailed monitoring methodology found in item #1 of the District's proposal have evolved from the cooperative efforts of Barr Engineering, the District, and Watertown over the last 2 months. A discussion of the revisions is beyond the scope of this letter, but I invite you to review Watertown's December 29 monitoring proposal with Mr. Klein and Mr. Runke. I would also welcome the opportunity to visit in person with the District and the Barr Engineering Company representatives to work out any remaining details within the next couple of weeks.

Watertown hopes to offer the project for contractors' consideration early this spring before their construction season schedules are filled in order to promote competitive project bidding and materials pricing, and to allow potential contractors the maximum construction flexibility possible. My goal is to have the District board's agreement regarding the monitoring plan prior to Watertown's January 23 public works committee meeting. This would allow me to obtain committee recommendation for the Council to authorize advertisement for bids on February 5 to facilitate an early March bid opening.

I have also enclosed a copy of the Water Management Board's Final Decision pertaining to the project's flood control permit FC-29 that was adopted on June 15, including related Findings of Fact and Conclusions of Law. The operating procedures and criteria for the gates of the Lake Kampeska Diversion Weir as requested in item #7 of the District's October 18 proposal are set forth in this document.

I look forward to hearing from you soon regarding the District's favorable consideration of the proposed monitoring plan. Please feel free to contact me with questions or comments, or to set a meeting time for us to discuss this issue further.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

Attorney General
3794
JAN 2 9 2001

Ericsson, Ericsson & Leibel

Richard L. Ericsson
Jay M. Leibel
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Attorneys & Counselors at Law
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100 N. Egan Avenue
Madison, SD 57042
605-256-4597
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L.F. Ericsson (1909-1979)
Robert R. Spencer (1925-1986)

January 29, 2001

Department of Natural Resources
Pierre, South Dakota 57501

VIA FAX
(605) 773-4106

RE: Lake Kampeska Diversion Weir – Flood Control FC-29

Ladies and Gentlemen:

Under separate cover the City of Watertown has submitted to you a plan entitled "A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas" dated January 26, 2001.

I have been directed by the Lake Pelican Water Project District to advise the Department that the monitoring plan for FC-29 dated January 26, 2001 is acceptable to the District. The Lake Pelican Water Project District urges DENR to approve this plan.

The Lake Pelican Water Project District believes this monitoring plan, in conjunction with the plan for operation of the gates addresses their concerns and will provide data necessary to evaluate the effect of this project and direction for future developments.

Upon your approval of the January 26, 2001 monitoring plan, I have been instructed to dismiss the appeal now pending in Codington County, Third Judicial Circuit.

Very truly yours,

Jay M. Leibel
FOR THE FIRM

JML/cd

JAN 2001
WATER RIGHTS
Pierre, SD

rleric@hcpd.com *jmleibel@hcpd.com* *alangner@hcpd.com*

Lake Kampeska Diversion Weir

A Plan to Measure the Effect of the Weir On Sediment Load and Transport to Downstream Areas

Flood Control Permit FC-29

January 26, 2001

Introduction

The Upper Big Sioux River watershed in extreme southern Roberts, western Grant, and east central Codington Counties has been faced with difficult sedimentation and other water quality problems. Lakes Pelican and Kampeska are direct reflections of their watershed and have also fallen victim to water quality impairments due to sediment accumulation and other water quality impacts.

As part of a comprehensive approach to improving conditions in the watershed, a diversion structure was constructed across the canal leading to Lake Pelican in 1998. The Lake Pelican Diversion Weir was constructed under the authority of Flood Control Permit FC-19 granted by the South Dakota Water Management Board on December 26, 1996. The purpose of the weir is to control the amount of sediment entering Lake Pelican from the Big Sioux River.

The Lake Kampeska Diversion Weir, a structure similar to the Lake Pelican Diversion Weir, will be constructed in the inlet/outlet channel of Lake Kampeska to reduce the amount of sediment entering the lake from the Big Sioux River. The South Dakota Water Management Board on June 15, 2000 granted Flood Control Permit FC-29 authorizing the construction of the Lake Kampeska Diversion Weir. This monitoring plan has been prepared to measure any effect of the weir on the sediment load entering Lake Pelican as required in the Water Management Board's Final Decision.

Plan Development

The Lake Kampeska Diversion Weir in the inlet/outlet of Lake Kampeska will include two manually operated slide gates as integral and necessary components of the structure. Subsequent to the Water Management Board's deliberations during the May 25, 2000 flood control application hearing, this plan has been developed to monitor the effect that operating the gates, and the subsequent releases from Lake Kampeska, may have on the sediment load entering Lake Pelican and on sediment transport to other downstream areas of the Big Sioux River. Additionally, although there were no philosophical concerns expressed during the hearing regarding the construction of the weir to divert sediment away from Lake Kampeska, the Water Management Board's deliberations suggested a need for background or baseline data as a means of indicating and understanding the sediment dynamics of the immediate lake and river system.

The Water Management Board's June 15 Final Decision on flood control permit application FC-29 directs that "...the City of Watertown shall formulate a plan to measure any effect of the proposed weir on the sediment load entering Lake Pelican." During the development of this

monitoring plan it became evident that this directive from the Water Management Board can be interpreted somewhat differently dependent upon point of view. It also became evident that more than one sampling site would be required to meet the water quality monitoring needs associated with the objectives of the various concerned parties in this matter of flood control permit FC-29 for the Lake Kampeska Diversion Weir.

This monitoring plan will provide for the explicit measurement of certain water quality parameters at the fish notch of the Lake Pelican Diversion Weir during times when the Big Sioux River is discharging into Lake Pelican and the gates of the Lake Kampeska Diversion weir are operated and in any open position.

This monitoring plan will also provide strong baseline data for certain water quality parameters through continuous monitoring of the Big Sioux River at an upstream location between Lake Kampeska and the urbanized areas of Watertown during the open water periods of the year. The effects of the gate operation will be effectively demonstrated through intensified sampling frequency at the time of operation.

Finally, this plan also addresses the Water Management Board's intent regarding notifications prior to operation of the gates, recordkeeping, and reporting.

Upstream Sampling Site Location (Sioux Conifer Road)

The upstream sampling site is located 1.5 miles (an estimated 15,000 feet measured along the channel) downstream of the Lake Kampeska Diversion Weir on the downstream side of the bridge over the Big Sioux River on Sioux Conifer Road in the northwest ¼ of section 13, township 117 north, range 53 west, Codington County, South Dakota (see attached map). This site is approximately 2 miles upstream of Watertown's urbanized areas. This is the same location of DENR's Clean Water Act Section 106 long-term water quality monitoring program site WQM55 and USGS' streamflow gauging station #06479500.

Section 106 water quality monitoring has been conducted on a monthly basis at this site since December 1972. The USGS streamflow gauging station ("Big Sioux River at Watertown") was previously in operation from 1946 through 1972, and portions of 1997 during a significant spring flood event. This streamflow gauging station has been reactivated as a full-time streamflow gauging station in Watertown's enhanced flood-forecasting system, and will provide the flow data necessary for load computations.

The attached map also indicates the location of numerous precipitation gauges and streamflow gauges that make up Watertown's flood forecasting system. Data acquired by the gauges is transmitted via satellite and downloaded to USGS' Internet site. The USGS home page can be found at the following Internet address: *http://sd.water.usgs.gov*. Real-time streamflow and rainfall data is available at *http://sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg*. Data from this network may help explain unanticipated monitoring results by providing a window of information describing watershed events that may affect water quality in the Lake Kampeska, Watertown, and Lake Pelican vicinity.

Sample collection and frequency of sampling – Upstream Sampling Site (Sioux Conifer Road)

Water samples will be collected continuously at the sampling site throughout the open water season. It is anticipated that monitoring will occur most generally from March 1 through October 31, but the annual monitoring period will be adjusted dependent upon the weather, water surface elevation of Lake Kampeska, and streamflow conditions of the Big Sioux River.

A stationary automated sampler equipped to cool and heat the composite water sample to 4 degrees Celsius will be provided by the City of Watertown for collection and storage of the sample. The suction line and strainer will be installed so that the strainer is located near the bottom of the streambed either in the thalweg or the center of the channel at the direction of the South Dakota Department of Environment and Natural Resources at the time the sampling equipment is installed. It is Watertown's intent that automated sampling equipment will remain in place and in service at this sampling location at least until such time that the Water Management Board authorizes its removal.

For general continuous sampling, the sample will consist of individual sample portions collected in a single composite container a minimum of 5 times during each 24-hour day of a 7-day sampling period. At the time the criteria for operating the gates are met, the length of the sampling period will be reduced to 1 day. One day prior to, and 3 days following, the opening of the gates a 5-sample (minimum) 24-hour daily composite sample will be collected for analysis. Thereafter, the sampling frequency will return to the weekly schedule.

Sample pickup and transport - Upstream Sampling Site (Sioux Conifer Road)

Personnel of Watertown's Wastewater Department will pick up the sample at the end of each sampling period and transport the sample to Watertown's wastewater treatment facility laboratory. Chain of custody procedures will be employed to trace the possession of the sample from the time it is collected and picked up until the lab analysis has been completed. This procedure will demonstrate that the samples have not been tampered with during collection, pickup, transport, storage, and analysis.

At the time the sample is picked up, Watertown Wastewater Department personnel will record stage-discharge-rainfall information available from Watertown's flood forecasting system. This information is available by accessing the Internet at the USGS home page *(http://www.sd.water.usgs.gov)*. The real-time streamflow and rainfall data can be found most specifically at *http://sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg*.

Observations regarding precipitation, wind, cloud cover, water odor, septic conditions, presence of dead fish, noticeable films or sheens, turbidity, color, and the presence of wildlife or domestic animals near the sampling site will be recorded at the time the sample is picked up. Additionally, portable hand-held meters will be used to measure and record field measurements for dissolved oxygen, pH, conductivity, and water temperature.

Sample analysis - Upstream Sampling Site (Sioux Conifer Road)

Watertown's wastewater treatment facility laboratory staff will analyze the water sample for Total Suspended Solids and Volatile Suspended Solids. The total suspended solids analysis will be conducted according to approved EPA method 160.2 and the Wastewater Department's standard operating procedure. This is the same methodology and procedure used by the Wastewater Department to determine, document, and report compliance with the City's National Pollutant Discharge Elimination System permit issued by the United States Environmental Protection Agency.

The City's National Pollutant Discharge Elimination System permit does not require monitoring and reporting of volatile suspended solids concentrations. However, Watertown's Wastewater Department conducts volatile suspended solids analyses for in-house process control using approved EPA method 160.4 and the Wastewater Department's standard operating procedure.

Duplicate sample analyses will be conducted for every 5th sample to demonstrate laboratory quality assurance and quality control. Duplicate samples for QA/QC analyses will be representative sample portions obtained after splitting the sufficiently mixed, homogeneous composite sample delivered to the laboratory for analysis. The results of duplicate sample analyses will be reported in the same manner as normal samples.

Lake Pelican Diversion Weir Sampling Site Location

A water quality sampling and monitoring site will also be established and located at the fish notch of the Lake Pelican Diversion Weir. The Lake Pelican Diversion Weir was constructed across the man-made canal leading from the Big Sioux River to Lake Pelican in 1998. It is located approximately 265 to 340 feet south of the centerline of United States highway 212 in the northwest ¼ of section 6, township 116 north, range 52 west, Codington County, South Dakota (see attached map). The monitoring equipment will be installed prior to the commencement of construction activities for the Lake Kampeska Diversion Weir.

Sample collection and frequency of sampling – Lake Pelican Diversion Weir Sampling Site

Water sampling and analysis will be conducted at this Lake Pelican Diversion Weir site when flows from the Big Sioux River are entering Lake Pelican and the Lake Kampeska Diversion Weir gates are operated and in any open position. Sample collection, pick-up, and analysis will be conducted on a composite daily basis 1day before the gates of the Lake Kampeska Diversion Weir are opened and for the 3 days immediately after the gates opened. Following the third day after the gates were opened, sample collection, pick-up, and analysis during the extended periods during which the gates remain open will coincide with the weekly frequency and schedule associated with the monitoring effort at the upstream sampling location between Lake Kampeska and the urbanized areas of Watertown (Sioux Conifer Road). Sample collection, pick-up, and analysis will continue at the Lake Pelican Diversion Weir site for 1 day following the closure of the Lake Kampeska Diversion Weir gates.

The City of Watertown will furnish, install, operate and maintain a stationary automated sampler of a type mutually agreeable to the City of Watertown and the Lake Pelican Water Project District. The automated sampler will be equipped to cool and heat the composite water sample to 4 degrees Celsius, and will be capable of flow-paced and time-based sample collection. The suction line and strainer will be installed so that the strainer is located on the lakeside of the weir as close to the bottom of the fish notch as possible. Watertown will furnish, install, operate and maintain at the Lake Pelican Diversion Weir site additional equipment capable of sensing water stage, flow velocity, and flow direction.

All equipment furnished at this Lake Pelican Diversion Weir site for use in implementing this monitoring plan will be removed or relocated only upon mutual agreement by the City of Watertown and the Lake Pelican Water Project District.

The primary purpose of the equipment installed under this monitoring plan at the Lake Pelican Diversion Weir is to monitor the quality of Big Sioux River flows that enter Lake Pelican during those times when the Lake Kampeska Diversion Weir gates are operated and in an open position. When not in use for this primary purpose, Lake Pelican Water Project District may use the equipment for sample collection at the District's expense which may include without limitation the costs associated with activities such as picking up the sample, shipping, laboratory analysis, and other related water quality sampling activities.

All sampling at this Lake Pelican Diversion Weir site will be flow-paced with sample portions of equal volume delivered into a compositing bottle in the automatic sampler base. Pacing will be adjusted to match expected hydrograph conditions and sample holding times associated with the standard methods of analysis for total suspended solids, volatile suspended solids, and total phosphorus. Equipment programming to facilitate the flow-paced sampling will be coordinated with the District's technical advisor for water quality sampling and monitoring.

Sample pickup and transport - Lake Pelican Diversion Weir Sampling Site

Personnel of Watertown's Wastewater Department will pick up the sample at the end of each sampling period and transport the sample to Watertown's wastewater treatment facility laboratory. Chain of custody procedures will be employed to trace the possession of the sample from the time it is collected and picked up until the lab analysis has been completed. This procedure will demonstrate that the samples have not been tampered with during collection, pickup, transport, storage, and analysis.

At the time the sample is picked up, Watertown Wastewater Department personnel will record stage-discharge-rainfall information available from Watertown's flood forecasting system. This information is available by accessing the Internet at the USGS home page *(http://www.sd.water.usgs.gov)*. The real-time streamflow and rainfall data can be found most specifically at *http://sv04dsdhrn.cr.usgs.gov/rt-cgi/gen_tbl_pg*.

Observations regarding precipitation, wind, cloud cover, water odor, septic conditions, presence of dead fish, noticeable films or sheens, turbidity, color, and the presence of wildlife or domestic animals near the sampling site will be recorded at the time the sample is picked up.

Additionally, portable hand-held meters will be used to measure and record field measurements for dissolved oxygen, pH, conductivity, and water temperature.

Sample analysis - Lake Pelican Diversion Weir Sampling Site

Watertown Wastewater Department staff will ship adequately-sized, representative sample portions to a contract commercial laboratory for analysis. The contract laboratory will be mutually agreed upon by Watertown and Lake Pelican Water Project District. Composite samples collected at the Lake Pelican Diversion Weir site will be analyzed for total suspended solids, volatile suspended solids, and total phosphorus at Watertown's expense.

Duplicate sample analyses will be conducted for every 10th sample to demonstrate laboratory quality assurance and quality control. Duplicate samples for QA/QC analyses will be representative sample portions obtained after splitting the sufficiently mixed, homogeneous composite sample delivered to the laboratory for analysis. The results of duplicate sample analyses will be reported in the same manner as normal samples.

Notification

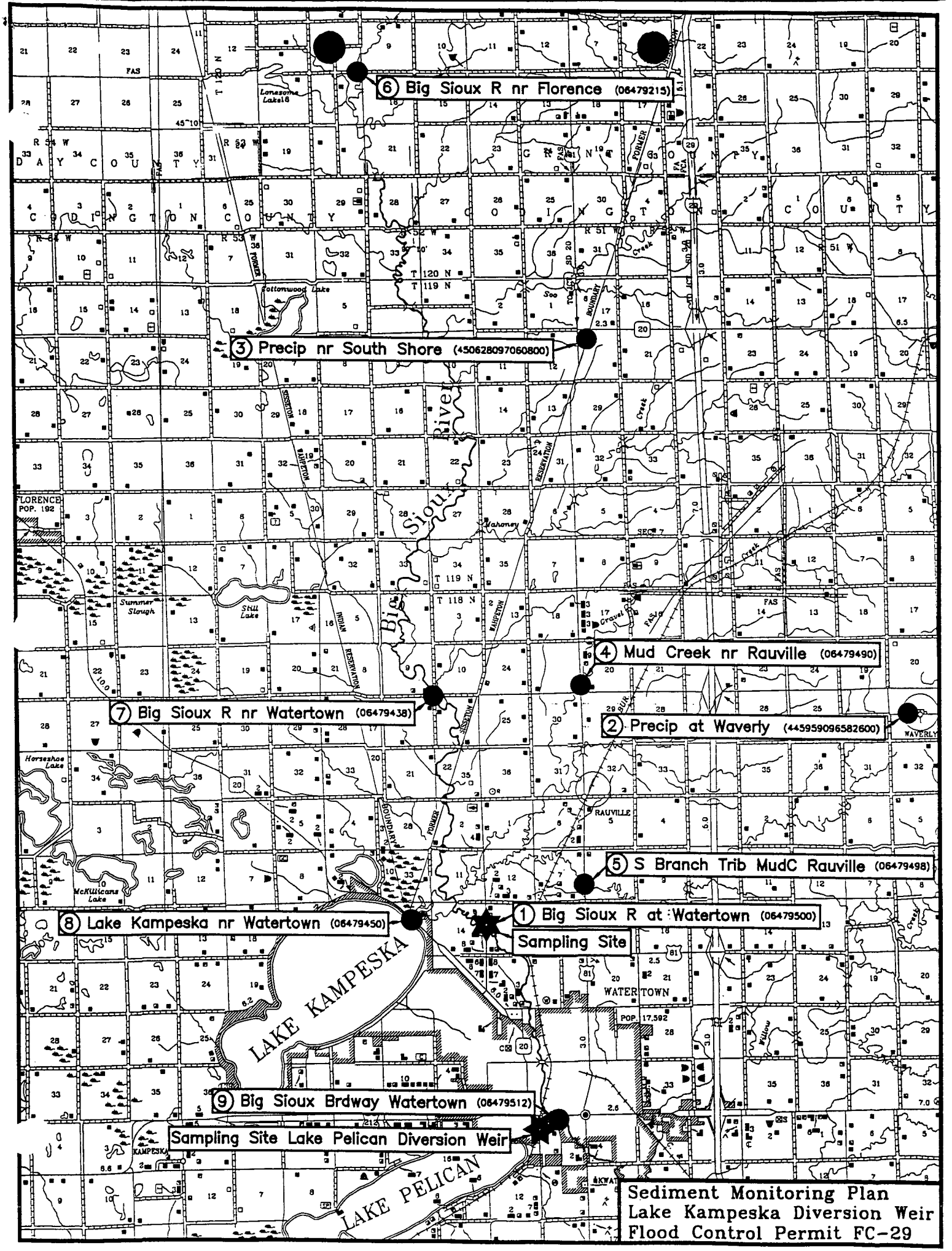
Prior to operating the gates of the Lake Kampeska Diversion Weir, the City of Watertown will contact the chairperson of Lake Pelican Water Project District by telephone. This verbal communication will be followed up with a notification/confirmation letter. A form letter may be developed and used to facilitate this notification process. The notification/confirmation letter will be delivered via certified mail, return receipt requested.

Report Monitoring Results

Watertown will provide one (1) copy of a summary reporting form for each sample analyzed to Chief Engineer, Water Rights Program, South Dakota Department of Environment and Natural Resources and one (1) copy to Lake Pelican Water Project District. The summary reporting form will contain the results of laboratory analyses (total suspended solids, volatile suspended solids, total phosphorus as applicable), field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, Lake Pelican Diversion Weir site flow data as applicable, chain of custody record, and pertinent information regarding the operational status of the Lake Kampeska Diversion Weir gates.

Maintain Monitoring Records

Watertown will maintain a file and electronic database containing the results of laboratory analyses, field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, Lake Pelican Diversion Weir site flow data, chain of custody record, and pertinent information regarding the operational status of the Lake Kampeska Diversion Weir gates.


6 Big Sioux R nr Florence (06479215)
3 Precip nr South Shore (450628097060800)
4 Mud Creek nr Rauville (06479490)
7 Big Sioux R nr Watertown (06479438)
2 Precip at Waverly (445959096582600)
5 S Branch Trib MudC Rauville (06479498)
8 Lake Kampeska nr Watertown (06479450)
1 Big Sioux R at Watertown (06479500)
Sampling Site
9 Big Sioux Brdway Watertown (06479512)
Sampling Site Lake Pelican Diversion Weir
LAKE KAMPESKA
LAKE PELICAN
Big Sioux River
WATERTOWN
POP. 17,592
FLORENCE
POP. 192
RAUVILLE
WAVERLY
Sediment Monitoring Plan
Lake Kampeska Diversion Weir
Flood Control Permit FC-29

STATE OF SOUTH DAKOTA	)	IN CIRCUIT COURT
	: ss	
COUNTY OF CODINGTON	)	THIRD JUDICIAL CIRCUIT
LAKE PELICAN WATER PROJECT DISTRICT Petitioner,	)	CIV. 00-333
vs.	)	
SOUTH DAKOTA WATER MANAGEMENT BOARD Respondent.	)	In Re Flood Control Permit Application No. FC-29 City of Watertown

MOTION TO DISMISS

Comes now, Jay M. Leibel, attorney for the Petitioner, Lake Pelican Water Project District, and moves the Court to dismiss the appeal to the Circuit Court on the Flood Control Permit Application No. FC-29.

Dated this 31st day of January, 2001.

ERICSSON, ERICSSON & LEIBEL

Jay M. Leibel
Attorney for Petitioner
PO Box 406
Madison, SD 57042
(605) 256-4597

ORDER FOR DISMISSAL

This matter coming before the Court on the Motion to Dismiss of Jay M. Leibel, attorney for the Plaintiff, the Lake Pelican Water Project district to dismiss the above entitled action with prejudice.

IT IS HEREBY ORDERED that the above-entitled action is hereby dismissed with prejudice.

IT IS FURTHER ORDERED that the parties shall be responsible for their own attorney's fees and costs in this matter.

Dated this ___ day of _____, 2001.

BY THE COURT:

Circuit Court Judge

ATTEST:
Clerk

FILED
2-26-01

128

STATE OF SOUTH DAKOTA
SS
COUNTY OF CODINGTON

IN CIRCUIT COURT

THIRD JUDICIAL CIRCUIT

* * * * * * * * * * * * * * * * * * *

LAKE PELICAN WATER
PROJECT DISTRICT,
Petitioner,

v.

SOUTH DAKOTA WATER
MANAGEMENT BOARD,
Respondent.

NOTICE OF ENTRY OF ORDER

CIV 00-0333

* * * * * * * * * * * * * * * * * * *

PLEASE TAKE NOTICE that the Order concerning the parties' Stipulation to Stay Appeal entered in the above action on February 8th, 2001, a copy of which is attached and hereby incorporated by this reference, was signed by the Court, attested by the Clerk, and filed in the office of the Codington County Clerk of Courts on February 8th, 2001

Dated this 13th day of February, 2001.

Kevin J. Krull

Kevin J. Krull
Attorney for City of Watertown
23 - 2nd Street NE
Watertown, South Dakota 57201
(605) 882-6200

CERTIFICATE OF SERVICE BY MAILING

KEVIN J. KRULL, attorney for the City of Watertown, hereby certifies that he mailed, by first-class mail, a true and correct copy of the ORDER in the above-entitled matter to:

Diane Best
Attorney General's Office
500 E. Capitol
Pierre, SD 57501

Jay M. Leibel
Ericsson, Ericsson & Leibel
P.O. Box 406
Madison, SD 57042

on February 13, 2000.

Kevin J. Krull

Kevin J. Krull

FILED

CLERK OF COURTS
DATE 2-14-01

STATE OF SOUTH DAKOTA)
: ss.
COUNTY OF CODINGTON)

IN CIRCUIT COURT

THIRD JUDICIAL CIRCUIT

LAKE PELICAN WATER PROJECT DISTRICT,

Petitioner,

v.

SOUTH DAKOTA WATER MANAGEMENT BOARD,

Respondent.

CIV. NO. 000333

ORDER

The parties have filed a Stipulation to Stay Appeal proceedings in this matter until March 1, 2001. This Court, having reviewed the premises therein, hereby

ORDERS that proceedings be stayed until March 1, 2001.

Dated this 8th day of February, 2001.

Robert L. Timm

The Honorable Robert L. Timm
Circuit Court Judge
Third Judicial Circuit
Post Office Box 1054
Watertown, SD 57201-1054

FILED

CLERK OF COURTS
CODINGTON COUNTY, SD
2-8-01

STATE OF SOUTH DAKOTA	)	IN CIRCUIT COURT
	: ss.	
COUNTY OF CODINGTON	)	THIRD JUDICIAL CIRCUIT
LAKE PELICAN WATER PROJECT DISTRICT,	)	CIV. NO. 000333
Petitioner,	)	
v.	)	ORDER
SOUTH DAKOTA WATER MANAGEMENT BOARD,	)	
Respondent.	)	

The parties have filed a Stipulation to Stay Appeal proceedings in this matter until March 1, 2001. This Court, having reviewed the premises therein, hereby

ORDERS that proceedings be stayed until March 1, 2001.

Dated this 8th day of February, 2001.

The Honorable Robert L. Timm
Circuit Court Judge
Third Judicial Circuit
Post Office Box 1054
Watertown, SD 57201-1054

FILED

CLERK OF COURTS
CODINGTON COUNTY
2-8-01

STATE OF SOUTH DAKOTA : ss. COUNTY OF CODINGTON	)	IN CIRCUIT COURT THIRD JUDICIAL CIRCUIT
LAKE PELICAN WATER PROJECT DISTRICT, Petitioner, v. SOUTH DAKOTA WATER MANAGEMENT BOARD, Respondent.	)	CIV. NO. 000333 STIPULATION TO STAY APPEAL

COME NOW, the parties to the above-entitled appeal and hereby stipulate that further proceedings in this matter be stayed until March 1, 2001. Further, that Appellant's opening brief would be due on March 20, 2001.

Dated this 6th day of February, 2001.

Diane Best

Diane Best, Assist. Attorney General
Attorney for Department of
Environment and Natural Resources

Dated this 8th day of February, 2001.

Kevin J. Krull

Kevin Krull, Counsel for City of
Watertown, South Dakota

Dated this 7th day of February, 2001.

Jay Liebel, Attorney for
Lake Pelican Water Project District

FILED

CLERK OF COURTS
CODINGTON COUNTY
2-8-01

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star

February 2, 2001

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing
Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec &
Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

Garland Erbele, Chief Engineer
Water Rights Program
523 East Capitol Avenue
Pierre, SD 57501



Re: Flood Control Permit FC-29
Lake Kampeska Diversion Weir

Dear Mr. Erbele:

Enclosed is one (1) copy of *"Lake Kampeska Diversion Weir – A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas, Flood Control Permit FC-29, January 26, 2001"*. The monitoring plan is hereby submitted for your approval in accordance with the Water Management Board's direction found in paragraph #5 of their June 15, 2000 Final Decision in the above referenced matter.

This revision of the monitoring plan was faxed to the Lake Pelican Water Project District on January 26 for their information, review, and comment.

I look forward to receiving the Department's written approval of this monitoring plan as soon as possible.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

F

STATE OF SOUTH DAKOTA

OFFICE OF ATTORNEY GENERAL

500 East Capitol Avenue
Pierre, South Dakota 57501-5070
Phone (605) 773-3215
FAX (605) 773-4106
www.state.sd.us/atg

MARK BARNETT
ATTORNEY GENERAL

LAWRENCE LONG
CHIEF DEPUTY ATTORNEY GENERAL

February 6, 2001



Jay Liebel
Attorney at Law
Post Office Box 406
Madison, SD 57042-0406

Kevin J. Krull and
Vincent A. Foley
Attorneys at Law
Post Office Box 845
Watertown, SD 57201-0845

Re: **Lake Pelican Water Project District v. South Dakota Water Management Board (Civ. No. 000333)**

Gentlemen:

I understand that your clients entered into settlement negotiations and have reached an agreement. The Department has received a copy. Unfortunately, the person in the DENR who is reviewing this matter is not available at the present time to review the proposal. We need some time. In the meantime, the Appellant's brief is due on about February 15, 2001. In order to avoid any scheduling problems, I have prepared a Stipulation to Stay the Appeal until March 1, 2001. I have signed the Stipulation. Jay, I ask that you forward it to counsel for the City of Watertown, Kevin Krull. Kevin, please do me the favor of signing and filing the Stipulation. The Clerk tells me that Judge Timm has been assigned, and the Stipulation should be sent to him for signature. Thank you for your courtesy.

Sincerely,

Diane Best

Diane Best
Assistant Attorney General

DB:mjj
Enclosure

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

February 12, 2001

NOTICE

TO: Richard L Schlechter
City of Watertown
P.O. Box 910
Watertown, SD 57201-0910
and Parties of Record (see attached list)

FROM: Garland Erbele, Chief Engineer
Water Rights Program

SUBJECT: Approval of Monitoring Plan for Flood Control Permit No. FC-29, City of Watertown

The City of Watertown has submitted "Lake Kampeska Diversion Weir – A Plan to Measure the Effect of the Weir on Sediment Load and Transport to Downstream Areas, Flood Control Permit FC-29, January 26, 2001". This plan was submitted to comply with the condition set forth in the Water Management Board's final decision to grant Flood Control Permit No. FC-29.

The Department of Environment and Natural Resources has reviewed the plan and hereby APPROVES the plan without modification. A copy of the plan is enclosed

Please contact Gale Selken or Eric Gronlund if you have questions.

c: Diane Best, Assistant Attorney General
John Guhin, Deputy Attorney General

enclosure

CERTIFICATION

I hereby certify that on February 12, 2001 , I have personally deposited with the United States mail at Pierre, South Dakota, first class postage, prepaid envelopes containing a Notice dated February 12, 2001 regarding Flood Control Permit Application #FC-29 addressed as stated below:

Richard L. Schlechter
City of Watertown
PO Box 910
Watertown, SD 57201

Kevin J. Krull
Deputy City Attorney
City of Watertown
23-2nd Street NE
Watertown, SD 57201

Julian L. Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201

Jay M. Leibel
Ericsson, Ericsson and Leibel
PO Box 406
Madison, SD 57042

Rick Trupe, Mayor
City of Castlewood
PO Box 17
Castlewood, SD 57223

Troy and Karen Breitag
1729B 38th Avenue NW
Watertown, SD 57201

Kay Farris
2003 38th Avenue NW
Watertown, SD 57201

Trudy Rector
1729A 38th Avenue NW
Watertown, SD 57201

Susan and Mark Rieb
16792 Sioux Conifer Rd
Watertown, SD 57201

Marge and Bill Swaboda
1730 38th Ave NW
Watertown, SD 57201

Judy and Larry Picht
1824 38th Avenue NW
Watertown, SD 57201

Charles Rector
1729 38th Avenue NW
Watertown, SD 57201

Ava Jo Holmes
1725 38th Ave NW
Watertown, SD 57201

A copy of the above described Notice was sent Inter-office to:

Diane Best, Assistant Attorney General, Capitol Building
John Kirk, Game Fish and Parks, Foss Building
John Guhin, Deputy Attorney General, Capitol Building

Eric Gronlund
Natural Resource Engineer
Water Rights

STATE OF SOUTH DAKOTA)
) SS
COUNTY OF HUGHES)

Sworn to, before me, this 13th day of February, 2001.

Karen Schlaak
Karen Schlaak
Notary Public
KAREN SCHLAAK, Notary Public
My Commission Expires
April 1, 2001

KAREN SCHLAAK
SEAL NOTARY PUBLIC SEAL
SOUTH DAKOTA

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

APR 0 4 2001

Richard L Schlechter
City of Watertown
PO Box 910
Watertown SD 57201-0910

Dear Mr. Schlechter:

Enclosed is Flood Control Permit No. FC-29 as approved by the Water Management Board. If you have any questions pertaining to the permit, please contact this office.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program
605 773-3352

enclosure

City of Watertown

Watertown
South Dakota

Lake Kampeska/ Big Sioux River Weir Project

Project #2001-24

Construction Documents Specifications

HDR Project No:
HDR No. 08080-007-135

ISSUED FOR BIDDING

Bid Date: May 4, 2001

DOCUMENT SET #10

HDR

HDR Engineering, Inc.

HDR

Planholders List

Lake Kampeska & Big Sioux River Weirs

Bid Date May 4, 2001 10:30 AM

Engineer's Estimate - N/A

HDR No. 08080-007-135

Company	Address	City	ST	Zip	Contact	Classification	Phone	FAX	Date	Set #
City of Watertown	23 Second Street NE	Watertown	SD	57201	Rick Schlechter	Owner	(605) 882-6204	(605) 882-5214		1
City of Watertown	23 Second Street NE	Watertown	SD	57201	Rick Schlechter	Owner	(605) 882-6205	(605) 882-5214		2
Lake Kampeska Water Proj. Dist.	360 North Lake Drive	Watertown	SD	57201	Sara Caron	Participant	(605) 886-5724			3
Lake Kampeska Water Proj. Dist.	950 North Lake Drive	Watertown	SD	57201	Brad Johnson	Participant	(605) 882-3019	(605) 886-0915		4
First District	124 1st Ave. NW, P.O. Box 1207	Watertown	SD	57201	Malene Knutsen	City Association	(605) 882-5115	(605) 882-5049		5
HDR Engineering	600 S. Cliff Ave. Suite 106	Sioux Falls	SD	57104	Allan Erickson	Engineer	(605) 338-2660	(605) 338-2695		6
HDR Engineering	8404 Indian Hills Drive	Omaha	NE	68114	Randy Stahmer	Civil Engineer	(402) 399-4916	(402) 399-1111		7
HDR Engineering	8405 Indian Hills Drive	Omaha	NE	68114	Randy Kumm	Struct. Engineer	(402) 399-1263	(402) 399-1111		8
Govenor's Office of Econ. Dev.	711 E. Wells Avenue	Pierre	SD	57501	Norm Lingle	Regulatory Agency	(605) 773-5032	(605) 773-3256		9
DENR	523 East Capitol	Pierre	SD	57501	Eric Gronlund	Regulatory Agency	(605) 773-3352	(605) 773-4068		10
Dodge Scan	7600 Parklawn Ave.	Edina	MN	55410	----------	Plan House	(612) 884-5442	(800)465-6129		11
Contruction Market Data	10665 Bedford Ave. Ste. 105	Omaha	NE	68164	----------	Plan House	(402) 498-3985	(402) 498-3986		12
Fargo Moorehead Bldr. Ex.	1010 Page Drive	Fargo	ND	58107	----------	Plan House	(701) 237-6772	(701) 237-1653		13
Mpls. Builders Exchange	1123 Glenwood Ave.	Minneapolis	MN	55405	----------	Plan House	(612) 381-2620	(612) 381-2621		14
Omaha Builders Exchange	4255 South 94th Street	Omaha	NE	68144	----------	Plan House	(402) 593-6908	(402) 593-6912		15
Plains Builders Exchange	220 N. Kiwanis Ave.	Sioux Falls	SD	57104	----------	Plan House	(605) 334-8886	(605) 334-0112		16
Sioux City Builders Exchange	1414 Jackson Street	Sioux City	IA	51105	----------	Plan House	(712) 255-9730	(712) 255-3915		17
Sioux Falls Builders Exchange	625 S. Minnesota Ave. Ste. 201	Sioux Falls	SD	57101	----------	Plan House	(605) 336-1513	(605) 336-8473		18
Siouxland Builders Exchange	903 6th Street	Sioux City	IA	51105	----------	Plan House	(712) 255-9533	(712) 255-9571		19
Southwest Builders Exchange	425 West Main	Marshall	MN	56258	----------	Plan House	(507) 537-1489	(507) 537-1467		20
Sioux Falls Construction	800 South 7th Avenue	Sioux Falls	SD	57104	Dave	Contractor	(605) 336-1640	(605) 334-9342		21
Nolz Dragline and Construction	2700 E. 60th Street North	Sioux Falls	SD	57104	Deanna	Contractor	(605) 334-5876	(605) 334-5876		22
Graves Construction	PO Box208	Melvin	IA	51350	Matt or Dan	Contractor	(712) 736-2341	(712) 736-2164		23
John's Construction	517 4th Street NE	Pipestone	MN	56164	John	Contractor	(507) 825-4610	(605) 825-5659		24

Transmittal

HDR Engineering, Inc. 600 S. Cliff Avenue Sioux Falls, SD 57104-5320 Telephone: 605 338-2660

HDR

Attention Interested Parties **Date** 4/16/01 **Job No.** 08080-007-135

To

Regarding Lake Kampeska & Big Sioux River Weir Project - Construction Documents

We are sending you: ☒ **Attached** ☐ **Under separate cover via** _____ **the following items**

☐ Shop drawings ☐ Prints ☒ Plans ☐ Samples ☒ Specifications

☐ Copy of letter ☐ Change Order ☒ Other Plan Holders List

Copies	Date	No.	Description
1	4/01		Plans
1	4/01		Specifications
1	4/16/01		Plan Holders List as of 4/16/01

APR 2001 WATER RIGHTS PROGRAM Pierre, SD

These are transmitted as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review/comment ☐ Other

☐ **For bids due** May 4 **20** 01 ☐ **Prints returned after loan to us**

Remarks

Copy to file

If enclosures are not as noted please notify us at once

Signed

Allan D. Erickson P.E.

CONTRACT DOCUMENTS

AND SPECIFICATIONS

FOR

CITY OF WATERTOWN, SOUTH DAKOTA

LAKE KAMPESKA/BIG SIOUX RIVER WEIRS

CITY OF WATERTOWN PROJECT NO. 2001-24

HDR NO. 08080-007-135

APRIL 2001

HDR ENGINEERING, INC.



These plans, specifications and contract documents were prepared by, or under the supervision and direction of the undersigned, whose seal as a Professional Engineer licensed to practice as such in the State of South Dakota, is affixed.

Allan D. Erickson, P.E.
HDR Engineering, Inc.

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BID BOND
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PERFORMANCE BOND
PAYMENT BOND
CERTIFICATE OF INSURANCE
00700 GENERAL CONDITIONS
00805 SUPPLEMENTARY CONDITIONS
CBDG-1 COMMUNITY BLOCK DEVELOPMENT GRAND (CBDG) PROGRAM SPECIAL PROVISIONS

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01060 SPECIAL CONDITIONS
01340 SHOP DRAWINGS, PRODUCT DATA & SAMPLES; OPERATION & MAINTENANCE MANUALS; AND MISCELLANEOUS SUBMITTALS
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NOTE: Available soil boring data is included in Appendix A of Section 02361.

SECTION 00020
INVITATION TO BID

RECEIPT OF BIDS

Sealed Bids will be received at the City Finance Office in City Hall, 23 Second Street NE, Watertown, SD until 10:30 AM CST, May 4, 2001, for the following:

Construction of the Big Sioux River and Lake Kampeska Weirs.

(Bids shall be labeled "Bid for Big Sioux River and Lake Kampeska Weir Project.)

At the time named above, the bids will be opened publicly and read aloud in the City Council Chambers and referred to the City Engineer and Committee for tabulation and review.

United States government Community Development Block Grant funds may be used to pay all or a portion of the costs of this project. The bidders shall submit their bid as required by Community Development Block Grant requirements, including but not limited to: 1) compliance with President's Executive Order Nos. 11246 as amended, 11518, and 11625 as amended. The requirements for bidders and contractors are explained in the specifications. 2) compliance with Title 40 CFR 33.240 and Executive Order 12138. The requirements for bidders and contractors under this regulation which concerns utilization of Disadvantaged/Minority Business Enterprises (DBE/WBE) and Women's Business Enterprises (WBE) are explained in the specifications

Bid shall be accompanied by a certified check or a cashier's check for five percent (5%) of the amount bid, such check to be certified or issued by either a state or a national bank and payable to the City of Watertown, or in lieu thereof, a bid bond for ten percent (10%) of the amount of the bid, such bond to be issued by a surety authorized to do business in the State of South Dakota, payable to the City of Watertown, as a guaranty that such bidder will enter into a contract with said City, and furnish a 100% performance and a 100% payment bond, in case such bidder shall be awarded the contract.

GENERAL DESCRIPTION OF WORK

The work included the furnishing of the labor, materials and equipment for the construction to two weirs, 1) at the confluence of Lake Kampeska and the Big Sioux River at Watertown, South Dakota, and 2) immediately downstream of the confluence, across the Big Sioux River. Both weirs will be constructed using driven steel sheet piling.

The weir on the Big Sioux River will involve the placement of driven steel sheet piling downstream of an existing weir. The existing weir will be cut and removed to below grade and disposed of. Riprap will be moved and placed to complete the final weir on the Big Sioux River. The Big Sioux River weir will include the construction of a 1 FT x 10 FT stop log structure to enable adjustment of upstream water surface elevations.

The Lake Kampeska weir will include the construction of a driven sheet pile weir and a concrete gate structure for installation of two 7 FT x 8 FT water control gates. The work at the Lake Kampeska weir will also involve construction of an aluminum walkway with railing on concrete piers, a fish notch opening in the sheet pile weir and the placement of rock riprap.

The project also includes the construction of a rock access road, miscellaneous grading and appurtenant sitework.

Bid shall be on a unit price basis for respective bid items identified in the Bid. Unit price items, which vary significantly from typical costs can constitute grounds for rejection of the bid.

DOCUMENT EXAMINATION AND PROCUREMENTS

The Contract Documents may be examined at regional plan houses and the following locations:

HDR Engineering, Inc.
Suite 106
600 South Cliff Avenue
Sioux Falls, South Dakota 57104

Watertown City Hall
2nd Floor Engineering Department
23 Second Street NE
Watertown, South Dakota 57201

Copies of the Contract Documents may be purchased from the Issuing Office of HDR Engineering, at the address listed previously, upon payment of $25.00 for each set. No partial sets of Specifications or Drawings will be issued. Cost of Contract Documents is refundable if returned promptly (within 2-weeks following bid opening) and in good condition.

OWNER'S RIGHT TO REJECT BIDS

The City of Watertown reserves the right to waive irregularities and to reject any or all bids, or any part of the bid, or to accept a BIDDER other than the lowest in case it seems advisable to the City Council so to do. No BIDDER may withdraw his bid within thirty (30) days after the actual date of opening. By virtue of statutory authority, preference may be given to BIDDERS residing within the State of South Dakota.

OTHER REQUIREMENTS

The City of Watertown, South Dakota does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability in employment or the provision of services.

Dated at Watertown, South Dakota, this 11th day of April, 2001.

By: Tracy D. Turbak, CPA
Finance Officer

01D12

SECTION 00100
INSTRUCTIONS TO BIDDERS

1. Defined Terms.

Terms used in these Instructions to Bidders, which are defined in Section 00700 - General Conditions, have the meanings assigned to them in the General Conditions.

Certain additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof.

1.1. BIDDER--one who submits a Bid directly to OWNER as distinct from a sub-bidder, who submits a bid to a BIDDER.

1.2. Issuing Office--the office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

1.3. Successful BIDDER--the lowest, responsible and responsive BIDDER to whom OWNER (on the basis of OWNER's evaluation as hereinafter provided) makes an award.

2. Copies of Bidding Documents.

2.1. Complete sets of the Bidding Documents in the number and for the price stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

The price will be fully refunded to each document holder of record who returns a complete set of Bidding Documents in good condition within 30 days after opening of Bids.

2.2. Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3. Qualifications of BIDDERS.

3.1. To demonstrate qualifications to perform the Work, each BIDDER must be prepared to submit within 5 days after Bid opening, upon OWNER's request, detailed written evidence, such as financial data, previous experience, present commitments, and other such data as may be called for below (or elsewhere in the Contract Documents). Each Bid must contain evidence of BIDDER's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

3.2. BIDDER may be disqualified due to evidence of being a non-responsible BIDDER as determined by the City Council. Reasons for such disqualification include, but are not limited to:

1. Failure to prosecute the work diligently.
2. Failure to have proper project supervision.
3. Failure to meet project completion dates.
4. Failure to cooperate with the ENGINEER.
5. Failure to acknowledge responsibilities for problems which have been caused by work operations.
6. Failure to be financially responsible for problems resulting from the work performed.

4. Examination of Contract Documents and Site.

4.1. It is the responsibility of each BIDDER before submitting a Bid to:

4.1.1. Examine thoroughly the Contract Documents and other related data identified in the Bidding Documents (including "technical data" referred to in Paragraph 4.2. below).

4.1.2. Visit the site to become familiar with and satisfy BIDDER as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

4.1.3. Consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work.

4.1.4. Study and carefully correlate BIDDER's knowledge and observations with the Contract Documents and such other related data.

4.1.5. Promptly notify ENGINEER of all conflicts, errors, ambiguities or discrepancies in or between the Contract Documents and such other related documents.

When conflicts, errors, ambiguities or discrepancies are discovered in or between Contract Documents and/or other related documents, and when said conflicts, etc., have not been resolved through the interpretations by ENGINEER as described in Paragraph 6., BIDDER shall include in the Bid the greater quantity or better quality of Work, or compliance with the more stringent requirement resulting in a greater cost. Such greater cost shall be included in the Bid.

4.2. Municipal Utilities.

4.2.1. The natural gas, electrical, and water utilities are governed by the Watertown Municipal Utility Board. They are not under the control of the City of Watertown.

4.2.2. The Contractor shall be responsible to discuss the project with Watertown Municipal Utilities in regard to policies, locates, and costs to be expected in regard to gas, water, and electric utilities.

4.2.3. The contract for this project shall not obligate the City of Watertown to pay for any costs involved with the Municipal Utilities infrastructure except those costs specifically authorized by the contract documents.

4.3. Reference is made to the Supplementary Conditions for identification of:

4.3.1 Those reports of explorations and tests of subsurface conditions at or contiguous to the site which have been utilized by ENGINEER in preparation of the Contract Documents. BIDDER may rely upon the general accuracy of the "technical data" contained in such reports but not upon other data, interpretations, opinions or information contained in such reports or otherwise relating to the subsurface conditions at the site, nor upon the completeness thereof for the purposes of bidding or construction.

4.3.2. Those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. BIDDER may rely upon the general accuracy of the "technical data" contained in such drawings but not upon other data, interpretations, opinions or information shown or indicated in such drawings or otherwise relating to such structures, nor upon the completeness thereof for the purposes of bidding or construction.

4.3.3. Copies of such reports and drawings will be made available by OWNER to any BIDDER on request. Those reports and drawings are not part of the Contract Documents, but the "technical data" contained therein upon which BIDDER is entitled to rely as provided in Paragraph 4.02. of the General Conditions has been identified and established in Paragraph SC-4.02 of the

Supplementary Conditions. BIDDER is responsible for any interpretation or conclusion drawn from any "technical data" or any such data, interpretations, opinions or information.

4.4. Before submitting Bid, each BIDDER will be responsible to obtain such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise, which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto or which BIDDER deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

4.5. On request, OWNER will provide each BIDDER access to the site to conduct such examinations, investigations. explorations, tests and studies as each BIDDER deems necessary for submission of a Bid. BIDDER must fill all holes and clean up and restore the site to its former conditions upon completion of such explorations, investigations, tests and studies.

OWNER's contact person for site access for examinations, investigations, or explorations is Rick Schlecher, Publish Works Operations Manager, (605) 882-6204 Extension 29.

4.6. Reference is made to Division 1 - General Requirements, Section 01010 - Summary of Work, for the identification of the general nature of Work that is to be performed at the site by OWNER or others (such as utilities and other prime CONTRACTORS) that relates to the Work for which a Bid is to be submitted. On request, OWNER will provide to each BIDDER for examination access to or copies of Contract Documents (other than portions thereof related to price) for such Work.

4.7. The submission of a Bid will constitute an incontrovertible representation by BIDDER (i) that BIDDER has complied with every requirement of this Article 4, (ii) that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and applying the specific means, methods, techniques, sequences or procedures of construction (if any) that may be shown or indicated or expressly required by the Contract Documents, (iii) that BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities and discrepancies in the Contract Documents and the written resolutions thereof by ENGINEER are acceptable to BIDDER, and when said conflicts, etc., have not been resolved through the interpretations by ENGINEER as described in better quality of Work, or compliance with the more stringent requirement resulting in a greater cost, and (iv) that the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

4.9. The provisions of I-4.1. through 4.8., inclusive, do not apply to Asbestos, Polychlorinated biphenyls (PCBs), Petroleum, Hazardous Waste or Radioactive Material covered by Paragraph 4.5. of the General Conditions.

5. Availability of Lands for Work, Etc.

5.1. The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities, construction equipment or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

5.2. If CONTRACTOR intends to use private property for any use related to construction, he shall submit a copy of the agreement to the engineer and the owner.

6. Interpretations and Addenda.

6.1. All questions about the meaning or intent of the Bidding Documents are to be directed to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by ENGINEER as having received the Bidding Documents. Questions received less than 10 days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

Address questions to:

HDR Engineering, Inc.
600 South Cliff Avenue
Suite 106
Sioux Falls, SD 57104
Attn: Mr. Allan Erickson
Fax: (605) 338-2660

6.2. Addenda may also be issued to modify the Bidding Documents as deemed advisable by OWNER or ENGINEER.

7. Bid Security.

7.1. Each Bid must be accompanied by Bid security made payable to OWNER in an amount of 5 percent of BIDDER's maximum Bid price and in the form of a certified check, cashiers check, or draft certified or issued be a state or national bank. In lieu thereof, a Bid Bond for not less than 10 percent of the amount of the Bid shall be issued by a surety authorized to do business in South Dakota, and make payable to the City of Watertown.

7.2. The Bid security of Successful BIDDER will be retained until such BIDDER has executed the Agreement, furnished the required contract security and certificates of insurance and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful BIDDER fails to execute and deliver the Agreement and furnish the required contract security and certificates of insurance within 15 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that BIDDER will be forfeited. The Bid security of other BIDDERS whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the 7th day after the Effective Date of the Agreement or the 36th day (time period for award plus 1 day) after the Bid opening, whereupon Bid security furnished by such BIDDERS will be returned. Bid security with Bids which are not competitive will be returned within 7 days after the Bid opening.

8. Contract Times.

The number of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment is set forth in the Agreement or incorporated therein by reference to the attached Bid form.

9. Liquidated Damages.

Provisions for liquidated damages, if any, are set forth in the Agreement.

10. Substitute and "Or-Equal" Items.

The Contract, if awarded, will be on the basis of materials and equipment described in the drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the drawings or specified in the Specifications that a "substitute" or "or-equal" item of

material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Paragraphs 6.05A, 6.05B and 6.05C of the General Conditions and may be supplemented in the General Requirements.

10.3. Send the request for approval of a substitution submittal to:

HDR ENGINEERING, INC.
600 South Cliff Avenue
Suite 106
Sioux Falls, South Dakota 57104
Attn: Mr. Allan Erickson
Phone: (605) 338-2660
Fax: (605) 338-2695

11. Subcontractors, Suppliers and Others.

11.1. The BIDDER may subcontract portions of the work; however, he must submit such intended subcontract if the amount exceeds $50,000 or 1/3 of the total contract price; with a cost breakdown.

11.2. No CONTRACTOR shall be required to employ any Subcontractor, Supplier, other person or organization against whom CONTRACTOR has reasonable objection.

12. Bid Form.

12.1. The Bid form is included with the Bidding Documents; additional copies may be obtained from ENGINEER (or the Issuing Office).

12.2. All blanks on the Bid form must be completed by printing in ink or by typewriter.

12.3. Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

12.4. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

12.5. All names must be typed or printed in ink below the signature.

12.6. The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid form).

12.7. The address and telephone number for communications regarding the Bid must be shown.

12.8. Evidence of authority to conduct business as an out-of-state corporation in the state where the Work is to be performed shall be provided in accordance with Paragraph 3 above. State CONTRACTOR license number, if any must also be shown.

13. Submission of Bids.

Bids shall be submitted on the prescribed Bid form, provided with the Bidding Documents, at the time and place indicated in the Advertisement or Invitation to Bid, addressed to Finance Officer of the City of Watertown and shall be enclosed in an opaque sealed envelope, marked with the words "Bid for Lake

Kampeska and Big Sioux River Weirs", the name and address of the BIDDER, and accompanied by the Bid security and other required documents. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it and addressed as follows:

City of Watertown
Finance Officer
23 Second Street NE
P.O. Box 910
Watertown, South Dakota 57201-4057

14. Modification and Withdrawal of Bids.

14.1. Bids may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

14.2. If, within 24 HRS after Bids are opened, any BIDDER files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that BIDDER may withdraw its Bid and the Bid security will be returned. Thereafter, that BIDDER will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. Opening of Bids.

Bids will be opened and (unless obviously non-responsive) read aloud publicly at the place where Bids are to be submitted. An abstract of the amounts of the base Bids and major alternates (if any) will be made available to BIDDERS after the opening of Bids.

16. Bids to Remain Subject to Acceptance.

All Bids will remain subject to acceptance for the time period specified for Notice of Award and execution and delivery of Agreement and required Contract security and certificate of insurance by Successful Bidder. OWNER may, at Owner's sole discretion, release any Bid and return the Bid security prior to that date.

17. Award of Contract.

17.1. OWNER reserves the right to reject any or all Bids, including without limitation the rights to reject any or all nonconforming, nonresponsive, unbalanced or conditional Bids and to reject the Bid of any BIDDER if OWNER believes that it would not be in the best interest of the Project to make an award to that BIDDER, whether because the Bid is not responsive or the BIDDER is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. OWNER also reserves the right to waive all informalities not involving price, time or changes in the Work and to negotiate contract terms with the Successful BIDDER. Discrepancies between the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

Any or all bids will be rejected if OWNER has reason to believe that collusion exists among the BIDDERS.

17.2. In evaluating Bids, OWNER will consider the qualifications of BIDDERS, whether or not the Bids

comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid form or prior to the Notice of Award.

17.3. OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. OWNER also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

17.4. OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of BIDDERS, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to OWNER's satisfaction within the prescribed time.

17.5. If the contract is to be awarded, it will be awarded to lowest BIDDER whose evaluation by OWNER indicates to OWNER that the award will be in the best interests of the Project.

17.6. If the contract is to be awarded, OWNER will give Successful BIDDER a Notice of Award within 30 days after the day of the Bid opening. No other act of OWNER or others will constitute acceptance of a Bid.

18. Contract Security.

Paragraph 5.01. of the General Conditions and the Supplementary Conditions set forth OWNER's requirements as to performance and payment Bonds. When the Successful BIDDER delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

19. Signing of Agreement.

When OWNER gives a Notice of Award to the Successful BIDDER, it will be accompanied by the required number of unsigned counterparts of the Agreement. Within 15 days thereafter CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement to OWNER with the required Bonds and certificates of insurance. Within 10 days thereafter OWNER shall deliver one fully signed counterpart to CONTRACTOR.

20. Prebid Conference.

No prebid meeting is scheduled for this project. Questions are to be directed to ENGINEER as presented previously.

21. Sales and Use Taxes.

21.1. The CONTRACTOR shall pay all applicable sales, consumer use, excise, and other similar taxes are required by law. Gross receipts excise tax applicable for this Project is at the rate prescribed for a qualifying utility. CONTRACTOR and subcontractors should include the applicable tax in their bid for each item of work.

22. Federal Tax ID Number.

22.1. Each BIDDER shall state its Federal Tax Identification Number on the line provided on the bid form. The City is required to report to IRS on Form 1099 all payments involving labor or services provided by vendors, and lack of this number may delay contract payments until the number is provided.

23. Measurement and Basis of Payment.

23.1. Payments: Payments to the CONTRACTOR shall be made on the basis of monthly estimates in amounts equal to the value of the Work completed and approved by the ENGINEER including materials and equipment delivered to the job minus retainage.

23.2. Payment for Mobilization: Partial payments for mobilization shall be in accordance with the following schedule:

1. 10 percent of mobilization amount on first pay request.
2. 25 percent when 5 percent of the Contract amount is earned.
3. 50 percent when 25 percent of the Contract amount is earned.
4. 90 percent when 50 percent of the Contract amount in earned.
5. 100 percent when 90 percent of the Contract amount is earned.

24. Substantial Completion

24.1. Substantial completion of the project shall include all required tests to be satisfactorily completed, water control gates and stop log in condition for acceptance, riprap placement be completed satisfactorily, finish grading, seeding, and clean-up completed.

25. Safety and Health Regulations for Construction.

25.1. These construction documents are to be governed at all times by applicable provisions of the Federal Law(s), including but not limited to the latest amendment of the following:

1. William-Steiger Occupational Safety and Health Act of 1970, Public Law 94-596.
2. Part 1910-Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
3. Part 1926-Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

26. Guarantee Inspection

26.1. One month prior to expiration of the 1-year guarantee period, the facilities shall be inspected by the OWNER, CONTRACTOR, and ENGINEER to verify that the Project has complied with the requirements of the Performance and Payment Bond. All work performed under this Contract will be inspected and all deficiencies requiring corrective action by the CONTRACTOR will be submitted in writing by the OWNER to the CONTRACTOR after completion on the guarantee inspections. CONTRACTOR shall submit in writing to the OWNER a schedule for correcting the deficiencies within 7 days after receipt of notice of deficiencies. All deficiencies must be corrected within 30 days after notification by OWNER unless otherwise approved by OWNER.

27. Substitute and "Or-Equal" Items (For items not covered by Section 01640).

27.1. The contract, if awarded, will be on the basis of materials and equipment described in the drawings or specified in the Specifications without consideration of possible substitutes or "or equal" items. Whenever it is indicated in the drawings or specified in the Specifications that a "substitute" or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in the General Conditions and may by supplemented in the General Requirements.

END OF SECTION

01D12

SECTION 00301

BID FORM

PROJECT IDENTIFICATION: Lake Kampeska and Big Sioux River Weirs.

CONTRACT IDENTIFICATION: Watertown Project #2001-24.

THIS BID IS SUBMITTED TO: City of Watertown, South Dakota, Public Works Department herein after referred to as OWNER.

1. Enter Into Agreement.

   The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

2. BIDDER Accepts.

   BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 30 days after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within 15 days after the date of OWNER's Notice of Award.

3. BIDDER's Representations.

   In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

   a. BIDDER has examined and carefully studied the Bidding Documents and the following Addenda receipt of all which is hereby acknowledged: (List Addenda by Number and Date)

ADDENDA NO.	DATE

   b. BIDDER has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work.

   c. BIDDER is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

   d. BIDDER has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by BIDDER and safety precautions and programs incident thereto.

   e. BIDDER does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.

f. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

g. BIDDER has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted.

Where conflicts, errors, ambiguities or discrepancies have been discovered in or between Contract Documents and/or other related documents, and where said conflicts, etc., have not been resolved through the interpretations or clarifications by of insufficient time or otherwise, BIDDER has included in the Bid the greater quantity or better quality of Work, or compliance with the more stringent requirement resulting in a greater cost.

h. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; BIDDER has not directly or indirectly induced or solicited any other BIDDER to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm or corporation to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other BIDDER or over OWNER.

4. Bid Prices.

BIDDER will complete the Work in accordance with the Contract Documents for the following price(s). This form must have all unit price items filled in and be submitted with the bid to be considered responsive.

a. A tabulation of the water control gate supplier used by the Contractor is to be identified in this Bid. In connection with water control gates to be furnished and installed in this Project, BIDDER expressly agrees to the following provisions:
   1) that the Bid stated above includes the furnishing and installing of the water control gates furnished by the water control gate supplied, which BIDDER has selected from the approved manufacturers listed below.
   2) that the installed price of the water control gates includes the cost (if any) of changes in the structure, accessories, etc., necessary to accommodate the water control gates proposed.

BIG SIOUX RIVER WEIR

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT BID PRICE	TOTAL COST
1	Mobilization and Unidentified Misc. Items	1	LS	$_____	$_____
2	Sheet pile weir removal	138	LF	$_____	$_____
3	Driven steel sheet piling & C-channel cap	134	LF	$_____	$_____
4	Riprap	350	TONS	$_____	$_____
5	Crushed Rock	180	TONS	$_____	$_____
6	Embankment	150	CY	$_____	$_____

7	Access Road Rock	51	Ton	$_____	$_____
8	Stop log & appurtenances	1	LS	$_____	$_____
	Total BIG SIOUX RIVER				$_____

LAKE KAMPESKA WEIR

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT BID PRICE	TOTAL COST
1	Mobilization and Unidentified Misc. Items	1	LS	$_____	$_____
2	Driven steel pipe piles	1,000	LF	$_____	$_____
3	Driven steel sheet piling piling & C-channel cap	354*	LF	$_____	$_____
4	Riprap	500	TONS	$_____	$_____
5	Crushed Rock	400	TONS	$_____	$_____
5	Concrete gate structure	1	LS	$_____	$_____
6	Aluminum walkway, railing and appurtenances	1	LS	$_____	$_____
7	Sluice gate	2	EA	$_____	$_____
8	Rock access road	1	LS	$_____	$_____
	Total LAKE KAMPESKA				$_____

* Note: 24 LF of the 354 LF is below the gate structure.

SCHEDULE OF APPROVED WATER CONTROL GATE MANUFACTURERS
(Circle the selected manufacturer)

A. Rodney Hunt
B. Hydrogate

TOTAL BID FOR ALL UNIT PRICES

_____

_____

(use words)

$_____

(use figures)

4.1. Unit Prices have been computed in accordance with paragraph 11.03B of the General Conditions.

4.2. BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

5. Completion.

BIDDER agrees that the Work will be substantially completed and ready for final payment in accordance with paragraph 14.07B of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

BIDDER accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

6. Address for Communications.

Communications concerning this Bid shall be addressed to the address of the BIDDER indicated below or the following address:

_____
_____
_____

7. Defined Terms.

Terms used in this Bid which are defined in the General Conditions or Instructions will have the meanings indicated in the General Conditions or Instructions.

SUBMITTED on _____, 2001.

State CONTRACTOR License No. _____.

By_____(SEAL)
(Name) (Title)

_____
(Address)

If awarded the Contract, our surety will be _____ of _____.

Federal Tax Identification Number: _____.

END OF SECTION

BID BOND

BIDDER (Name and Address):

_____
_____
_____

SURETY (Name and Address of Principal Place of Business):

_____
_____
_____

OWNER (Name and Address):

_____
_____
_____

BID

BID DUE DATE: _____

PROJECT (Brief Description Including Location):

_____
_____
_____

BOND

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____ _____
(Words) (Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER	SURETY
_____(Seal)	_____(Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature and Title	Signature and Title (Attach Power of Attorney)
Attest: _____	Attest: _____
Signature and Title	Signature and Title

Note: (1) Above addresses are to be used for giving required notice.
(2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or

3.2. All Bids are rejected by OWNER, or

3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

01D12

SECTION 00500
AGREEMENT

THIS AGREEMENT is dated as of the _____ day of _____ in the year 2001 by and between City of Watertown, hereinafter called OWNER,

and _____, hereinafter called CONTRACTOR.

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents.

The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

Big Sioux River Weir

a. Remove existing sheet pile weir.
b. Furnish and install driven sheet pile weir.
c. Furnish and install riprap
d. Furnish and install crushed rock and rock for riffle structure.

Lake Kampeska Weir

a. Construct water control gate structure
b. Furnish and install water control gates.
c. Furnish and install driven sheet pile weir.
d. Furnish and install aluminum walkway with hand rail.
e. Install riprap.

Article 2. ENGINEER

The Project has been designed by HDR Engineering, Inc.; 600 South Cliff Avenue Suite 106, Sioux Falls, South Dakota 57104, who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

Article 3. CONTRACT TIMES

3.1. ***Completion Dates:*** The work will be ready for final payment by November 19, 2001.

3.2. ***Liquidated Damages - General Statement:*** OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1.above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER amounts as describe in paragraph 3.3 following.

3.3. ***Liquidated Damages:*** CONTRACTOR shall pay OWNER Five Thousand dollars ($650) for each day that expires after the time specified in paragraph 3.1 for Final Completion until the Work is to a level ready for payment of the total contract price.

Article 4. CONTRACT PRICE

OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 4.2. below:

4.2. ***Contract Price:*** For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the estimated quantity of that item as indicated in this paragraph 4.2. This was bid at a total sum of:

_____

(use words)

$_____

(use figures)

As provided in paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by ENGINEER as provided in paragraph 9.08 of the General Conditions. Unit prices have been computed as provided in paragraph 11.03B of the General Conditions.

Article 5. PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions.

5.1. Progress Payments; Retainage. OWNER shall make monthly progress payments on account of the Contract Price on the basis of CONTRACTOR's Applications for Payment as recommended by ENGINEER, during construction as provided in paragraphs 5.1.1 and 5.1.2 below. All such payments will be measured by the schedule of values established in paragraph 2.05B.3 of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

5.1.1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as accordance with paragraph 14.02B.5. of the General Conditions.

5.1.1.1. 90 percent of Work completed (with the balance being retainage). If Work has been 50-percent completed as determined by ENGINEER, and if the character and progress of the Work have been satisfactory to OWNER and determine that as long as the character and progress of the Work remain satisfactory to them, retainage will be reduced to 5 percent of all of the Work completed to date and for subsequent future progress payments until Substantial Completion.

5.1.1.2. 90 percent (with the balance being retainage) of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to OWNER as provided in paragraph 14.02 of the General Conditions).

5.1.2 Upon Substantial Completion, in an amount sufficient to increase total payments to CONTRACTOR to 95 percent of the Contract Price (with the balance being retainage), less such amounts as ENGINEER shall determine, or OWNER may withhold, in accordance with paragraph 14.02B. of the General Conditions.

5.2. Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.07B. of the General Conditions, OWNER shall pay the remainder of the Contract 14.07B.

Article 6. NOT USED

Article 7. CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

7.1. CONTRACTOR has thoroughly examined and carefully studied the Contract Documents (including the Addenda listed in paragraph 8.) and the other related data identified in the Bidding Documents including "technical data."

7.2. CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance or furnishing of the Work.

7.3. CONTRACTOR is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress, performance and furnishing of the Work.

7.4. CONTRACTOR has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in paragraph 4.02A. of the General Conditions.

CONTRACTOR accepts the determination set forth in paragraph 4.02. of the Supplementary Conditions of the extent of the "technical data" contained in such reports and drawings upon which CONTRACTOR is entitled to rely as provided in paragraph 4.02. of the General Conditions.

CONTRACTOR acknowledges that such reports and drawings are not Contract Documents and may not be complete for CONTRACTOR's purposes.

CONTRACTOR acknowledges that OWNER and ENGINEER do not assume responsibility for the accuracy or completeness of information and data shown or indicated in the Contract Documents with respect to Underground Facilities at or contiguous to the site.

CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all such additional supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto.

CONTRACTOR does not consider that any additional examinations, investigations, explorations. tests, studies or data are necessary for the performance and furnishing of the Work at the Contract Price, within the Contract Times and in accordance with the other terms and conditions of the Contract Documents.

7.5. CONTRACTOR is aware of the general nature of Work to be performed by OWNER and others at the site that relates to the Work as indicated in the Contract Documents.

7.6. CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.

7.7. CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities or discrepancies in the Contract Documents and the written resolution thereof by ENGINEER through issued addendum or addenda is acceptable to CONTRACTOR, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work. When said conflicts, etc., have not been resolved through interpretation or clarification by ENGINEER, because of insufficient time or otherwise, CONTRACTOR has included in the Bid the greater quantity or better quality of Work, or compliance with the more stringent requirement resulting in a greater cost; and said greater cost is included in the Contract Price.

Article 8. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the Work consist of the following:

8.1. This Agreement (pages 1 to_____, inclusive).

8.2. Exhibits to this Agreement (pages _____to _____, inclusive).

8.3. Performance, Payment, and other Bonds, identified as exhibits _____ and consisting of _____ pages.

8.4. Notice to Proceed.

8.5. General Conditions (pages ____ to ____, inclusive).

8.6. Supplementary Conditions (pages _____ to _____, inclusive).

8.7. Specifications bearing the title _____ and consisting of _____ divisions and _____ pages, as listed in table of contents thereof.

8.8. Drawings consisting of a cover sheet and sheets numbered _____ through _____, (including Drawing Sheets XA, nA, etc) inclusive with each sheet bearing the following general title:

Lake Kampeska and Big Sioux River Weirs

8.9. Addenda numbers ____ to ____, inclusive.

8.10. CONTRACTOR's Bid (pages ____ to _____, inclusive) marked

8.11. Documentation submitted by CONTRACTOR prior to Notice of Award (pages _____ to _____ inclusive).

8.12. The following which may be delivered or issued after the Effective Date of the Agreement and are not attached thereto:

All written amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs 3.04 of the General Conditions.

The documents listed in paragraphs 8.2. et seq. above are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.04. of the General Conditions.

Article 9. MISCELLANEOUS

9.1. Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

9.2. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.3. OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners. successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents. .

9.4. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

Article 10. FUNDING OUT PROVISION

It is specifically understood and agreed that the contract is binding upon the OWNER if, and only if, each year's financial obligations are approved and authorized by the governing body then holding office. If at any time during the life of this agreement, the governing body of the OWNER shall fail or refuse to approve or authorize the funds due hereunder for the following municipal fiscal year, then this agreement shall terminate upon end of the fiscal year for which funds were approved and authorized. Such a termination shall be without penalty to the OWNER.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, CONTRACTOR, and ENGINEER. All portions of the Contract Documents have been signed, initialed or identified by OWNER and CONTRACTOR or identified by ENGINEER on their behalf.

This Agreement will be effective on _____, 2001 (which is the Effective Date of the Agreement).

OWNER _____	CONTRACTOR _____
_____	_____
By: _____	By: _____
[CORPORATE SEAL]	[CORPORATE SEAL]
Attest _____	Attest _____
Address for giving notices	Address for giving notices
_____	_____
_____	_____
License No. _____	
Agent for service of process:	
_____	

NOTE: If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Agreement.

NOTE: If CONTRACTOR is a corporation, attach evidence of authority to sign.

END OF SECTION

BOND NO. _____

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, THAT WE, _____

_____

(Contractor)

hereinafter called the "Principal," and _____

_____

(Surety)

a corporation, organized and existing under the laws of the State of _____, and duly authorized to transact business in the State of South Dakota, Surety, hereinafter called "Surety," are held and firmly bound unto the City of Sioux Falls, hereinafter called "Obligee," in the just and full sum of _____ Dollars (_____) lawful money of the United States of America to be paid to the said Obligee, which payment to be made, we bind ourselves, our heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that:

WHEREAS, Principal has entered into the Contract with the Obligee, dated this _____ day of _____, 19___, for the conditions of such Contract No. _____

_____

_____,

which Contract is herein referred to and made a part hereof as fully and to the same extent as if the same were entirely written herein, and

WHEREAS, it was one of the conditions of the award of the said Obligee of the Contract entered into that these presents should be executed.

PROVIDED, FURTHER, that the said Surety, for considerations received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract, to the work to be performed thereunder or to the specifications accompanying the Contract shall in any manner affect its obligation on this Bond. The Surety hereby does waive notice of any such change, extension of time, alteration or addition to the terms of the Contract, to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the Obligee and the Contractor shall abridge the right of any beneficiary hereunder whose claim may be unsatisfied.

The obligation of the Surety remains in full force and effect unless the Principal complies in all respects with the terms, conditions, and specifications of the contract or any amendments made to them.

A further condition of this bond is that in the event the Principal fails to pay all just claims and demands on the part of any employee, person, firm or corporation for labor and materials furnished for or used in connection with the prosecution of the work under the Contract, or fails to pay any tax which may accrue to the State of South Dakota under the provisions of the "Use Tax Act of 1939 and the Excise Tax on Realty Improvements under SDCL 10-46A," and Sections 5-21-3 and 5-21-4 of the South Dakota Codified Laws, this bond and the sureties thereon shall be responsible to such person, firm or corporation, and to the City of Sioux Falls for the full payment of the value of such labor and materials so furnished, including payment of South Dakota use taxes and excise taxes on realty improvements.

Signed and sealed this _____ day of _____, 19___.

INDIVIDUAL/PARTNERSHIP PRINCIPAL

By _____ Typed Name _____
(Affix Seal if available)

CORPORATE PRINCIPAL

By _____ Typed Name _____

Title _____ Business Name _____
(Affix Corporate Seal if available)

Address _____

_____

CORPORATE SURETY

By _____ Typed Name _____

Title _____ Business Name _____
(Affix Corporate Seal if available)

Address _____

_____

Countersigned by _____ Typed Name _____

South Dakota Resident Agent Business Name _____

Address _____

ACKNOWLEDGMENT OF PRINCIPAL
(Individual)

State of _____)
) ss.
County of _____)

On this _____ day of _____, _____, before me personally appeared _____, known to me to be the individual described in and who executed the foregoing instrument and acknowledged to me that he executed the same. My commission expires the _____ day _____
of _____, _____. Notary Public

ACKNOWLEDGMENT OF PRINCIPAL
(Partnership)

State of _____)
) ss.
County of _____)

On this _____ day of _____, _____, before me personally appeared _____, who acknowledged himself to be one of the partners of _____ _____, a partnership, and that he, as such partner, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the partnership by himself as a partner.
My commission expires the _____ day _____
of _____, _____. Notary Public

ACKNOWLEDGMENT OF PRINCIPAL
(Corporation)

State of South Dakota)
) ss.
County of Minnehaha)

On this _____ day of _____, _____, before me personally appeared _____, who acknowledged himself to be the _____ of _____ _____, a corporation, and that he, as such _____, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as _____.

My commission expires the _____ day of _____, _____.

_____
Notary Public

ACKNOWLEDGMENT OF SURETY
(Corporate Officer)

State of _____)
) ss.
County of _____)

On this _____ day of _____, _____, before me, a Notary Public in and for said County, personally appeared _____ personally known to me who being by me duly sworn, did say that he is the aforesaid officer of the _____ of _____, a corporation duly organized and existing under the laws of the State of _____, that the seal affixed to the foregoing instrument is the corporate seal of said corporation, that the said instrument was signed, sealed and executed in behalf of said corporation by authority of its Board of Directors, and further acknowledges that the said instrument and the execution thereof to be the voluntary act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my official seal at _____, the day and year last above written.

My commission expires _____, _____.

_____
Notary Public

ACKNOWLEDGMENT OF SURETY
(Attorney-in-Fact)

State of South Dakota)
) ss.
County of Minnehaha)

On this _____ day of _____, _____, before me personally appeared _____, known to me or satisfactorily proven to be the person whose name is subscribed as attorney in fact for _____ _____ and acknowledged that he executed the same as the act of his principal for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto subscribed my name and affixed my official seal at _____, the day and year last above written.

My commission expires _____, _____.

_____
Notary Public

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YY)

PRODUCER

INSURED

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

COMPANIES AFFORDING COVERAGE

COMPANY A

COMPANY B

COMPANY C

COMPANY D

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED, NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

CO LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
	GENERAL LIABILITY				GENERAL AGGREGATE	$
	☐ COMMERCIAL GENERAL LIABILITY				PRODUCTS - COMP/OP AGG	$
	☐ CLAIMS MADE ☐ OCCUR				PERSONAL & ADV INJURY	$
	☐ OWNER'S & CONTRACTOR'S PROT				EACH OCCURRENCE	$
	_____				FIRE DAMAGE (Any one fire)	$
					MED EXP (Any one person)	$
	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT	$
	☐ ANY AUTO					
	☐ ALL OWNED AUTOS				BODILY INJURY (Per person)	$
	☐ SCHEDULED AUTOS					
	☐ HIRED AUTOS				BODILY INJURY (Per accident)	$
	☐ NON-OWNED AUTOS					
	_____				PROPERTY DAMAGE	$
	GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
	☐ ANY AUTO				OTHER THAN AUTO ONLY:	
	_____				EACH ACCIDENT	$
					AGGREGATE	$
	EXCESS LIABILITY				EACH OCCURRENCE	$
	☐ UMBRELLA FORM				AGGREGATE	$
	☐ OTHER THAN UMBRELLA FORM					$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				☐ WC STATUTORY LIMITS ☐ OTHER	
	THE PROPRIETOR/ PARTNERS/EXECUTIVE OFFICERS ARE: ☐ INCL ☐ EXCL				EL EACH ACCIDENT	$
					EL DISEASE-POLICY LIMIT	$
					EL DISEASE-EA EMPLOYEE	$
	OTHER					

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL _____ DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

© ACORD CORPORATION 1988

SECTION 00700

GENERAL CONDITIONS

(SEE ATTACHED EJCDC DOCUMENT NO. 1910-8, 1996 EDITION)

NOTE: These EJCDC Documents have been modified as indicated herein,. A ~~strike-out~~ indicates that language has been deleted from the EJCDC General Conditions. An underline indicates that the language has been added to EJCDC General Conditions.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN CONSULTING ENGINEERS COUNCIL

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by

The Associated General Contractors of America

Construction Specifications Institute

These General Conditions have been prepared for use with the Owner-Contractor Agreements (No. 1910-8-A-1 or 1910-8-A-2) (1996 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC User's Guide (No. 1910-50). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. 1910-17) (1996 Edition).

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American Society of Civil Engineers
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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in these General Conditions or in other Contract Documents, the terms listed below have the meanings indicated which are applicable to both the singular and plural thereof. Said terms are generally capitalized or written in italics, but not always. When used in a context consistent with the definition of a listed-defined term, the term shall have a meaning as defined below whether capitalized or italicized or otherwise. ~~Wherever used in the Contract Documents and printed with initial or all capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.~~

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between OWNER and CONTRACTOR covering the Work.

3. *Application for Payment*--The form acceptable to ENGINEER which is to be used by CONTRACTOR during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

7. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, Bid security form, if any, and the Bid form with any supplements.

8. *Bonds*--Performance and payment bonds and other instruments of security.

9. *Change Order*--A document recommended by ENGINEER which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by OWNER or CONTRACTOR seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*--The Contract Documents establish the rights and obligations of the parties and include the Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Notice to Proceed, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all Written Amendments, Change Orders, Work Change Directives, Field Orders, and ENGINEER's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this paragraph are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by OWNER to CONTRACTOR are not Contract Documents.

13. *Contract Price*--The moneys payable by OWNER to CONTRACTOR for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Substantial

Completion; and (ii) complete the Work so that it is ready for final payment as evidenced by ENGINEER's written recommendation of final payment.

15. *CONTRACTOR*--The individual or entity with whom OWNER has entered into the Agreement.

16. *Cost of the Work*--See paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by ENGINEER which graphically shows the scope, extent, and character of the Work to be performed by CONTRACTOR. Shop Drawings and other CONTRACTOR submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *ENGINEER*--The individual or entity named as such in the Agreement.

20. *ENGINEER's Consultant*--An individual or entity having a contract with ENGINEER to furnish services as ENGINEER's independent professional associate or consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

21. *Field Order*--A written order issued by ENGINEER which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

22. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

23. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

24. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

25. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

27. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

28. *Notice of Award*--The written notice by OWNER to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, OWNER will sign and deliver the Agreement.

29. *Notice to Proceed*--A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Times will commence to run and on which CONTRACTOR shall start to perform the Work under the Contract Documents.

30. *OWNER*--The individual, entity, public body, or authority with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be performed.

31. *Partial Utilization*--Use by OWNER of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

32. *PCBs*--Polychlorinated biphenyls.

33. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

34. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part as may be indicated elsewhere in the Contract Documents.

35. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

36. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic

Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

37. *Resident Project Representative*--The authorized representative of ENGINEER who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for CONTRACTOR and submitted by CONTRACTOR to illustrate some portion of the Work.

40. *Site*--Lands or areas indicated in the Contract Documents as being furnished by OWNER upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by OWNER which are designated for the use of CONTRACTOR.

41. *Specifications*--That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

42. *Subcontractor*--An individual or entity having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the Site.

43. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

44. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

45. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with CONTRACTOR or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by CONTRACTOR or any Subcontractor.

46. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

47. *Unit Price Work*--Work to be paid for on the basis of unit prices.

48. *Work*--The entire completed construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

49. *Work Change Directive*--A written statement to CONTRACTOR issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

50. *Written Amendment*--A written statement modifying the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly construction-related aspects of the Contract Documents.

1.02 *Terminology*

A. *Intent of Certain Terms or Adjectives*

1. Whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of ENGINEER as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed

Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.10 or any other provision of the Contract Documents.

B. *Day*

1. The word "day" shall constitute a calendar day of 24 hours measured from midnight to the next midnight.

C. *Defective*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it does not conform to the Contract Documents or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER at Substantial Completion in accordance with paragraph 14.04 or 14.05).

D. *Furnish, Install, Perform, Provide*

1. Furnish, Install, Perform, Provide, Supply - The word "Furnish" or the word "Install" or the word "Perform" or the word "Provide" or the word "Supply," or any combination or similar directive or usage thereof, shall mean FURNISHING AND INCORPORATING IN THE WORK including all necessary labor, materials, equipment, and everything necessary to perform the Work indicated, unless specifically limited in the context.

~~1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.~~

~~2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.~~

~~3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.~~

~~4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of CONTRACTOR, "provide" is implied.~~

E. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds*

A. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER such Bonds as CONTRACTOR may be required to furnish.

2.02 *Copies of Documents*

A. OWNER shall furnish to CONTRACTOR up to ten copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. CONTRACTOR shall start to perform the Work on the date when the Contract Times commence to run. No

Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *CONTRACTOR's Review of Contract Documents:* Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures therein agains~~tand~~ all applicable field measurements and conditions. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error, ambiguity, or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless CONTRACTOR knew or reasonably should have known thereof.

B. *Preliminary Schedules:* Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for its timely review:

1. a preliminary progress schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary schedule of Shop Drawing and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

3. a preliminary schedule of values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

a. Where a Contract is awarded on a lump sum basis, the Contractor shall file with the Engineer a balanced price segregation of his lump sum bid into items similar to the various subdivisions of the general and detailed specifications, the sum of which shall equal the lump sum bid. The cost of various materials shall be furnished upon request of the Engineer, and such data will then be used as a basis for making progress estimates. Breakdown cost itemized specification section and trade, and distribute cost to individual applicable units and structures. Where structures, units, equipment, or other components are identified by a specific series or, identification number, utilize said designation throughout cost breakdown. Provide detailed breakdown for individual yard piping or conduit runs and identify approximate quantities involved to satisfaction of the Engineer. Provide separate breakdown for change order items or items requested. Provide an additional breakdown sheet, equivalent to AIA document G703, showing the tabulation format for stored materials. Submit this sheet each month with Contractor's pay request breakdown. The detail and format of cost breakdown and stored materials tabulation sheet shall be fully approved by Engineer

C. *Evidence of Insurance:* Before any Work at the Site is started, CONTRACTOR and OWNER shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which CONTRACTOR and OWNER respectively are required to purchase and maintain in accordance with Article 5.

2.06 *Preconstruction Conference*

A. After Notice of Award~~Within 20 days after the Contract Times start to run~~, but before any Work at the Site is started (except with approval of OWNER), a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in paragraph 2.05.B, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. Unless otherwise provided in the Contract Documents, at least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER, and others as appropriate will be held to review for acceptability to ENGINEER as provided below the schedules submitted in accordance with paragraph 2.05.B. CONTRACTOR shall have an

additional ten days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to CONTRACTOR until acceptable schedules are submitted to ENGINEER.

1. The progress schedule will be acceptable to ENGINEER if it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Times. Such acceptance will not impose on ENGINEER responsibility for the progress schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve CONTRACTOR from CONTRACTOR's full responsibility therefor.

2. CONTRACTOR's schedule of Shop Drawing and Sample submittals will be acceptable to ENGINEER if it provides a workable arrangement for reviewing and processing the required submittals.

3. CONTRACTOR's schedule of values will be acceptable to ENGINEER as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

B. For Progress Schedule, see Specification Section 01060. For Schedule of Shop Drawings, see Section 01340.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is called for by one is as binding as if called for by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to OWNER.

C. · Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in Article 9.

D. The Specifications may vary in form, format and style. Some specification sections are written in varying degrees of streamlined or declarative style and some sections may be relatively narrative by comparison. Omissions of such words and phrases as "the Contractor shall," "in conformity with," "as shown," or "as specified" are intentional in streamlined sections. Omitted words and phrases shall be supplied by inference. Similar types of provisions may appear in various parts of a section or articles within a part depending on the format of the section. The Contractor shall not take advantage of any variation of form, format or style in making claims for extra Work.

E. The cross referencing of specification sections under the subparagraph heading "Related Sections include but are not necessarily limited to:" and elsewhere within each specification section is provided as an aid and convenience to the Contractor. The Contractor shall not rely on the cross referencing provided and shall be responsible to coordinate the entire work under the Contract Documents and provide a complete Project whether or not the cross referencing is provided in each section or whether or not the cross referencing is complete.

3.02 *Reference Standards*

A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of OWNER, CONTRACTOR, or ENGINEER, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor shall any such provision or instruction be effective to assign to OWNER, ENGINEER, or any of ENGINEER's Consultants, agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake

responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. If, during the performance of the Work, CONTRACTOR discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, CONTRACTOR shall report it to ENGINEER in writing at once. CONTRACTOR shall not proceed with the Work affected thereby (except in an emergency as required by paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in paragraph 3.04; provided, however, that CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any such conflict, error, ambiguity, or discrepancy unless CONTRACTOR knew or reasonably should have known thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a Written Amendment; (ii) a Change Order; or (iii) a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways: (i) a Field Order; (ii) ENGINEER's approval of a Shop Drawing or Sample; or (iii) ENGINEER's written interpretation or clarification.

3.05 *Reuse of Documents*

A. CONTRACTOR and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with OWNER: (i) shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER or ENGINEER's Consultant, including electronic media editions; and (ii) shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaption by ENGINEER. This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude CONTRACTOR from retaining copies of the Contract Documents for record purposes.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. OWNER shall furnish the Site. OWNER shall notify CONTRACTOR of any encumbrances or restrictions not of general application but specifically related to use of the Site with which CONTRACTOR must comply in performing the Work. OWNER will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If CONTRACTOR and OWNER are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in OWNER's furnishing the Site, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

1. Where easement lines are shown on the Contract Drawings they shall be considered as shown in their final location unless stipulated otherwise in the Supplementary Conditions.

B. Upon reasonable written request, OWNER shall furnish CONTRACTOR with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and OWNER's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that ENGINEER has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that ENGINEER has used in preparing the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER, or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by CONTRACTOR, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If CONTRACTOR believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which CONTRACTOR is entitled to rely as provided in paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), notify OWNER and ENGINEER in writing about such condition. CONTRACTOR shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *ENGINEER's Review:* After receipt of written notice as required by paragraph 4.03.A, ENGINEER will promptly review the pertinent condition, determine the necessity of OWNER's obtaining additional exploration or tests with respect thereto, and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in CONTRACTOR's cost of, or time required for, performance of the Work; subject, however, to the following:

a. such condition must meet any one or more of the categories described in paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of paragraphs 9.08 and 11.03.

2. CONTRACTOR shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. CONTRACTOR knew of the existence of such conditions at the time CONTRACTOR made a final commitment to OWNER in respect of Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for CONTRACTOR prior to CONTRACTOR's making such final commitment; or

c. CONTRACTOR failed to give the written notice within the time and as required by paragraph 4.03.A.

3. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in paragraph 10.05. However, OWNER, ENGINEER, and ENGINEER's Consultants shall not be liable to CONTRACTOR for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by CONTRACTOR on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities, including OWNER, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and CONTRACTOR shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including OWNER, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, CONTRACTOR shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility.

2. If ENGINEER concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price of Contract Times, or both, to the extent that they are

attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that CONTRACTOR did not know of and could not reasonably have been expected to be aware of or to have anticipated. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, OWNER or CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

4.05 *Reference Points*

A. OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER's judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the ENGINEER in the preparation of the Contract Documents.

B. *Limited Reliance by CONTRACTOR on Technical Data Authorized:* CONTRACTOR may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," CONTRACTOR may not rely upon or make any Claim against OWNER, ENGINEER or any of ENGINEER's Consultants with respect to:

1. the completeness of such reports and drawings for CONTRACTOR's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any CONTRACTOR interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. CONTRACTOR shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. CONTRACTOR shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by CONTRACTOR, Subcontractors, Suppliers, or anyone else for whom CONTRACTOR is responsible.

D. If CONTRACTOR encounters a Hazardous Environmental Condition or if CONTRACTOR or anyone for whom CONTRACTOR is responsible creates a Hazardous Environmental Condition, CONTRACTOR shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by paragraph 6.16); and (iii) notify OWNER and ENGINEER (and promptly thereafter confirm such notice in writing). OWNER shall promptly consult with ENGINEER concerning the necessity for OWNER to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. CONTRACTOR shall not be required to resume Work in connection with such condition or in any affected area until after OWNER has obtained any required permits related thereto and delivered to CONTRACTOR written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by CONTRACTOR, either party may make a Claim therefor as provided in paragraph 10.05.

F. If after receipt of such written notice CONTRACTOR does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then

OWNER may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If OWNER and CONTRACTOR cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in paragraph 10.05. OWNER may have such deleted portion of the Work performed by OWNER's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, OWNER shall indemnify and hold harmless CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.E shall obligate OWNER to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by CONTRACTOR or by anyone for whom CONTRACTOR is responsible. Nothing in this paragraph 4.06.F shall obligate CONTRACTOR to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of paragraphs 4.02, 4.03, and 4.04 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's, subcontractors' or Suppliers' obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Contract Documents.

B. All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All Bonds signed by an agent must be accompanied by a certified copy of such agent's authority to act.

C. If the surety on any Bond furnished by CONTRACTOR is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.01.B, CONTRACTOR shall within 20 days thereafter substitute another Bond and surety, both of which shall comply with the requirements of paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All Bonds and insurance required by the Contract Documents to be purchased and maintained by OWNER or CONTRACTOR shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue Bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. CONTRACTOR shall deliver to OWNER, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and

other evidence of insurance requested by OWNER or any other additional insured) which CONTRACTOR is required to purchase and maintain. OWNER shall deliver to CONTRACTOR, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by CONTRACTOR or any other additional insured) which OWNER is required to purchase and maintain.

5.04 *CONTRACTOR's Liability Insurance*

A. CONTRACTOR shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed by CONTRACTOR, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by CONTRACTOR, or (ii) by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance so required by this paragraph 5.04 to be purchased and maintained shall:

1. with respect to insurance required by paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion in respect of professional liability) OWNER, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering CONTRACTOR's indemnity obligations under paragraphs 6.07, 6.11, and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured identified in the Supplementary Conditions ~~to whom a certificate of insurance has been issued~~ (and the certificates of insurance furnished by the CONTRACTOR pursuant to paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when CONTRACTOR may be correcting, removing, or replacing defective Work in accordance with paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment (and CONTRACTOR shall furnish OWNER and each other additional insured identified in the Supplementary Conditions~~, to whom a certificate of insurance has been issued~~, evidence satisfactory to OWNER and any such additional insured of continuation of such insurance at final payment and one year thereafter).

8. With respect to all insurance required by this paragraph 5.04., CONTRACTOR agrees to waive all rights of subrogation against OWNER, ENGINEER, and each additional insured identified in the Supplemental Conditions.

5.05 *OWNER's Liability Insurance*

A. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, OWNER, at OWNER's option, may purchase and maintain at OWNER's expense OWNER's own liability insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, ~~OWNER~~ CONTRACTOR shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by OWNER prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by ENGINEER;

5. allow for partial utilization of the Work by OWNER;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by OWNER, CONTRACTOR, and ENGINEER with 30 days written notice to each other additional insured ~~to whom a certificate of insurance has been issued~~.

B. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and any other individuals or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to OWNER and CONTRACTOR and to each other additional insured ~~to whom a certificate of insurance has been issued~~ and will contain waiver provisions in accordance with paragraph 5.07.

D. OWNER shall not be responsible for purchasing and maintaining any property insurance specified in this paragraph 5.06 to protect the interests of CONTRACTOR, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by CONTRACTOR, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policies provided under paragraph 5.06, OWNER shall, if

possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

5.07 *Waiver of Rights*

A. OWNER and CONTRACTOR intend that all policies purchased in accordance with paragraph 5.06 will protect OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. OWNER and CONTRACTOR waive all rights against each other and their respective officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

B. OWNER waives all rights against CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to OWNER's property or the Work caused by, arising out of, or resulting from fire or other peril whether or not insured by OWNER; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by OWNER during partial utilization pursuant to paragraph 14.05, after Substantial Completion pursuant to paragraph 14.04, or after final payment pursuant to paragraph 14.07.

C. Any insurance policy maintained by OWNER covering any loss, damage or consequential loss referred to in paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against CONTRACTOR, Subcontractors, ENGINEER, or ENGINEER's Consultants and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by paragraph 5.06 will be adjusted with OWNER and made payable to OWNER as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.08.B. OWNER shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

B. OWNER as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to OWNER's exercise of this power. If such objection be made, OWNER as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, OWNER as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, OWNER as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either OWNER or CONTRACTOR has any objection to the coverage afforded by or other provisions of the Bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5

on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by paragraph 2.05.C. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the Bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent Bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

1. All insurance required by the Contract Documents, or by laws or regulations shall remain in full force and effect on all phases of the Work, whether or not the Work is occupied or utilized by OWNER, until all Work included in the agreement has been completed and final payment has been made.

2. Nothing contained in the insurance requirements shall be construed as limiting the extent of CONTRACTOR's responsibility for payment of damages resulting from CONTRACTOR's, subcontractors' or suppliers' operations under the Contract. CONTRACTOR agrees that CONTRACTOR alone shall be completely responsible for procuring and maintaining full insurance coverage as provided herein or as may be otherwise required by the Contract Documents. Any approval by OWNER or ENGINEER shall not operate to the contrary.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. CONTRACTOR shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of OWNER or ENGINEER in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. CONTRACTOR shall be responsible to see that the completed Work complies accurately with the Contract Documents.

B. At all times during the progress of the Work, CONTRACTOR shall assign a competent resident superintendent thereto who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the Site and shall have authority to act on behalf of CONTRACTOR. All communications given to or received from the superintendent shall be binding on CONTRACTOR.

6.02 *Labor; Working Hours*

A. CONTRACTOR shall provide competent, suitably qualified personnel to survey, lay out, and construct the Work as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the Site.

B. In the absence of any Federal, state or local laws, regulations or covenants, the CONTRACTOR may conduct its performance of the Work at the CONTRACTOR's sole discretion, except that the cost of any overtime pay or other expense incurred by the OWNER for Resident Project Representative, OWNER's Representative and construction observation services, occasioned by the conduct of Work on Saturday, Sunday, any legal holiday, or as overtime on any regular work day, shall be reimbursed to the OWNER by the CONTRACTOR~~Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal~~

~~holiday without OWNER's written consent (which will not be unreasonably withheld) given after prior written notice to ENGINEER.~~

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the General Requirements, CONTRACTOR shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

1. Where the Work requires equipment be furnished, due to the lack of standardization of equipment as produced by the various manufacturers, it may become necessary to make minor modifications in the structures, buildings, piping, mechanical work, electrical work, accessories, controls, or other work, to accommodate the particular equipment offered. CONTRACTOR's bid price for any equipment offered shall include the cost of making any necessary changes subject to the approval of ENGINEER.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Specifications shall expressly run to the benefit of OWNER. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents. All items of standard equipment shall be the latest model at the time of delivery, unless otherwise specified.

6.04 *Progress Schedule*

A. CONTRACTOR shall adhere to the progress schedule established in accordance with paragraph 2.07 as it may be adjusted from time to time as provided below.

1. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.07) proposed adjustments in the progress schedule that will not result in changing the Contract Times (or Milestones). Such adjustments will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the progress schedule that will change the Contract Times (or Milestones) shall be submitted in accordance with the requirements of Article 12. Such adjustments may only be made by a Change Order or Written Amendment in accordance with Article 12.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to ENGINEER for review under the circumstances described below.

1. *"Or-Equal" Items:* If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by ENGINEER as an "or-equal" item, in which case review and approval of the proposed item may, in ENGINEER's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment ENGINEER determines that: (i) it is at least equal in quality, durability, appearance, strength, and design characteristics; (ii) it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

b. CONTRACTOR certifies that: (i) there is no increase in cost to the OWNER; and (ii) it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in ENGINEER's sole discretion an item of material or equipment proposed by CONTRACTOR does not qualify as an "or-equal" item under paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. CONTRACTOR shall submit sufficient information as provided below to allow ENGINEER to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR.

c. The procedure for review by ENGINEER will be as set forth in paragraph 6.05.A.2.d, as supplemented in the General Requirements and as ENGINEER may decide is appropriate under the circumstances.

d. CONTRACTOR shall first make written application to ENGINEER for review of a proposed substitute item of material or equipment that CONTRACTOR seeks to furnish or use. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by ENGINEER in evaluating the proposed substitute item. ENGINEER may require CONTRACTOR to furnish additional data about the proposed substitute item.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is shown or indicated in and expressly required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by ENGINEER. CONTRACTOR shall submit sufficient information to allow ENGINEER, in ENGINEER's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in subparagraph 6.05.A.2.

C. *Engineer's Evaluation:* ENGINEER will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to paragraphs 6.05.A and 6.05.B. ENGINEER will be the sole judge of acceptability. No "or-equal" or substitute will be ordered, installed or utilized until ENGINEER's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." ENGINEER will advise CONTRACTOR in writing of any negative determination.

D. *Special Guarantee:* OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

E. *ENGINEER's Cost Reimbursement:* ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitute proposed or submitted by CONTRACTOR pursuant to paragraphs 6.05.A.2 and 6.05.B and in making changes in the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) occasioned thereby. Whether or not ENGINEER approves a substitute item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed substitute.

F. *CONTRACTOR's Expense:* CONTRACTOR shall provide all data in support of any proposed substitute or "or-equal" at CONTRACTOR's expense.

G. See Specification Section 01640.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. CONTRACTOR shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to OWNER as indicated in paragraph 6.06.B), whether initially or as a replacement, against whom OWNER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to OWNER in advance for acceptance by OWNER by a specified date prior to the Effective Date of the Agreement, and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. CONTRACTOR shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

C. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other individual or entity, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. CONTRACTOR shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR.

E. CONTRACTOR shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with ENGINEER through CONTRACTOR.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for CONTRACTOR by a Subcontractor or Supplier will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in paragraph 5.06, the agreement between the CONTRACTOR and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against OWNER, CONTRACTOR, ENGINEER, ENGINEER's Consultants, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, CONTRACTOR will obtain the same.

6.07 *Patent Fees and Royalties*

A. CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of OWNER or ENGINEER its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be

disclosed by OWNER in the Contract Documents. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto, such as plant investment fees.

6.09 *Laws and Regulations*

A. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR's compliance with any Laws or Regulations.

B. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, CONTRACTOR shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve CONTRACTOR of CONTRACTOR's obligations under paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work may be the subject of an adjustment in Contract Price or Contract Times. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in paragraph 10.05.

6.10 *Taxes*

A. CONTRACTOR shall pay all sales, consumer, use, and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. CONTRACTOR shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against OWNER, ENGINEER, or any other party indemnified hereunder to the extent caused by or based upon CONTRACTOR's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work CONTRACTOR shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work CONTRACTOR shall clean the Site and make it ready for utilization by OWNER. At the completion of the Work CONTRACTOR shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. CONTRACTOR shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to ENGINEER for OWNER. CONTRACTOR shall include accurate locations for buried and imbedded items.

6.13 *Safety and Protection*

A. CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. CONTRACTOR shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or ENGINEER's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them). CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. CONTRACTOR shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among

employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, CONTRACTOR is obligated to act to prevent threatened damage, injury, or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If ENGINEER determines that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. CONTRACTOR shall submit required Shop Drawings to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. All submittals will be identified as ENGINEER may require and in the number of copies specified in the General Requirements. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show ENGINEER the services, materials, and equipment CONTRACTOR proposes to provide and to enable ENGINEER to review the information for the limited purposes required by paragraph 6.17.E.

1. Shop Drawings submitted as herein provided by CONTRACTOR and reviewed by ENGINEER for conformance with the design concept shall be executed in conformity with the Contract Documents unless otherwise required by OWNER.

2. When Shop Drawings are submitted for the purpose of showing the installation in greater detail, their review shall not excuse CONTRACTOR from requirements shown on the drawings and Specifications.

3.For-Information-Only-For-Future-Use submittals upon which the ENGINEER is not expected to conduct review or take responsive action may be so identified in the Contract Documents.

B. CONTRACTOR shall also submit required Samples to ENGINEER for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals. Each Sample will be identified clearly as to material, Supplier, pertinent data such as catalog numbers, and the use for which intended and otherwise as ENGINEER may require to enable ENGINEER to review the submittal for the limited purposes required by paragraph 6.17.E. The numbers of each Sample to be submitted will be as specified in the Specifications.

C. Where a Shop Drawing or Sample is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER as required by paragraph 2.07, any related Work performed prior to ENGINEER's review and approval of the pertinent submittal will be at the sole expense and responsibility of CONTRACTOR.

D. *Submittal Procedures*

1. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

d. CONTRACTOR shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's obligations under the Contract Documents with respect to CONTRACTOR's review and approval of that submittal.

3. At the time of each submittal, CONTRACTOR shall give ENGINEER specific written notice of such variations, if any, that the Shop Drawing or Sample submitted may have from

the requirements of the Contract Documents, such notice to be in a written communication separate from the submittal; and, in addition, shall cause a specific notation to be made on each Shop Drawing and Sample submitted to ENGINEER for review and approval of each such variation; otherwise CONTRACTOR will not be relieved of the responsibility of executing the Work in accordance with the Contract Documents, even though such Shop Drawings or Samples have been otherwise reviewed..

a. If a Shop Drawing or Sample, as submitted, indicates a variation from the Contract Requirements as set forth in the Contract Documents and ENGINEER finds same to be in the interest of OWNER and to be so minor as not to involve a change in the Contract Price or time for performance, ENGINEER may approve the Shop Drawings or Samples; provided however, such departure is slight in nature and does not affect the design concept of the Work.

4. CONTRACTOR shall submit all Shop Drawings and Samples sufficiently in advance of construction requirements to allow ample time for checking, correcting, resubmitting and rechecking and to avoid any delay in progress of the Work.

5. See Section 01340.

6. Shop Drawings and Sample submittals not conforming to requirements of this paragraph 6.17D and Section 01340 will be returned to CONTRACTOR without action for resubmittal and the resulting delay shall be entirely the responsibility of CONTRACTOR.

E. *ENGINEER's Review*

1. ENGINEER will ~~timely~~ review and approve Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to ENGINEER. ENGINEER's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. ENGINEER's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. ENGINEER's review and approval of required Shop Drawings or Samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of each submittal as required by paragraph 6.17.D.3 and ENGINEER has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for complying with the requirements of paragraph 6.17.D.1.

4. ENGINEER's check and review of Shop Drawings and Samples, Standard Specifications and descriptive literature submitted by CONTRACTOR will be only for general conformance with design concept, except as otherwise provided, and shall not be construed as:

a. permitting any departure from the Contract Requirements;

b. relieving CONTRACTOR of the responsibility for any error in details, dimensions or otherwise that may exist in such submittals;

c. constituting a blanket approval of dimensions, quantities, or details of the material or equipment shown; or

d. approving departures from additional details or instructions previously furnished by ENGINEER. Such check or review shall not relieve CONTRACTOR of the full responsibility of meeting all of the requirements of the Contract Documents.

F. *Resubmittal Procedures*

1. CONTRACTOR shall make corrections required by ENGINEER and shall return the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.18 *Continuing the Work*

A. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.04 or as OWNER and CONTRACTOR may otherwise agree in writing.

6.19 *CONTRACTOR's General Warranty and Guarantee*

A. CONTRACTOR warrants and guarantees to OWNER, ENGINEER, and ENGINEER's Consultants that all Work will be in accordance with the Contract Documents and will not be defective. CONTRACTOR's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than CONTRACTOR, Subcontractors, Suppliers, or any other individual or entity for whom CONTRACTOR is responsible; or

2. normal wear and tear under normal usage.

B. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents:

1. observations by ENGINEER;

2. recommendation by ENGINEER or payment by OWNER of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by ENGINEER or any payment related thereto by OWNER;

4. use or occupancy of the Work or any part thereof by OWNER;

5. any acceptance by OWNER or any failure to do so;

6. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by ENGINEER;

7. any inspection, test, or approval by others; or

8. any correction of defective Work by OWNER.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER, ENGINEER, ENGINEER's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom; and

2. is caused in whole or in part by any ~~negligent~~ act or omission of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

B. In any and all claims against OWNER or ENGINEER or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such

employee) of CONTRACTOR, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for CONTRACTOR or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of CONTRACTOR under paragraph 6.20.A shall not extend to the liability of ENGINEER and ENGINEER's Consultants or to the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

ARTICLE 7 - OTHER WORK

7.01 *Related Work at Site*

A. OWNER may perform other work related to the Project at the Site by OWNER's employees, or let other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to CONTRACTOR prior to starting any such other work; and

2. if OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in paragraph 10.05.

B. CONTRACTOR shall afford each other contractor who is a party to such a direct contract and each utility owner (and OWNER, if OWNER is performing the other work with OWNER's employees) proper and safe access to the Site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work and shall properly coordinate the Work with theirs. Unless otherwise provided in the Contract Documents, CONTRACTOR shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

C. If the proper execution or results of any part of CONTRACTOR's Work depends upon work performed by others under this Article 7, CONTRACTOR shall inspect such other work and promptly report to ENGINEER in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of CONTRACTOR's Work. CONTRACTOR's failure to so report will constitute an acceptance of such other work as fit and proper for integration with CONTRACTOR's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If OWNER intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, OWNER shall have sole authority and responsibility for such coordination.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.02 *Replacement of ENGINEER*

A. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer to whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER.

8.03 *Furnish Data*

A. OWNER shall promptly furnish the data required of OWNER under the Contract Documents.

8.04 *Pay Promptly When Due*

A. OWNER shall make payments to CONTRACTOR promptly when they are due as provided in paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.01 and 4.05. Paragraph 4.02 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by ENGINEER in preparing the Contract Documents.

8.06 *Insurance*

A. OWNER's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. OWNER is obligated to execute Change Orders as indicated in paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. OWNER's responsibility in respect to certain inspections, tests, and approvals is set forth in paragraph 13.03.B.

8.09 *Limitations on OWNER's Responsibilities*

A. The OWNER shall not supervise, direct, or have control or authority over, nor be responsible for, CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. OWNER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. OWNER's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent OWNER has agreed to furnish CONTRACTOR reasonable evidence that financial arrangements have been made to satisfy OWNER's obligations under the Contract Documents, OWNER's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *OWNER'S Representative*

A. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed without written consent of OWNER and ENGINEER.

9.02 *Visits to Site*

A. ENGINEER will make visits to the Site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress

that has been made and the quality of the various aspects of CONTRACTOR's executed Work. Based on information obtained during such visits and observations, ENGINEER, for the benefit of OWNER, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. ENGINEER's efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defective Work.

B. ENGINEER's visits and observations are subject to all the limitations on ENGINEER's authority and responsibility set forth in paragraph 9.10, and particularly, but without limitation, during or as a result of ENGINEER's visits or observations of CONTRACTOR's Work ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in providing more extensive observation of the Work. The responsibilities and authority and limitations thereon of any such Resident Project Representative and assistants will be as provided in paragraph 9.10 and in the Supplementary Conditions. If OWNER designates another representative or agent to represent OWNER at the Site who is not ENGINEER's Consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

B. ENGINEER's Resident Project Representative shall not authorize any deviation from the Contract Documents or substitutions of materials or equipment.

9.04 *Clarifications and Interpretations*

A. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as ENGINEER may determine necessary, which shall be consistent with the intent of and reasonably inferable from the Contract Documents. Such written clarifications and interpretations will be binding on OWNER and CONTRACTOR. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a written clarification or interpretation, a Claim may be made therefor as provided in paragraph 10.05.

9.05 *Authorized Variations in Work*

A. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER and also on CONTRACTOR, who shall perform the Work involved promptly. If OWNER and CONTRACTOR are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of a Field Order, a Claim may be made therefor as provided in paragraph 10.05.

9.06 *Rejecting Defective Work*

A. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, or that ENGINEER believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. ENGINEER will also have authority to require special inspection or testing of the Work as provided in paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

B. The acceptance at any time of materials or equipment by or on behalf of OWNER shall not be a bar to future rejection if they are subsequently found to be defective, inferior in quality, or not equal to the material or equipment specified, or are not as represented to ENGINEER or OWNER.

9.07 *Shop Drawings, Change Orders and Payments*

A. In connection with ENGINEER's authority as to Shop Drawings and Samples, see paragraph 6.17.

B. In connection with ENGINEER's authority as to Change Orders, see Articles 10, 11, and 12.

C. In connection with ENGINEER's authority as to Applications for Payment, see Article 14.

9.08 *Determinations for Unit Price Work*

A. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR the ENGINEER's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). ENGINEER's written decision thereon will be final and binding (except as modified by ENGINEER to reflect changed factual conditions or more accurate data) upon OWNER and CONTRACTOR, subject to the provisions of paragraph 10.05.

9.09 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work, the quantities and classifications of Unit Price Work, the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, and Claims seeking changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing, in accordance with the provisions of paragraph 10.05, with a request for a formal decision.

B. When functioning as interpreter and judge under this paragraph 9.09, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to this paragraph 9.09 with respect to any such Claim, dispute, or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.07) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such Claim, dispute, or other matter.

9.10 *Limitations on ENGINEER's Authority and Responsibilities*

A. Neither ENGINEER's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by ENGINEER shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. ENGINEER will not supervise, direct, control, or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with Laws and Regulations applicable to the performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

C. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. ENGINEER's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this paragraph 9.10 shall also apply to ENGINEER's Consultants, Resident Project Representative, and assistants.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, or a Work Change Directive. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

1. Change Proposal Request

a. When OWNER requests CONTRACTOR to present a proposal to accomplish a change in the Work, the request will be made in the form of

a Change Proposal Request (CPR) prepared by ENGINEER. The CPR will describe the change and request CONTRACTOR to propose a Contract Price and/or Contract Time change. CONTRACTOR will propose cost and/or time changes, provide a breakdown for the costs, if any, sign the CPR and return it to ENGINEER. ENGINEER will make recommendations to OWNER concerning acceptance. If the CPR is approved by OWNER, the CPR will be included in a Change Order. CONTRACTOR is not authorized to proceed with a change contained in a CPR until the Change Order is properly signed and issued.

b. When the CONTRACTOR desires to propose changes to the Work, it may initiate a CPR in the same form as provided in Paragraph 10.01A.1.a. and submit the CPR to the ENGINEER for the ENGINEER's review and recommendation.

B. If OWNER and CONTRACTOR are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in paragraph 3.04, except in the case of an emergency as provided in paragraph 6.16 or in the case of uncovering Work as provided in paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. OWNER and CONTRACTOR shall execute appropriate Change Orders recommended by ENGINEER (or Written Amendments) covering:

1. changes in the Work which are: (i) ordered by OWNER pursuant to paragraph 10.01.A, (ii) required because of acceptance of defective Work under paragraph 13.08.A or OWNER's correction of defective Work under paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility. The amount of each applicable Bond will be adjusted to reflect the effect of any such change.

10.05 *Claims and Disputes*

A. *Notice:* Written notice stating the general nature of each Claim, dispute, or other matter shall be delivered by the claimant to ENGINEER and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. Notice of the amount or extent of the Claim, dispute, or other matter with supporting data shall be delivered to the ENGINEER and the other party to the Contract within 60 days after the start of such event (unless ENGINEER allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to ENGINEER and the claimant within 30 days after receipt of the claimant's last submittal (unless ENGINEER allows additional time).

B. *ENGINEER's Decision:* ENGINEER will render a formal decision in writing within 30 days after receipt of the last submittal of the claimant or the last submittal of the

opposing party, if any. ENGINEER's written decision on such Claim, dispute, or other matter will be final and binding upon OWNER and CONTRACTOR unless:

1. an appeal from ENGINEER's decision is taken within the time limits and in accordance with the dispute resolution procedures set forth in Article 16; or

2. if no such dispute resolution procedures have been set forth in Article 16, a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER within 30 days after the date of such decision, and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction within 60 days after the date of such decision or within 60 days after Substantial Completion, whichever is later (unless otherwise agreed in writing by OWNER and CONTRACTOR), to exercise such rights or remedies as the appealing party may have with respect to such Claim, dispute, or other matter in accordance with applicable Laws and Regulations.

C. If ENGINEER does not render a formal decision in writing within the time stated in paragraph 10.05.B, a decision denying the Claim in its entirety shall be deemed to have been issued 31 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any.

D. No Claim for an adjustment in Contract Price or Contract Times (or Milestones) will be valid if not submitted in accordance with this paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; CASH ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to CONTRACTOR will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Such employees shall include without limitation superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by OWNER.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

3. Payments made by CONTRACTOR to Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from subcontractors acceptable to OWNER and CONTRACTOR and shall deliver such bids to OWNER, who will then determine, with the advice of ENGINEER, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as CONTRACTOR's Cost of the Work and fee as provided in this paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants)

employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of CONTRACTOR.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by CONTRACTOR in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressage, and similar petty cash items in connection with the Work.

i. When the Cost of the Work is used to determine the value of a Change Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work or caused by the event giving rise to the Claim.

j. When all the Work is performed on the basis of cost-plus, the costs of premiums for all Bonds and insurance CONTRACTOR is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by CONTRACTOR, whether at the Site or in CONTRACTOR's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.01.A.1 or specifically covered by paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the CONTRACTOR's fee.

2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the Site.

3. Any part of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

4. Costs due to the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraphs 11.01.A and 11.01.B.

C. *CONTRACTOR's Fee:* When all the Work is performed on the basis of cost-plus, CONTRACTOR's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, CONTRACTOR's fee shall be determined as set forth in paragraph 12.01.C.

D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to paragraphs 11.01.A and 11.01.B, CONTRACTOR will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

11.02 *Cash Allowances*

A. It is understood that CONTRACTOR has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums as may be acceptable to OWNER and ENGINEER. CONTRACTOR agrees that:

1. the allowances include the cost to CONTRACTOR (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. CONTRACTOR's costs for unloading and handling on the Site, labor, installation costs, overhead, profit, and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

B. Prior to final payment, an appropriate Change Order will be issued as recommended by ENGINEER to reflect actual amounts due CONTRACTOR on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER subject to the provisions of paragraph 9.08.

B. Each unit price will be deemed to include an amount considered by CONTRACTOR to be adequate to cover CONTRACTOR's overhead and profit for each separately identified item. Work described in the Contract Documents, or reasonably inferred as required for a functionally complete installation, but not identified in the listing of unit price items shall be considered incidental to unit price work listed and the cost of incidental work included as a part of the unit price.

C. OWNER or CONTRACTOR may make a Claim for an adjustment in the Contract Price in accordance with paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. if CONTRACTOR believes that CONTRACTOR is entitled to an increase in Contract Price as a result of having incurred additional expense or OWNER believes that OWNER is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in paragraph 11.01) plus a CONTRACTOR's fee for overhead and profit (determined as provided in paragraph 12.01.C).

C. *CONTRACTOR's Fee:* The CONTRACTOR's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under paragraphs 11.01.A.1 and 11.01.A.2, the CONTRACTOR's fee shall be 15 percent;

b. for costs incurred under paragraph 11.01.A.3, the CONTRACTOR's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and CONTRACTOR will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by CONTRACTOR to OWNER for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in CONTRACTOR's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in CONTRACTOR's fee shall be computed on the basis of the net change in accordance with paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times (or Milestones) may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Times (or Milestones) shall be based on written notice submitted by the party making the claim to the ENGINEER and the other party to the Contract in accordance with the provisions of paragraph 10.05.

B. Any adjustment of the Contract Times (or Milestones) covered by a Change Order or of any Claim for an adjustment in the Contract Times (or Milestones) will be determined in accordance with the provisions of this Article 12.

C. No extension of the Contract Time will be allowed for additional Work or for claimed delay unless the additional Work contemplated or claimed delay is shown to be on the critical path of the Project's schedule of construction or CONTRACTOR can show by Critical Path Method analysis how the additional Work or claimed delay adversely affects the critical path.

12.03 *Delays Beyond CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of CONTRACTOR, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in paragraph 12.02.A. Delays beyond the control of CONTRACTOR shall include, but not be limited to, acts or neglect by OWNER, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

12.04 *Delays Within CONTRACTOR's Control*

A. The Contract Times (or Milestones) will not be extended due to delays within the control of CONTRACTOR. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of CONTRACTOR.

12.05 *Delays Beyond OWNER's and CONTRACTOR's Control*

A. Where CONTRACTOR is prevented from completing any part of the Work within the Contract Times (or Milestones) due to delay beyond the control of both OWNER and CONTRACTOR, an extension of the Contract Times (or Milestones) in an amount equal to the time lost due to such delay shall be CONTRACTOR's sole and exclusive remedy for such delay.

12.06 *Delay Damages*

A. In no event shall OWNER or ENGINEER be liable to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

1. delays caused by or within the control of CONTRACTOR; or

2. delays beyond the control of both OWNER and CONTRACTOR including but not limited to fires, floods, epidemics, abnormal weather conditions, acts of God, or acts or neglect by utility owners or other contractors performing other work as contemplated by Article 7.

B. Nothing in this paragraph 12.06 bars a change in Contract Price pursuant to this Article 12 to compensate CONTRACTOR due to delay, interference, or disruption directly attributable to actions or inactions of OWNER or anyone for whom OWNER is responsible.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which OWNER or ENGINEER has actual knowledge will be given to CONTRACTOR. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. OWNER, ENGINEER, ENGINEER's Consultants, other representatives and personnel of OWNER, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. CONTRACTOR shall provide them proper and safe conditions for such access and advise them of CONTRACTOR's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. OWNER shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04.B shall be paid as provided in said paragraph 13.04.B; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically

to be inspected, tested, or approved by an employee or other representative of such public body, CONTRACTOR shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish ENGINEER the required certificates of inspection or approval.

D. CONTRACTOR shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for OWNER's and ENGINEER's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to OWNER and ENGINEER.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by CONTRACTOR without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation.

F. Uncovering Work as provided in paragraph 13.03.E shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

B. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment. If it is found that such Work is defective, CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); or Owner shall be entitled to accept defective Work in accordance paragraph 13.08 in which case CONTRACTOR shall still be responsible for all costs associated with exposing, observing, and testing the defective Work. ~~and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05.~~ If, however, such Work is not found to be defective, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Times (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a Claim therefor as provided in paragraph 10.05.

13.05 *OWNER May Stop the Work*

A. If the Work is defective, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of OWNER to stop the Work shall not give rise to any duty on the part of OWNER to exercise this right for the benefit of CONTRACTOR, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. CONTRACTOR shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by ENGINEER, remove it from the Project and replace it with Work that is not defective. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for CONTRACTOR's use by OWNER or permitted by

Laws and Regulations as contemplated in paragraph 6.11.A is found to be defective, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions: (i) repair such defective land or areas, or (ii) correct such defective Work or, if the defective Work has been rejected by OWNER, remove it from the Project and replace it with Work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the defective Work corrected or repaired or may have the rejected Work removed and replaced, and all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by CONTRACTOR.

B. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications or by Written Amendment.

C. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

D. CONTRACTOR's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, OWNER (and, prior to ENGINEER's recommendation of final payment, ENGINEER) prefers to accept it, OWNER may do so. CONTRACTOR shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to OWNER's evaluation of and determination to accept such defective Work (such costs to be approved by ENGINEER as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by CONTRACTOR pursuant to this sentence. If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and OWNER shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, OWNER may make a Claim therefor as provided in paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

13.09 *OWNER May Correct Defective Work*

A. If CONTRACTOR fails within a reasonable time after written notice from ENGINEER to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.06.A, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days written notice to CONTRACTOR, correct and remedy any such deficiency.

B. In exercising the rights and remedies under this paragraph, OWNER shall proceed expeditiously. In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees, OWNER's other contractors, and ENGINEER and ENGINEER's Consultants access to the Site to enable OWNER to exercise the rights and remedies under this paragraph.

C. All Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by OWNER in exercising the rights and remedies under this paragraph 13.09 will be charged against CONTRACTOR, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the

adjustment, OWNER may make a Claim therefor as provided in paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of CONTRACTOR's defective Work.

D. CONTRACTOR shall not be allowed an extension of the Contract Times (or Milestones) because of any delay in the performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies under this paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The schedule of values established as provided in paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to ENGINEER. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments*

1. At least 20 days before the date established for each progress payment (but not more often than once a month), CONTRACTOR shall submit to ENGINEER for review an Application for Payment filled out and signed by CONTRACTOR covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that OWNER has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect OWNER's interest therein, all of which must be satisfactory to OWNER.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of CONTRACTOR stating that all previous progress payments received on account of the Work have been applied on account to discharge CONTRACTOR's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. ENGINEER will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to OWNER or return the Application to CONTRACTOR indicating in writing ENGINEER's reasons for refusing to recommend payment. In the latter case, CONTRACTOR may make the necessary corrections and resubmit the Application.

2. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's observations on the Site of the executed Work as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules, that to the best of ENGINEER's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.08, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to CONTRACTOR's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the Work.

3. By recommending any such payment ENGINEER will not thereby be deemed to have represented that: (i) inspections made to check the quality or the quantity of the Work as it has been

performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents; or (ii) that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or entitle OWNER to withhold payment to CONTRACTOR.

4. Neither ENGINEER's review of CONTRACTOR's Work for the purposes of recommending payments nor ENGINEER's recommendation of any payment, including final payment, will impose responsibility on ENGINEER to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for CONTRACTOR's failure to comply with Laws and Regulations applicable to CONTRACTOR's performance of the Work. Additionally, said review or recommendation will not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes CONTRACTOR has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to OWNER free and clear of any Liens.

5. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make the representations to OWNER referred to in paragraph 14.02.B.2. ENGINEER may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Written Amendment or Change Orders;

c. OWNER has been required to correct defective Work or complete Work in accordance with paragraph 13.09; or

d. ENGINEER has actual knowledge of the occurrence of any of the events enumerated in paragraph 15.02.A.

C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to OWNER with ENGINEER's recommendation, the amount recommended will (subject to the provisions of paragraph 14.02.D) become due, and when due will be paid by OWNER to CONTRACTOR.

D. *Reduction in Payment*

1. OWNER may refuse to make payment of the full amount recommended by ENGINEER because:

a. claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;

c. there are other items entitling OWNER to a set-off against the amount recommended; or

d. OWNER has actual knowledge of the occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

2. If OWNER refuses to make payment of the full amount recommended by ENGINEER, OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action and promptly pay CONTRACTOR any amount remaining after deduction of the amount so withheld. OWNER shall promptly pay CONTRACTOR the amount so withheld, or any adjustment thereto agreed to by OWNER and CONTRACTOR, when CONTRACTOR corrects to OWNER's satisfaction the reasons for such action.

3. If it is subsequently determined that OWNER's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by paragraph 14.02.C.1.

14.03 *CONTRACTOR's Warranty of Title*

A. CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Promptly thereafter, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within 14 days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said 14 days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER in writing prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

B. OWNER shall have the right to exclude CONTRACTOR from the Site after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Use by OWNER at OWNER's option of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which OWNER, ENGINEER, and CONTRACTOR agree constitutes a separately functioning and usable part of the Work that can be used by OWNER for its intended purpose without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following conditions.

1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees that such part of the Work is substantially complete, CONTRACTOR will certify to OWNER and ENGINEER that such part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, OWNER, CONTRACTOR, and ENGINEER shall make an inspection of that part of the Work to determine its status of completion. If ENGINEER does not consider that part of the Work to be substantially complete, ENGINEER will notify OWNER and CONTRACTOR in writing giving the reasons therefor. If ENGINEER considers that part of the Work to be substantially complete, the provisions of paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

2. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will promptly make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment*

1. After CONTRACTOR has, in the opinion of ENGINEER, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in paragraph 6.12), and other documents, CONTRACTOR may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by: (i) all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by subparagraph 5.04.B.7; (ii) consent of the surety, if any, to final payment; and (iii) complete and legally effective releases or waivers (satisfactory to OWNER) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien.

B. *Review of Application and Acceptance*

1. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application for Payment to OWNER for payment. At the same time ENGINEER will also give written notice to OWNER and CONTRACTOR that the Work is acceptable subject to the provisions of paragraph 14.09. Otherwise, ENGINEER will return the Application for Payment to CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due*

1. Thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR.

14.08 *Final Completion Delayed*

A. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by CONTRACTOR against OWNER and/or ENGINEER other than those previously made in writing which are still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 OWNER May Suspend Work

A. At any time and without cause, OWNER may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if CONTRACTOR makes a Claim therefor as provided in paragraph 10.05.

15.02 *OWNER May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. CONTRACTOR's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.07 as adjusted from time to time pursuant to paragraph 6.04);

2. CONTRACTOR's disregard of Laws or Regulations of any public body having jurisdiction;

3. CONTRACTOR's disregard of the authority of ENGINEER; or

4. CONTRACTOR's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in paragraph 15.02A. occur, OWNER will provide written notice to CONTRACTOR and Surety to arrange a conference with CONTRACTOR and Surety to address CONTRACTOR's failure to perform the Work. Conference shall be held not earlier than {7} days, nor later than 15 days, after receipt of notice.

If the OWNER, the CONTRACTOR, and the Surety do not agree to allow the CONTRACTOR to proceed to perform the Construction Contract, the OWNER may, to the extent permitted by Laws and Regulations, declare a CONTRACTOR Default and formally terminate the CONTRACTOR's right to complete the Contract. CONTRACTOR Default shall not be declared earlier than 20 days after the CONTRACTOR and Surety have received notice of conference to address CONTRACTOR's failure to perform the Work.

If CONTRACTOR's services are terminated, Surety shall be obligated to take over and perform the Work. If Surety does not commence performance thereof within {15} consecutive calendar days after date of notice to CONTRACTOR that the services of CONTRACTOR have been terminated, or if Surety has taken over for CONTRACTOR and while prosecuting the Work in lieu of CONTRACTOR, any one or more of the events cited in 15.2.1. through 15.2.4. occur, then OWNER, without process or action at law, may take over any portion of the Work and complete it as described below. If OWNER completes the Work, OWNER may exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient.

Whether OWNER or Surety completes the Work, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses and damages sustained by OWNER arising out of

or resulting from completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and when so approved by ENGINEER incorporated in a Change Order, provided that when exercising any rights or remedies under this paragraph, OWNER shall not be required to obtain the lowest price for the Work performed.

Neither OWNER, ENGINEER, nor any of their respective consultants, agents, officers, directors or employees shall be in any way liable or accountable to CONTRACTOR or Surety for the method by which the completion of the said Work, or any portion thereof, may be accomplished or for the price paid therefore.

OWNER, notwithstanding the method used in completing the Contract, shall not forfeit the right to recover damages from CONTRACTOR or Surety for CONTRACTOR's failure to timely complete the entire Contract. CONTRACTOR shall not be entitled to any claim for damages on account of the method used by OWNER in completing the Contract.

Maintenance of the Work shall continue to be CONTRACTOR's and Surety's responsibilities as provided for in the bond requirements of the Contract Documents or any special guarantees provided for under the Contract Documents or any other obligations otherwise prescribed by law.

~~B. If one or more of the events identified in paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site, and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by CONTRACTOR (without liability to CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case, CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by OWNER arising out of or relating to completing the Work, such excess will be paid to CONTRACTOR. If such claims, costs, losses, and damages exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such claims, costs, losses, and damages incurred by OWNER will be reviewed by ENGINEER as to their reasonableness and, when so approved by ENGINEER, incorporated in a Change Order. When exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.~~

C. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.03 *OWNER May Terminate For Convenience*

A. Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

1. for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. for reasonable expenses directly attributable to termination.

B. CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *CONTRACTOR May Stop Work or Terminate*

A. If, through no act or fault of CONTRACTOR, the Work is suspended for more than 90 consecutive days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within 30 days after it is submitted, or OWNER fails for 30 days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days written notice to OWNER and ENGINEER, and provided OWNER or ENGINEER do not remedy such suspension or failure within that time, terminate the Contract and recover from OWNER payment on the same terms as provided in paragraph 15.03. In lieu of terminating the Contract and without prejudice to any other right or remedy, if ENGINEER has failed to act on an Application for Payment within 30 days after it is submitted, or OWNER has failed for 30 days to pay CONTRACTOR any sum finally determined to be due, CONTRACTOR may, seven days after written notice to OWNER and ENGINEER, stop the Work until payment is made of all such amounts due CONTRACTOR, including interest thereon. The provisions of this paragraph 15.04 are not intended to preclude CONTRACTOR from making a Claim under paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to CONTRACTOR's stopping the Work as permitted by this paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Dispute resolution methods and procedures, if any, shall be as set forth in the Supplementary Conditions. If no method and procedure has been set forth, and subject to the provisions of paragraphs 9.09 and 10.05, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Agreement.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

00F08

SECTION 00805
SUPPLEMENTARY CONDITIONS
TO
EJCDC GENERAL CONDITIONS, 1910-8 (1996 EDITION)
(FOR USE WITH REDLINE/STRIKEOUT VERSION OF GC'S)

Supplementary Conditions

These Supplementary Conditions amend and supplement Section 00700 - General Conditions, and other provisions of the Contract Documents as indicated below. All provisions of the General Conditions that are amended or supplemented remain in full force and effect as so amended or supplemented. All provisions of the General Conditions which are not so amended or supplemented remain in full force and effect.

Defined Terms

The terms used in these Supplementary Conditions which are defined in the General Conditions have the meaning assigned to them in the General Conditions.

Amendments and Supplements

The following are instructions that amend or supplement specific paragraphs in the General Conditions and other Contract Documents.

SC-5.04A.

The limits of liability for the insurance required by paragraph 5.04 of the General Conditions shall provide the following coverages for not less than the following amounts or greater where required by Laws and Regulations:

5.04A.1. and 5.04A.2. Workers' Compensation, etc., under paragraphs 5.04A.1. and 5.04A.2 of the General Conditions.

(1) State: Statutory: $100,000/$500,000/$100,000

(2) Applicable Federal (e.g., Longshoreman's): Statutory.

(3) Employer's Liability: $1,000,000.

5.04A.3., 5.04A.4., and 5.04A.5. CONTRACTOR's Liability Insurance under paragraphs 5.04A.3. through 5.04A.5. of the General Conditions, which shall also include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of CONTRACTOR:

(1) General Aggregate (Except Products-- Completed Operations) $1,000,000

(2) Products--Completed Operations Aggregate $1,000,000
(3) Personal and Advertising Injury (Per Person/ Organization) $1,000,000

(4) Each Occurrence (Bodily Injury and Property Damage) $1,000,000

(5) Property Damage liability insurance will provide Explosion, Collapse and Underground coverages where applicable.

(6) Excess Liability

General Aggregate: None

Each Occurrence: None

5.04A.6. Automobile Liability.

(1) Bodily Injury:

$1,500,000 Each Person

$1,500,000 Each Accident

Property Damage:

$1,500,000 Each Accident

or

(2) Combined Single Limit (Bodily Injury and Property Damage):

$1,500,000 Each Accident

5.04B.1. The entities listed below are "additional insureds as their interest may appear "including their respective offices, directors, agents and employees.

OWNER: City of Watertown, SD
ENGINEER: HDR Engineering, Inc.

SC-5.04B.4.

The Contractual Liability coverage required by paragraph 5.04B.4 of the General Conditions shall provide coverage for not less than the following amounts:

(1) General Aggregate $1,000,000
(2) Each Occurrence (Bodily Injury and Property Damage) $1,000,000

SC-5.04B.9.

Add a new paragraph after paragraph GC-5.04B.8., which is to read as follows:

"9. In addition to the insurance required to be provided by CONTRACTOR under paragraph 5.04, CONTRACTOR shall purchase and maintain for OWNER at CONTRACTOR's expense OWNER's Protective Liability insurance naming OWNER as the named insured with insurance will protect said parties against claims which may arise from operations under the Contract Documents. This coverage shall be in the same company which provides CONTRACTOR's liability insurance coverage, and in the same minimum amounts.

The entities listed below are additional insured as their interest may appear including their officers, directors, agents, and employees.

OWNER: City of Watertown, SD
ENGINEER: HDR Engineering, Inc.

SC-5.05

Delete paragraph 5.05.

SC-5.06A.1.

At the end of Paragraph 5.06A.1., add the following sentence:

"The insured and the additional insured shall be listed in the insurance coverage by specific name and not by genre."

SC-5.06A.2.

At the end of Paragraph 5.06A.2., add the following sentence:

"Additional perils are as follows: explosion, and underground exposures."

SC-5.07A.

At the end of Paragraph 5.07A. add the following sentence:

"The above waivers of rights shall be limited to the extent the losses and damages are in fact covered under such policies, and to the extent the losses and damages are not covered, or to the extent they exceed the coverage available under such policies, no waiver of rights to the uncovered losses or damages shall be deemed to have occurred."

SC-9.02A.

At the end of Paragraph 9.02.A. add the following sentence:

"To the extent ENGINEER is retained to make such observations, ENGINEER shall keep OWNER informed in writing of any defective work discovered by ENGINEER, and upon the direction of OWNER, shall communicate in writing to CONTRACTOR whether the defect is rejected and whether the defect may be repaired or must be replaced."

SC-12.03.

Add a new paragraph after paragraph GC 12.03A. which is to read as follows:

"B. Time extensions will not be granted for rain, wind, flood, or other natural phenomena of normal intensity for the locality where Work is performed. For purpose of determining extent of delay attributable to unusual weather phenomena, a determination shall be made by comparing the weather for a minimum continuous period of at least one-fourth of the Contract Time involved with the average of the preceding 5-year climatic range during the same time interval based on U.S. Weather Bureau statistics for the locality where the Work is performed."

SC-14.02.C

Requests for payment must be in possession of the Public Works Director on the 18th of the month in order to be paid the 10th of the following month.

END OF SECTION

SECTION CDBG-1

COMMUNITY DEVELOPMENT BLOCK GRANT (CBDG) PROGRAM
SPECIAL PROVISIONS

(SEE ATTACHED CBDG DOCUMENT, REVISED 2-99)

COMMUNITY DEVELOPMENT BLOCK GRANT SPECIAL PROVISIONS

PART A – NONDISCRIMINATION IN EMPLOYMENT

Requirements for Contractor's Aggregate Work Force

The policy of the South Dakota Community Development Block Grant (HUD) program is to increase awareness of federal requirements for contracts and agreements awarded under CDBG (HUD) grants of publicly owned facilities. This implements the OMB positive efforts standards, conforms to Presidential direction and outlines the requirements.

The following notice shall be included in, and shall be a part of, all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of $10,000, to be performed in geographical areas designated by the Director pursuant to Subpart 60-4.6 of this part (See 41 CFR 60-4.2(a)):

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federally Equality Employment Opportunity Construction Contract Specifications" set forth herein.

The goals and timetables for disadvantaged/minority and female participation, expressed in percentage terms for the contractor's aggregate workforce in each trade on all construction work in the covered area, are to be listed and made available in contractors records.

These goals are applicable to all the contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of disadvantaged/minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of disadvantaged/minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is _____

_____

(Insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any.)

THE GOALS FOR THE PROJECT ARE:

Disadvantaged/Minority (DBE/MBE)	.8%
Female (WBE)	6.9%

EQUAL OPPORTUNITY CLAUSE AND EEO CONSTRUCTION CONTRACT SPECIFICATIONS

The following (1) Equal Opportunity Clause and (2) Equal Employment Opportunity Construction Contract Specifications, are to be included in all Federally assisted construction contracts and subcontracts which are not exempt from its requirements.

1. EQUAL OPPORTUNITY CLAUSE FOR FEDERALLY ASSISTED CONTRACT

During the performance of this contract, the contractor agrees as follows:

A. The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this equal opportunity (federally assisted construction) clause.

B. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

C. The contractor will send to each labor union or representative of workers, with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

D. The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended and of the rules, regulations, and relevant orders of the Secretary of Labor.

E. The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

F. In the event of the contractor's non-compliance with the equal opportunity (federally assisted construction) clause of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated, or suspended, in whole or in part, and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulations, or order of the Secretary of Labor, or as provided by law.

G. The contractor will include this equal opportunity (federally assisted construction) clause in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administrating agency may direct as a means of enforcing such provisions, including sanctions for non-compliance. Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor, as a result of such direction by the administrating agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

H. The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work, provided, that if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

I. The applicant further agrees that it will assist and cooperate actively with the Agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor; that it will furnish the Agency and the Secretary of Labor such information as they may require for the supervision of such compliance; and that it will otherwise assist the Agency in the discharge of its primary responsibility for securing compliance.

J. The applicant further agrees that it will refrain from entering into any contract or contract modification subject to the Order with a contractor debarred from or who has not demonstrated eligibility for government contracts and federally assisted construction contracts pursuant to the Order and will carry out such sanctions and penalties for violation of the equal opportunity clause, as may be imposed upon contractors and subcontractors by the Agency or the Secretary of Labor pursuant to Part II, Subpart D of the Order. In addition, the applicant agrees that if it fails or

refuses to comply with these undertakings, the Agency may take any or all of the following actions: Cancel, terminate or suspend in whole or part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

2. **STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

A. As used in these specifications:

1. "Covered area" means the geographical area described in solicitation from which this contract resulted;

2 "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

3. "Employer identification number" means the Federal Social Security number used on the employer's quarterly Federal Tax Return, U.S. Treasury Department Form 941.

4 "Disadvantaged/minority" includes:

a. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

b. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

c. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asian, the Indian Subcontinent, or the Pacific Islands);

d. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

B. Whenever the contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of the specifications and the Notice which contains the applicable goals for disadvantaged/minority and female participation and which is set forth in the solicitations from which this contract resulted.

C. If the contract is participating (pursuant to 41 CFR 60-4.5) in the Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of such

Hometown Plan. Each contractor or subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

D. The contractor shall implement the specific affirmative action standards provided in these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of disadvantaged/minority and female utilization the contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

E. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

F. In order for the nonworking training hours of apprentices and trainees to be countered in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

G. The contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

1. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The contractor, where possible, will assign two or more women to each construction project. The contractor shall specifically ensure that all foremen, superintendents and other on-site supervisory personnel are aware of and carry out the contractor's obligation to maintain such a working environment, with specific attention to disadvantaged/minority or female individuals working at such sites or in such facilities.

2. Establish and maintain a current list of disadvantaged/minority and female recruitment sources, provide written notification to disadvantaged/minority and female recruitment sources and to community organizations where the contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

3. Maintain a current file of the names, addresses, and telephone numbers of each disadvantaged/minority and female off-the-street applicant and disadvantaged/minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such

individual. If such individual was sent to the union hiring hall for referral and was not referred back to the contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the contractor may have taken.

4. Provide immediate written notification to the Director when the union or unions with which the contractor has a collective bargaining agreement has not referred to the contractor a disadvantaged/minority person or woman sent by the contractor, or when the contractor has other information that the union referral process has impeded the contractor's efforts to meet its obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the contractor's employment needs, especially those programs funded or approved by the Department of Labor. The contractor shall provide notice of these programs to the sources compiled under 7b above.

6. Disseminate the contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all disadvantaged/minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these terms with on site supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

8. Disseminate the contractor's EEO policy externally by including it in any advertising in the news media, specifically including disadvantaged/minority and female news media, and providing written notification to and discussing the contractor's EEO policy with other contractors and subcontractors with whom the contractor does or anticipate doing business.

9. Direct its recruitment efforts, both oral and written, to disadvantaged/minority, female and community organizations, to schools with disadvantaged/minority and female students and to disadvantaged/minority and female recruitment and training organizations serving the contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

10. Encourage present disadvantaged/minority and female employees to recruit other disadvantaged/minority persons and women and, where reasonable, provide after school, summer and vacation employment to disadvantaged/ minority and female youth both on the site and in other areas of a contractor's workforce.

11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

12. Conduct, at least annually, an inventory and evaluation of all disadvantaged/ minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classification, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontractors from disadvantaged/minority and female construction contractors and suppliers, including circulation of solicitations to disadvantaged/minority and female contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the contractor's EEO policies and affirmative action obligations.

H. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (1 through 16 as stated above). The efforts of a contractor association, joint contractor - union, contractor - community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 1 through 16, as stated above, of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the contractor's disadvantaged/minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the contractor. The obligation to comply, however, is the contractor's and failure of such a group to fulfill an obligation shall not be a defense for the contractor's noncompliance.

I. A single goal for minorities and a separate single goal for women has been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all disadvantaged/minority groups, both male and female, and all women, both disadvantaged/minority and non-minority. Consequently, the contractor may be in violation of the Executive Order 11246 if a particular group is employed in a substantially disparate manner.

J. The contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

K. The contractor shall not enter into any subcontract with any person or firm debarred from government contracts pursuant to Executive Order 11246.

L. The contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

M. The contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR Part 60-4.3.

N. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

O. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

PART B - GUIDANCE FOR DISADVANTAGED/ MINORITY BUSINESS ENTERPRISE (DBE/MBE) AND WOMEN'S BUSINESS ENTERPRISE (WBE) REQUIREMENTS

The policy of the South Dakota HUD Community Development Block Grant program is to assure increased DBE/WBE participation in contracts and subcontracts awarded under HUD grants for construction of publicly-owned facilities. This conforms to Presidential direction, and furthers the requirements of Title VI of the Civil Rights Act of 1964. This guidance provides suggestions for carrying out affirmative steps required by HUD Regulation 24 CFR 85.36 (e) (2)

The State will assure opportunities for immediate participation of competent DBE's/WBE's in work performed under grants and promote the development of new minority firms through a variety of business arrangements.

This policy describes the minimum positive efforts that are required of Grantees, A&E Firms and Contractors. Use of the DBE goal-oriented system is a condition of all Community Development Block Grant for construction of public facilities. This program should not be misconstrued as a mandatory set-aside policy.

At the time of Bid Opening the DBE's/WBE's must be certified. To be certified or to check on a certification, contact one or all of these agencies: Civil Rights Program, Department of Transportation, Phone: (605) 773-4906; Small Business Administration (SBA), Sioux Falls, Phone: (605) 330-4231; Bureau of Indian Affairs, Aberdeen, Phone: (605) 226-7426; Sioux Falls City Contract Compliance Officer, Phone: (605) 339-7039; Indian Health Services, Phone: (605) 226-7567; or your CDBG project administrator.

DEFINITIONS

1. DISADVANTAGED / MINORITY BUSINESS ENTERPRISE

A business, at least 51 percent of which is owned by minority group members who exercise actual day-to-day management and control of the business. (From this point on, whenever Minority is stated Disadvantaged/Minority is implied.)

2. MINORITY GROUP MEMBERS

Black Americans, Hispanic Americans, Asian Americans, American Indians, American Eskimos, American Aleuts, and Native Hawaiians and persons certified as socially and economically disadvantaged. (Bona Fide minority membership shall be established on the individual's proven claim that he or she is a member of a minority group and is so regarded by that particular minority community.

3. WOMEN'S BUSINESS ENTERPRISE

A business which is an independent business concern which is at least 51 percent owned by a woman or women who also control and operate it. Determination of whether a business is at least 51 percent owned by a woman or women shall be made without

regard to community property laws. For example, an otherwise qualified WBE which is 51 percent owned by a married woman in a community property state will not be disqualified because her husband has a 50 percent interest in her share. Similarly, a business which is 51 percent owned by a married man and 49 percent owned by an unmarried woman will not become qualified WBE by virtue of his wife's 50 percent interest in his share of the business.

4. QUALIFICATIONS FOR OWNERSHIP AND CONTROL

A. The minority or woman ownership's interest in the firm must be real, substantial and continuing. Such interest may include:

1. risk of loss/share of profit commensurate with the proportional ownership; and

2. receipt of the customary incidents of ownership, such as salary and/or intangible benefits.

B. A minority or woman owner must have and exercise the authority to independently control the business. The minority or woman owner need not be continually present to be deemed in control. Characteristics of control may include:

1. authority to sign bids and contracts;

2. making decisions in price negotiations;

3. incurring liabilities for the firm;

4. making final staffing decisions;

5. policy-making; and

6. making general company management decisions.

C. Only those firms performing a useful business function according to custom and practice in the industry are qualified as DBE's or WBE's. Acting merely as a passive conduit of funds to some other, non-minority firm where such activity is unnecessary to accomplish the project does not constitute a useful business function according to custom and practice in the industry.

5. RECIPIENT

A party receiving CDBG financial assistance pursuant to a grant or cooperative agreement.

6. PROJECT

The scope of work from which a cooperative agreement, grant agreement is awarded.

7. BIDDER

A party seeking to obtain a contract with a recipient through a competitive, advertised, sealed bid process.

8. OFFEROR

A party seeking to obtain a contract with a recipient through a negotiation procurement process.

9. DOCUMENTATION

A certified letter and receipt, written correspondence or written telephone log or required forms (whichever applies).

INFORMATION CONCERNING THE OVER ALL PROJECT DBE/MBE AND WBE GOALS

Bidders on this work will be required to comply with the President's Executive Orders No. 11246, as amended, 11625 as amended and 12138. The requirements for bidders and contractors under these orders are explained in the specifications.

Bidders shall submit a fully executed Minority Business Enterprise Assurance with their proposal, including any necessary documentation (See Page 49 of this Document). Failure to do so may render the bid null and void. The award of contract, if awarded, will be made to the lowest responsive, responsible bidder that is able to demonstrate that good faith efforts were made to meet or exceed the contract goals. Meeting or exceeding the contract goals shall conclusively establish that the bidder has made such good faith efforts.

The goal for minority business participation on this project is four (4) percent of the total dollar value of the job. The WBE goal is two (2) percent of the total dollar value of the job.

GRANTEE RESPONSIBILITIES IN OBTAINING DBE/MBE AND WBE GOALS

The grantee has the primary responsibility as a condition of the grant award to insure that the requirements of the DBE/WBE policy are met. All applicants/grantees are required to take positive efforts to use DBE/WBE firms and shall document these efforts in writing. This is a precondition to the approval of the contract for construction and such documented information shall be made available to the State. Positive efforts include, at the minimum, the following:

1. Providing a source list of DBE/WBE firms to all prospective consultants or contractors as part of the bidding documents.

2. Making a list of plan holders of record available to minority-owned firms upon request.

3. Informing consulting firms of their DBE/WBE responsibilities and the DBE/WBE goal to be included in the construction contracts.

4. Contacting local and State Minority Business Development Agencies to inform them of the project and the goal set for DBE/WBE participation. Keeping them informed of pre-bid conferences, bid opening dates, and requesting their assistance when needed.

CONSULTING FIRM RESPONSIBILITIES IN OBTAINING DBE/MBE AND WBE GOALS

All consulting firms are responsible for ensuring opportunity for all minority business enterprise participation at all phases of the project. Consulting firms play a key role in assisting the grantee and construction contractor in carrying out their DBE/WBE responsibilities. Consulting engineers shall document in writing their positive efforts. Positive efforts at a minimum will include:

1. Making plan holders aware of the DBE/WBE goals by publishing the goals in all bid notices, including bidding documents, where it is easily and quickly visible, and stating at any pre-bid and pre-award conferences that there are goals for DBE/WBE and the steps to be taken to meet the goal.

2. Keeping records of all awards and proposed awards of contracts to DBE's/WBE's, any contract changes and the names, addresses, dollar amounts, etc., of any DBE's/WBE's to be used on the projects.

NOTE: Approval Of Any Construction Contract Will Not Be Made Until The DBE/WBE Requirements Have Been Met.

PRIME CONTRACTOR RESPONSIBILITIES IN OBTAINING DBE/MBE AND WBE GOALS

All prospective prime contractors are responsible for ensuring opportunity for DBE/WBE participation in the construction of South Dakota HUD-funded projects. Prospective prime contractors shall document in writing their positive efforts taken to meet the DBE/WBE goal and submit the documents (DBE/WBE Assurance form Part C of this document) prior to the time of bid opening with the sealed bid. Failure to do so may render the bid null and void. Minimum good faith efforts include:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;

4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;

5. Using the services and assistance of the agencies listed on the minority business certification form located at the end of this section.

ADDITIONAL PRIME CONTRACTOR RESPONSIBILITIES

In addition to the preceding the prime contractor shall submit to the owner/grantee within ten (10) calendar days of the actual award of any DBE/WBE subcontract (or purchase order), data as to the DBE/WBE firm's name, address, type of work to be performed, contract amount, date of award and the State Grant Number.

INTERPRETATION OF GOAL PERCENTAGE ACHIEVED

The goal may be achieved and the bidder considered responsible, when a list of DBE/WBE contractors and suppliers, including the minimum dollar value of each contract, and the type of work each will be performing is submitted in writing with the bid prior to the time of the bid opening, with the sealed bid, and one or more of the following conditions is met:

1. The bidder is a joint venture, of which at least one member firm is an DBE/WBE and at least the contract goal percentage of the contract work will be performed by the DBE(s)/WBE(s). A copy of the joint venture agreement must be submitted to the owner/grantee within five (5) working days following bid opening. A joint venture consisting of minority and majority business enterprises, functioning as prime contractor, will be credited with minority participation on the basis of percentage of the dollar amount of the work to be performed by the DBE/WBE. For example, if a minority-majority joint venture proposes to perform 50% of a project quoted at $1,000,000 and 50% of the work is to be performed by the minority partner in the joint venture, minority participation will be credited as 25% of the work or $250,000.

2. Subcontracts or purchases totaling at least the contract goal percentage of the total contract work will be awarded to DBE(s)/WBE(s). This may be achieved through competitive or negotiated contracts. Deviation from the submitted list which would result in reducing DBE/WBE participation requires prior approval of the owner/grantee. Failure to receive prior approval will be considered a breach of contract and the contractor will be subject to the Non-Compliance Enforcement as outlined in this Attachment. A DBE/WBE bidder will be credited with minority participation for the portion of the contract which they perform and that portion subcontracted to minority firms. For example, if a DBE/WBE bidder proposes to perform a project quoted as $1,000,000 and subcontracts 25% to a majority firm and 25% to a minority firm, minority participation will be credited as 75% or $750,000.

3. Any combination of (1) and (2) as stated above meet the percentage goal for DBE/WBE participation.

STATE ASSISTANCE IN OBTAINING DBE/MBE AND WBE GOALS AND WITH COMPLIANCE

The CDBG program provides DBE/WBE assistance to all grantees, contractors, consultants. This assistance may be obtained by contacting the Community Development Block Grant Program at 773-5032. Further DBE/WBE Assistance in South Dakota may be obtained at the following address:

Civil Rights Program
SD Department of Transportation
Pierre, South Dakota 57501-2586
Phone (605) 773-4906

STATE'S RESPONSIBILITY IN OBTAINING DBE/MBE AND WBE GOALS

The State will actively monitor contractors' and subcontractors' performance and will:

1. Provide contractors, A&E firms and grantees with names of minority-owned construction contractors and minority-owned supply and service firms upon request.

2. Review contract awards to evaluate the sufficiency of positive efforts made by the contractors.

3. Review and determine the adequacy of the positive efforts after the grantee has selected an apparent low bidder.

GRANTEE ENFORCEMENT OF NON-COMPLIANCE OF DBE/MBE AND WBE REQUIREMENTS

After an apparent low bidder has been selected, the grantee may request in writing, evidence of the legitimacy of the DBE/WBE firms used by the low bidder in meeting the goals. Such information should be submitted to the grantee within 10 days of the date the request was mailed. If such evidence is not submitted, or if upon review of the information submitted, the grantee determines that there is still a failure to objectively demonstrate positive efforts to meet the goals, the bidder may be found to be nonresponsive.

The grantee must also promptly advise the bidder or offeror, in writing, of the basis for the nonresponsive determination. The State, upon review of any proposed contract award, may request a grantee to take enforcement action. A finding of nonresponsiveness shall not prejudice the right of that bidder or offerer to submit bids or proposals on other CDBG-funded projects.

EXCEPTIONS

In limited situations, approval of a contract where a bidder or offeror has not demonstrated positive efforts may be justified. For example, where delay incident to resolicitation will cause substantial harm to the grantee, the State may concur in the recommended award where at least one of the following provisions is included in the contract:

1. Specific and defined positive efforts for DBE participation during contract performance;

2. A penalty, such as termination or agreed upon liquidated damages, for failure to undertake and complete these efforts; or

3. The withholding of progress payments until such time as the positive efforts requirements have been complied with to the satisfaction of the grantee.

POST AWARD CONTRACT COMPLIANCE

Consultants or contractors are required to execute and submit to the grantee, copies of all subcontracts with DBE/WBE, within ten (10) days after prime contract award, and from time to time, advise the grantee of the status of its compliance with appropriate

requirements. In the event that a consultant or contractor fails to conform to its DBE/WBE obligation, it shall explain, in writing, to the grantee the reasons. The grantee shall require corrective efforts by the consultant or contractor unless the consultant or contractor can demonstrate good cause for its inability to comply.

DBE/WBE (SUB)CONTRACTORS FAILURE TO PERFORM SUCCESSFULLY

If the prime contractor finds that a DBE/WBE (sub)contractor is unable to perform successfully, the contractor shall make sufficient reasonable efforts to replace the DBE/WBE with another DBE/WBE. All substitutions of DBE/WBE subcontractors shall be approved by the grantee.

STATE OR LOCAL LAWS

Nothing in this policy prevents a grantee from imposing more stringent DBE/WBE requirements on work procured under Community Development Block Grant grants, including procurement obligations which pertain to bid responsiveness, where provided for State or local law or ordinances.

PART C – STATE DISADVANTAGED/ MINORITY (DBE/MBE) AND WOMEN'S (WBE) BUSINESS ENTERPRISE ASSURANCE FORM

Project No. _____ **County** _____

STATE POLICY CONCERNING DBE/MBE AND WBE OPPORTUNITY GOALS

It is the policy of the State of South Dakota that Disadvantaged/Minority Business Enterprises (DBE) and Women Business Enterprise (WBE) as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with Federal funds under this agreement. Consequently, the DBE and WBE requirements of 49 CFR Part 23 apply to this agreement.

CONTRACT GOALS

It is the goal of the State that DBE/MBE and WBE firms will contract for the following percentages of the total dollar amount of this contract:

Disadvantaged/Minority Business Enterprises (DBE/MBE) (4)%

Women's Business Enterprises (WBE) (2)%

PRIME CONTRACTOR DBE/MBE AND WBE OBLIGATIONS

The prime contractor bidding on projects financed in whole or in part with Federal funds through and for the State Community Development Block Grants program, agrees to ensure that Disadvantaged/Minority Business and Women Enterprises as defined in 49 CFR Part 23 have the maximum opportunity to participate in the performance of contracts or subcontracts financed in whole or in part with the Federal funds. The prime contractor shall not discriminate on the basis of race, color, national origin, or sex in the bidding process or the performance of contracts.

PRIME CONTRACTOR'S ASSURANCE OF COMPLIANCE

I, acting in my capacity as officer of the undersigned bidder, or bidders if a joint venture, hereby assure the State and the grantee that if awarded the contract on this project my company will provide DBE/WBE participation, with that participation being with Business Enterprises owned or controlled by disadvantaged/minorities or women as defined in Special Provisions for Disadvantaged/Minority Business Enterprises, in the following percentages:

Disadvantaged/Minority Business Enterprises (Anticipated) _____%

Women Business Enterprises (Anticipated) _____%

I have listed below the names of the DBE's, the Item No(s). or work description and the dollar value of subcontract work to be awarded.

INTENDED DBE/MBE PARTICIPATION

Name of Firm Contact Person	Item Number(s) or Work Description	Dollar Value of Proposed Subcontract

Total Dollar Value of Proposed Subcontracts.....$_____

Contract Bid Total.....$_____

Percent of Contract Bid to be Subcontracted to DBE firms.....____%

INTENDED WBE PARTICIPATION

Name of Firm Contact Person	Item Number(s) or Work Description	Dollar Value of Proposed Subcontract

Total Dollar Value of Proposed Subcontracts.....$_____

Contract Bid Total.....$_____

Percent of Contract Bid to be Subcontracted to WBE firms.....____%

DBE/WBE SUBSTITUTION

I understand that if a DBE/MBE or WBE subcontractor is unable to perform successfully for any part of the intended work my company is required to make sufficient reasonable efforts to subcontract the work to an alternate DBE/MBE or WBE firm(s) and that I must document such efforts prior to subcontract approval.

WHEN THE DBE/MBE AND WBE PERCENTAGES ARE NOT MET

I understand that if the above percentages are less than the DBE/MBE or WBE participation goals shown under contract goals on page 49, I must establish that my company has made a good faith effort to solicit DBE/MBE or WBE participation by:

1. Identifying the actual percentage of DBE/WBE participation attained, including a list of DBE/WBE subcontractors and suppliers, the approximate dollar value of each subcontract or purchase order and the type of work each will be responsible to perform.

2. Documentation - certified letters and mail receipts, written correspondence or a written telephone log requesting bids from DBE/MBE and WBE firms.

3. Using the services and assistance of the certifying agencies listed on the back of the Minority Business Certification form.

4. If a bidder has rejected or considered as nonresponsive any DBE/WBE sub-bidder, a complete documented explanation must be provided to the owner/grantee.

_____ _____

Company By: Name

NOTE: Failure to list company name, sign, or submit all required documentation as stated herein may render the bid null and void.

PART D – SECTION 3

All section 3 covered contracts shall include the following clause (referred to as the section 3 clause):

A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low-and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (24 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with seciton 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

PART E – LABOR STANDARDS

Contractors performing work on construction projects which have been provided grant assistance by the State of South Dakota must fulfill the requirements of the Labor Standards Provisions for federally assisted construction contracts. These standards are located at the end of this section.

WEEKLY CONTRACTOR PAYROLLS

Each week as work progresses, the contractor must submit to the Owner a copy of all weekly payrolls and required attachments stipulated therein. Sample suggested payrolls may be obtained from the Owner or the CDBG office upon request. All weekly payrolls shall contain or have attached the following:

1. Name of each employee. Also, show address when employee is first entered on payrolls and whenever his address changes thereafter.

2. Classification of employees (same as shown on wage determination).

3. Rate of pay not less than that shown on the wage determination.

4. Hours worked each day and total for each week for each employee.

5. All deductions made.

6. Net amount paid to employee.

7. The following certification:

   "I certify that the payroll is correct and complete, that the wage rates contained therein are not less than the applicable rates contained in the Wage Determination decision of the Secretary of Labor and that the classification set forth for each laborer or mechanic conform with the work he performs."

   _____ _____

   (Signature) (Title)

COMPLIANCE WITH THE COPELAND (ANTI-KICKBACK) ACT

The following anti-kickback statement must be submitted with each set of weekly payrolls:

"I, (name of signatory party), (title), do hereby state: That I pay or supervise the payment of the persons employed by (contractor or subcontractor) on the (work or building); that during the payroll period commencing on the _____ day of _____, 19____, and ending the _____ day of _____, 19____, all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly from the full weekly wages earned by any person, other than permissible deductions, as defined in Regulations, Part 3 (29 CFR Part 3) issued by the

Secretary of Labor under the Copeland Act, as amended (48 Stat. 948; 63 Stat. 108; 72 Stat. 967; and 40 U.S.C. 276c), and described below: (Paragraph describing deductions, if any)"

_____ _____

(Signature) (Title)

All prime contractors shall include the wage determination and all the labor standards provisions in all subcontracts as herein specified.

The Contractor shall make employment records available for inspection by authorized representatives of the State of South Dakota and the Department of Labor, and will permit employees to be interviewed during working hours by these representatives. Payroll records will be maintained during the course of the work by the Prime Contractor, including a copy of the payroll of each Subcontractor and they shall be preserved for a period of three years thereafter.

Each monthly engineering estimate must be accompanied by the following certificate executed by each Prime Contractor employing mechanics and laborers at the site on work in which the Federal government is to participate:

Principal Contractor _____

Project Name _____

Project No. SD _____

I, _____, as official representative of the above named principal contractor do hereby certify as follows:

_____ All Labor Standards Requirements have been fulfilled by principal contractor and all subcontractors under this contract; or

_____ There is an honest dispute regarding the required provisions.

Explanation: _____

_____ _____

(Signature) (Title)

In the event of a violation of the Labor Standards provisions of the contract by the Prime Contractor or any Subcontractor, the owner may, after notice to the Contractor, suspend further payments or proceed to terminate the contract as provided in the Labor Standards section of the Contract.

PART F –
FEDERAL LABOR STANDARDS PROVISION

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A.1.(i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act(29CFR Part 3), the full amount of wages and bona fide fringe benefits(or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein;Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that

additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)
(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (approved by the Office of Management and Budget under OMB control Number 1215-0140.)
(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budge under OMB Control Number 1215-0140.)
2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.
3.(i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents there of of the types described in Section 1(b)(2)B of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever

the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(b) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeships programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB control Numbers 1215-0140 and 1215-0017.)

(ii)(a) The contractor shall submit weekly for each week in which an contract work is performed a coy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.59a)(3)(i) and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3:

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification or work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of compliance" required by paragraph A.3(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the united States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(i) 9of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4.(i) Apprentices and trainees. Apprentices. Apprentices will be permitted to work at less

than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be grater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevail for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal and employment opportunity requirements of executive order 11246, as amended, and 29 CFR Part 30.
5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.
6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the causes contained in 29 CFR 5.5 (a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.
7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1,3, and 5 are herein incorporated by reference in this contract.
9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5,6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.
10.(i) Certification of Eligibility. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.
(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.
(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part "Whoever, for the purpose of...influencing in any way the action of such Administration...makes, utters or publishes any statement, knowing the same to be false... shall be fined not more than $5,000 or imprisoned not more than two years or both."
11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.
B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.
(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek, whichever is greater.
(2) Violation: liability for unpaid wages: liquidated damages. In the event of any violation of

CONTRACT PROVISIONS

Where applicable, appropriate provisions regarding progress payments must be included in each contract and subcontract. Grantees must use clauses acceptable to the State.

IMPLEMENTATION OF POLICY

The foregoing progress payments policy should be implemented in invitations for bids. If provision for progress payments is made subsequent to contract award, it must be for consideration which the grantee deems adequate.

RETENTION OF PROGRESS PAYMENTS

The grantee may retain a portion of the amount otherwise due the contractor. Except as state law otherwise provides, the amount retained by the grantee shall be limited to the following:

1. Withholding of 10 percent of the payment claimed until work is 50 percent complete;

2. When work is 50 percent complete, the 10 percent retainage which has been withheld will continue to be held, however, the subsequent withholding can be reduced to 5 percent of the dollar value of work remaining;

3. When the work is substantially complete (operation or beneficial occupancy), the withholding percentage for subsequent payments can be further reduced to below 5 percent and the contractor can be paid the full previous retainage minus the value of any work remaining at the time of substantial completion. The contractor may be paid all retainage amounts when the grantee makes final payment on the project;

4. The grantee may reinstate up to 10 percent withholding if the grantee determines, at its discretion, that the contractor is not making satisfactory progress or there is other specific cause for such withholding;

5. The grantee may accept securities negotiable without recourse, condition or restrictions, a release of retainage bond, or an irrevocable letter of credit provided by the contractor in lieu of all or part of the cash retainage.

Appropriate provision to assure compliance with this policy must be included in the bid documents for such projects initially or by addendum prior to the bid submission date, and as a special condition in the grant agreement or in a grant amendment. For all previous active projects, the policy may be implemented by the grantee through contract amendment upon written request to the grantee by the contractor upon consideration which the grantee deems adequate.

LIQUIDATED DAMAGES

For each working day that any part of the work remains uncompleted after the expiration of the time allowed for completion of the work stipulated in the contract, the contractor will pay to the grantee any expenses incurred by it on account of said contractor requiring such additional time, which expense shall include additional cost for Engineering, inspection and

legal work caused by such delay. Such costs are not to be considered as penalties. A predetermined amount may be agreed upon prior to the signing of the contract.

The assessment of liquidated damages for failure to complete the work within the contract period shall not constitute a waiver of the contracting authority's right to collect any additional damages which the contracting authority may sustain by failure of the contractor to carry out the terms of his contract.

The damages stipulated above are to be deducted from any monies due the contractor as liquidated damages for the loss to the grantee on account of the expense due to the employment of Engineers and their assistants and to any other expenses after the expiration of completion time set forth by the Engineer.

PART K –
WAGE DETERMINATION

NOTE: Wage determination must be verified by the Grantee 10 days prior to opening of Bids, and if there are any modifications they shall be published in an addendum to the Bid Documents and sent to all perspective bidders.

GENERAL DECISION **SD010001** 03/02/2001 SD1

Date: March 2, 2001
General Decision Number **SD010001**

Superseded General Decision No. SD000001

State: South Dakota

Construction Type:
HEAVY
HIGHWAY

County(ies):

AURORA	EDMUNDS	MCCOOK
BEADLE	FALL RIVER	MCPHERSON
BENNETT	FAULK	MEADE
BON HOMME	GRANT	MELLETTE
BROOKINGS	GREGORY	MINER
BROWN	HAAKON	MOODY
BRULE	HAMLIN	PERKINS
BUFFALO	HAND	POTTER
BUTTE	HANSON	ROBERTS
CAMPBELL	HARDING	SANBORN
CHARLES MIX	HUGHES	SHANNON
CLARK	HUTCHINSON	SPINK
CLAY	HYDE	STANLEY
CODINGTON	JACKSON	SULLY
CORSON	JERAULD	TODD
CUSTER	JONES	TRIPP
DAVISON	KINGSBURY	TURNER
DAY	LAKE	UNION
DEUEL	LAWRENCE	WALWORTH
DEWEY	LYMAN	YANKTON
DOUGLAS	MARSHALL	ZIEBACH

Heavy and Highway Construction Projects

Modification Number	Publication Date
0	03/02/2001

COUNTY(ies):

AURORA	EDMUNDS	MCCOOK
BEADLE	FALL RIVER	MCPHERSON
BENNETT	FAULK	MEADE
BON HOMME	GRANT	MELLETTE
BROOKINGS	GREGORY	MINER
BROWN	HAAKON	MOODY
BRULE	HAMLIN	PERKINS
BUFFALO	HAND	POTTER
BUTTE	HANSON	ROBERTS
CAMPBELL	HARDING	SANBORN
CHARLES MIX	HUGHES	SHANNON
CLARK	HUTCHINSON	SPINK
CLAY	HYDE	STANLEY
CODINGTON	JACKSON	SULLY

CORSON	JERAULD	TODD
CUSTER	JONES	TRIPP
DAVISON	KINGSBURY	TURNER
DAY	LAKE	UNION
DEUEL	LAWRENCE	WALWORTH
DEWEY	LYMAN	YANKTON
DOUGLAS	MARSHALL	ZIEBACH

SUSD3001A 05/26/1998

	Rates	Fringes
CARPENTERS/FORM BUILDERS	12.67	
CONCRETE FINISHERS	13.05	
ELECTRICIANS	13.57	
LABORERS:		
Group 1	8.49	
Group 2	10.74	
Group 3	11.06	
Group 4	12.95	

LABORER CLASSIFICATIONS

GROUP 1 - Air Tool Operator; Common Laborer; Flag Person; Landscape Worker; & Pilot Car Operator
GROUP 2 - Form Builder Tender; Mechanic Tender; & Pipe Layer (Except Culvert)
GROUP 3 - Asphalt Plant Tender; Pile Driver Leadsman; & Form Setter
GROUP 4 - Grade Checker

PAINTERS	9.64	
POWER EQUIPMENT OPERATORS:		
Group 1	9.88	
Group 2	11.01	
Group 3	11.57	
Group 4	12.62	
Group 5	13.98	

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1 - Concrete Paving Cure Machine; Concrete Paving Joint Sealer; Conveyor; Tractor (Farm-type with Attachments); Materials Spreader; & Self-propelled Broom
GROUP 2 - Truck Type Auger; Bulldozer, 80 H.P. or Less; Concrete Paving Saw; Front End Loader, 1.25 Cubic Yards or Less; Pneumatic Tired Tractor or Crawler (Includes Water Wagon & Power Spray Units); Self-propelled Roller (Except Hot Mix); Sheepsfoot/50 Ton Pneumatic Roller; Wagon Drill; & Air Trac
GROUP 3 - Asphalt Distributor; Backhoe, 1.25 Cubic Yards or Less; Bulldozer, Over 80 H.P.; Concrete Paving Finishing Machine; Crusher (May include internal Screening Plant); Euclid or Dumpster; Front End Loader, Over 1.25 Cubic Yards; Rough Motor Grader; Push Tractor; & Self-propelled Hot-Mix Roller
GROUP 4 - Asphalt Paving Machine Screed-Asphalt Paving Machine; Backhoe, Over 1.25 Cubic Yards; Crane, Derrick, Dragline, Pile Driver or Shovel, 1.25 Cubic Yards or Less; Maintenance Mechanic; Oiler & Greaser; & Scraper
GROUP 5 - Asphalt Plant; Automatic Fine Grader; Milling Machine; Concrete Batch Plant; Crane, Derrick, Dragline, Pile Driver or Shovel, Over 1.25 Cubic Yards; Heavy Duty Mechanic; & Finish Motor Grader

TRUCK DRIVERS:
Group 1 10.04
Group 2 11.59

TRUCK DRIVER CLASSIFICATIONS

GROUP 1 - Tandem Truck Without Trailer or Pup; Single Axle Truck (Over 1 ton) with Trailer
GROUP 2 - Semi-Tractor & Trailer; Tandem Truck with Pup

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

PART L – ACCESS

ACCESS TO PROJECT

The grantee must insure that representatives of the State will have access to the project work sites whenever it is in preparation or progress. The grantee must insure that a party to a subcontract will afford access to such project work sites.

ACCESS TO RECORDS AND DOCUMENTS

The grantee must provide proper facilities for such access and inspection. The grantee must allow the State agency, or any authorized representative, to have access to any books, documents, plans, reports, papers, and other records of the contractor which are pertinent to the project for the purpose of making audit, examination, excerpts, copies and transcriptions thereof. The grantee must insure that a party to a subcontract will afford access to such project documents and records.

PART M – PROCUREMENT METHODS

This section describes the rules and procedures that must be followed when purchasing supplies, equipment, construction, and services in whole or in part with Community Development Block Grant funds. These requirements are established to ensure that materials and services are obtained efficiently and economically and in compliance with the provisions of applicable Federal law and executive orders. The objectives of these regulations are to assure that:

- Unnecessary or duplicate purchases are not made;
- Favorable prices for goods and services are obtained without sacrificing needed quality;
- Purchases are made on the basis of maximum open and free competition whenever possible, and;
- National goals such as equal employment opportunity, stimulation of small and minority-owned businesses, and fair labor standards are encouraged through government purchases.

The requirements of procurement methods and contracts are delineated in 24 CFR Part 85 which is attached.

Procurement Standards 24 CFR Part 85

(a) States. When procuring property and services under a grant, a State will follow the same policies and procedures it uses for procurements from its non-Federal funds. The State will ensure that every purchase order or other contract includes any clauses required by Federal statutes and executive orders and their implementing regulations. Other grantees and subgrantees will follow paragraphs (b) through (i) in this section.
(b) Procurement standards.
(1) Grantees and subgrantees will use their own procurement procedures which reflect applicable State and local laws and regulations, provided that the procurements conform to applicable Federal law and the standards identified in this section.
(2) Grantees and subgrantees will maintain a contract administration system which ensures that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders.
(3) Grantees and subgrantees will maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer or agent of the grantee or subgrantee shall participate in selection, or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:
(i) The employee, officer or agent,
(ii) Any member of his immediate family,
(iii) His or her partner, or
(iv) An organization which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award. The grantee's or subgrantee's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from contractors, potential contractors, or parties to subagreements. Grantee and subgrantees may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards or conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the grantee's and subgrantee's officers, employees, or agents, or by contractors or their agents. The awarding agency may in regulation provide additional prohibitions relative to real, apparent, or potential conflicts of interest.
(4) Grantee and subgrantee procedures will provide for a review of proposed procurements to avoid purchase of unnecessary or duplicative items. Consideration should be given to consolidating or breaking out procurements to obtain a more economical purchase. Where appropriate, an analysis will be made of lease versus purchase alternatives, and any other appropriate analysis to determine the most economical approach.
(5) To foster greater economy and efficiency, grantees and subgrantees are encouraged to enter into State and local intergovernmental agreements for procurement or use of common goods and services.
(6) Grantees and subgrantees are encouraged to use Federal excess and surplus property in lieu of purchasing new equipment and property whenever such use is feasible and reduces project costs.
(7) Grantees and subgrantees are encouraged to use value engineering clauses in contracts for construction projects of sufficient size to offer reasonable opportunities for cost reductions. Value engineering is a systematic and creative analysis of each contract item or task to ensure that its essential function is provided at the overall lower cost.
(8) Grantees and subgrantees will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of a proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

(9) Grantees and subgrantees will maintain records sufficient to detail the significant history of a procurement. These records will include, but are not necessarily limited to the following: rationale for the method of procurement, selection of contract type, contractor selection or rejection, and the basis for the contract price.
(10) Grantees and subgrantees will use time and material type contracts only-
(i) After a determination that no other contract is suitable, and
(ii) If the contract includes a ceiling price that the contractor exceeds at its own risk.
(11) Grantees and subgrantees alone will be responsible, in accordance with good administrative practice and sound business judgment, for the settlement of all contractual and administrative issues arising out of procurements. These issues include, but are not limited to source evaluation, protests, disputes, and claims. These standards do not relieve the grantee or subgrantee of any contractual responsibilities under its contracts. Federal agencies will not substitute their judgment for that of the grantee or subgrantee unless the matter is primarily a Federal concern. Violations of law will be referred to the local, State, or Federal authority having proper jurisdiction.
(12) Grantees and subgrantees will have protest procedures to handle and resolve disputes relating to their procurements and shall in all instances disclose information regarding the protest to the awarding agency. A protester must exhaust all administrative remedies with the grantee and subgrantee before pursuing a protest with the Federal agency. Reviews of protests by the Federal agency will be limited to:
(i) Violations of Federal law or regulations and the standards of this section (violations of State or local law will be under the jurisdiction of State or local authorities) and
(ii) Violations of the grantee's or subgrantee's protest procedures for failure to review a complaint or protest. Protests received by the Federal agency other than those specified above will be referred to the grantee or subgrantee.
(c) Competition. (1) All procurement transactions will be conducted in a manner providing full and open competition consistent with the standards of 85.36. Some of the situations considered to be restrictive of competition include but are not limited to:
(i) Placing unreasonable requirements on firms in order for them to qualify to do business,
(ii) Requiring unnecessary experience and excessive bonding,
(iii) Noncompetitive pricing practices between firms or between affiliated companies,
(iv) Noncompetitive awards to consultants that are on retainer contracts,
(v) Organizational conflicts of interest,
(vi) Specifying only a "brand name" product instead of allowing "an equal" product to be offered and describing the performance of other relevant requirements of the procurement, and
(vii) Any arbitrary action in the procurement process.
(2) Grantees and subgrantees will conduct procurements in a manner that prohibits the use of statutorily or administratively imposed in-State or local geographical preferences in the evaluation of bids or proposals, except in those cases where applicable Federal statutes expressly mandate or encourage geographic preference. Nothing in this section preempts State licensing laws. When contracting for architectural and engineering (A/E) services, geographic location may be a selection criteria provided its application leaves an appropriate number of qualified firms given the nature and size of the project, to compete for the contract.
(3) Grantees will have written selection procedures for procurement transactions. These procedures will ensure that all solicitations:
(i) Incorporate a clear and accurate description of the technical requirements for the material product, or service to be procured. Such description shall not, in competitive procurements, contain features which unduly restrict competition. The description may include a statement of the qualitative nature of the material, product or service to be procured, and when necessary, shall set forth those minimum essential characteristics and standards to which it must conform if it is to satisfy its intended use. Detailed product specifications should be avoided if at all possible When it is impractical or uneconomical to

make a clear and accurate description of the technical requirements, a "brand name or equal" description may be used as a means to define the performance or other salient requirements of a procurement. The specific features of the named brand which must be met by offerors shall be clearly stated; and

(ii) Identify all requirements which the offerors must fulfill and all other factors to be used in evaluating bids or proposals.

(4) Grantees and subgrantees will ensure that all prequalified lists of persons, firms, or products which are used in acquiring goods and services are current and include enough qualified sources to ensure maximum open and free competition. Also, grantees and subgrantees will not preclude potential bidders from qualifying during the solicitation period.

(d) Methods of procurement to be followed-

(1) Procurement by small purchase procedures. Small purchase procedures are those relatively simple and informal procurement methods for securing services, supplies, or other property that do not cost more than $25,000 in the aggregate. If small purchase procurements are used, price or rate quotations will be obtained from an adequate number of qualified sources.

(2) Procurement by sealed bids (formal advertising). Bids are publicly solicited and a firm-fixed-price contract (lump sum or unit price) is awarded to the responsible bidder whose bid, conforming with all the material terms and conditions of the invitation for bids, is the lowest in price. The sealed bid method is the preferred method for procuring construction, if the conditions in 85.36(d)(2)(i) apply.

(i) In order for sealed bidding to be feasible, the following conditions should be present:

(A) A complete, adequate, and realistic specification or purchase description is available;

(B) Two or more responsible bidders are willing and able to compete effectively for the business; and

(C) The procurement lends itself to a firm fixed price contract and the selection of the successful bidder can be made principally on the basis of price.

(ii) If sealed bids are used, the following requirements apply:

(A) The invitation for bids will be publicly advertised and bids shall be solicited from an adequate number of known suppliers providing them sufficient time prior to the date set for opening the bids;

(B) The invitation for bids, which will include any specifications and pertinent attachments, shall define the items or services in order for the bidder to properly respond;

(C) All bids will be publicly opened at the time and place prescribed in the invitation for bids;

(D) A firm fixed-price contract award will be made in writing to the lowest responsive and responsible bidder. Where specified in bidding documents, factors such as discounts, transportation cost, and life cycle costs shall be considered in determining which bid is lowest. Payment discounts will only be used to determine the low bid when prior experience indicates that such discounts are usually taken advantage of; and

(E) Any or all bids may be rejected if there is a sound documented reason.

(3) Procurement by competitive proposals. The technique of competitive proposals is normally conducted with more than one source submitting an offer, and either a fixed-price or cost-reimbursement type contract is awarded. It is generally used when conditions are not appropriate for the use of sealed bids. If this method is used, the following requirements apply:

(i) Requests for proposals will be publicized and identify all evaluation factors and their relative importance. Any response to publicized requests for proposals shall be honored to the maximum extent practical;

(ii) Proposals will be solicited from an adequate number of qualified sources;

(iii) Grantees and subgrantees will have a method for conducting technical evaluations of the proposals received and for selecting awardees;

(iv) Awards will be made to the responsible firm whose proposal is most advantageous to the program, with price and other factors considered; and

(v) Grantees and subgrantees may use competitive proposal procedures for qualifications-based procurement of architectural/engineering (A/E) professional services whereby competitors' qualifications are evaluated and the most qualified competitor is selected, subject to negotiation of fair and reasonable compensation. The method, where price is not used as a selection factor, can only be used in procurement of A/E professional services. It cannot be used to purchase other types of services though A/E firms are a potential source to perform the proposed effort.
(4) Procurement by noncompetitive proposals is procurement through solicitation of a proposal from only one source, or after solicitation of a number of sources, competition is determined inadequate.
(i) Procurement by noncompetitive proposals may be used only when the award of a contract is infeasible under small purchase procedures, sealed bids or competitive proposals and one of the following circumstances applies:
(A) The item is available only from a single source;
(B) The public exigency or emergency for the requirement will not permit a delay resulting from competitive solicitation.
(C) The awarding agency authorizes noncompetitive proposals; or
(D) After solicitation of a number of sources, competition is determined inadequate.
(ii) Cost analysis, i.e., verifying the proposed cost data, the projections of the data, and the evaluation of the specific elements of costs and profit, is required.
(iii) Grantees and subgrantees may be required to submit the proposed procurement to the awarding agency for pre-award review in accordance with paragraph (g) of this section.
(e) contracting with small and minority firms, women's business enterprise and labor surplus area firms.
(1) The grantee and subgrantee will take all necessary affirmative steps to assure that minority firms, women's business enterprises, and labor surplus area firms are used when possible.
(2) Affirmative steps shall include:
(i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
(ii) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
(iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;
(iv) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;
(v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce; and
(vi) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs (e)(2)(i) through (v) of this section.
(f) Contract cost and price. (1) Grantees and subgrantees must perform a cost or price analysis in connection with every procurement action including contract modifications. The method and degree of analysis is dependent on the facts surrounding the particular procurement situation, but as a starting point, grantees must make independent estimates before receiving bids or proposals. A cost analysis must be performed when the offeror is required to submit the elements of his estimated cost, e.g., under professional, consulting, and architectural engineering services contracts. A cost analysis will be necessary when adequate price competition is lacking, and for sole source procurements, including contract modifications or change orders, unless price reasonableness can be established on the basis of a catalog or market price of a commercial product sold in substantial quantities to the general public or based on prices set by law or regulation. A price analysis will be used in all other instances to determine the reasonableness of the proposed contract price.
(2) Grantees and subgrantees will negotiate profit as a separate element of the price for

each contract in which there is no price competition and in all cases where cost analysis is performed. To establish a fair and reasonable profit, consideration will be given to the complexity of the work to be performed, the risk borne by the contractor, the contractor's investment, the amount of subcontracting, the quality of its record of past performance, and industry profit rates in the surrounding geographical area for similar work.
(3) Costs or prices based on estimated costs for contracts under grants will be allowable only to the extent that costs incurred or cost estimates included in negotiated prices are consistent with Federal cost principles (see 85.22). Grantees may reference their own cost principles that comply with the applicable Federal cost principles.
(4) The cost plus a percentage of cost and percentage of construction cost methods of contracting shall not be used.
(g) Awarding agency review.
(1) Grantees and subgrantees must make available, upon request of the awarding agency, technical specifications on proposed procurements where the awarding agency believes such review is needed to ensure that the item and/or service specified is the one being proposed for purchase. This review generally will take place prior to the time the specification is incorporated into a solicitation document. However, if the grantee or subgrantee desires to have the review accomplished after a solication has been developed, the awarding agency may still review the specifications, with such review usually limited to the technical aspects of the proposed purchase.
(2) Grantees and subgrantees must on request make available for awarding agency pre-award review [delete ","] procurement documents, such as requests for proposals or invitations for bids, independent cost estimates, etc., when:
(i) A grantee's or subgrantee's procurement procedures or operation fails to comply with the procurement standards in this section; or
(ii) The procurement is expected to exceed $25,000 and is to be awarded without competition or only one bid or offer is received in response to a solicitation; or
(iii) The procurement, which is expected to exceed $25,000, specifies a "brand name" product; or
(iv) The proposed award over $25,000 is to be awarded to other than the apparent low bidder under a sealed bid procurement;or
(v) A proposed contract modification changes the scope of a contract or increases the contract amount by more than $25,000.
(3) A grantee or subgrantee will be exempt from the pre-award review in paragraph (g)(2) of this section if the awarding agency determines that its procurement systems comply with the standards of this section.
(i) A grantee or subgrantee may request that its procurement system be reviewed by the awarding agency to determine whether its system meets these standards in order for its system to be certified. Generally, these reviews shall occur where there is a continuous high-dollar funding, and third-party contracts are awarded on a regular basis;
(ii) A grantee or subgrantee may self-certify its procurement system. Such self-certification shall not limit the awarding agency's right to survey the system. Under a self-certification procedure, awarding agencies may wish to rely on written assurances from the grantee or subgrantee that it is complying with these standards. A grantee or subgrantee will cite specific procedures, regulations, standards, etc., as being in compliance with these requirements and have its system available for review.
(h) Bonding requirements. For construction or facility improvement contracts or subcontracts exceeding $100,000, the awarding agency may accept the bonding policy and requirements of the grantee or subgrantee provided the awarding agency has made a determination that the awarding agency's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:
(1) A bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check or other negotiable instrument accompanying a bid as assurance that the bidder will, upon

acceptance of his bid, execute such contractual documents as may be required within the time specified.
(2) A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
(3) A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.
(i) Contract provisions. A grantee's and subgrantee's contracts must contain provisions in paragraph (i) of this section. Federal agencies are permitted to require changes, remedies, changed conditions, access and records retention, suspension of work, and other clauses approved by the Office of Procurement Policy.
(1) Administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate. (Contracts other than small purchases)
(2) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of ($10,000)
(3) Compliance with Executive Order 11246 of September 24, 1965 entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of October 13, 1967 and as supplemented in Department of Labor regulations (41 CFR Chapter 60). (All construction contracts awarded in excess of $10,000 by grantees and their contractors or subgrantees)
(4) Compliance with the Copeland "Anti-Kickback" Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3). (All contracts and subgrants for construction or repair)
(5) Compliance with the Davis-Bacon Act (40 U.S.C. 276a to a-7) as supplemented by Department of Labor regulations (29 CFR Part 5). (Construction contracts in excess of $2,000 awarded by grantees and subgrantees when required by Federal grant program legislation)
(6) Compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5). (Construction contracts awarded by grantees and subgrantees in excess of $2,000, and in excess of $2,500 for other contracts which involve the employment of mechanics or laborers)
(7) Notice of awarding agency requirements and regulations pertaining to reporting.
(8) Notice of awarding agency requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.
(9) Awarding agency requirements and regulations pertaining to copyrights and rights in data.
(10) Access by the grantee, the subgrantee, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions.
(11) Retention of all required records for three years after grantees or subgrantees make final payments and all other pending matters are closed.
(12) Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR Part 15). (Contracts, subcontracts, and subgrants of amounts in excess of $100,000).
(13) Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163).

PART N –
ADDITIONAL LABOR FORMS

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
OFFICE OF LABOR RELATIONS

Report of Additional Classification and Wage Rate to Wage Determination Number: _____

*Trade Classification: _____

PROJECT NAME: _____ PROJECT NO. _____

Complete one of the following paragraphs A-D to document that the classification and wage rate are prevailing in the area for your type of construction.

A. As prime contractor I have surveyed the following contractors (in the area) and have found the classification of work at the following rates of pay and fringe benefits (where applicable):

Contractor/Location (City/State)	Base Rate	Fringe Benefits
_____	_____	_____
_____	_____	_____
_____	_____	_____

Proposed prevailing rate: _____ plus fringe benefit of _____

B. I am currently under a labor agreement and this classification has a base rate of _____ and fringe benefit of _____, according to our contract.

Copy of contract enclosed _____; copy of union contract has been provided your office _____.

C. I am not under a union agreement or the union agreement does not state the requested classification and rate proposed; however, the employee and/or his/her representative have agreed that this classification is prevailing and has the following prevailing base rate of _____ and fringe benefits of _____.

D. Attached are signed statements from the Secretary of the Trade Association representing contractors (e.g., AGC, ABC) and the Secretary of the Building Trades Council having jurisdiction (representing Labor), stating the classification is prevailing and the prevailing minimum wage rate.

*Additional classifications needed for work not included within the scope of the classifications listed in the DOL wage determination may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5 (a)(1)(ii).

Employee _____ _____
(Signature of Prime Contractor)

Title _____ DATE: _____

HUD 4230A (Optional Form)
OMB No. 2501-001

Record of Employee Interview

Department of Housing and Urban Development

Labor Standards

OMB Approval No. 2501-0009 (Exp. (4-30-88)

Project Number	Contractor or Subcontractor (Employer)
Project Name	

1. Name of Employee

2. Home Address and Zip Code

3. Last Date You Worked on Project Before Today? | Number of Hours Worked on Project on that Date?

4. Your Hourly Pay Rate? $

5. Your Job Classification(s)? | Apprentice? | Yes | No

6. Your Duties?

7. Tools or Equipment Used?

8. Paid at Least Time and One-Half for All Hours Worked in Excess of 40 in a Week? (If overtime premium pay is not required, enter "Inapplicable") | Yes | No

9. Ever Threatened, Intimidated, or Coerced into Giving Up Any Part of Pay? | | |

10. Duties Observed by Interviewer | Conform to Classification: | Yes | No

11. Remarks (Continue on reverse if necessary)

12. Signature of Interviewer | Date of Interview

Payroll Examination

13. Remarks (Continue on reverse if necessary)

14. Signature of Payroll Examiner | Date

CDBG Project In Kind Time Sheet

Grantee _____

CDBG # _____

In Kind
Laborer Name _____ _____ _____
Last First M

Week Ending _____

Type of Work Performed	Sun Date	Mon	Tue	Wed	Thur	Fri	Sat	Total Hours	Wage Rate	Total Wages
Bricklayer										
Carpenter										
Electrician										
Laborer										
Painter										
Plumber										
Truck driver										
Backhoe operator										
Other _____										
Other _____										
Other _____										
								Total		

In Kind Laborer
Signature _____

Supervisor Signature _____
I hereby certify that the in kind labor did work to the equivalent of these wages.

MINORITY BUSINESS CERTIFICATION FORM

Company Name

Mailing Address

Street Address

City State Zip Code

Telephone Number

Owner

Owner

Manager

Manager

Foreman

Number of Employees
Please Check One:

_____ 1-9 _____ 10-24

_____ 25-49 _____ 50-99

_____100-199 _____200 & Above

_____ Year Business Started

_____ Tax I.D.

Type of Organization (check one)

_____ Sole Proprietorship

_____ Partnership

_____ Corporation

Certifying Agency
Please check one:

_____ SBA 8a

_____ South Dakota D.O.T.

_____ BIA

_____ IHS

_____ City of Sioux Falls

_____ Other (Please Explain:)

To become certified, please contact one of the above mentioned agencies. Addresses and phone numbers can be found on the back of the page.

Minority Business Enterprises (MBE)
Please check one:

___ American Indian
___ Eskimo
___ Aleut
___ Black
___ Puerto-Rican
___ Spanish-speaking American
___ Hasidic Jew
___ Asian Pacific American
___ Asian Indian

___ Women Business Enterprises (WBE)
___ Disadvantaged Business Enterprises (DBE)

I certify the above mentioned information is true and correct to the best of my knowledge.

SUBCONTRACTOR DATE

Acceptance of DBE/WBE Certification does not constitute GOED approval of certification.

Governor's Office of Economic Development
711 E. Wells Pierre, SD 57501 (605) 773-5032

CERTIFYING AGENCIES

Small Business Administration
8a Program
101 S. Main, Suite 101
Sioux Falls, South Dakota 57102-0577
605-330-4231

Department of Transportation
Civil Rights Office
700 Broadway
Pierre, South Dakota 57501
605-773-4906

Bureau of Indian Affairs
Contracting Officer
115 4th Avenue S.E.
Aberdeen, South Dakota 57401
605-226-7426

Indian Health Services
Contracting Officer
Federal Building, Room 309
Aberdeen, South Dakota 57401
605-226-7567

City of Sioux Falls
City Contract Compliance Officer
224 West 9th Street
Sioux Falls, South Dakota 57102
605-339-7039

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SECTION 01060
SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 PROJECT SIGNS

A. Contractor may furnish and install one Contractor's standard sign approved by Owner.

B. If a sign is used, it shall be installed in a location approved by Owner.

1.2 DRAWINGS AND CONTRACT DOCUMENTS FOR CONTRACTOR USE

A. Refer to General Conditions.

B. Contractor shall pick up all "no-charge" documents within 10 days from date of Notice to Proceed.

C. Additional documents after "no-charge" documents will be furnished to Contractor at cost.

1.4 TESTING

A. Payment for Soil, Concrete and Other Testing:
   1. Soils and concrete testing: The Owner will pay for "Passing" soils and "Passing" concrete tests on the Project. Costs of corrective action, costs of "Failing" soils and concrete tests, and cost of testing associated with establishment of mix design are the sole responsibility of the Contractor.
   2. Other testing: Required testing, testing procedures, reports, certificates, and costs associated with all phases of securing required satisfactory test information which may be required by individual sections of Specifications or Drawings are the full responsibility of the Contractor.

1.5 ORDER OF CONSTRUCTION AND CONSTRUCTION SCHEDULE

A. Within 10 days after award of Contract, submit for approval a critical path type schedule. Account for schedule of Subcontracts. Include proper sequence of construction, various crafts, purchasing time, shop drawing approval, material delivery, equipment fabrication, startup, demonstration, and similar time consuming factors. Show on schedule as a minimum, earliest starting, earliest completion, latest starting, latest finish, and free and total float for each task or item.

   Evaluate schedule no less than twice monthly. Update, correct, and rerun schedule and submit to Engineer in triplicate with pay application to show rescheduling necessary to reflect true job conditions. When shortening of various time intervals is necessary to correct for behind schedule conditions, indicate steps to implement to accomplish work in shortest schedule. Information shall be submitted to Engineer in writing with revised schedule.

B. If Contractor does not take necessary action to accomplish work according to schedule, he may be ordered by Owner in writing to take necessary and timely action to improve work progress. Order may require increased work forces, extra equipment, extra shifts or other action as necessary. Should Contractor refuse or neglect to take such action authorized, under provisions of this contract, Owner may take necessary actions including, but not necessarily limited to, withholding of payment and termination of contract.

C. Upon receipt of approved "Work Schedule," within 10 days, submit to Engineer an estimated payment schedule by each month of project duration.

1.6 PROJECT MEETINGS

A. The Engineer will conduct construction meetings involving:
   1. Contractor's project manager.
   2. Contractor's project superintendent.
   3. Owner's designated representative(s).
   4. Engineer's designated representative(s).
   5. Contractor's subcontractors as appropriate to the work in progress.

B. Meetings conducted every week or less frequently, if warranted.

C. The Engineer will take meeting minutes and submit copies of meeting minutes to participants and designated recipients identified at the Preconstruction Conference. Corrections, additions or deletions to the minutes shall be noted and addressed at the following meeting.

D. The Engineer will schedule meetings for most convenient time frame.

E. The Engineer will have available at each meeting full chronological file of all previous meeting minutes.

F. The Contractor shall have available at each meeting up-to-date record drawings.

1.7 VIDEO RECORDING EQUIPMENT

A. Provide full access to Owner or Owner's authorized representative to perform video recording of construction activities, training sessions, start-up, trouble shooting, etc.

1.8 SPECIAL CONSIDERATIONS

A. Contractor shall be responsible for negotiations of any waivers or alternate arrangements required to enable transportation of materials to the site.

B. Maintain conditions of access road to site such that access is not hindered as the result of construction related deterioration.

1.9 HISTORICAL AND ARCHAEOLOGICAL

A. If during the course of construction, evidence of deposits of historical or archaeological interest is found, the Contractor shall cease operations affecting the find and shall notify the Owner. No further disturbance of the deposits shall ensue until the Contractor has been notified by the Owner that Contractor may proceed. The Owner will issue a Notice to Proceed only after South Dakota State Historical Preservation Officer has surveyed the find and made a determination to the Owner. Compensation to the Contractor, if any, for lost time or changes in construction resulting from the find, shall be determined in accordance with changed or extra work provisions of the Contract Documents."

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SECTION)

END OF SECTION

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SECTION 01340

SHOP DRAWINGS, PRODUCT DATA & SAMPLES; OPERATION & MAINTENANCE MANUALS; AND MISCELLANEOUS SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

A. General:
   1. Section Addresses:
      a. Mechanics and administration of the submittal process for shop drawings, operation and maintenance manuals, and miscellaneous submittal items.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Sections in Divisions 2 through 16 identifying required submittals.

1.2 DEFINITIONS

A. Shop Drawings and Operations and Maintenance Manuals:
   1. See General Conditions.
   2. Product data and samples are Shop Drawing information.

B. Miscellaneous Submittals:
   1. Submittals other than Shop Drawings:
   2. Representative types of miscellaneous submittal items include but are not limited to:
      a. Construction schedule.
      b. Concrete and soil compaction test reports.
      c. Warranties.
      d. Service agreements.
      e. Cost breakdown (Schedule of Values).

1.3 TRANSMITTALS

A. Shop Drawings:
   1. Transmit all submittals to:

      HDR Engineering, Inc.
      600 South Cliff Avenue, Suite 106
      Sioux Falls, South Dakota, 57104
      Attn: Al Erickson

   2. Utilize two copies of attached Exhibit "A" to transmit all shop drawings, product data and samples.
   3. Utilize two copies of attached Exhibit "B" to transmit all Operation and Maintenance Manuals.
   4. All transmittals must be from Contractor and bear his approval stamp. Transmittals will not be received from or returned to subcontractors.
      a. Shop drawing transmittal stamp shall read "(Contractor's Name) has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval as stipulated under General Conditions Paragraph 6.25.1. Transmittals will not be received from or returned to subcontractors.
      b. Operation and Maintenance Manual transmittal stamp may be Contractor's standard approval stamp.

5. Provide submittal information defining specific equipment or materials utilized on the project. Generalized product information not clearly defining specific equipment or materials to be provided will be rejected.
6. Calculations required in individual specification sections will be received for information purposes only and will be returned stamped "E. Engineer's Review Not Required" to acknowledge receipt.Submittal schedule:
   a. Schedule of shop drawings:
      1) Submitted and approved within 30 days of receipt of Notice to Proceed.
   b. Shop drawings:
      1) Submittal and approval prior to 50 percent completion.
   c. Operation and Maintenance Manuals and Equipment Record Sheets:
      1) Initial submittal within 60 days after date shop drawings are approved.
   d. The third submittal of any shop drawing or Operation and Maintenance Manual is considered excessive. A review charge of $200 per resubmittal will be charged which may be deducted from the Contract by the Owner.
      1) Full payment will not be made on any equipment or materials until an approved Operations and Maintenance Manual is received.
   e. Final payment on the project shall not be made until final approved copies of all Operation and Maintenance Manuals including Equipment Record Sheets with equipment serial numbers) have been received.

B. Miscellaneous Submittals:
1. Transmit under Contractor's standard letter of transmittal or letterhead.
2. Submit in triplicate or as specified in individual specification section.
3. Transmit to:

HDR Engineering, Inc.
600 South Cliff Avenue, Suite 106
Sioux Falls, South Dakota, 57104
Attn: Al Erickson

4. Provide carbon copy of letter of transmittal to Engineer's Resident Project Representative.
   a. Exception for concrete and soils compaction test reports.
      1) Transmit one copy to Resident Project Engineer.
      2) Transmit one copy to location and individual indicated above for other miscellaneous submittals.

1.4 PREPARATION OF SUBMITTALS

A. Shop Drawings:
1. Scope of any letter of transmittal:
   a. Limited to one Specification Section.
   b. Do not submit under any Specification Section entitled (in part) "Basic Requirements".
2. Numbering letter of transmittal:
   a. Include as prefix the specification section number followed by "-xx" beginning with "01".
   b. If more than one submittal under any specification section, number transmittals consecutively.
3. Describing transmittal contents:
   a. Provide listing of each component or item in submittal capable of receiving an independent review action.
   b. Identify for each item:
      1) Manufacturer and Manufacturer's drawing or data number.
      2) Contract Document tag number(s).
4. Resubmittals:
   a. Number with original root number and a suffix letter starting with "A" on a (new) duplicate transmittal form.

b. Do not increase the scope of any prior transmittal.
c. Account for all components of prior transmittal.
1) If items in prior transmittal received "A" or "B" Action code, list them and indicate "A" or "B" as appropriate.
a) Do not include submittal information for items with prior "A" or "B" Action in transmittal.
2) Indicate "Outstanding-To Be Resubmitted At a Later Date" for any prior "C" or "D" Action item not included in resubmittal.
a) Obtain Engineer's prior approval to exclude items.

5. For 8-1/2 x 11 IN size sheets, provide four copies of each page for Engineer plus the number required by the Contractor. The number of copies required by the Contractor will be defined at the Preconstruction Conference, but shall not exceed 10.
6. For items not covered in paragraph 1.4-A.6 submit one reproducible transparency and one print of each drawing until approval is obtained. Utilize mailing tube; do not fold. The Engineer will mark and return the reproducible to the Contractor for his reproduction and distribution.
7. Provide clear space (3 IN SQ) for Engineer stamping of each component defined in 1.4-A.4.
8. Contractor shall not use red color for marks on transmittals. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible. Outline Contractor marks on reproducible transparencies with a rectangular box.
9. Transmittal contents:
a. Coordinate and identify shop drawing contents so that all items can be easily verified by the Engineer.
b. Identify equipment or material use, tag number, drawing detail reference, weight, and other project specific information.
c. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
d. Submit items like equipment brochures, cuts of fixtures, product data sheets or catalog sheets on 8-1/2 x 11 IN pages. Indicate exact item or model and all options proposed.
e. Include legible scale details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout drawings, parts catalogs, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data. Arrange data and performance information in format similar to that provided in Contract Documents. Provide, at minimum, the detail provided in the Contract Documents.
f. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet.

B. Samples:
1. Identification:
a. Identify sample as to transmittal number, manufacturer, item, use, type, project designation, tag number, Standard Specification section or drawing detail reference, color, range, texture, finish and other pertinent data.
b. If identifying information cannot be marked directly on sample without defacing or adversely altering samples, provide a durable tag with identifying information securely attached to the sample.
2. Include application specific brochures, and installation instructions.
3. Provide Contractor's stamp of approval on samples or transmittal form as indication of Contractor's checking and verification of dimensions and coordination with interrelated work.
4. Resubmit samples of rejected items.

C. Operation and Maintenance Manuals:
1. Number transmittals for Operation and Maintenance Manual with original root number of the approved shop drawing for the item.

2. Submit two copies until approval is received.
3. Identify resubmittals with the original number plus a suffix letter starting with "A."
4. Submit Operation and Maintenance Manuals printed on 8-1/2 x 11 IN size heavy first quality paper with standard three-hole punching and bound in a stiff metal hinged binder. Provide binders with titles on front and on spine of binder. Tab each section of manuals for easy reference with plastic-coated dividers. Provide index for each manual. Provide plastic sheet lifters prior to first page and following last page.
5. Reduce drawings or diagrams bound in manuals to an 8-1/2 x 11 IN or 11 x 17 IN size. However, where reduction is not practical to ensure readability, fold larger drawings separately and place in vinyl envelopes which are bound into the binder. Identify vinyl envelopes with drawing numbers.
6. Transmittal Content:
   a. Submission of Operation and Maintenance Manuals is applicable but not necessarily limited to:
      1) Water control gates.
   b. Operation and maintenance manuals shall include, but not necessarily be limited to, the following detailed information, as applicable:
      1) Equipment function, normal operating characteristics, limiting operations.
      2) Assembly, disassembly, installation, alignment, adjustment, and checking instructions.
      3) Operating instructions for start-up, routine and normal operation, regulation and control, shutdown, and emergency conditions.
      4) Lubrication and maintenance instructions.
      5) Guide to "troubleshooting."
      6) Parts list and predicted life of parts subject to wear.
      7) Outline, cross-section, and assembly drawings and engineering data.
      8) A list of recommended spare parts with a price list and a list of spare parts provided under these specifications.
      9) Copies of installation instructions, parts lists or other documents packed with equipment when delivered.
      10) Instrumentation or tag numbers relating the equipment back to the Contract Documents.

1.5 ENGINEER'S REVIEW ACTION

A. Shop Drawings and Samples:
   1. Items within transmittals will be reviewed for overall design intent and will receive one of the following actions:
      a. A - FURNISH AS SUBMITTED.
      b. B - FURNISH AS NOTED (BY ENGINEER).
      c. C - REVISE AND RESUBMIT.
      d. D - REJECTED.
      e. E - ENGINEER'S REVIEW NOT REQUIRED.
   2. Transmittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp. Drawings not stamped by the Contractor or stamped with a stamp containing language other than that specified in Paragraph 1.3-A.4.a., will not be reviewed for technical content and will be returned without any action.
   3. Transmittals returned with Action "A" or "B" are considered ready for fabrication and installation. If for any reason a transmittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
   4. Transmittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:

a. The portion of the transmittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference). One copy or the one transparency of the "C" or "D" drawings will be marked up and returned to the Contractor. Correct and resubmit items so marked.
b. Items marked "A" or "B" will be fully distributed.
c. If a portion of the items or system proposed are acceptable, however, the major part of the individual drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action. This is at the sole discretion of the Engineer. In this case, some drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package." Distribution to the Owner and field will not be made (unless previously agreed to otherwise).

5. Failure to include any specific information specified under the submittal paragraphs of the specifications will result in the transmittal being returned to the Contractor with "C" or "D" Action.
6. Transmittals such as submittals which the Engineer considers as "Not Required," submittal information which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" Action in a prior transmittal, will be returned with Action "E. Engineer's Review Not Required."
7. Samples may be retained for comparison purposes. Remove samples when directed. Include in bid all costs of furnishing and removing samples.
8. Approved samples submitted or constructed, constitute criteria for judging completed work. Finished work or items not equal to samples will be rejected.

B. Operation and Maintenance Manuals:
1. Engineer will review and indicate one of the following review actions:
a. ACCEPTABLE.
b. FURNISH AS NOTED.
c. REVISE AND RESUBMIT.
d. REJECTED.
2. Acceptable submittals will be retained with the transmittal form returned with a request for three additional copies.
3. Deficient submittals will be returned along with the transmittal form which will be marked to indicate deficient areas.

END OF SECTION

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SECTION 01560
ENVIRONMENTAL PROTECTION AND SPECIAL CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Addresses:
   1. Minimizing the pollution of air, water, or land; control of noise, the disposal of solid waste materials, and protection of deposits of historical or archaeological interest.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Prior to the start of any construction activities submit:
      a. A detailed proposal of all methods of control and preventive measures to be utilized for environmental protection.
      b. A drawing of the work area, haul routes, storage areas, access routes and current land conditions including trees and vegetation.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SECTION)

PART 3 - EXECUTION

3.1 INSTALLATION

A. Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations.

B. Land Protection:
   1. Except for any work or storage area and access routes specifically assigned for the use of the Contractor, the land areas outside the limits of construction shall be preserved in their present condition. Contractor shall confine his construction activities to areas defined for work within the Contract Documents.
   2. Manage and control all borrow areas, work or storage areas, access routes and embankments to prevent sediment from entering nearby water or land adjacent to the work site.
   3. Restore all disturbed areas including borrow and haul areas and establish permanent type of locally adaptable vegetative cover.
   4. Unless earthwork is immediately paved or surfaced, protect all side slopes and backslopes immediately upon completion of final grading.
   5. Plan and execute earthwork in a manner to minimize duration of exposure of unprotected soils.
   6. Except for areas designated by the Contract Documents to be cleared and grubbed, the Contractor shall not deface, injure or destroy trees and vegetation, nor remove, cut, or disturb them without approval of the Engineer. Any damage caused by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense.

C. Surface Water Protection:
   1. Contractor to comply with requirements of the 401 and 404 permits as presented in the attachemd letters from:
      a. Nettie H. Meyes; SD DENR; May 4, 2000.
      b. John Muller; SD DENR; May 4, 2000.
      c. Tim Olson; SD DENR; May 4, 2000.
   2. Utilize, as necessary, erosion control methods to protect side and backslopes, minimize and the discharge of sediment to the surface water leaving the construction site as soon as rough grading is complete. These controls shall be maintained until the site is ready for final grading and landscaping or until they are no longer warranted and concurrence is received from the Engineer. Physically retard the rate and volume of runon and runoff by:
      a. Implementing structural practices such as diversion swales, terraces, straw bales, silt fences, berms, storm drain inlet protection, rocked outlet protection, sediment traps and temporary basins.
      b. Implementing vegetative practices such as temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffers, hydroseeding, anchored erosion control blankets, sodding, vegetated swales or a combination of these methods.
      c. Providing Construction sites with graveled or rocked access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads.
   3. Discharges from the construction site shall not contain pollutants at concentrations that produce objectionable films, colors, turbidity, deposits or noxious odors in the receiving stream or waterway.

D. Solid Waste Disposal:
   1. Collect solid waste on a daily basis.
   2. Provide disposal of degradable solid waste to an approved solid waste disposal site.
   3. Provide disposal of nondegradable solid waste to an approved solid waste disposal site or in an alternate manner approved by Engineer and regulatory agencies.
   4. No building materials wastes or unused building materials shall be buried, dumped, or disposed of on the site.

E. Fuel and Chemical Handling:
   1. Store and dispose of chemical wastes in a manner approved by regulatory agencies.
   2. Take special measures to prevent chemicals, fuels, oils, greases, herbicides, and insecticides from entering drainage ways.
   3. Do not allow water used in onsite material processing, concrete curing, cleanup, and other waste waters to enter a drainage way(s) or stream.
   4. The Contractor shall provide containment around fueling and chemical storage areas to ensure that spills in these areas do not reach waters of the state.

F. Control of Dust:
   1. The control of dust shall mean that no construction activity shall take place without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne so that it remains visible beyond the limits of construction. Reasonable measures may include paving, frequent road cleaning, planting vegetative groundcover, application of water or application of chemical dust suppressants. The use of chemical agents such as calcium chloride must be approved by the City of Watertown.
   2. Utilize methods and practices of construction to eliminate dust in full observance of agency regulations.
   3. The Engineer will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to Owner.

G. Burning:
   1. Do not burn material on the site. If the Contractor elects to dispose of waste materials by burning, make arrangements for an off-site burning area and conform to all agency regulations.

H. Control of Noise:

1. Control noise by fitting equipment with appropriate mufflers.

I. Completion of Work:
   1. Upon completion of work, leave area in a clean, natural looking condition.
   2. Ensure all signs of temporary construction and activities incidental to construction of required permanent work are removed.
   3. Grade, fill and seed all disturbed areas.

J. Historical Protection:
   1. If during the course of construction, evidence of deposits of historical or archaeological interests are found, cease work affecting find and notify Engineer. Do not disturb deposits until written notice from Engineer is given to proceed.
   2. The Contractor will be compensated for lost time or changes in construction to avoid the find based upon normal change order procedures.

END OF SECTION

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

RECEIVED
JUN 07 2000

May 18, 2000

Richard L. Schlechter
City of Watertown
23 NE 2nd Street
Watertown SD 57201

RE: 199630530
Weirs/Flood-Sediment Control
Big Sioux River

Dear Mr. Schlecter:

The Department of Environment and Natural Resources has reviewed the request for water quality certification. This project pertains to replacing the existing water control structure in the Big Sioux River and constructing a new water control structure in the Lake Kampeska inlet/outlet channel. This project is located in Section 15, Township 117 North, Range 53 West, Codington County. Section 401 of the Clean Water Act requires this review before a 404 permit is granted.

The department is granting water quality certification with the following conditions:

(1) Best Management Practices such as silt fences, sand bags, etc. must be utilized if fill material will be placed in the inlet/outlet channel to Lake Kampeska and the Big Sioux River.

(2) Best Management Practices must be in place before fill material is placed into surface water bodies.

(3) Construction activities in the inlet/outlet channel to Lake Kampeska and the Big Sioux River shall commence when flow is at a minimum.

(4) Equipment should not be operated in the water if possible.

(5) If it becomes evident that the water quality standards for Lake Kampeska and the Big Sioux River may be violated, all necessary steps must be taken to prevent the violation from occurring.

(6) The City of Watertown and/or their contractors must be aware that violating surface water quality standards may result in enforcement actions being taken.

This certification does not authorize the above referenced activity. The activity may occur only by issuance of the U.S. Corps of Engineers Section 404 permit. If you have questions pertaining to this certification, please contact John Miller, at (605) 773-3351. Thank you for ensuring the continued protection of our natural resources.

Sincerely,

Nettie H. Myers

Nettie H. Myers
Secretary

cc: Steve Naylor, US COE, Pierre
Katie Schenk, US COE, Omaha
Bob Mairley, US EPA, Denver

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

May 4, 2000

RE: 404 Notice of Permit Pending
Application #: 199630530
City of Watertown

STEVE NAYLOR
U S ARMY CORPS OF ENGINEERS
SOUTH DAKOTA REGULATORY OFFICE
28563 POWERHOUSE ROAD
ROOM 120
PIERRE SD 57501



Dear Mr. Naylor:

The South Dakota Department of Environment and Natural Resources (DENR), Division of Environmental Services, has reviewed the above listed project. This project is located in Section 15, T117N, R53W, Codington County, South Dakota.

This office has no objections to the project provided the applicant and/or contractor(s) comply with the following requirements:

1. All fill material shall be free of substances in quantities, concentrations, or combinations which are toxic to aquatic life.

2. Removal of vegetation shall be confined to those areas absolutely necessary to construction.

3. At a minimum, construction techniques for sediment and erosion control must be utilized, such as those presented in either "Best Management Practices" by DWNR (1981), "Best Management Practices" by the Federal Department of Transportation, or the "Erosion Control Manual" by the Colorado Department of Transportation.

4. All material identified in the application as removed waste material, material stockpiles, dredged or excavated material shall be placed for either temporary or permanent disposal in an upland site that is not a wetland (unless approved by permit), and measures taken to ensure that the material cannot enter the watercourse through erosion or any other means.

5. All newly created and disturbed area above the ordinary high water mark which are not riprapped shall be seeded or otherwise revegetated to protect against erosion.

6. Measures shall be taken to minimize any increase in suspended solids and turbidity.

7. The Big Sioux River in this segment is classified by the South Dakota Surface Water Quality Standards and Uses Assigned to Streams for the following beneficial uses:

   1) Domestic water supply waters;
   5) Warmwater semipermanent fish life propagation waters;
   8) Limited contact recreation waters;
   9) Fish and wildlife propagation, recreation, and stock watering waters; and,
   10) Irrigation waters.

   Because of these beneficial uses, special construction measures may have to be taken to ensure that the total suspended solids standard of 90 mg/L is not violated.

Thank you for the opportunity to provide comments on the proposed permit. A copy of the permit with any special conditions would be appreciated. If you have any questions, please contact this Office.

Sincerely,

John Miller

John Miller
Environmental Program Scientist
Division of Environmental Services
Phone: (605) 773-3351

cc: Tim Olson, SD GFP
Scott Larson, US FWS

DEPARTMENT OF GAME, FISH AND PARKS
Foss Building
523 East Capitol
Pierre, South Dakota 57501-3182

May 4, 2000

Mr. Steven E. Naylor
U.S. Army Corps of Engineers
South Dakota Regulatory Office
28563 Powerhouse Road, Room 120
Pierre, SD 57501

RE: City of Watertown, Lake Kampeska inlet/outlet structure and Big Sioux River Channel Weir. Individual 404 Permit Application # 199630530, Codington County.

Dear Mr. Naylor:

The South Dakota Department of Game, Fish and Parks (GF&P), Division of Wildlife has reviewed the public notice for the above referenced project. A permit, if issued, would authorize replacement of an existing weir in the Big Siouix River and construction of a new water control structure in the inlet/outlet channel to Lake Kampeska.

Our primary concerns regarding the proposed project relate to maintenance of fish and wildlife passage between Lake Kampeska and the Big Sioux River. The report included with the public notice includes an analysis of passage for several species of sport fish **into** Lake Kampeska. It appears that movement of some species at times will be limited. Moreover, it appears that no analysis of fish passage was made for fish moving **out** of the lake when river flows are entering the lake. Movement of species such as walleyes and northern pike from the lake into the river during the early spring spawning season should be accomodated by the project and needs to be evaluated before your office authorizes the proposed work. We request that your office obtain such an analysis and share it with the resource agencies for review prior to further consideration of project authorization. We also strongly suggest that you ask your biologists in the Omaha office for technical assistance in reviewing this matter.

Little information about construction sequencing, isolation of the work area from river flows, sediment and erosion control, minimizing disturbance of vegetated streambanks and adjacent wetlands, etc is included in the project proposal. In order to minimize secondary adverse effects to such resources, we ask that your office request and review

additional information describing how the applicant plans to address such issues during construction.

Thank you for the opportunity to comment. If you have any questions, please call me at 773-6208.

Sincerely,

Tim Olson

Tim Olson
Water Resources Specialist

cc: Scott Larson, USFWS, Pierre
John Miller, SDDENR, Pierre

92B17

SECTION 01600
PRODUCT DELIVERY, STORAGE, AND HANDLING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Scheduling of product delivery.
   2. Packaging of products for delivery.
   3. Protection of products against damage from:
      a. Handling.
      b. Exposure to elements or harsh environments.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

C. Payment:
   1. No payment will be made to Contractor for equipment or materials not properly stored and insured or without approved shop drawings.
      a. Previous payments for items will be deducted from subsequent progress estimate(s) if proper storage procedures are not observed.

1.2 DELIVERY

A. Scheduling:
   1. Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.

B. Packaging:
   1. Deliver products or equipment in manufacturer's original unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.

C. Identification:
   1. Clearly and fully mark and identify as to manufacturer, item, and installation location.

D. Protection and Handling:
   1. Provide manufacturer's instructions for storage and handling.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SECTION)

PART 3 - EXECUTION

3.1 PROTECTION, STORAGE AND HANDLING

A. Manufacturer's Instruction:
   1. Protect all products or equipment in accordance with manufacturer's written directions.
      a. Store products or equipment in location to avoid physical damage to items while in storage.
      b. Handle products or equipment in accordance with manufacturer's recommendations and instructions.
   2. Protect equipment from exposure to elements and keep thoroughly dry.

3.2 FIELD QUALITY CONTROL

A. Inspect Deliveries:
   1. Inspect all products or equipment delivered to the site prior to unloading. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.

B. Monitor Storage Area:
   1. Monitor storage area to ensure suitable temperature and moisture conditions are maintained.

END OF SECTION

00F08

SECTION 01640
PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. The procedure for requesting substitution approval for a product which is specified by descriptive or performance criteria or defined by reference to one or more of the following:
      a. Name of manufacturer.
      b. Name of vendor.
      c. Trade name.
      d. Catalog number.
   2. This Section does not address substitutions for water control gates. The manufacturer selected in the bid fill be provided.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of The Contract.
   2. Division 1 - General Requirements.

C. Requests for Substitution - General:
   1. Base all bids on materials, equipment, and procedures specified.
   2. Certain types of equipment and kinds of material are described in specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog numbers, provided said products are capable of accomplishing the same tasks as the products specifically indicated.
   3. Other types of equipment and kinds of material may be acceptable.

1.2 QUALITY ASSURANCE

A. In making request for substitution or in using an approved product, Contractor represents:
   1. He has investigated proposed product, and has determined that it is adequate or superior in all respects to that specified, and that it will perform function for which it is intended.
   2. He will provide same guarantee for substitute item as for product specified.
   3. He will coordinate installation of accepted substitution into work, to include building modifications if necessary, making such changes as may be required for work to be complete in all respects.
   4. He waives all claims for additional costs related to substitution which subsequently arise.

1.3 DEFINITIONS

A. Product: Manufactured material or equipment.

1.4 PROCEDURE FOR REQUESTING SUBSTITUTION

A. Considered after award of Contract.

B. Written requests through Contractor only.

C. Transmittal Mechanics:

1. Follow the transmittal mechanics prescribed for shop drawings in Section 01340. Product substitution will be treated in a manner similar to "deviations," as described in paragraph 1.04-A.10.f of Section 01340. List the letter describing the deviation and justifications on the transmittal form in the space provided under the column with the heading "DESCRIPTION." Include in the transmittal letter, either directly or as a clearly marked attachment, the items listed in paragraph D below.

D. Transmittal Contents:
   1. Product identification:
      a. Manufacturer's name.
      b. Telephone number and representative contact name.
      c. Specification section or drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.
   2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.
   3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:
      a. Size.
      b. Composition or materials of construction.
      c. Weight.
      d. Electrical or mechanical requirements.
   4. Product experience:
      a. Location of past projects utilizing product.
      b. Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product.
      c. Available field data and reports associated with proposed product.
   5. Data relating to changes in construction schedule.
   6. Data relating to changes in cost.
   7. Samples:
      a. At request of Engineer.
      b. Full size if requested by Engineer.
      c. Held until substantial completion.
      d. Engineer not responsible for loss or damage to samples.

1.5 APPROVAL OR REJECTION

A. Written approval or rejection of substitution given by the Engineer.

B. Engineer reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.

C. In event substitution results in a change of Contract price or time, provisions in General Conditions will be applied for adjustment.

D. Substitutions will be rejected if:
   1. Submittal is not through the Contractor with his stamp of approval.
   2. Requests are not made in accordance with this Section.
   3. In the Engineer's opinion, acceptance will require substantial revision of the original design.
   4. In the Engineer's opinion, substitution is not equal to original product specified or will not perform adequately the function for which it was intended.

END OF SECTION

00D28

SECTION 01710
CLEANING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Intermediate and final cleaning of Work not including special cleaning of closed systems specified elsewhere.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 STORAGE AND HANDLING

A. Store cleaning products and cleaning wastes in containers specifically designed for those materials.

1.3 SCHEDULING

A. Schedule cleaning operations so that dust and other contaminants disturbed by cleaning process will not fall on newly painted surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents:
   1. Compatible with surface being cleaned.
   2. New and uncontaminated.
   3. For Manufactured Surfaces: Material recommended by manufacturer.

PART 3 - EXECUTION

3.1 CLEANING - GENERAL

A. Prevent accumulation of wastes that create hazardous conditions.

B. Conduct cleaning and disposal operations to comply with laws and safety orders of governing authorities.

C. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains or sewers.

D. Dispose of degradable debris at an approved solid waste disposal site.

E. Dispose of nondegradable debris at an approved solid waste disposal site or in an alternate manner approved by Engineer and regulatory agencies.

F. Handle materials in a controlled manner with as few handlings as possible.

G. On completion of work, leave area in a clean, natural looking condition. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.

H. Do not burn on-site.

3.2 EXTERIOR (SITE) CLEANING

A. Cleaning During Construction:
   1. Construction debris:
      a. Confine in strategically located container(s):
         1) Cover to prevent blowing by wind.
         2) Haul from site minimum once a week.
      b. Remove from work area to container daily.
   2. Vegetation:
      a. Keep weeds and other vegetation trimmed to 3 IN maximum height.
   3. Soils, sand, and gravel deposited on paved areas and walks:
      a. Remove as required to prevent muddy or dusty conditions.
      b. Do not flush into storm sewer system.

B. Final Cleaning:
   1. Remove trash and debris containers from site:
      a. Re-seed areas disturbed by location of trash and debris containers.
   2. Clean paved roadways.

3.3 FIELD QUALITY CONTROL

A. Immediately prior to Substantial Completion, conduct an inspection with Engineer to verify condition of all work areas.

END OF SECTION

00D28

SECTION 02072
DEMOLITION, CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Demolition, cutting and patching of existing construction where shown on Drawings, or as required to accommodate new work shown or specified.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Indicating manufacturer and type of:
      a. Proposed nonshrink grout.
      b. Epoxy bonding adhesive.
      c. Proposed materials and methods to be used for matching and repairing existing construction.

PART 2 - PRODUCTS (NOT APPLICATION TO THIS SPECIFICATION)

PART 3 - EXECUTION

3.1 INSTALLATION

A. Cutting and Removal:
   1. Remove existing work indicated to be removed, or as necessary for installation of new work.
   2. Neatly cut and remove materials.
   3. Remove steel sheeting in small sections.

B. Salvaged Items:
   1. Dispose of items or materials cut or removed. Promptly remove from site.

C. Clean Up:
   1. Transport debris and legally dispose of off site.

END OF SECTION

00F07

SECTION 02200
EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Earthwork.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society for Testing and Materials (ASTM):
      a. C33, Standard Specification for Concrete Aggregates.
      b. D698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft3).
      c. D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/f(2,700 kN-m/m)).
      d. D2487, Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System.
      e. D4253, Standard Test Methods for Maximum Index Density of Soils Using a Vibratory Table.
      f. D4254, Test Methods for Minimum Index Density of Soils and Calculation of Relative Density.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
   3. Certifications.
   4. Test reports:
      a. Soils inspection and testing results.

B. Samples:
   1. Submit samples and source of fill and backfill materials proposed for use.

1.4 MEASUREMENT AND PAYMENT

A. Measurement:
   1. Compacted embankment shall be at the cubic yard. The quantity of compacted embankment will include the total volume of material computed by the average end area method and shall be based on existing and final cross sections.
   2. No measurement will be made for earthwork associated with the gate structure foundation which is incidental to the gate structure foundation.

B. Payment:
   1. Payment for compacted backfill shall be the unit price per cubic yard and based upon the final agreed quantity.

2. Bid prices include all costs for material, labor, equipment and incidentals required for complete installation as shown on the Drawings and indicated in this Specification Section.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Fill and Backfill: Selected material approved by Soils Engineer from site excavation or from off site borrow.

B. Granular Fill Under Building Floor Slabs-On-Grade: Clean, crushed, nonporous rock, crushed or uncrushed gravel complying with ASTM C33 gradation size No.67, 3/4 IN to No.4.

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect existing surface and subsurface features on-site and adjacent to site as follows:
   1. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing items indicated to remain in place.
   2. Protect and maintain bench marks, monuments or other established reference points and property corners. If disturbed or destroyed, replace at own expense to full satisfaction of Owner and controlling agency.
   3. Verify location of utilities. Omission or inclusion of utility items does not constitute non-existence or definite location. Secure and examine local utility records for location data.
      a. Take necessary precautions to protect existing utilities from damage due to any construction activity.
      b. Repair damages to utility items at own expense.
      c. In case of damage, notify Engineer at once so required protective measures may be taken.
   4. Maintain free of damage, existing sidewalks, structures, and pavement, not indicated to be removed. Any item known or unknown or not properly located that is inadvertently damaged shall be repaired to original condition. All repairs to be made and paid for by Contractor.
   5. Provide full access to public and private premises, fire hydrants, street crossings, sidewalks and other points as designated by Owner to prevent serious interruption of travel.
   6. Maintain stockpiles and excavations in such a manner to prevent inconvenience or damage to structures on-site or on adjoining property.
   7. Avoid surcharge or excavation procedures which can result in heaving, caving, or slides.

B. Salvageable Items: Carefully remove items to be salvaged, and store on Owner's premises unless otherwise directed.

C. Dispose of waste materials, legally, off site. Burning, as a means of waste disposal, is not permitted.

3.2 SITE EXCAVATION AND GRADING

A. The work includes all operations in connection with excavation, borrow, construction of fills and backfill, rough grading, and disposal of excess materials in connection with the preparation of the site(s) for construction of the proposed facilities.

B. Excavation and Grading: Perform as required by the Contract Drawings.
   1. Contract Drawings may indicate both existing grade and finished grade required for construction of Project. Stake all units, structures and access roads, and establish their elevations. Perform other layout work required. Replace property corner markers to original location if disturbed or destroyed.

2. Preparation of ground surface for embankments or fills: Before fill is started, scarify to a minimum depth of 6 IN in all proposed embankment and fill areas. Where ground surface is steeper than one vertical to four horizontal, plow surface in a manner to bench and break up surface so that fill material will bind with existing surface.
3. Protection of finish grade: During construction, shape and drain embankment and excavations. Maintain ditches and drains to provide drainage at all times. Protect graded areas against action of elements prior to acceptance of work. Reestablish grade where settlement or erosion occurs.

C. Borrow: Provide necessary amount of approved fill compacted to density equal to that indicated in this Specification. Include cost of all borrow material in original proposal. Fill material to be approved by Soils Engineer prior to placement.

D. Construct embankments and fills as required by the Contract Drawings:
1. Construct embankments and fills at locations and to lines of grade indicated. Completed fill shall correspond to shape of typical cross section or contour indicated regardless of method used to show shape, size, and extent of line and grade of completed work.
2. Provide approved fill material which is free from roots, organic matter, trash, frozen material, and stones having maximum dimension greater than 6 IN. Ensure that stones larger than 4 IN are not placed in upper 6 IN of fill or embankment. Do not place material in layers greater than 8 IN loose thickness. Place layers horizontally and compact each layer prior to placing additional fill.
3. Compact by sheepsfoot, pneumatic rollers, vibrators, or by other equipment as required to obtain specified density. Control moisture for each layer necessary to meet requirements of compaction.

3.3 FIELD QUALITY CONTROL

A. Moisture density relations, to be established by the Soils Engineer required for all materials to be compacted.

B. Extent of compaction testing will be as necessary to assure compliance with Specifications.

C. Give minimum of 24 HR advance notice to Soils Engineer when ready for compaction or subgrade testing and inspection.

D. Should any compaction density test or subgrade inspection fail to meet Specification requirements, perform corrective work as necessary.

E. Pay for all costs associated with corrective work and retesting resulting from failing compaction density tests.

3.4 COMPACTION DENSITY REQUIREMENTS

A. Obtain approval from Soils Engineer with regard to suitability of soils and acceptable subgrade prior to subsequent operations.

B. Provide dewatering system necessary to successfully complete compaction and construction requirements.

C. Remove frozen, loose, wet, or soft material and replace with approved material as directed by Soils Engineer.

D. Stabilize subgrade with well graded granular materials as directed by Soils Engineer.

E. Assure by results of testing that compaction densities comply with the following requirements:
1. Sitework:

LOCATION	COMPACTION DENSITY
SUBGRADE UNDER GRAVEL ACCESS ROAD AND WASHOUT AREA	
Cohesive Soils	95 percent, ASTM D698
Cohesionless Soils	65 percent relative density per ASTM D4253 and D4254

2. Structures:

LOCATION	COMPACTION DENSITY
Inside of structures under foundations, under slabs-on-grade and scarified existing subgrade under fill material	95 percent, ASTM D1557
Outside structures next to walls, and any other structure exterior member	95 percent, ASTM D1557

3.5 EXCAVATION, FILLING, AND BACKFILLING

A. General:
   1. In general, work includes, but is not necessarily limited to, excavation for structures and retaining walls, removal of underground obstructions and undesirable material, backfilling, filling, and fill, backfill, and subgrade compaction.
   2. Obtain fill and backfill material necessary to produce grades required. Materials and source to be approved by Soils Engineer. Excavated material approved by Soils Engineer may also be used for fill and backfill.
   3. In this Section of the Specifications, the word "foundations" includes footings, base slabs, foundation walls, and any other support placed directly on soil.
   4. In the paragraphs of this Section of the Specifications, the word "soil" also includes any type of rock subgrade that may be present at or below existing subgrade levels.

B. Excavation Requirements for Structures:
   1. General. Do not commence excavation for foundations for structures until:
      a. Soils Engineer approves:
         1) The removal of topsoil and other unsuitable and undesirable material from existing subgrade.
         2) Density and moisture content of site area compacted fill material meets requirements of specifications.
      b. Engineer grants approval to begin excavations.
   2. Dimensions:
      a. Excavate to elevations and dimensions indicated or specified.
      b. Allow additional space as required for construction operations and inspection of foundations.
   3. Removal of obstructions and undesirable materials in excavation includes, but is not necessarily limited to, removal of old foundations or riprap, existing construction, unsuitable subgrade soils, expansive type soils, and any other materials which may be concealed beneath present grade, as required to execute work indicated on Contract Drawings. If undesirable material and obstructions are encountered during excavation, remove material and replace as directed by Soils Engineer.
   4. Level off bottoms of excavations to receive foundations, floor slabs, or compacted fill. Remove loose materials and bring excavations into approved condition to receive concrete or fill material. Where compacted fill material must be placed to bring subgrade elevation up to underside of construction, scarify existing subgrade upon which fill material is to be

placed to a depth of 6 IN and then compact to density stated in this Section of Specifications before fill material can be placed thereon. Do not carry excavations lower than shown for foundations except as directed by Soils Engineer or Engineer. If any part of excavations is carried below required depth without authorization, maintain excavation and start foundation from excavated level with concrete of same strength as required for superimposed foundation, and no extra compensation will be made to Contractor therefor.

5. Make excavations large enough for working space, forms, dampproofing, waterproofing, and inspection.
6. Notify Soils Engineer and Engineer as soon as excavation is completed in order that subgrades may be inspected. Do not commence further construction until subgrade under compacted fill material, under foundations, under floor slabs-on-grade, and under retaining wall footings has been inspected and approved by the Soils Engineer as being free of undesirable material, being of compaction density required by this specification, and being capable of supporting the allowable foundation design bearing pressures and superimposed foundation, fill, and building loads to be placed thereon. Soils Engineer shall be given the opportunity to inspect subgrade below fill material both prior to and after subgrade compaction.
    a. Place fill material, foundations, retaining wall footings and floor slabs-on-grade, as soon as weather conditions permit after excavation is completed, inspected, and approved and after forms and reinforcing are inspected and approved. Before concrete or fill material is placed, protect approved subgrade from becoming loose, wet, frozen, or soft due to weather, construction operations, or other reasons.
7. Dewatering: Where groundwater is or is expected to be encountered during excavation, install a dewatering system to prevent softening and disturbance of subgrade below foundations and fill material, to allow foundations and fill material to be placed in the dry, and to maintain a stable excavation side slope. Groundwater shall be maintained at least 3 FT below the bottom of any excavation. Review soil borings before beginning excavation and determine where groundwater is likely to be encountered during excavation. Employ dewatering specialist for selecting and operating dewatering system. Keep dewatering system in operation until dead load of structure exceeds possible buoyant uplift force on structure. Dispose of groundwater to an area which will not interfere with construction operations or damage existing construction. Install groundwater monitoring wells as necessary. Shut off dewatering system at such a rate to prevent a quick upsurge of water that might weaken the subgrade.
8. Subgrade stabilization: If subgrade under foundations, fill material, floor slabs-on-grade, or is in a frozen, loose, wet, or soft condition before construction is placed thereon, remove frozen, loose, wet, or soft material and replace with approved compacted material as directed by Soils Engineer. Provide compaction density of replacement material as stated in this specification section. Loose, wet, or soft materials, when approved by Soils Engineer, may be stabilized by a compacted working mat of well graded crushed stone. Compact stone mat thoroughly into subgrade to avoid future migration of fines into the stone voids. Remove and replace frozen materials as directed by Soils Engineer. Method of stabilization shall be performed as directed by Soils Engineer. Do not place further construction on the repaired subgrades, until the subgrades have been approved by the Soils Engineer.
9. Do not place floor slabs-on-grade until subgrade below has been approved, reinforcement placement has been approved, and Contractor receives approval to commence slab construction. Do not place building floor slabs-on-grade when temperature of air surrounding the slab and pads is or is expected to be below 40 DegF before structure is completed and heated to a temperature of at least 50 DegF.
10. Protection of structures: Prevent new and existing structures from becoming damaged due to construction operations or other reasons. Prevent subgrade under new and existing foundations from becoming wet and undermined during construction due to presence of surface or subsurface water or due to construction operations.
11. Shoring: Shore, sheet pile, slope, or brace excavations as required to prevent them from collapsing. Remove shoring as backfilling progresses but only when banks are stable and safe from caving or collapse.

12. Drainage: Control grading around structures so that ground is pitched to prevent water from running into excavated areas or damaging structures. Maintain excavations where foundations, floor slabs, or fill material are to be placed free of water. Provide pumping required to keep excavated spaces clear of water during construction. Should any water be encountered in the excavation, notify Engineer and Soils Engineer. Provide free discharge of water by trenches, pumps, wells, well points, or other means as necessary and drain to point of disposal that will not damage existing or new construction or interfere with construction operations.
13. Frost protection: Do not place foundations, slabs-on-grade, or fill material on frozen ground. When freezing temperatures may be expected, do not excavate to full depth indicated, unless foundations, floor slabs, or fill material can be placed immediately after excavation has been completed and approved. Protect excavation from frost if placing of concrete or fill is delayed.
    a. Where a concrete slab is a base slab-on-grade located under and within a structure that will not be heated, protect subgrade under the slab from becoming frozen until final acceptance of the Project by the Owner.
    b. Protect subgrade under foundations of a structure from becoming frozen until structure is completed and heated to a temperature of at least 50 DegF.

C. Fill and Backfill Inside of Structure and Below Foundations, Base Slabs and Floor Slabs:
1. General: Subgrade to receive fill or backfill shall be free of undesirable material as determined by Soils Engineer and scarified to a depth of 6 IN and compacted to density specified herein. Surface may be stepped by at not more than 12 IN per step or may be sloped at not more than 2 percent. Do not place any fill or backfill material until subgrade under fill or backfill has been inspected and approved by Soils Engineer as being free of undesirable material and compacted to specified density.
2. Obtain approval of fill and backfill material and source from Soils Engineer prior to placing the material.
3. Granular fill under floor slabs-on-grade: Place all floor slabs-on-grade on a minimum of 6 IN of granular fill unless otherwise indicated.
4. Fill and backfill placement: Prior to placing fill and backfill material, optimum moisture and maximum density properties for proposed material shall be obtained from Soils Engineer. Place fill and backfill material in thin lifts as necessary to obtain required compaction density. Compact material by means of equipment of sufficient size and proper type to obtain specified density. Use hand operated equipment for filling and backfilling next to walls. Do not place fill and backfill when the temperature is less than 40 DegF and when subgrade to receive fill and backfill material is frozen, wet, loose, or soft. Use vibratory equipment to compact granular material; do not use water.
5. Where fill material is required below foundations, place fill material, conforming to the required density and moisture content, outside the exterior limits of foundations located around perimeter of structure the following horizontal distance whichever is greater:
    a. As required to provide fill material to indicated finished grade.
    b. 5 FT.
    c. Distance equal to depth of compacted fill below bottom of foundations.
    d. As directed by Soils Engineer.

D. Filling and Backfilling Outside of Structures. This paragraph of these specifications apply to fill and backfill placed outside of structures above bottom level of both foundations and piping but not under paving. Provide material as approved by Soils Engineer for filling and backfilling outside of structures.
1. Fill and backfill placement: Prior to placing fill and backfill material, obtain optimum moisture and maximum density properties for proposed material from Soils Engineer. Place fill and backfill material in thin lifts as necessary to obtain required compaction density. Compact material with equipment of proper type and size to obtain density specified. Use only hand operated equipment for filling and backfilling next to walls and retaining walls. Do not place fill or backfill material when temperature is less than 40 DegF and when

subgrade to receive material is frozen, wet, loose, or soft. Use vibratory equipment for compacting granular material; do not use water.

2. Backfilling against walls:
   a. Do not backfill around any part of structures until each part has reached specified 28-day compressive strength and backfill material has been approved. Do not start backfilling until concrete forms have been removed, trash removed from excavations, concrete finishing, dampproofing and waterproofing have been completed.
   b. Do not place fills against walls until floor slabs at top, bottom, and at intermediate levels of walls are in place and have reached 28-day required compressive strength to prevent wall movement.
   c. Bring backfill and fill up uniformly around the structures and individual walls.

E. Fill of Washout Area:
   1. Perform construction of the embankment in the area of the washout in the dry. Contractor to construct berms, sump areas and all other means to dewater the area to receive fill.
   2. Compact fills to a minimum of 95 percent of maximum dry density as determined by the Standard Proctor (ASTM D698).
   3. Use fill consisting of low plasticity clay soils (CL) as determined by ASTM D2487.

3.6 SPECIAL REQUIREMENTS

A. Erosion Control: Conduct work to minimize erosion of site. Construct stilling areas to settle and detain eroded material. Remove eroded material washed off site. Clean streets daily of any spillage of dirt, rocks or debris from equipment entering or leaving site.

END OF SECTION

01D12

SECTION 02260
TOPSOILING AND FINISHED GRADING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Topsoiling and finished grading.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 02110 - Site Clearing.
   4. Section 02200 - Earthwork.
   5. Section 02270 - Soil Erosion and Sediment Control.
   6. Section 02930 - Seeding, Sodding and Landscaping.

C. Location of Work: All areas within limits of grading and all areas outside limits of grading which are disturbed in the course of the work.

1.2 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.

B. Project Data:
   1. Test reports for furnished topsoil.

1.3 SITE CONDITIONS

A. Verify amount of topsoil stockpiled and determine amount of additional topsoil, if necessary to complete work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil:
   1. Original surface soil typical of the area.
   2. Existing topsoil stockpiled under Section 02110.
   3. Capable of supporting native plant growth.

2.2 TOLERANCES

A. Finish Grading Tolerance: 0.1 FT plus/minus from required elevations.

PART 3 - EXECUTION

3.1 PREPARATION

A. Correct, adjust and/or repair rough graded areas.
   1. Cut off mounds and ridges.
   2. Fill gullies and depressions.
   3. Perform other necessary repairs.

4. Bring all sub-grades to specified contours, even and properly compacted.

B. Loosen surface to depth of 2 IN, minimum.

C. Remove all stones and debris over 2 IN in any dimension.

3.2 ROUGH GRADE REVIEW

A. Reviewed by Engineer in Section 02110, Site Clearing.

3.3 PLACING TOPSOIL

A. Do not place when subgrade is wet or frozen enough to cause clodding.

B. Spread to compacted depth of 4 IN for all disturbed earth areas.

C. If topsoil stockpiled is less than amount required for work, furnish additional topsoil at no cost to Owner.

D. Provide finished surface free of stones, sticks, or other material 1 IN or more in any dimension.

E. Provide finished surface smooth and true to required grades.

F. Restore stockpile area to condition of rest of finished work.

3.4 ACCEPTANCE

A. Upon completion of topsoiling, obtain Engineer's acceptance of grade and surface.

B. Make test holes where directed to verify proper placement and thickness of topsoil.

END OF SECTION

00F08

SECTION 02270
SOIL EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Soil erosion and sediment control.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. Erosion control standards: "Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas" by the U.S. Department of Agriculture, Soil Conservation Service, College Park, Maryland.
   2. NPDES General Permit No. SDGO70000; Construction Activities in South Dakota, Excavation Dewatering and Hydrostatic Testing, General Permit Fact Sheet (Permit Reissuance).
   3. General Permit Authorization to Discharge Under the National Pollution Discharge Elimination System for Construction Activities in South Dakota, Including Hydrostatic Testing and Excavation Dewatering.
   4. Comply with regulatory requirements for 401/404 permits as described in Section 01560.

1.3 SUBMITTALS

A. Prepare and submit the following plans and/or permits to the appropriate regulatory agency.
   1. Certified letter detailing dewatering and hydrostatic testing discharges in accordance with the General Permit Authorization to Discharge Under the National Pollutant Discharge Elimination System for Construction Activities in South Dakota, including Hydrostatic Testing and Excavating Dewatering.
   2. Any additional documents required be Federal, State, or Local Regulatory agencies.
   3. All or the aforementioned documents must be completed and approved prior to commencement of the work.
   4. Discharge Monitoring and Sampling:
      a. Monitoring and record discharge flows, pH, visual observations, etc.; as required or outlined in the plans developed under 1.3-A.
      b. Collect samples as required by the plans and submit to a laboratory for analysis. The laboratory is to be approved by the Engineer prior to commencement of the work.
      c. Submit results of monitoring and analytical results to the appropriate regulatory agencies. Additionally submit one copy of these submittals to Owner and one copy to the Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Straw bales, twine tied.

B. Silt Fence Material.

3.1 PREPARATION

A. Prior to General Stripping Topsoil and Excavating:
   1. Install erosion control devices as per erosion control plan.
   2. Excavate and shape sediment basins and traps.
   3. Construct pipe spillways and install stone filter where required.
   4. Machine compact all berms, dikes and embankments for basins and traps.
   5. Install straw bales and/or silt fence where needed.
      a. Provide two stakes per bale.
      b. First stake angled toward previously installed bale to keep ends tight against each other.

B. Construct sediment traps where indicated on Drawings during rough grading as grading progresses.

3.2 DURING CONSTRUCTION PERIOD

A. Maintain erosion control devices.
   1. Inspect regularly especially after rainstorms.
   2. Repair or replace damaged or missing items.

B. Provide necessary swales and dikes to direct all water towards and into sediment basins and traps.

C. Do not disturb existing vegetation (grass and trees).

D. Excavate sediment out of basins and traps when capacity has been reduced by 50 percent.
   1. Remove sediment from behind bales to prevent overtopping.

E. Topsoil and Fine Grade Slopes and Swales, Etc.:
   1. Seed and mulch as soon as areas become ready.

3.3 NEAR COMPLETION OF CONSTRUCTION

A. Eliminate erosion control devices.

B. Grade to finished or existing grades.

C. Fine grade all remaining earth areas, then seed and mulch.

END OF SECTION

00F07

SECTION 02271
RIPRAP AND CRUSHED ROCK BEDDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Riprap for weir slopes as shown on the Drawings. Protection of slopes against erosion.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 02361 - Driven Steel Sheet Piling.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. South Dakota Department of Transportation (SDDOT):
      a. "Standard Specifications for Roads and Bridges", 1998 Edition.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Provide name and address of riprap source material including geological formation name.
   3. Provide service records of riprap material
   4. Gradation test report.
   5. Unit weight and specific gravity test results.

1.4 MEASUREMENT AND PAYMENT

A. Measurement: Accepted quantity of riprap and bedding for payment shall be measured per ton, complete and in place. Truck scale weights will be used to determine the tonnage.

B. Payment: Contract bid price is based on the total tons of riprap and bedding indicated on the Drawings:
   1. Bid price to include all costs for material, labor, equipment and other incidentals for complete installation as shown on the Drawings and indicated in this Specification Section.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stone:
   1. Durable quarried ledge rock or fieldstone in accordance with Section 830 of the SDDOT Standard Specifications.
   2. Does not disintegrate on exposure to water, freezing or weathering.
   3. Free from structural fractures and defects.
   4. Not containing shale, unsound sandstone, or other material which will disintegrate.
   5. Graded within limits specified.
   6. Breadth and thickness of any stone: Not less than one-third of its length.
   7. Ensure that dirt and fines accumulated from interledge layers or from blasting or handling operation is less than 2 percent by weight.
   8. Gradation of the material: Conform to Class A SDDOT riprap.

B. Crushed Rock Bedding:
   1. Gradation of the material: 2 IN nominal size, uniformly graded.
   2. Rock to be clean from silts, clays or fines.

2.2 SOURCE QUALITY CONTROL

A. Perform all tests at an approved independent laboratory.

B. Obtain samples in conformance with Corps of Engineers Specification CRD C100-64.

C. Source Tests:
   1. Supply certified tests and service records to determine acceptability and application of stone materials.
   2. In event suitable test reports or a service record that is satisfactory are not available, as in case of newly operated sources, subject material to tests necessary to determine its acceptability for use.

D. Material Acceptability Tests:
   1. Initial test: On material from each ledge sampled prior to start of construction.
      a. Specific gravity.
   2. Control tests:
      a. Perform control tests including one specific gravity for every 50 tons of material.

E. Specific Gravity Test:
   1. Conform with SDDOT Test Method SC210.
   2. Not less than 2.40 minimum.

PART 3 - EXECUTION

3.1 PLACING

A. Place a 1 FT thick layer of 2 IN crushed rock as bedding for the riprap.

B. Place riprap material on prepared foundation within limits indicated following the installation of the sheet piles.

C. Place on prepared base to produce a well-graded mass of stone with minimum percentage of voids.

D. Place to required thickness and grades.

E. Place to full thickness in a single operation to avoid displacing the underlying material.

F. Distribute entire mass to conform to gradation specified.
   1. Do not place stone by dumping into chutes or by similar method likely to cause segregation.

G. Keep finished riprap free from objectionable pockets of small stones or clusters of larger stone.
   1. Hand place as necessary to obtain a well-graded distribution.

H. Ensure a final tolerance of within 3 IN from indicated slope and grade lines.

I. Maintain riprap until accepted.

J. Replace any displaced material to lines and grades shown.

END OF SECTION

00F07

SECTION 02316
DRIVEN STEEL PIPE PILES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Concrete-filled driven steel pipe piles as indicated in the Contract Documents.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 02271 - Riprap.
   4. Section 02361 - Drive Steel Sheet Piping.
   5. Section 03002 - Concrete.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Society for Testing and Materials (ASTM):
      a. A252, Standard Specification for Welded and Seamless Steel Pipe Piles.
      b. A615, Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement (Including Supplementary Requirements S1).
      c. C33, Standard Specification for Concrete Aggregates.
      d. C150, Standard Specification for Portland Cement.
      e. C260, Standard Specification for Air Entraining Admixtures for Concrete.
      f. C494, Standard Specification for Chemical Admixtures for Concrete.
   2. American Welding Society (AWS):
      a. D1.1, Structural Welding Code - Steel.

B. Qualifications:
   1. Welders and welding processes to be qualified in accordance with AWS D1.1 requirements. Welders to have been qualified during the 12-month period prior to commencement of welding.
   2. Examine soil borings taken at the site and perform additional borings deemed needed.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Product technical data including:
      a. Steel pipe pile size, dimensions and grade of steel.
      b. Manufacturer and type of pile splicing device.
      c. Concrete mix design including submittal information defined in Section 03002.

B. Record of three of Contractor's past installations of required type of pile under similar driving and soil conditions.

C. Shop drawing indicating any steel plates or members to be welded to the piling.

D. Results of concrete strength tests.

E. Welder's certification.

F. The pile driving hammer proposed for use, including manufacturer's data sheet.

G. Pile report.

1.4 MEASUREMENT AND PAYMENT

A. Measurement: Length of piles for payment to be measured from tip to cut off elevation. Pile lengths extending above cut off elevation will be considered as waste.

B. Payment: Contract bid price for piling to be based on the total lineal footage of piling indicated on the Drawings.
   1. Bid price to include all costs for material, labor, equipment and accessories required for complete pile installation as shown on the Drawings and indicated in this Specification Section.
   2. Adjustment to bid price for pile length to be made in accordance with unit price in the Bid Proposal. No price adjustment will be made for individual piles but will be made on the total lineal footage of piling installed.
   3. Payment will be made for piles that are discontinued due to hitting obstructions and for additional piles and framing construction required at locations of discontinued piles.
   4. No payment will be made for the following:
      a. Damaged or rejected piles or for the installation of piles and additional framing construction resulting from the damaged or rejected piles.
      b. Piles installed beyond specified tolerance limits and piles and framing construction required due to piles installed beyond tolerance limits.
      c. Pile splices and pile tip protection.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Pile splicing device:
      a. Type S-18000 as manufactured by Associated Pile and Fitting Corp.

B. Submit requests for substitution in accordance with Specification Section 01640.

2.2 MATERIALS

A. Pipe Piles:
   1. Steel pipe piles: Oil field casing (US Steel Designation J-55 or K-55).
      a. Casing: Normalized seamless pipe with a minimum wall thickness of 0.395 IN and a minimum outside diameter of 9-5/8 IN.
      b. Minimum yield strength: 50 KSI.

B. Pile Tip Protection:
   1. 1 IN thick steel plate with a diameter equal to the outside diameter of the pile and welded to the tip of the pile. Seal at the tip of the pile must be watertight.

C. Pile Splicing Device:
   1. Steel with minimum yield strength of 36,000 psi.
   2. Minimum wall thickness of 3/8 IN.
   3. Circular in shape.
   4. Capable of being welded to piles.
   5. After full installation to pile including supplementary welding, being capable of developing the full tensile strength of the pile.

D. Concrete Placed in Pipe Piles:
   1. Minimum 28-day compressive strength: 4000 psi.
   2. Aggregates:
      a. ASTM C33, size #67.
      b. Aggregates to be natural not manufactured.
   3. Water: Potable, clean, free of oils, acids and organic matter.

4. Cement: ASTM C150, Type I or II.
   a. Minimum cement content: 6-1/2 sacks per cubic yard (611 LBS/CY).
5. Maximum water cement ratio by weight: 0.45.
6. Slump: Maximum of 4 IN, minimum of 1 IN.
7. Air entrainment:
   a. Conform to ASTM C260.
   b. Air content: Maximum 7 percent, minimum 5 percent.
8. Admixtures: ASTM C494, chloride free.
9. See Section 03002 for other requirements.

E. Reinforcing Steel:
1. ASTM A615, Grade 60.
2. See Section 03002 for other requirements.

2.3 PILE CAPACITY

A. All piles to have an allowable working load carrying capacity of 50 tons with a maximum pile settlement of 1/2 IN when supporting this allowable working load carrying capacity.

2.4 FABRICATION

A. Ends of piles to be machine cut and square making an angle of 90 degrees with the longitudinal axis of the pile.

B. Tolerances: Conform to requirements of ASTM A252.

PART 3 - EXECUTION

3.1 INSPECTION

A. Do not include in bid price the cost of inspection services indicated herein as being performed by the Engineer.

B. Furnish and pay for the inspection services indicated herein to be performed by the Engineer.

3.2 LINES AND LEVELS FOR PILE LOCATIONS

A. Accurately locate piles at required locations by means of a rigid template securely anchored to the shore line or by other means as necessary.

3.3 PILE TIP PROTECTION

A. To tips of all piles, attach a steel tip protection device consisting of a 1 IN thick steel plate welded to the tip.
1. Weld protection device to tip of pile in accordance with manufacturer's instructions.
2. Welding to be performed by operators qualified to perform the welding required.

3.4 PILE SPLICING

A. Piles to be installed as one continuous member unless splices are permitted by Engineer.
1. Use proprietary splicing device to hold pile sections in true alignment.
2. Weld pile sections to each other by means of a weld which will provide the full tensile strength of the pile at the splice location. Weld splicing device to piles per manufacturer's instructions.
3. A maximum of 1 splice per pile is allowed.
4. Use E70 Series electrodes meeting requirements of AWS D1.1.
5. Welders to be qualified to perform welding required.

3.5 PILE CUT OFF ELEVATIONS

A. Obtain cut off elevations from Foundation Plan(s) and details.

3.6 DETERMINATION OF PILE LENGTHS TO BE INSTALLED

A. Actual pile length or lengths to be installed to be as directed by the Engineer from criteria established in the field.
   1. The driving of the first pile to be witnessed by the Engineer and by means of a pile driving formula or by other means, the final tip elevation or final driving resistance for all piles to be installed will then be established by the Engineer.
   2. The final tip elevation or final driving resistance established by the Engineer for the piling to provide for the piling the allowable working load carrying capacity as required in this Specification Section with a factor of safety of at least 2.
   3. Maximum pile vertical movement when supporting the required allowable working load carrying capacity not to exceed 1/2 IN.

3.7 PILE DRIVING

A. Accurately locate and drive piles by such methods and equipment so as not to impair the pile strength or damage piles in any way.
   1. Adequately support and hold piles in correct vertical position during driving by means of adequate driving equipment.
   2. Provide pile driving with fixed heads which will hold pile firmly in position and provide axial alignment with hammer.
   3. Provide suitable driving heads to prevent damage to pile butts.
   4. Drive piles with steam, air, or diesel hammer capable of driving piles to required final tip elevation or to required final driving resistance.
   5. Water or air jets may not be used to assist driving.
   6. Predrilling is not permitted.

B. Allow each pile installation to be witnessed by the Soils Engineer who will determine that the required final driving resistance or final tip elevation has been obtained and if necessary may revise the initially determined final driving resistance or tip elevation depending on driving conditions encountered.

C. Retap all piles to at least the piles original final tip elevation or final driving resistance. Pile overdriving will only be allowed when approved.

D. Drive all piles to the final tip elevation or to final driving resistance as directed by Soils Engineer.

3.8 CUSHION OR CAP BLOCKS

A. Protect tops of piles during driving by means of cushion or cap blocks with loss of hammer energy held to a minimum.
   1. Do not provide continuous or frequent introduction of materials to cushion hammer blows.
   2. Provide cushion or cap blocks of solid block of hardened or laminated softwood of proper shape and dimensions to fit hammer.
   3. Strength of laminated materials to be equal to or greater than one solid block.
   4. Position grain of block parallel to axis of pile.

3.9 DRIVING TOLERANCES

A. Drive piles vertical or to batter angle shown on Drawings.
   1. Pile centerline not to deviate more than 1 IN in 10 FT from the batter angle shown or from vertical where pile is not indicated to be battered.
   2. Maximum horizontal deviation of any pile from its required location not to exceed 2 IN.
   3. Contractor to pay for cost of any framing revisions and/or for any additional piles due to piles being driven beyond indicated tolerance limits.

3.10 OBSTRUCTIONS

A. Should any obstruction including but not limited to boulders, cobbles, rubble, fill, existing foundations or timbers be encountered which prevent driving of piles to their required final tip elevation or final driving resistance, threaten pile damage, or cause pile to drift from required location horizontally or vertically, cease driving and take corrective action as directed by Engineer.

3.11 DAMAGED PILES

A. Replace damaged piles as directed by Engineer at no additional expense to Owner.

B. Each pile to be free from defects and damage due to construction, fabrication, delivery, installation or other causes.

C. Damaged piles include, but not necessarily limited to, piles bent, buckled, cracked, with fabrication tolerances beyond those specified, of insufficient required concrete compressive strength, or any other defect as determined by Engineer that would weaken the pile.

D. Should any pile as determined by Engineer be damaged, be too short to develop required final driving resistance or to reach required final tip elevation or otherwise not conform to this Specification Section, withdraw pile and drive another pile in its place.
   1. If it is impossible to withdraw damaged pile, install another pile at location indicated by Engineer.
   2. Revise framing members as directed by Engineer as required by new location of pile.
   3. Additional pile and framing members to be at Contractor's expense.

E. Correct to satisfaction of Engineer at no additional expense to Owner any pile or other construction that has been damaged by pile installation.

3.12 FILLING PIPE PILES WITH CONCRETE

A. Do not begin filling pipe piles with concrete until:
   1. All pipe piles have been driven to tip elevations or final driving resistances established by Soils Engineer.
   2. Pile concrete mix design has been approved by Engineer.
   3. Engineer gives approval to begin concrete placement.

B. After installing a pipe pile and prior to filling with concrete, cover open top of pile to prevent water, snow, ice or any other foreign material from entering the open pipe.

C. Place concrete in piles using tremie pipe in such a manner to present:
   1. Aggregate segregation.
   2. Bleed water collecting on top surface of concrete.
   3. Voids, honeycomb or air pockets from forming.
   4. Infiltration of any foreign materials.

D. Vibrate top 10 FT of concrete. Vibrate each 2 FT lift of this top 10 FT prior to subsequent concrete being placed.

E. Surface of concrete filled pipe pile at cut off elevation to be level with top surface of concrete flush with top of pipe.

F. Cure top surface of concrete for minimum of 7 days and protect against temperature extremes. Curing and protecting to be in accordance with Section 03002.

G. Concrete Strength Tests:
   1. Not required.

3.13 PILE REPORT

A. Provide Engineer with a copy of a pile report for all driven pile providing the following information:
   1. Pile location and number.
   2. Date driven.
   3. Length of pile (tip to cut off).
   4. Description of piling that were rejected (pile number, location, reason for rejection).
   5. Pile tip elevation.
   6. Depth of pile below top of soil.
   7. Hammer blow count per foot for the full length of the driven pile and the corresponding average fall of the ram for each blow count.
   8. Elevation of bottom of river.
   9. Cubic yards of concrete placed in each pile.

END OF SECTION

00E01

SECTION 02361
DRIVEN STEEL SHEET PILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. This Work shall consist of furnishing and driving steel sheet piles of the kind, shape and dimensions specified. The sheet piles shall be driven in accordance with the requirements of these specifications in the locations, manner, and to the elevation and penetration shown in the plans or as directed by the Engineer.
2. The sheet piles shall be driven in place on land and across an existing body of water which will require the construction of platforms, earthfills, or other temporary devices in which to set up and install the sheets. The Contractor shall be responsible for complying with all local, state and federal regulations for this construction, and to restore the site, both on land and below water, to its original condition and to the satisfaction of the Engineer.
3. The steel sheet piles with 20 FT of the footprint of the gate structure shall be installed prior to the driving of the pipe piles.

B. Related Sections include but are not necessarily limited to:
1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
2. Division 1 - General Requirements.
3. Section 02200 - Earthwork.
4. Section 02271 - Riprap.
5. Section 02316 - Driven Steel Pipe Piles.

C. Test Borings:
1. Test boring logs are included in Appendix A at the end of this Section. The locations of the borings are shown on the Drawings.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
1. American Institute of Steel Construction (AISC):
   a. Manual of Steel Construction.
2. American Society for Testing and Materials (ASTM):
   a. A36, Standard Specification for Carbon Structural Steel.
   b. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
   c. A328, Standard Specification for Steel Sheet Piling.
3. American Welding Society (AWS):
   a. D1.1, Structural Welding Code Steel.
   b. D1.3, Structural Welding Code Sheet Steel.

B. Qualifications:
1. Sheeting installer must have, as a minimum, three successful past installations of sheet piling of comparable overall heights and sections and comparable penetration into soils similar to these found on the Project.
2. The Contractor shall be responsible for designing the sheet piling and the bracing system to adequately support all loads.
   a. Design shall conform to the requirements of AISC.

1.3 DEFINITIONS

A. Installer or Applicator: Installer or applicator is the person actually installing or applying the product in the field at the Project site.
   1. Installer or applicator are synonymous.

1.4 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Complete list and description of materials for all construction components.
   3. Documentation of qualifications required for sheeting installer.
   4. Information on the type of driving equipment to be used; including manufacturer of equipment, model number and driving energy to be used.
   5. Proposed sequence of driving the sheet piles, including the proposed method of support of equipment to drive the sheets.

1.5 MEASUREMENT AND PAYMENT

A. Measurement:
   1. Measurement will be in projected square foot of sheet pile installed measured from tip to cut-off elevation and to the horizontal limits shown on the Drawings.
   2. Sheet pile lengths extending above cut-off elevation will be considered as waste.

B. Payment:
   1. No payment will be made for damaged or rejected sheet pile.
   2. Contractor will be paid for sheet piles that are withdrawn or discontinued due to hitting obstructions as determined by the Engineer.
   3. Adjustment of base bid square footage shall be made in accordance with unit prices in the Proposal.
   4. Adjustment will be made on the total square footage of sheet piling installed, not individual sheets.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Sheet piling:
      a. Bethlehem Steel Corporation.
      b. Or approved equal.

B. Submit requests for substitution in accordance with Specification Section 01640.

2.2 MATERIALS

A. Steel Sheet Piling:
   1. ASTM A328.
   2. Piling sections shall be continuously interlocking.
   3. Piling shall be reasonably free-sliding to grade when threaded.
   4. Provide standard handling hole approximately 4 IN from one end.

B. Welding Electrodes: AWS D1.1 and D2.3, E70 electrode.

PART 3 - EXECUTION

3.1 PREPARATION

A. Construct platforms, earthfills or other temporary devices in which to set up and install the sheets.

B. Furnish lines and levels as required to install sheet piles at their indicated locations.

3.2 INSTALLATION

A. Install sheet piles straight and plumb and to the dimensions shown on the Drawings.

B. Drive sheet piles vertical at locations shown on the Drawings. Drive sheet piles with a steam hammer, air hammer, diesel hammer or gravity hammer. The energy of the hammer (ram weight times the fall) shall be selected so as to achieve the required penetration without damaging the piles.

C. Water or air jets may not be used to assist driving.

D. Provide additional length of sheet piling sufficient to allow cutting off the top of the sheet piling that may be damaged during driving and construction operations.

E. Sheet piles shall be installed as one continuous member unless splices are permitted by Engineer.
   1. Where splices are permitted, make splices by full penetration groove welding the entire cross sectional area of the piles at the splice location.
   2. Perform welding using operators who have passed welding qualification tests during previous 12 month period prior to commencement of required welding.
   3. Welding processes, procedures and welder qualification tests to be in accordance with AWS D1.1 welding code requirements.

F. Accurately locate and drive sheet piles by such methods and equipment so as not to impair the sheet pile strength or damage sheet piles in any way.

G. Adequately support and hold sheet piles in correct vertical position during driving by means of adequate driving equipment.

H. Provide suitable driving heads to prevent damage to sheet pile ends.

I. Drive sheet piles with equipment capable of driving sheet piles to required final depth or resistance, without damaging sheet piles.

J. Should any obstruction including but not limited to boulders, rocks, rubble, existing foundations or timbers be encountered which prevent driving of sheet pile to its required final depth, threaten sheet pile damage or cause sheet pile to drift from required location horizontally, cease driving and take corrective action as directed by the Engineer.

K. Should any sheet pile as determined by the Engineer be damaged or otherwise not conform to this Section, withdraw sheet pile and drive another sheet pile in its place. If it is impossible to withdraw damaged or rejected sheet pile, install additional sheet piles at locations indicated by Engineer. Additional sheet piles shall be at Contractor's expense.

L. Damaged sheet piles include but are not necessarily limited to sheet piles bent, buckled, cracked, with fabrication tolerances beyond those indicated in ASTM A328, or with any other defect as determined by the Engineer would weaken the sheet pile.

M. Obtain cut off elevations from Drawings.

N. Drive sheet piling to tip elevation shown. Place riprap only after all the sheets have been installed.

O. Do not cut off sheets to final elevation until settlement of the riprap and sheets is complete. The Contractor shall monitor by survey the top elevation of the sheets to determine when this settlement has occurred.

3.3 FIELD QUALITY CONTROL

A. Inspection:
   1. Allow each pile installation to be witnessed by the Engineer who will determine that the required final driving resistance has been obtained and if necessary may revise the initially determined final driving resistance depending on driving conditions encountered.

END OF SECTION

APPENDIX A

GEOTECHNICAL TEST BORING LOGS

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 • FAX 605-335-0773

1988 10TH ANNIVERSARY 1998
GeoTek Engineering

September 17, 1998

Lake Kampeska Water Project District
c/o Brad Johnson
Box 1343
Watertown, South Dakota 57201

Gentlemen:

Subj: Geotechnical Exploration
Proposed Inlet Structure
Lake Kampeska
Watertown, South Dakota
GeoTek #98-583

This correspondence presents our reporting of the exploratory drilling performed in July, 1998 for the referenced project.

The site is generally located on the northeast corner of Lake kampeska. The test area is directly northeast of the bridge on Highway 20.

Three test locations were put down for the project. Boring locations were provided by others. The borings were put down from a pontoon base in a slough area with about 3' of standing water. The logs of the test holes are attached.

A review of the boring logs indicates a soil profile which initially encounters 1' to 6' of soft organic clay, underlain by sand. A second layer of soft clay was encountered at a depth of 15' below grade and varied in thickness from 5' to 10'. Below the clay layer, sand and gravel was again encountered. Boring #3 encountered a lean clay (glacial till) at a depth of 33' below grade.

Specific footing elevations and loadings are not available at this time. If footing loads are concentrated or footing dimensions are significantly large, a deep foundation system may be needed for support because of the soft clay layer found below the 15' depth. Driven piles will likely extend through the sand layer and bear in the underlying glacial till that was found in boring #3 at a depth of 33' below grade.

When foundation loads and elevations have been determined, further analysis may be necessary. Please contact us as needed.

We trust this correspondence provides you with the needed information. If there are questions or comments, please contact our office.

GeoTek Engineering & Testing Services, Inc.

Ralph E. Lindner, PE
Project Engineer

REL/kk

cc: -HDR, Attn: Pat Poepsel

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 98-583 BORING # SB-1

PROJECT PROPOSED INLET STRUCTURE, LAKE KAMPESKA, WATERTOWN, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
	SILTY CLAY, dark gray, medium (CL-OL)	ALLUVIUM								
1				6	1	SB				
	SAND, medium grained, a little gravel, dark gray, waterbearing, dense to medium dense (SP-SM)									
				21	2	SB				
				10	3	SB				
14 1/2										
	FAT CLAY, dark gray, soft (CH-OL)			4	4	SB				
				4	5	SB	39			
				4	6	SB	53	68		1340
				9	7	SB	58	65		
25	Continued on next page									

FORMG4A

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 98-583 BORING # SB-1 Cont.

PROJECT PROPOSED INLET STRUCTURE, LAKE KAMPESKA, WATERTOWN, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA: WATER LEVEL	N	NO	TYPE	LABORATORY TESTS: W	D	LL/PL	QU
25	SAND, medium and coarse grained, with gravel, dark gray, waterbearing, dense (SP)	ALLUVIUM		18	8	SB				
				18	9	SB				
				19	10	SB				
				11	11	SB				
				16	12	SB				
36	END OF BORING									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH

DATE STARTED 7-15-98

DATE FINISHED 7-16-98 @ 10:30

METHOD OF DRILLING 3" Casing to 40'; Jet with Water 0-40'

CREW CHIEF Krueger

FORMG4JEFF

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 98-583 BORING # SB-2

PROJECT PROPOSED INLET STRUCTURE, LAKE KAMPESKA, WATERTOWN, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
	SAND, medium grained, a little gravel, medium dense (SP-SM)	ALLUVIUM								
				15	1	SB				
				13	2	SB				
15	FAT CLAY, dark gray, soft (CH-OL)									
				4	3	SB	31			
				5	4	SB	34			
20	SAND, medium and coarse grained, with gravel, dark gray, medium dense (SP)									
				11	5	SB				
25	Continued on next page									

FORMG4A

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GEOTECHNICAL TEST BORING LOG

JOB # 98-583 BORING # SB-2

PROJECT PROPOSED INLET STRUCTURE, LAKE KAMPESKA, WATERTOWN, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA: WATER LEVEL	N	NO	TYPE	LABORATORY TESTS: W	D	LL/PL	QU
25	Continued from previous page	ALLUVIUM								
				15	6	SB				
				12	7	SB				
35	SAND, fine grained, grayish brown, loose (SP-SM)			8	8	SB				
38	END OF BORING									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH

DATE STARTED 7-16-98

DATE FINISHED 7-17-98 @ 11:00

METHOD OF DRILLING 3" Casing to 36'; Jet with water 0-36'

CREW CHIEF Krueger

FORMG4JEFF

GEOTEK ENGINEERING
& TESTING SERVICES, INC.
909 EAST 50TH STREET NORTH
SIOUX FALLS, SOUTH DAKOTA 57104
605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 98-583 BORING # SB-3

PROJECT PROPOSED INLET STRUCTURE. LAKE KAMPESKA. WATERTOWN. SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA WL	N	NO	TYPE	LABORATORY TESTS W	D	LL/PL	QU
	SILTY CLAY, black, soft (CL-OL)	ALLUVIUM								
				4	1	SB				
6	SAND, medium and coarse grained, a little gravel, dark gray, medium dense (CH)									
				12	2	SB				
				4	3	SB	48			
15	FAT CLAY, dark gray, soft (CH)									
				4	4	SB	52	71		
22	SAND, coarse grained, with gravel, dark gray, waterbearing, medium dense (SP)									
25	Continued on next page			10	5	SB				

FORMG4A

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& TESTING SERVICES, INC.
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605-335-5512 FAX 605-335-0773

GEOTECHNICAL TEST BORING LOG

JOB # 98-583 BORING # SB-3 Cont.

PROJECT PROPOSED INLET STRUCTURE, LAKE KAMPESKA, WATERTOWN, SD

DEPTH IN FEET	DESCRIPTION OF MATERIAL (SURFACE ELEVATION ____)	GEOLOGIC ORIGIN	SAMPLE DATA: WATER LEVEL	N	NO	TYPE	LABORATORY TESTS: W	D	LL/PL	QU
25	Continued from previous page	ALLUVIUM								
28	SAND, medium and coarse grained, a little gravel, brown, waterbearing, medium dense (SP)			12	6	SB				
33	LEAN CLAY, a little gravel, dark gray, stiff (CL)	TILL		17	7	SB				
36	END OF BORING									

WATER LEVEL MEASUREMENT

DATE	TIME	WATER LEVEL	ELEVATION OF WATER	CAVE-IN DEPTH

DATE STARTED 7-17-98

DATE FINISHED 7-17-98 @ 4:10

METHOD OF DRILLING 3" HSA 0-34', Jet with Water 0-34'

CREW CHIEF Krueger

FORMG4JEFF



98-583

Not to Scale

#3

#2

#1

Hwy 20 Bridge

GEOTEK

GEOTEK ENGINEERING & TESTING SERVICES, INC.

GENERAL NOTES

DESCRIPTIVE TERMINOLOGY

DENSITY TERM	"N" VALUE	CONSISTENCY TERM
Very Loose	0-4	Soft
Loose	5-8	Medium
Medium Dense	9-15	Rather Stiff
Dense	16-30	Stiff
Very Dense	Over 30	Very Stiff

Lamination	Up to ½" thick stratum
Layer	½" to 6" thick stratum
Lens	½" to 6" discontinuous stratum, pocket
Varved	Alternating lamination of clay, silt, and/or fine grained sand, or colors thereof
Dry	Powdery, no noticeable water
Moist	Below saturation
Wet	Saturated, above liquid limit
Waterbearing	Pervious soil below water

RELATIVE PROPORTIONS AND SIZES

Boulder	Over 12"
Cobble	3" - 12"
Gravel	
Coarse	¾" - 3"
Fine	# 4 - ¾"
Sand	
Coarse	#4 - #10
Medium	#10 - #40
Fine	#40 - #200
Silt & Clay	-#200, Based on Plasticity

Term	Range
Trace	0- 5%
A Little	5-15%
Some	15-30%
With	30-50%

BORING AND SAMPLING SYMBOLS

SYMBOL	DEFINITION
___HSA	3¼" or 6¼" I.D. Hollow Stem Auger
___FA	4" or 6" Flight Auger
___HA	2", 4" or 6" Hand Auger
___DC	4" or 6" Drive Casing
PD	Pipe Drill or Clean Out Tube
CS	Continuous Split Barrel Sampling
DM	Drilling Mud
JW	Jetting Water
SB	2" O.D. Split Barrel Sample
TW	3" Thin Wall Tube Sample
LS	2½" O.D. SB Liner Sample
W	Wash Sample
B	Bag Sample
NSR	No Sample Retrieved, Classification based on action of drilling equipment and/or material noted in drilling fluid or on sampling bit.
NMR	No Water Level Measurement Recorded, Primarily due to presence of drilling or coring fluid.
WL	Water Level
N	Standard Penetration Value
▼	Water Level Symbol

Water level data is recorded at the bottom of the log sheet. Water levels are measured in the borings at the time and under the conditions indicated. Depending on soil types and length of time between measurements, the ground water measurement may or may not be a true indication of the ground water level for the time the boring was put down.

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Moisture Content-Percent of Dry Weight-ASTM: D2216
D	Dry Density-Pound Per Cubic Foot
LL PL	Liquid Limit and Plastic Limit—ASTM:D4318
QU	Unconfined Compressive Strength—Pounds Per Square Foot-ASTM: D2166

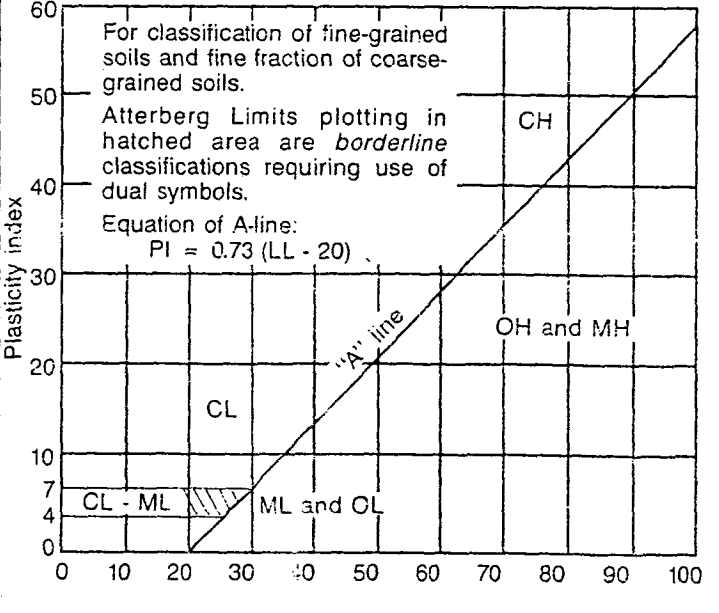
CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 — 69 AND D 2488 —69

(Unified Soil Classification System)

Major divisions			Group symbols	Typical Names	Classification Criteria		
Coarse-grained soils: More than 50% retained on No. 200 sieve*	Gravels: 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines: Less than 5% pass No. 200 sieve ..... GW, GP, SW, SP; More than 12% pass No. 200 sieve ..... GM, GC, SM, SC; 5 to 12% pass No. 200 sieve ..... *Borderline* classifications requiring use of dual symbols	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW	
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Sands: More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW	
		Sands with fines	SM	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils: 50% or more passes No. 200 sieve*	Silts and clays: Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands			
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays: Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity			
	Highly organic soils		Pt	Peat, muck and other highly organic soils			

Plasticity Chart



* Based on the material passing the 3 in.(76 mm) sieve.

00F07

SECTION 02930
SEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Seeding and landscape planting:
      a. Soil preparation.
      b. Grass Seeding.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.

   2. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
      c. Signed copies of vendor's statement for seed mixture required, stating botanical and common name, place of origin, strain, percentage of purity, percentage of germination, and amount of Pure Live Seed (PLS) per bag.

   3. Certification:
      a. Certify each container of seed delivered will be labeled in accordance with Federal and State Seed Laws and equals or exceeds Specification requirements.
   4. Other documents:
      a. Copies of invoices for fertilizer used on Project showing grade furnished, along with certification of quality and warranty. If Engineer determines fertilizer requires sampling and testing to verify quality, testing will be done at Contractor's expense, in accordance with current methods of Association of Official Agricultural Chemists. Upon completion of Project, a final check of total quantities of fertilizer used will be made against total area seeded. If minimum rates of application have not been met, Contractor will be required to distribute additional quantities to make up minimum application specified.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Furnish seed in sealed standard containers labeled with producer's name and seed analysis. Remove from the site seed which has become wet, moldy, or otherwise damaged in transit.

B. Furnish fertilizer uniform in composition, free flowing and suitable for application with approved equipment, delivered to site in bags or other containers, each fully labeled and bearing the name, and warranty of the producer.

1.4 MEASUREMENT AND PAYMENT

A. Measurement: No measurement will be made for seeding. Restore all disturbed areas.

B. Payment: No payment will be made for seeding. Cost for work shall be subsidiary to price for rock access road.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Grass Seeding: Certified seed of locally adapted strains
   1. Seed Quality: Fresh, clean, new-crop seed labeled in accordance with U.S. Department of Agriculture Rules and Regulations under Federal Seed Act in effect on date of bidding. Provide seed of species, proportions, and minimum percentages of purity, germination and maximum percentage of weed seed as specified. Approval of all seed for use shall be based on the accumulative total of PLS specified for each phase of work.

B. Mulch:
   1. For seeded areas: Clean, seed-free, threshed straw of oats, wheat, barley, rye, beans, peanuts, or other locally available mulch material which does not contain an excessive quantity of matured seeds of noxious weeds or other species that will grow or be detrimental to seeding, or provide a menace to surrounding land. Do not use material which is fresh or excessively brittle, or which is decomposed and will smother or retard growth of grass.
   2. Weed-free hay, excluding brome or bluegrass hay, may be used on slopes 4:1 or greater.

C. Fertilizer: Commercial fertilizer meeting applicable requirements of State and Federal law. Cyanic compound or hydrated lime not permitted in mixed fertilizers.

D. Water: Water free from substances harmful to grass growth. Provide water from source approved prior to use.

PART 3 - EXECUTION

3.1 SOIL PREPARATION

A. General:
   1. Place topsoil according to South Dakota Department of Transportation (SDDOT) Standard Specifications for Roads and Bridges, 1998 edition, Section 230.
   2. Finish grading to tolerance: 0.1 ft. plus/minus from existing elevations.
   3. Following completion of grading operations, topsoil shall be respread evenly over the disturbed areas. This depth will be approximately four (4) inches.
   4. Limit preparation to areas which will be planted soon after.
   5. Provide facilities to protect and safeguard all persons on or about premises.

3.2 INSTALLATION

B. Seeding, Fertilizing, and Mulching:
   1. Apply according to South Dakota Department of Transportation Standard Specifications for Roads and Bridges, 1998 Edition, Sections 730, 731, and 732.

3.4 MAINTENANCE AND REPLACEMENT

A. General:
   1. Begin maintenance of planted areas immediately after each portion is planted and continue until final acceptance or for a specific time period as stated below, whichever is the longer.
   2. Provide and maintain temporary piping, hoses, and watering equipment as required to convey water from water sources and to keep planted areas uniformly moist as required for proper growth.
   3. Protection of new materials:
      a. Provide barricades, coverings or other types of protection necessary to prevent damage to existing improvements indicated to remain. Repair and pay for all damaged items.
   4. Replace unacceptable materials with materials and methods identical to the original specifications unless otherwise approved by the Engineer.

B. Seeded Areas:
   1. Maintain all seeded areas for 90 days, minimum, after installation and review of entire project area to be planted.
   2. Engineer will review final acceptability of installed areas at end of maintenance period.

END OF SECTION

00D28

SECTION 03002
CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Cast-in-place concrete.
   2. Concrete mixes, proportioning, and quality control.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 02316 - Driven Steel Pipe Piles.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Concrete Institute (ACI):
      a. 116R, Cement and Concrete Terminology (SP-19).
      b. 211.1, Standard Practice for Selecting Proportions for Normal and Heavyweight Concrete.
      c. 212.1R, Admixtures for Concrete.
      d. 212.2R, Guide for Use of Admixtures in Concrete.
      e. 214, Recommended Practice for Evaluation of Compression Test Results of Field Concrete.
      f. 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
      g. 304.2R, Placing Concrete by Pumping Methods.
      h. 305R, Hot Weather Concreting.
      i. 306R, Cold Weather Concreting.
      j. 318, Building Code Requirements for Reinforced Concrete.
      k. 347R, Guide to Formwork for Concrete.
   2. American Society for Testing and Materials (ASTM):
      a. A82, Standard Specifications for Cold Drawn Steel Wire for Concrete Reinforcement.
      b. A615, Standard Specification for Deformed and Plain Billet Steel Bars for Concrete Reinforcement Including Supplementary Requirements S1.
      c. C31, Standard Method of Making and Curing Concrete Test Specimens in the Field.
      d. C33, Standard Specification for Concrete Aggregates.
      e. C39, Standard Method of Test for Compressive Strength of Cylindrical Concrete Specimens.
      f. C94, Standard Specification for Ready Mixed Concrete.
      g. C138, Standard Method of Test for Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.
      h. C143, Standard Method of Test for Slump of Portland Cement Concrete.
      i. C150, Standard Specification for Portland Cement.
      j. C171, Standard Specification for Sheet Materials for Curing Concrete.
      k. C172, Standard Method of Sampling Fresh Concrete.
      l. C173, Standard Method of Test for Air Content of Freshly Mixed Concrete by the Volumetric Method.
      m. C192, Standard Method of Making and Curing Concrete Test Specimens in the Laboratory.
      n. C231, Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method.

o. C260, Standard Specification for Air Entraining Admixtures for Concrete.
p. C289, Test Method for Potential Reactivity of Aggregates (Chemical Method).
q. C309, Standard Specification for Liquid Membrane Forming Compounds for Curing Concrete.
r. C494, Standard Specification for Chemical Admixtures for Concrete.
s. C595, Specification for Blended Hydraulic Cements.
t. C618, Standard Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
u. D1056, Specification for Flexible Cellular Materials Sponge or Expanded Rubber.
v. D1751, Standard Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.
w. E329, Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

3. Federal Specification (FS):
   a. TT-S-227b, Sealer Compound; Rubber Base, Two Component.
   b. LLL-B-810B, Building Board, (Hardboard) Hard Pressed, Vegetable Fiber.
4. Corps of Engineers: Specification CRD-C572 Polyvinyl Waterstops.

B. Quality Control:
1. Concrete testing agency.
   a. Contractor to employ and pay for services of a testing laboratory to:
      1) Perform materials evaluation.
      2) Design concrete mixes.
   b. Concrete testing agency to meet requirements of ASTM E329.
2. Do not begin concrete production until proposed concrete mix design has been approved by Engineer.
   a. Approval of concrete mix design by Engineer does not relieve Contractor of his responsibility to provide concrete that meets the requirements of this Specification.
3. Adjust concrete mix designs when material characteristics, job conditions, weather, strength test results or other circumstances warrant.
   a. Do not use revised concrete mixes until submitted to and approved by Engineer.

C. Qualifications: Ready mixed concrete batch plant certified by National Ready Mixed Concrete Association (NRMCA).

1.3 DEFINITIONS

A. Per ACI SP-19 except as modified herein:
1. Concrete Testing Agency: Testing agency employed to perform materials evaluation, design of concrete mixes or testing of concrete placed during construction.
2. Exposed concrete: Exposed to view after construction is complete.
3. Indicated: Indicated by Contract Documents.
4. Nonexposed concrete: Not exposed to view after construction is complete.
5. Required: Required by Contract Documents.
6. Specified strength: Specified compressive strength at 28 days.
7. Submitted: Submitted to Engineer.

1.4 SUBMITTALS

A. Shop Drawings:
1. See Section 01340.
2. Concrete mix designs proposed for use. Concrete mix design submittal to include the following information:
   a. Sieve analysis and source of fine and coarse aggregates.
   b. Test for aggregate organic impurities.
   c. Test for deleterious aggregate per ASTM C289.
   d. Proportioning of all materials.
   e. Type of cement with mill certificate for cement.

f. Slump.
g. Air content.
h. Brand, type, ASTM designation, and quantity of each admixture proposed for use.
i. 28-day cylinder compressive test results of trial mixes per ACI 318 and as indicated herein.
j. Standard deviation value for concrete production facility.

3. Manufacturer and type of joint filler, joint sealant and curing agent.
4. Reinforcing steel: Show grade, sizes, number, configuration, spacing, location and all fabrication and placement details.
   a. In sufficient detail to permit installation of reinforcing without having to make reference to Contract Drawings.
   b. Obtain approval of shop drawings by Engineer before fabrication.
5. Strength test results of in place concrete including slump, air content and concrete temperature.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Storage of Material:
   1. Cement:
      a. Store in moistureproof, weathertight enclosures.
      b. Do not use if caked or lumpy.
   2. Aggregate:
      a. Store to prevent segregation and contamination with other sizes or foreign materials.
      b. Obtain samples for testing from aggregates at point of batching.
      c. Do not use frozen or partially frozen aggregates.
      d. Do not use bottom 6 IN of stockpiles in contact with ground.
      e. Allow sand to drain until moisture content is uniform prior to use.
   3. Admixtures:
      a. Protect from contamination, evaporation, freezing, or damage.
      b. Maintain within temperature range recommended by manufacturer.
      c. Completely mix solutions and suspensions prior to use.
   4. Reinforcing steel:
      a. Support and store all rebars above ground.

B. Delivery:
   1. Concrete:
      a. Prepare a delivery ticket for each load for ready-mixed concrete.
      b. Truck operator shall hand ticket to Engineer at the time of delivery.
      c. Ticket to show:
         1) Mix identification mark.
         2) Quantity delivered.
         3) Amount of each material in batch.
         4) Outdoor temp in the shade.
         5) Time at which cement was added.
         6) Numerical sequence of the delivery.
         7) Amount of water added.
   2. Reinforcing steel: Ship to jobsite with attached plastic or metal tags with permanent mark numbers.
      a. Mark numbers to match shop drawing mark number.

1.6 MEASUREMENT AND PAYMENT

A. Measurement: Quantity for payment to be measured by the lump sum, in place, complete and accepted.

B. Payment: Contract bid price is based on lump sum as indicated on the Drawings.

1. Bid price to include all costs of material, including subgrade preparation, steel reinforcing, labor, equipment and other incidentals for complete installation as shown on the Drawings and indicated in this Specification Section.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Form coating:
      a. Richmond "Rich Cote."
      b. Industrial Lubricants "Nox-Crete Form Coating."
      c. Protex "Pro-Cote."
      d. Or equal.
   2. Prefabricated forms:
      a. Simplex "Industrial Steel Frame Forms."
      b. Symons "Steel Ply."
      c. Universal "Uniform."
      d. Or equal.

2.2 MATERIALS

A. Portland Cement: Conform to ASTM C150 Type I.

B. Admixtures:
   1. Air entraining admixtures: ASTM C260.
   2. Water reducing, retarding, and accelerating admixtures:
      a. ASTM C494 Type A through E.
      b. Conform to provisions of ACI 212.1R and ACI 212.2R.
      c. Do not use retarding or accelerating admixtures unless specifically approved in writing by Engineer and at no cost to Owner.
      d. Follow manufacturer's instructions.
      e. Use chloride free admixtures only.
   3. Maximum total water soluble chloride ion content contributed from all ingredients of concrete including water, aggregates, cementitious materials and admixtures by weight percent of cement:
      a. 0.10 all concrete.
   4. Do not use calcium chloride.
   5. Pozzolanic admixtures: ASTM C618.
   6. Provide admixtures of same type, manufacturer and quantity as used in establishing required concrete proportions in the mix design.

C. Water: Potable, clean, free of oils, acids and organic matter.

D. Aggregates:
   1. Normal weight concrete: ASTM C33, except as modified below.
   2. Fine aggregate: Clean natural sand.
      a. No manufactured or artificial sand.
   3. Coarse aggregate: Crushed rock, natural gravel, or other inert granular material.
      a. Maximum amount of clay or shale particles: 1 percent.
   4. Gradation of coarse aggregate:
      a. All concrete: Size #57 or #67.

E. Reinforcing Steel:
   1. Reinforcing bars: ASTM A615, Grade 60.

F. Forms:

1. Prefabricated or job built.
2. Plywood: PS1, waterproof, resin bonded, exterior-type Douglas Fir.
   a. Face adjacent to concrete Grade B or better.
3. Fiberboard: Fed Spec LLL-B-810, Type IX, tempered, waterproof, screen back, concrete form hardboard.
4. Lumber: Straight; uniform width and thickness; and free from knots, offsets, holes, dents, and other surface defects.
5. Chamfer strips: Clear white pine, surface against concrete planed.
6. Form ties: Removable end, permanently embedded body type with cones on outer ends not requiring auxiliary spreaders.
   a. Cone diameter: 3/4 IN minimum to 1 IN maximum.
   b. Embedded portion 1 IN minimum back from concrete face.
   c. If not provided with threaded ends, constructed for breaking off ends without damage to concrete.
7. Form release: Nonstaining and shall not prevent bonding of future finishes to concrete surface.

G. Chairs, Runners, Bolsters, Spacers, and Hangers:
1. Stainless steel, epoxy coated, or plastic coated metal.
   a. Plastic coated: Rebar support tips in contact with the forms only.

H. Membrane Curing Compound: ASTM C309, Type I-D.
1. Resin based, dissipates upon exposure to UV light.

I. Expansion Joint Filler:
1. Asphalt impregnated fiber type.

2.3 CONCRETE MIXES

A. General:
1. All concrete to be ready mixed concrete conforming to ASTM C94.
2. Provide concrete of specified quality capable of being placed without segregation and, when cured, of developing all properties required.
3. All concrete to be normal weight concrete.

B. Strength:
1. Provide specified strength and type of concrete for each use in structure(s) as follows:

TYPE	WEIGHT	SPECIFIED STRENGTH*
All Concrete	Normal weight	4500 psi

*Minimum 28-day compressive strength

C. Air Entrainment: Provide air entrainment in all concrete resulting in a total air content percent by volume as follows:

MAX AGGREGATE SIZE	TOTAL AIR CONTENT PERCENT
1 IN or 3/4 IN	5 to 7
1/2 IN	6 to 8

1. Air content to be measured in accordance with ASTM C231, ASTM C173, or ASTM C138.

D. Slump: 4 IN maximum, 1 IN minimum.
1. Measured at point of discharge of the concrete into the concrete construction member.
2. Concrete of lower than maximum slump may be used provided it can be properly placed and consolidated.
3. Pumped concrete:
   a. Provide additional water at batch plant to allow for slump loss due to pumping.

b. Provide only enough additional water so that slump of concrete at discharge end of pump hose does not exceed maximum slump specified above.

4. Determine slump per ASTM C143.

E. Selection of Proportions:

1. General - Proportion ingredients to:
   a. Produce proper workability, durability, strength, and other required properties.
   b. Prevent segregation and collection of excessive free water on surface.
2. Minimum cement contents and maximum water cement ratios for concrete to be as follows:

	MINIMUM CEMENT, LB/CY			
SPECIFIED STRENGTH	MAXIMUM 1/2	AGGREGATE 3/4	SIZE, IN 1	MAXIMUM WATER CEMENT RATIO BY WEIGHT
4500	---	658	658	0.45

3. Submit mix design data as required by this specification section.
4. Normal weight concrete: Proportion mixture to provide desired characteristics using one of methods described below:
   a. Method 1 (Trial Mix): Per ACI 318, Chapter 5, except as modified herein.
      1) Air content within range specified above.
      2) Record and report temperature of trial mixes.
      3) Proportion trial mixes per ACI 211.1.
   b. Method 2 (Field Experience): Per ACI 318, Chapter 5, except as modified herein:
      1) Field test records must be acceptable to Engineer to use this method.
      2) Test records shall represent materials, proportions and conditions similar to those specified.
5. Required average strength to exceed the specified 28-day compressive strength by the amount determined or calculated in accordance with the requirements of paragraph 5.3 of ACI 318 using the standard deviation of the proposed concrete production facility as described in paragraph 5.3.1 of ACI 318.

PART 3 - EXECUTION

3.1 FORMING AND PLACING CONCRETE

A. General:

1. Contractor is responsible for design and erection of formwork.
2. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.
   a. Allowable tolerances: As recommended in ACI 347R.

B. Openings: Provide openings in formwork to accommodate work of other trades.

1. Accurately place and securely support items built into forms.

C. Chamfer Strips: Place 3/4 IN chamfer strips in forms to produce 3/4 IN wide beveled edges on corners of members.

D. Reinforcement:

1. Position, support and secure reinforcement against displacement.
2. Locate and support with chairs, runners, bolsters, spacers and hangers, as required.
3. Set wire ties so ends do not touch forms and are directed into concrete, not toward exposed concrete surfaces.
4. Lap splice lengths: ACI 318 Class B top bar tension splices unless indicated otherwise on the Drawings.
5. Extend reinforcement to within 2 IN of concrete perimeter edges.

a. If perimeter edge is earth formed, extend reinforcement to within 3 IN of the edge.

6. Unless otherwise indicated, provide minimum concrete cover as follows:
   a. Concrete deposited against earth: 3 IN.
   b. Formed surfaces exposed to weather or in contact with earth: 2 IN for reinforcing bars #6 or larger; 1-1/2 IN for reinforcing bars less than #6.
7. Do not weld reinforcing bars.

E. Construction, Expansion, and Contraction Joints:
1. Provide at locations indicated.
2. Locate wall horizontal construction joints at top and bottom of slabs.
3. Install construction joints perpendicular to the planes of their surfaces.
4. At least 48 HRS shall elapse between placing of adjoining concrete construction.
5. Thoroughly clean and remove all laitance and loose and foreign particles from construction joints.
6. Before new concrete is placed, coat all construction joints with an approved bonding adhesive used and applied in accordance with manufacturer's instructions.

F. Embedments:
1. Set and build in anchorage devices and other embedded items required for other work that is attached to, or supported by concrete.
2. Use setting diagrams, templates and instructions for locating and setting.

G. Preparation:
1. Clean and adjust forms prior to concrete placement.
2. Tighten forms to prevent mortar leakage.
3. Coat form surfaces with form release agents prior to placing reinforcing bars in forms.

H. Placing Concrete:
1. Place concrete in compliance with ACI 304 and 304.2R.
2. Place in a continuous operation within planned joints or sections.
3. Begin placement when work of other trades affecting concrete is completed.
4. Place concrete by methods which prevent aggregate segregation.
5. Do not allow concrete to free fall more than 4 FT.
6. Where free fall of concrete will exceed 4 FT, place concrete by means of tremie pipe or chute.

I. Consolidation:
1. Consolidate all concrete using mechanical vibrators supplemented with hand rodding and tamping, so that concrete is worked around reinforcement and embedded items into all parts of forms.

J. Protection:
1. Protect concrete from physical damage or reduced strength due to weather extremes.
2. In cold weather comply with ACI 306R except as modified herein.
   a. Do not place concrete on frozen ground or in contact with forms or reinforcing bars coated with frost, ice or snow.
   b. Minimum concrete temperature at the time of mixing:

OUTDOOR TEMPERATURE AT PLACEMENT (IN SHADE)	CONCRETE TEMPERATURE AT MIXING
Below 30 DegF	70 DegF
Between 30-45 DegF	60 DegF
Above 45 DegF	50 DegF

   c. Do not place heated concrete that is warmer than 80 DegF.
   d. If freezing temperatures are expected during curing, maintain the concrete temperature at or above 50 DegF for 7 days or 70 DegF for 3 days.
   e. Do not allow concrete to cool suddenly.
3. In hot weather comply with ACI 305R except as modified herein.

a. At air temperature of 90 DegF and above, keep concrete as cool as possible during placement and curing.
b. Do not allow concrete temperature to exceed 90 DegF at placement.
c. Prevent plastic shrinkage cracking due to rapid evaporation of moisture.
d. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 LBS/SF/HR as determined from ACI 305R, Figure 2.1.5.

K. Curing:
1. Begin curing concrete as soon as free water has disappeared from exposed surfaces.
2. Cure concrete by use of moisture retaining cover, burlap kept continuously wet or by membrane curing compound.
3. Provide protection as required to prevent damage to concrete and to prevent moisture loss from concrete during curing period.
4. Provide curing for minimum of 7 days.
5. Form materials left in place may be considered as curing materials for surfaces in contact with the form materials except in periods of hot weather.
6. In hot weather follow curing procedures outlined in ACI 305R.
7. In cold weather follow curing procedures outlined in ACI 306R.
8. If forms are removed before 7 days have elapsed, finish curing of formed surfaces by one of above methods for the remainder of the curing period.
9. Curing vertical surfaces with a curing compound: Cover vertical surfaces with a minimum of two coats of the curing compound.
a. Allow the preceding coat to completely dry prior to applying the next coat.
b. Apply the first coat of curing compound immediately after form removal.
c. Vertical surface at the time of receiving the first coat shall be damp with no free water on the surface.
d. A vertical surface is defined as any surface steeper than 1 vertical to 4 horizontal.

3.2 CONCRETE FINISHES

A. Tolerances:
1. Class B: 1/4 IN in 10 FT.

B. Surfaces Exposed and Not Exposed to View:
1. Provide a smooth finish for exposed concrete surfaces.
2. Remove fins and projections, and patch voids, air pockets, and honeycomb areas with cement grout.
3. Fill tie holes with cement grout.

C. Troweled Finish:
1. Hand trowel surface.
2. Produce a smooth surface which is relatively free of defects with first hand troweling.
3. Perform additional trowelings by hand after surface has hardened sufficiently.
4. Thoroughly consolidate surface by hand troweling.
5. Leave finished surface essentially free of trowel marks, uniform in texture and appearance and plane to a Class B tolerance.
6. Immediately after concrete has received a troweled finish, give it a transverse scored texture by drawing a broom across surface.

3.3 FIELD QUALITY CONTROL

A. Owner will employ and pay for services of a concrete testing laboratory to perform testing of concrete placed during construction.
1. Contractor to cooperate with Owner in obtaining and testing samples.

B. Tests During Construction:
1. Strength test - procedure:
a. Three cylinders, 6 IN DIA x 12 IN high, will be taken from each sample per ASTM C172 and C31.

b. Cylinders will be tested per ASTM C39:
1) One at 7 days.
2) Two at 28 days.

2. Strength test - frequency:
a. Not less than one test each day concrete placed.
b. Not less than one test for each 50 CY or major fraction thereof placed in one day.

3. Slump test: Per ASTM C143.
a. Determined for each strength test sample.
b. Additional slump tests may be taken.

4. Air content: Per ASTM C231, C173, and C138.
a. Determined for each strength test sample.

5. Temperature: Determined for each strength test sample.

C. Evaluation of Tests:
1. Strength test results: Average of 28-day strength of two cylinders from each sample.
a. If one cylinder manifests evidence of improper sampling, molding, handling, curing or testings, strength of remaining cylinder will be test result.
b. If both cylinders show any of above defects, test will be discarded.

D. Acceptance of Concrete:
1. Strength level of each type of concrete shall be considered satisfactory if both of the following requirements are met:
a. Average of all sets of three consecutive strength tests equals or exceeds the required specified 28-day compressive strength.
b. No individual strength test falls below the required specified 28-day compressive strength by more than 500 psi.

3.4 SCHEDULES

A. Form Types:
1. Surfaces exposed to view:
a. Prefabricated plywood panel forms, job-built plywood forms, or forms lined with plywood or fiberboard.
b. Laid out in a regular and uniform pattern with long dimensions horizontal and vertical joints staggered.
c. Produce finished surfaces free from offsets, ridges, waves, and concave or convex areas.
d. Construct forms sufficiently tight to prevent leakage of mortar.

2. Surfaces not exposed to view:
a. Wood or steel forms sufficiently tight to prevent leakage of mortar.

3. Other types of forms may be used:
a. For surfaces not restricted to plywood or lined forms.
b. As backing for form lining.

B. Concrete:
1. Normal weight concrete: All locations.

END OF SECTION

00D28

SECTION 05131
STRUCTURAL ALUMINUM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Structural aluminum including the fabrication and erection of framing and bracing members, including connections.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 05522 - Aluminum Railings.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. Aluminum Association (AA):
      a. Aluminum Design Manual.
      b. SAS-30, Standard Specifications for Aluminum Structures.
      c. ASD1, Aluminum Standards and Data.
      d. ED-33, Engineering Data for Aluminum Structures.
   2. American Institute of Steel Construction (AISC):
      a. Manual of Steel Construction.
   3. American National Standards Institute (ANSI):
      a. B18.2, Square and Hexagon Bolts and Nuts.
      b. B18.22.1, Plain Washers.
   4. American Society for Testing and Materials (ASTM):
      a. B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
      b. B210, Standard Specification for Aluminum-Alloy Drawn Seamless Tubes.
      c. B211, Standard Specification for Aluminum-Alloy Bar, Rod, and Wire.
      d. B221, Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
      e. B241, Standard Specification for Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
      f. B247, Standard Specification for Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings.
      g. B308, Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Shapes.
      h. B429, Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
      i. F467, Standard Specification for Nonferrous Nuts for General Use.
      j. F468, Standard Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use.
      k. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
   5. American Welding Society (AWS):
      a. D1.2, Structural Welding Code Aluminum.

B. Qualifications:
   1. For welding aluminum: Qualify welding procedures and welding operators in accordance with AWS D1.2. Welding operators to have been qualified during the 12-month period prior to commencement of welding.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Fabrication and/or layout drawings:
      a. Erection plans and details of each piece including connection details:
         1) Show all cuts, copes and holes.
         2) Indicate all shop and field welds using AWS symbols.
         3) Indicate all shop and field bolts.
      b. Complete shop drawings for all of the work showing clearly all pieces, details, connections, materials and shop-applied coatings.
      c. Prepare complete erection drawings showing the location and marks of all pieces.
   3. Product technical data including:
      a. Acknowledgement that products submitted meet requirements of standards referenced.
      b. Manufacturer's installation instructions.
   4. Certifications.
      a. Copies of current welding certificates for each welder assigned to perform welding indicating compliance with testing specified by AWS.

1.4 MEASUREMENT AND PAYMENT

A. Measurement: Accepted quantity for payment to be measured by the number of lineal feet of walkway installed in place, completed and approved, measured along the centerline of the walkway from end to end of walkway. All connections shall be included.

B. Payment: Contract bid price is based on the total lineal footage indicated on the Drawings.
   1. Bid price to include all costs of material, labor, equipment and other incidentals for complete installation as shown on the Drawings and indicated in this Specification Section.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
   1. Expansion anchor bolts.
      a. Kwik Bolts by Hilti, Inc.
      b. Trubolt by ITW Ramset/Redhead.
      c. Powerbolt by Powers Rawl.
   2. Adhesive anchor bolts:
      a. HVA Adhesive Anchor System by Hilti.
      b. H IT HY 150 Adhesive Anchor by Hilti.
      c. HSE 2411 Epoxy Adhesive Anchor by Hilti.
      d. EPCON Ceramic 6 Epoxy by ITW Ramset/Redhead.
      e. Power Fast by Powers Rawl.
      f. Needle Capsule Anchor Systems by Powers Rawl.

2.2 MATERIALS

A. Alloy 6061-T6, {32,000 psi tensile yield strength minimum}.
   1. ASTM B209 for sheets and plates.
   2. ASTM B210 for tubes.
   3. ASTM B221 and B308 for shapes: beams, channels, angles, tees and zees.
   4. ASTM B247 for forgings.

B. Alloy 6063-T5 or T6, {15,000 psi tensile yield strength minimum}.
   1. ASTM B221 and B429 for bars, rods, wires and pipes.

C. Aluminum Bolts and Nuts: ASTM F467 and F468 of alloy 2024-T4 (62,000 psi tensile strength minimum).

D. Bolts and Nuts for Fastening Aluminum to Structural Steel: Stainless steel complying with ASTM F593, Type 303, 304 or 316 with a minimum yield strength of 30,000 psi and a minimum tensile strength of 75,000 psi.

E. Washers: Same material and alloy as found in bolts and nuts with which the washers are to be used.

F. Electrodes for Welding Aluminum: AWS D1.2 filler alloy 5356.

G. Expansion Anchor Bolts and Adhesive Anchor Bolts for Fastening to Concrete:
   1. Where approved by Engineer.
   2. Stainless steel, type 304, 314 or 316.
   3. Provide minimum edge distance cover and spacing as recommended by manufacturer or as indicated on Drawings.
      a. Minimum embedment as recommended by manufacturer or 8 diameters of bolt, whichever is larger.
      b. Notify Engineer if required depth of embedment cannot be achieved at a particular anchor bolt location.
      c. Follow manufacturer's recommendations for installation and torque.
      d. Submit manufacturer's load test data to verify at least the anchor bolt capacities at the following embedment depths:

ANCHOR BOLT DIAMETER (IN)	EMBEDMENT (IN)	MINIMUM ULTIMATE TENSION CAPACITY (KIP)* **
3/8	3	4.0
1/2	4	8.0
5/8	5	11.0
3/4	6	15.0
7/8	7	20.0
1	8	24.0

* Data must be based on actual tests preformed in unreinforced mass concrete of not more than 4000 psi compressive strength.

** Capacity must be at a concrete temperature of at least 130 DegF.

2.3 DESIGN CRITERIA

A. Where final design of members and connections for any portion of structure is not indicated, perform final design of such members and connections.

B. Final designs of members and connections shall conform to AA "Aluminum Design Manual" and to details and requirements shown on Drawings.
   1. Design connections for members as shown on the Drawings.

2.4 FABRICATION

A. Fabrication of bolted and welded connections of aluminum work shall be in accordance with AA "Aluminum Design Manual".

B. Contractor to be solely responsible for correctness of all shop and field fabrication and fit. Verify field conditions and dimensions prior to fabrication.

C. Fabricate aluminum work and assemble in shop to greatest extent possible. Make splices only where indicated or approved.

D. Provide connections as indicated. Where not indicated, design and provide connections in accordance with requirements of this Section.

E. Drill or punch holes at right angles to surface of metal. Do not make or enlarge holes by burning. Provide holes clean and free of torn or ragged edges. Use tools which will make a 1/16 IN bevel to remove outside burrs resulting from drilling or punching operations.
   1. Punch or drill for field connections and for attachment of work by other trades.

F. Cope at 45 degrees corners of stiffener plates at junction of member flanges with webs.

G. Welding: Weld connections to members in shop and bolt connections in field. Perform welding using electrodes of filler alloy 5356. Perform welding in accordance with AWS D1.2. Use only welding procedures and welding operators qualified in accordance with requirements of paragraph 1.2 B "Qualifications".

H. Form to shapes indicated with straight lines, true angles and smooth curves. Grind smooth all rough welds and sharp edges.
   1. Round all corners to approximately 1/8 IN radius.

I. Finish: Mill finish as fabricated.

PART 3 - EXECUTION

3.1 ERECTION

A. Contractor is solely responsible for safety. Construction means and methods and sequencing of work is prerogative of the Contractor. Take into consideration that full structural capacity of many structural members is not realized until structural assembly is complete; e.g. until diagonal bracing or rigid connections are installed.
   1. Partially complete structural members shall not be loaded without an investigation by the Contractor.
   2. Until all elements of the permanent structure and lateral bracing system are complete, provide temporary bracing designed, finished and installed by the Contractor.

B. Bolting:
   1. Protect bolt threads from damage.
   2. Rest bolt heads and nuts squarely against surfaces.
   3. Where bolt heads or nuts rest on beveled surfaces having slope greater that 1 in 20 with plane normal to bolt axis, provide beveled washers to give full bearing to head and nut.
   4. Correct poor matching of holes by drilling to next larger size and use larger diameter bolt
   5. Connect aluminum members to:
      a. Aluminum members using 3/4 IN DIA aluminum bolts of alloy 2024-T4.
      b. Structural steel using 3/4 IN DIA stainless steel bolts.
      c. Concrete or masonry using stainless steel adhesive anchor bolts unless shown otherwise. Provide dissimilar materials protection.

C. Welding: Field welding of aluminum is not allowed.

D. Correct fabrication errors and damaged members in shop. Do not use cutting torch in shop or in field to cut any members, to correct fabrication errors, or to cut openings.

E. Field Assembly: Tolerances shall comply with AISC "Manual of Steel Construction" Ninth Edition. Before members are assembled, thoroughly clean all bearing surfaces and surfaces that will be in permanent contact. After assembly, carefully align all members of each frame or assembly and accurately adjust until final, correct and true location is achieved. As work progresses, securely fasten in place.
   1. Provide full length members without splices.
   2. Securely tighten and leave in place all erection bolts used in welded construction.

F. Contact with Dissimilar Materials: Where aluminum surfaces will be embedded in concrete, or in contact with steel, concrete, or other dissimilar materials, coat the aluminum surfaces as described in Aluminum Design Manual.

1

END OF SECTION

00D28

SECTION 05522
ALUMINUM RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Aluminum handrail and guardrail.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 05131 - Structural Aluminum.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. The Aluminum Association (AA):
      a. Aluminum Design Manual.
      b. 45, Designation System For Aluminum Finishes.
   2. American Society of Mechanical Engineer (ASME):
      a. Section IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.
   3. American Society for Testing and Materials (ASTM):
      a. A320, Standard Specification for Alloy-Steel Bolting Materials for Low-Temperature Service.
      b. B108, Standard Specification for Aluminum-Alloy Permanent Mold Castings.
      c. B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
      d. B211, Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire.
      e. B210, Specification for Aluminum and Aluminum or Alloy Drawn Seamless Tubes.
      f. B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
      g. B241, Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube.
      h. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
   4. American Welding Society (AWS):
      a. C5.5, Recommended Practices for Gas Tungsten Arc Welding.
      b. D1.2, Structural Welding Code Aluminum.
   5. U. S. Department of Labor, Occupational Safety and Health Administration (OSHA):
      a. 29 CFR 1910, OSHA Safety and Health Standards for General Industry (referred to herein as OSHA standards).
   6. Provide rails complying with OSHA Regulations.

B. Qualifications:
   1. Qualify welding procedures and welding operators in accordance with AWS and ASME Section IX.

1.3 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Fabrication and/or layout drawings:
      a. Plan showing profile, location, sections, details and marks of each railing.

b. Type and details of anchorage.
c. Location and type of expansion joints.
d. Materials of construction , shop coatings and all third-party accessories.

3. Product technical data including:
a. Acknowledgement that products submitted meet requirements of standards referenced.
b. Manufacturer's installation details.

B. Miscellaneous Submittals:
1. See Section 01340.
2. Certification of welders and welding procedures indicating compliance with AWS requirements.

1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver and handle railings to preclude damage.

B. Store railings on skids, keep free of dirt and other foreign matter which will damage railings or finish.

1.5 MEASUREMENT AND PAYMENT

A. Measurement: Accepted quantity for payment to be measured by the number of lineal footage of aluminum railing installed in place, completed and approved, measured along the centerline of the railing.

B. Payment: Contract bid price is based on the total lineal footage of railing as indicated on the Drawings.
1. Bid price to include all costs of material, labor, equipment and other incidentals for complete installation as shown on the Drawings and indicated in this Specification Section.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
1. Welded railing systems:
a. Any manufacturer meeting this Specification.
2. Expansion anchors: See Section 05131.
3. Epoxy adhesive anchors: See Section 05131.

B. Submit requests for substitutions in accordance with Specification Section 01640.

2.2 MATERIALS

A. Alloy 6061-T6 (32,000 psi tensile yield strength minimum).
1. ASTM B209 for sheets and plates.
2. ASTM B210 for tubes.
3. ASTM B221 and B308 for shapes - beams, channels, angles, tees, and zees.
4. ASTM B247 for forgings.

B. Alloy 6063-T5 or T6 (15,000 psi tensile yield strength minimum).
1. ASTM B221 and B429 for bars, rods, wires and pipes.

C. Cast Fittings: Aluminum, ASTM B108.

D. Fasteners: See Section 05131.

E. Expansion Anchors: See Section 05131.

F. Adhesive Anchors: See Section 05131.

G. Electrodes for Welding:
   1. Aluminum: AWS D1.2.
   2. Filler alloy 5356 or 4043.

2.3 FABRICATION

A. General:
   1. Verify field conditions and dimensions prior to fabrication.
   2. For fabrication of items which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
      a. Remove blemishes by grinding and buffing or by welding and grinding, prior to cleaning, treating and application of surface finishes.
   3. Form exposed work with smooth, short radius bends, accurate angles and straight edges.
      a. Ease exposed edges to a radius of approximately 1/32 IN.
      b. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
      c. Drill or punch holes with smooth edges.
   4. Form exposed connections with flush, smooth, hairline joints, using stainless steel or aluminum splice locks to splice sections together or by welding. Top rail splices and expansion joints shall be located within 8 IN of post or other support.
      a. Ease the edges of top rail splices and expansion joints and remove all burrs left from cutting.
   5. Provide for anchorage of type indicated on Drawings or as required by field conditions.
   6. Design railing and anchorage system to withstand:
      a. 200 LB concentrated load applied at any point in any direction to handrail or guardrail.
      b. 50 PLF vertical and horizontal uniform load applied simultaneously to the top rail of the guardrail.
      c. Concentrated load need not be assumed to act concurrently with uniform load.
   7. Custom fabricate railings to dimensions and profiles indicated.
      a. Fabricate all guardrail top rails using minimum 2 IN nominal DIA schedule 40 pipe.
      b. Fabricate all guardrail vertical posts using minimum 2 IN nominal DIA schedule 40 pipe.
         1) Provide a 2 IN DIA x 8 IN long solid aluminum rod welded to the base plate.
         2) Fit the vertical post over the solid rod and weld the post to the base plate.
      c. All intermediate horizontal rails of guardrail shall be fabricated using minimum 1½ IN nominal DIA schedule 40 pipe.
      d. Floor flange for vertical guardrail posts mounted to top of concrete surface:
         1) 3/8 x 6 x 6 IN octagonal plate welded to both the 2 IN DIA x 8 IN long solid rod and the vertical post.
         2) Predrilled to accept four anchors.
      e. Floor flange for vertical guardrail post mounted to metal structure:
         1) 3/8 x 2½ x 8 IN plate welded to both the 2 IN DIA solid rod and the vertical post.
         2) Predrilled to accept two anchors.
      f. Where details are not indicated, set horizontal rails to requirements of OSHA.
      g. Provide 3/8 IN x 4 IN toeboards at all elevated walkways, and where indicated on the Drawings or required by OSHA, whichever requires the more restrictive design.
   8. Fit exposed ends of guardrails and handrails with solid terminations.
   9. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly of units at project site

B. Finish: Mill finish as fabricated.

C. Welded Railing Fabrication:
   1. All welding to be continuous in accordance with AWS C5.5 and D1.2.
      a. All welded railing joints shall have full penetration welds unless noted otherwise.

2. All exposed welds to be ground and buffed smooth and flush to match and blend with adjoining surfaces.
3. No ragged edges, surface defects, or undercutting of adjoining surfaces will be accepted.
4. Finishing joints with filler is not acceptable.

D. Install weeps to drain water from hollow sections of railing at exterior and high humidity conditions.
1. Drill 1/4 IN weep hole in railing 1 IN above bottom of posts closed at bottom, and at other low points where moisture can collect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide welded or mechanically fastened component type railings suitable for exterior installation.

B. Install products in accordance with manufacturer's instructions.

C. Align railings prior to securing in place to assure proper matching at butting and expansion joints and correct alignment throughout their length.
1. Space vertical posts as required by loading requirements but not more than 4 FT on center.

D. Provide floor flange at corner and termination posts.

E. Anchor railings to concrete with minimum 1/2 IN stainless steel adhesive anchors with stainless steel bolts, nuts and washers unless noted otherwise in the Contract documents.

F. Anchor railings to metal beams and stairs stringers with welds.

G. Coat aluminum in contact with dissimilar metal or concrete in accordance with Aluminum Design Manual.

END OF SECTION

00F08

SECTION 11005
EQUIPMENT: BASIC REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Requirements of this Section apply to all equipment provided on the Project including that found in Division 15 even if not specifically referenced in individual "Equipment" articles of those Specifications.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.
   3. Section 03302 - Concrete.
   4. Section 15115 - Sluice Gates.

1.2 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Bearing Manufacturers Association (ABMA).
   2. American Gear Manufacturers Association (AGMA).
   3. American Society for Testing and Materials (ASTM):
      a. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
   4. Institute of Electrical and Electronics Engineers (IEEE):
      a. 112, Standard Test Procedure for Polyphase Induction Motors and Generators.
   5. National Electrical Manufacturers Association (NEMA):
      a. 250, Enclosures for Electrical Equipment.
      b. ICS 6, Enclosures for Industrial Control and System.
      c. MG 1, Motors and Generators.
   6. National Fire Protection Association (NFPA):
      a. 70, National Electrical Code (NEC).

B. Miscellaneous:
   1. A single manufacturer of a "product" to be selected and utilized uniformly throughout Project even though:
      a. More than one manufacturer is listed for a given "product" in Specifications.
      b. No manufacturer is listed.

1.3 DEFINITIONS

A. Product: Manufactured materials and equipment.

B. Major Equipment Supports - Supports for Equipment:
   1. Located on or suspended from elevated slabs with supported equipment weighing 2000 LBS or greater, or:
   2. Located on slab-on-grade or earth with supported equipment weighing 5000 LBS or more.

C. Equipment: One or more assemblies capable of performing a complete function. Mechanical, electrical, instrumentation or other devices requiring an electrical, pneumatic, electronic or hydraulic connection. Not limited to items listed under "Equipment" article within specifications.

D. Installer or Applicator: Installer or applicator is the person actually installing or applying the product in the field at the Project site.

1. Installer or applicator are synonymous.

1.4 SUBMITTALS

A. Shop Drawings:
   1. General for all equipment:
      a. See Section 01340.
      b. Acknowledgement that products submitted comply with the requirements of the standards referenced.
      c. Manufacturer's delivery, storage, handling, and installation instructions.
      d. Equipment identification utilizing numbering system and name utilized in Drawings.
      e. Equipment installation details:
         1) Location of anchorage.
         2) Type, size, and materials of construction of anchorage.
         3) Anchorage setting templates.
         4) Manufacturer's installation instructions.
      f. Shipping and operating weight.
      g. Equipment physical characteristics:
         1) Dimensions (both horizontal and vertical).
         2) Materials of construction and construction details.
      h. Equipment factory primer and paint data.
      i. Manufacturer's recommended spare parts list.
      j. Equipment lining and coatings.

B. Operation and Maintenance Manuals:
   1. See Section 01340.

C. Miscellaneous Submittals:
   1. Sample form letter for equipment field certification.
   2. Certification that equipment has been installed properly, has been initially started up, has been calibrated and/or adjusted as required, and is ready for operation.

PART 2 - PRODUCTS

2.1 ACCESSORIES

A. Anchorage:
   1. Cast-in-place anchorage:
      a. Provide ASTM F593, Type 316 stainless steel anchorage for all equipment.
      b. Configuration and number of anchor bolts shall be per manufacturer's recommendations.
      c. Provide two nuts for each bolt.
   2. Drilled anchorage:
      a. Epoxy grout per Section 03308.
      b. Threaded rods same as cast-in-place.

B. Lifting Eye Bolts or Lugs:
   1. Provide on all equipment 50 LBS or greater.
   2. Provide on other equipment or products as specified in the narrow specifications.

2.2 FABRICATION

A. Design, fabricate, and assemble equipment in accordance with modern engineering and shop practices.

B. Manufacture individual parts to standard sizes and gages so that repair parts, furnished at any time, can be installed in field.

C. Furnish like parts of duplicate units to be interchangeable.

D. Ensure that equipment has not been in service at any time prior to delivery, except as required by tests.

2.3 SHOP OR FACTORY PAINT FINISHES

A. Paint all ferrous metals with a minimum of 5 mils of modified polyamidoamine epoxy primer, with 5 mils of modified polyamidoamine epoxy or acrylic polyurethane enamel top coat.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment as shown on Drawings and in accordance with manufacturer's directions.

B. Utilize templates for anchorage placement for slab-mounted equipment.

C. Extend all non-accessible grease fittings using stainless steel tubing to a location which allows easy access of fittings.

D. Construct subbases, either concrete, steel or cast iron, level in both directions. Particular care shall be taken at hold-down bolt locations so these areas are flat and level.

END OF SECTION

01D12

SECTION 15115
SLUICE GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Sluice gates.

B. Related Sections include but are not necessarily limited to:
   1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
   2. Division 1 - General Requirements.

1.2 PRE-APPROVED GATES

A. The listed manufacturers have submitted and have a pre-approved shop drawings specific to this Project. The Contractor is to provide the gate and appurtenances as per the approved shop drawing and note chosen manufacturer on the Bid form.

B. If Contractor fails to list manufacturer the Owner can choose the manufacturer at their discretion.

1.3 QUALITY ASSURANCE

A. Referenced Standards:
   1. American Water Works Association (AWWA):
      a. C501, Cast-Iron Sluice Gates.

1.4 SUBMITTALS

A. Shop Drawings:
   1. See Section 01340.
   2. Provide pre-approved shop drawings.

B. Operation and Maintenance Manuals:
   1. See Section 01340.

1.5 MEASUREMENT AND PAYMENT

A. Measurement: Quantity for payment for sluice gate to be measured by the unit each.

B. Payment: Contract bid price for sluice gates to be based on the unit price per each complete and in place.
   1. Bid prices include all costs for materials, labor, equipment, and incidentals required for complete installation as shown on the Drawings and indicated in this Specification Section.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers with referenced pre-approved show drawings, are acceptable:
   1. Water control gates:
      a. Rodney Hunt (pre-approved shop drawing RH-LKWG).
      b. Hydrogate (pre-approved show drawing HG-LKWG).

B. No like, equivalent or "or-equal" item or substitution is permitted.

2.2 SLUICE GATES

A. General: Approved gates, stems, lifts and other appurtenances are of size, type, material and construction shown on the Contract Drawings and specified.
   1. Gates meet requirements of AWWA C501.

B. Materials on approved gates:
   1. Seating faces: Bronze.
   2. Seals: Provide resilient seals for flush bottom gates of neoprene.
   3. Wedges: Bronze.
   4. Anchor bolts, assembly bolts and nuts: Stainless steel.
   5. Stems and stem couplings: 304 stainless steel.
   6. Guides: Ductile iron.

2.3 GATE OPERATORS AND LIFTS

A. General: Lifts are in accordance with AWWA C501 or as modified in these Specifications. Lifts have clear butyrate plastic stem cover with Mylar open-close indicator.

B. Manual Operators for Approved Gates:
   1. Centerline of crank or handwheel approximately 48 IN above operating floor.
   2. Maximum effort of 40 LBS on crank or handwheel will operate gate after unseating gate from wedges bored upon seating head specified.

C. Portable Power Unit:
   1. Provide 1 portable power unit for operation of gate by sliding onto standard operation nut when handwheel or crank is removed.
   2. Design requirements for this unit include:
      a. Gas powered.
      b. Speed: 75 rpm (approx.).
      c. Torque: 100 FT-LBS.
      d. Weight: 30 LBS (approx.).

2.4 ALL GATES, VALVES, OPERATORS AND LIFTS

A. Gates, including lift are designed with a minimum factor of safety of five, with rising stems on all gates.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Installation Check and Startup: Employ and pay for services of the equipment manufacturer's field service representative(s) fully commissioned and authorized by manufacturers to do the following:
   1. Inspect equipment covered by these Specifications.
   2. Supervise adjustments, calibrations and installation checks and full commissioning.
   3. Perform basic operational checks.
   4. Provide Owner with a written statement that manufacturer's equipment has been installed properly, lubricated, and calibrated and is ready for operation by the Owner.

B. Field Leakage Test for Sluice Gate:
   1. Test gate under design seating head and adjust to maximum leakage of 0.1 gpm per foot of seating perimeter.

3.2 SCHEDULE

A. The following is a schedule of the water control gates required:

ID#	TYPE	SIZE WXH	SEAT HD-FT	UNSEAT HD-FT	TYPE LIFT	CLOSURE
101	Sluice	84x96	10	10	Manual	Conv
102	Sluice	84x96	10	10	Manual	Conv

Abbreviations:

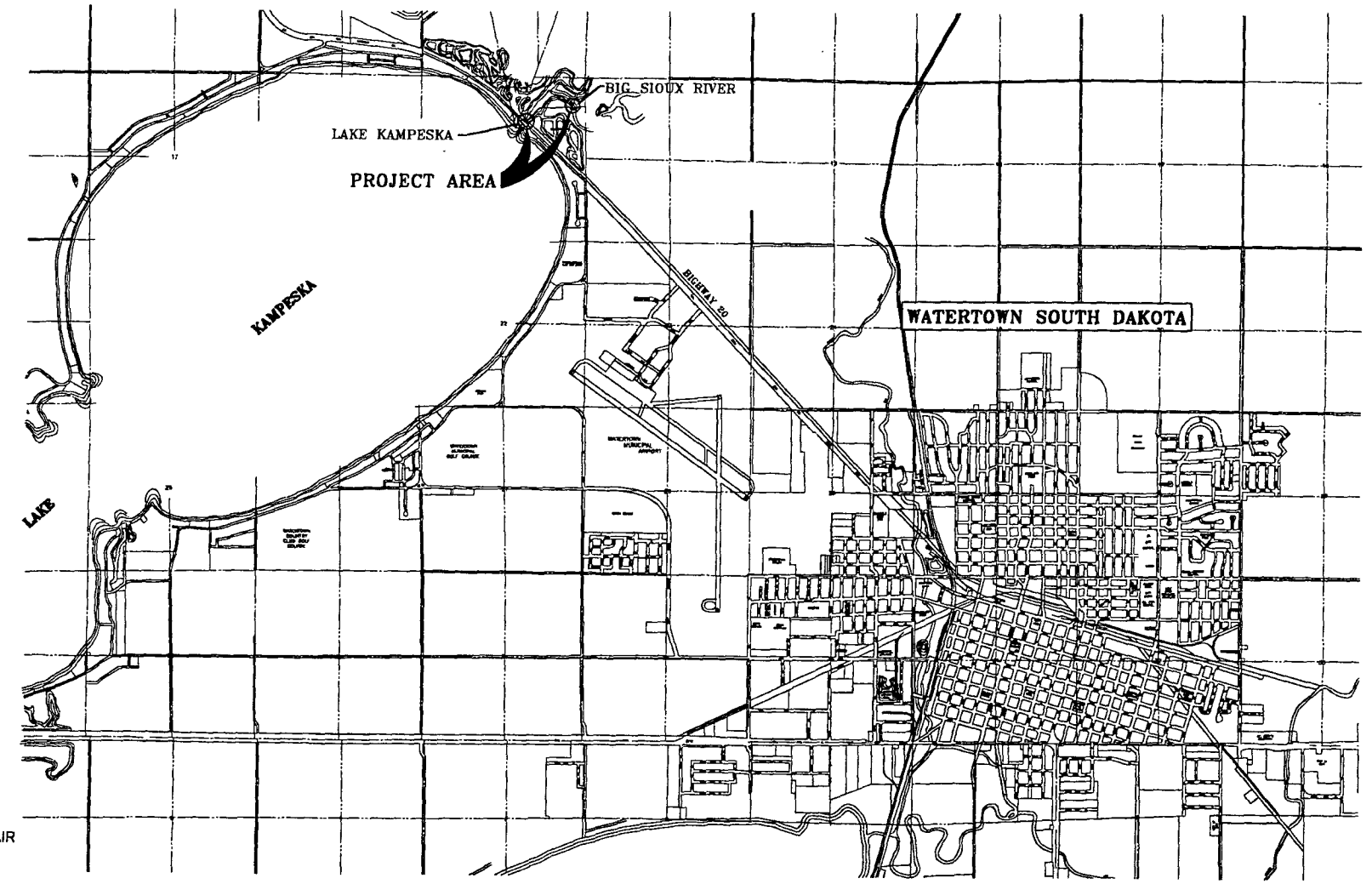
Conv - Conventional

END OF SECTION

DOCUMENT SET
#10

CITY OF WATERTOWN, SOUTH DAKOTA
LAKE KAMPESKA AND BIG SIOUX RIVER WATER QUALITY DIVERSION WEIR PROJECT

HDR Project No. 08080-007-135
Watertown Project #2001-24
April 2001



INDEX OF DRAWINGS

C-1 LOCATION MAP, TRAFFIC CONTROL PLAN, GENERAL NOTES AND LEGEND
C-2 LAYOUT PLAN - LAKE KAMPESKA
C-3 LAYOUT PLAN - BIG SIOUX RIVER WEIR REPLACEMENT AND WASHOUT REPAIR
C-4 TYPICAL WEIR SECTION AND FISH OPENING
C-5 TYPICAL WEIR SECTIONS
S-1 GATE STRUCTURE PLAN, SECTION AND NOTES
S-2 GATE STRUCTURE PLAN, SECTIONS AND DETAILS

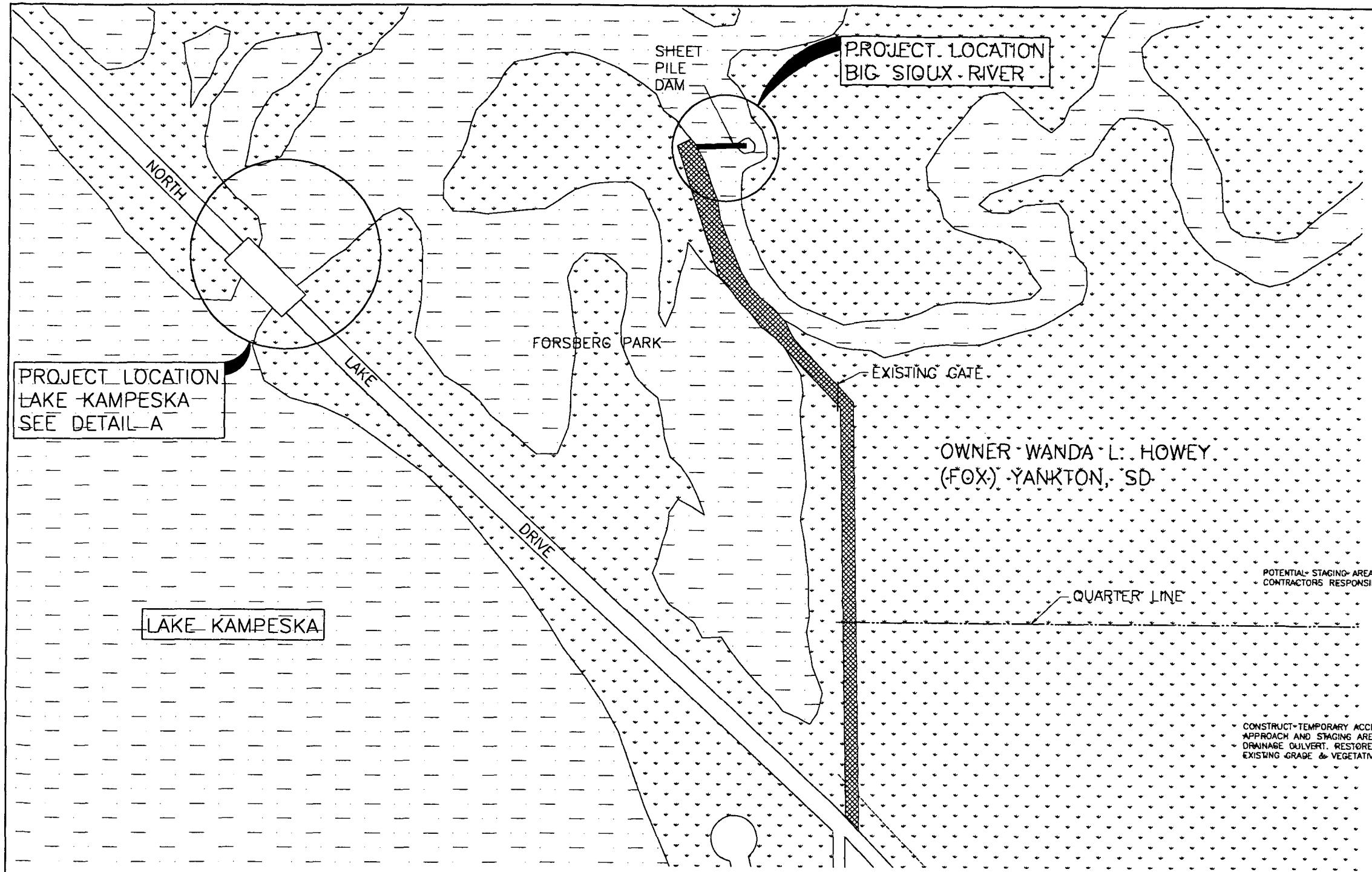
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5709
ALLAN DEAN ERICKSON
SOUTH DAKOTA

HDR
HDR Engineering, Inc.

600 SOUTH CLIFF AVENUE
SUITE 106
SIOUX FALLS, SOUTH DAKOTA 57104
(605) 338-2660
FAX: (605) 338-2695

I HEREBY CERTIFY THAT THESE PLANS AND THE SPECIFICATIONS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF SOUTH DAKOTA.

REG. NO. 5709

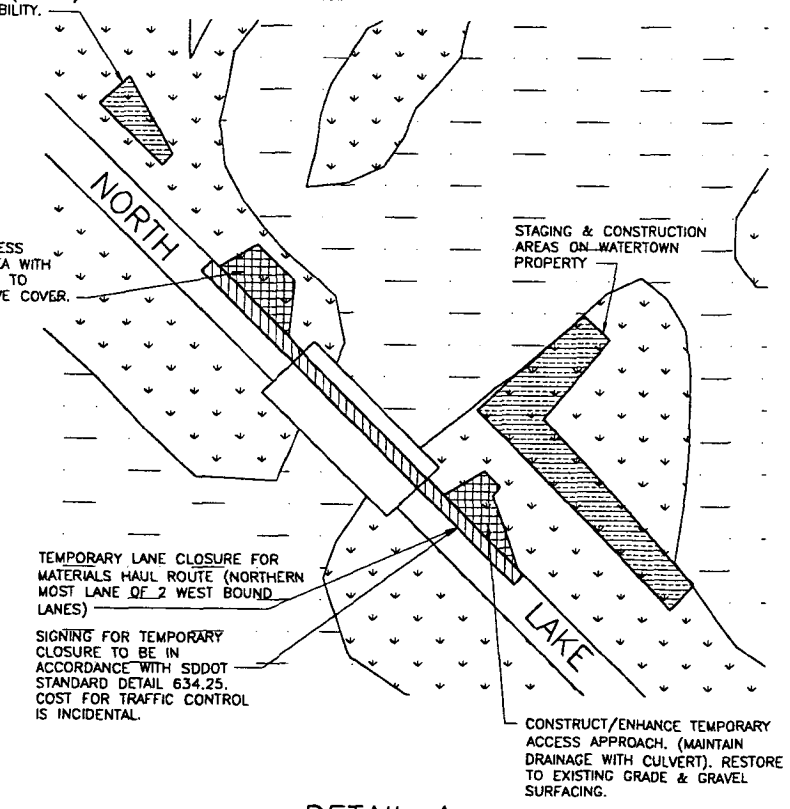


LOCATION MAP
NO SCALE

N

GENERAL NOTES:

1. EXISTING TOPOGRAPHY AND SURVEY INFORMATION SHOWN ON PLANS ARE BASED ON SURVEY PERFORMED BY AASON ENGINEERING CO. INC.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL UTILITIES AND PROTECT THEM FROM DAMAGE. UNDERGROUND UTILITIES, WHETHER INDICATED OR NOT, WILL BE LOCATED AND FLAGGED BY THE UTILITIES AT THE REQUEST OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT BEGIN EXCAVATION UNTIL UTILITIES HAVE BEEN LOCATED AND IDENTIFIED AND THEN ONLY WITH CARE TO AVOID ANY POSSIBILITY OF DAMAGE TO THE UTILITY FACILITY. THE CONTRACTOR SHALL BEAR THE TOTAL EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES DAMAGED BY OPERATION IN CONNECTION WITH PROSECUTION OF THE WORK. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION EFFORTS WITH ALL OTHER LOCAL UTILITY COMPANIES PERTINENT TO PROSECUTION OF THE WORK.
3. CONTRACTOR SHALL APPLY FOR AND OBTAIN ALL PERMITS NECESSARY TO PERFORM WORK EXCEPT THE U.S. ARMY CORPS OF ENGINEERS, SECTION 404 PERMIT AND SOUTH DAKOTA DEPARTMENT OF NATURAL RESOURCES FLOOD PERMIT. THESE PERMITS ARE PENDING AND HAVE BEEN SUBMITTED BY THE CITY.
4. CONTRACTOR STAGING AND STORAGE AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER THAN EXISTING UPON COMPLETION OF USE.
5. ALL PAVED HAUL ROUTES SHALL BE MAINTAINED FREE OF MUD AND DEBRIS RESULTING FROM CONSTRUCTION OPERATIONS. ANY PAVEMENT DAMAGE RESULTING FROM HAULING OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
6. CONTRACTOR TO MAINTAIN SURVEY STATIONS AND CONTROL LOCATIONS. ENGINEER WILL PROVIDE HORIZ./VERT. CONTROL.
7. CONTRACTOR SHALL PROVIDE A WORK SEQUENCE SCHEDULE TO THE ENGINEER WITHIN 10 DAYS AFTER NOTICE TO PROCEED. UPON ENGINEER'S APPROVAL OF THE SCHEDULE AND PLANS, WORK MAY COMMENCE.
8. THE GRADE SHALL BE MAINTAINED SO THAT THE SURFACE IS WELL DRAINED AT ALL TIMES. WHEN NECESSARY, TEMPORARY DRAINS AND DRAINAGE DITCHES SHALL BE INSTALLED TO INTERCEPT OR DIVERT SURFACE WATER WHICH MAY AFFECT THE WORK. ALL DISTURBED AREAS SHALL BE GRADED AND SEEDED IN ACCORDANCE WITH SECTION 02930.
9. THE CONTRACTOR WILL BE REQUIRED TO FURNISH A SITE SATISFACTORY TO THE ENGINEER FOR THE DISPOSAL OF BROKEN CONCRETE, STEEL SHEETING AND OTHER OBJECTIONABLE MATERIAL REMOVED FROM THE PROJECT.
10. CONTRACTOR TO COMPLY WITH CONSTRUCTION/EROSION CONTROL/WATER QUALITY REQUIREMENTS OF DENR 401 WATER QUALITY CERTIFICATION. SEE SPEC. SECTION 01560.
11. HAUL ROUTE FOR LAKE KAMPESKA WEIR INCLUDES 1 LANE OF HWY 20 AROUND BRIDGES TO ACCESS ROADS.
12. THE CONTRACTOR IS RESPONSIBLE FOR THE DEVELOPMENT OF METHOD OF PHASING OF CONSTRUCTION REQUIRED TO PLACE THE SHEET PILE WEIR, FISH OPENING AND RIPRAP.



DETAIL A
NO SCALE

LEGEND

- WATER VALVE
- STEEL POST
- TELE. TERM.
- FIRE HYDRANT
- MANHOLE
- SIGN
- POWER POLE
- LIGHT POLE
- TREE
- GAS LINE
- WATER LINE
- OVERHEAD ELEC.
- EXIST. CONTOUR (720)
- SHEET PILE
- B-1 APPROX. LOCATION OF BORING

- CONCRETE
- RIPRAP
- LAND
- WATER
- HAUL ROUTE
- WET UNVEGETATED MUCK
- COMPACTED FILL
- EXISTING SUBSURFACE

- CRUSHED ROCK BEDDING
- LIMESTONE LEDGE ROCK
- FLOW DIRECTION OF FLOW

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

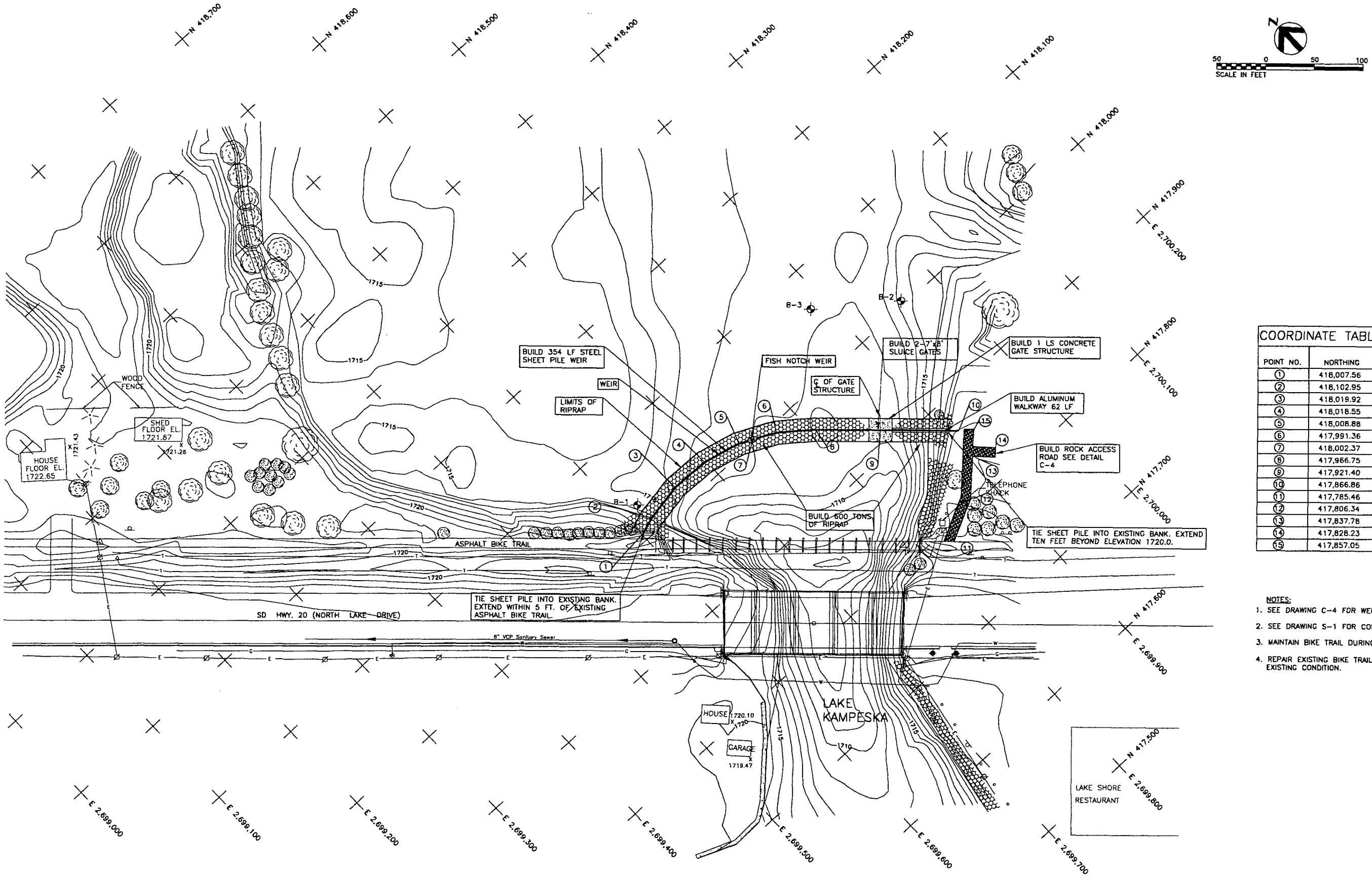
Project Manager: A. ERICKSON	
Architect	I&C/Process
Civil	Mechanical
Electrical	Structural
Project Engineer: L. CARRETTE ZOOK	Drawn By: M. ERIKSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

Watertown, South Dakota 2001

LOCATION MAP, TRAFFIC CONTROL PLAN, GENERAL NOTES AND LEGEND

Date	Project No.	Drawing No.	Issue
APRIL 2001	08080-007-135	C-1	A
Scale: AS NOTED	File Name: C-1.DWG		



COORDINATE TABLE

POINT NO.	NORTHING	EASTING	TOP OF WEIR ELEV. (NGVD)
①	418,007.56	2,699,602.93	1718.2
②	418,102.95	2,699,618.93	1718.2
③	418,019.92	2,699,658.24	1718.2
④	418,018.55	2,699,698.15	1718.2
⑤	418,008.88	2,699,736.89	1718.2
⑥	417,991.36	2,699,772.76	1718.2
⑦	418,002.37	2,699,750.26	1715.0
⑧	417,966.75	2,699,804.20	1718.2
⑨	417,921.40	2,699,852.87	1718.2
⑩	417,866.86	2,699,911.40	1718.2
⑪	417,785.46	2,699,830.32	
⑫	417,806.34	2,699,872.58	
⑬	417,837.78	2,699,904.21	
⑭	417,828.23	2,699,927.47	
⑮	417,857.05	2,699,923.60	

NOTES:

1. SEE DRAWING C-4 FOR WEIR SECTION AND DETAILS.
2. SEE DRAWING S-1 FOR CONCRETE GATE STRUCTURE.
3. MAINTAIN BIKE TRAIL DURING NON-WORKING HOURS.
4. REPAIR EXISTING BIKE TRAIL (WIDTH = 8 FT) MAINTAIN EXISTING CONDITION.

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

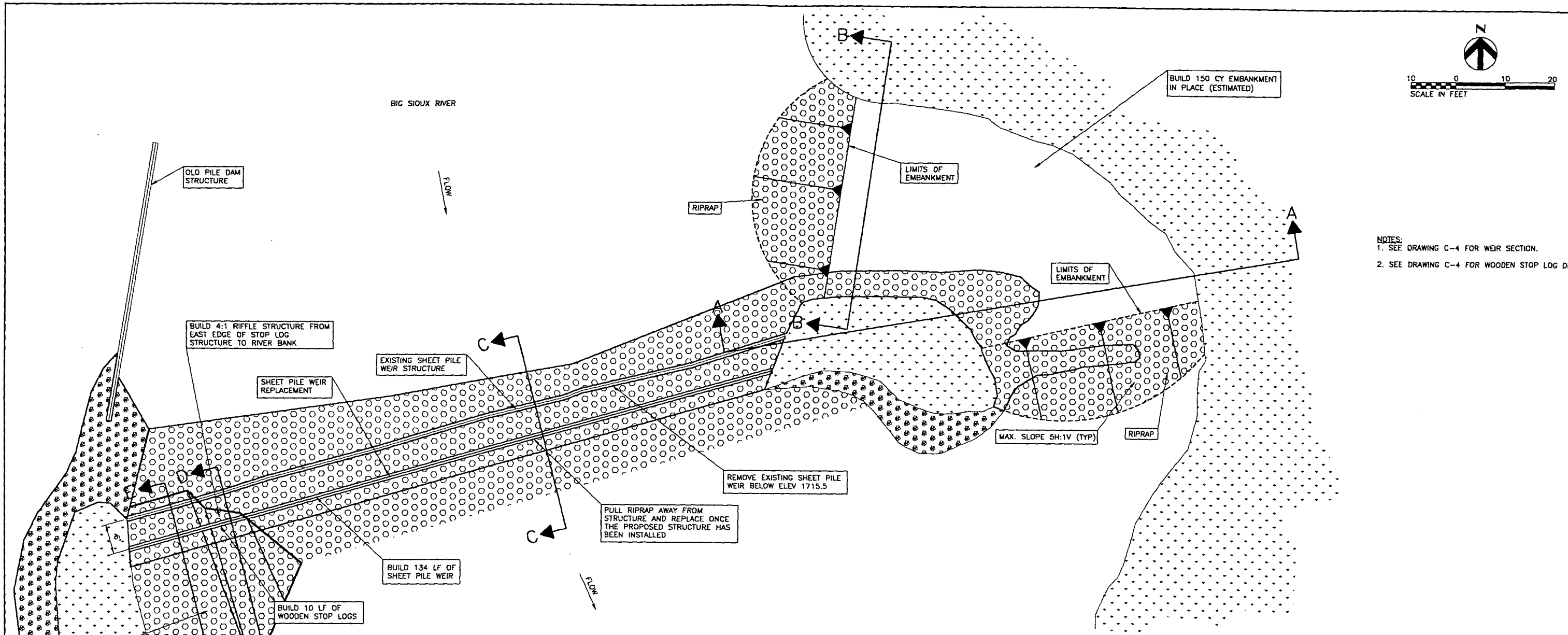
Project Manager: A. ERICKSON	
Architect	M&C/Process
Civil	Mechanical
Electrical	Structural
Project Engineer: L. CARRETTE ZOOK	Drawn By: M. ERIKSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

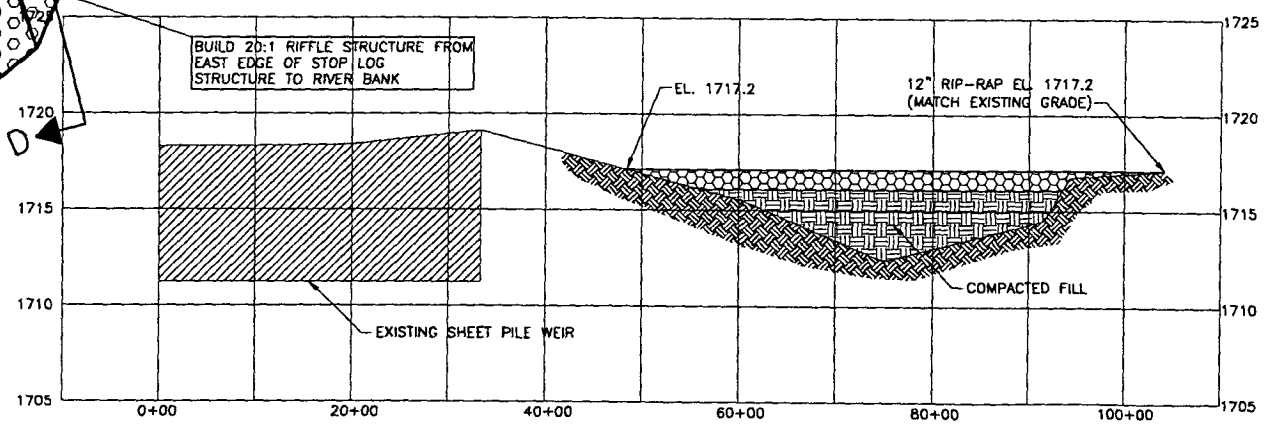
Watertown, South Dakota 2001

SITE LAYOUT LAKE KAMPESKA

Date: APRIL 2001	Project No.: 08080-007-135	Drawing No.: C-2	Issue: A
Scale: 1"=100'	File Name: C-2.DWG		

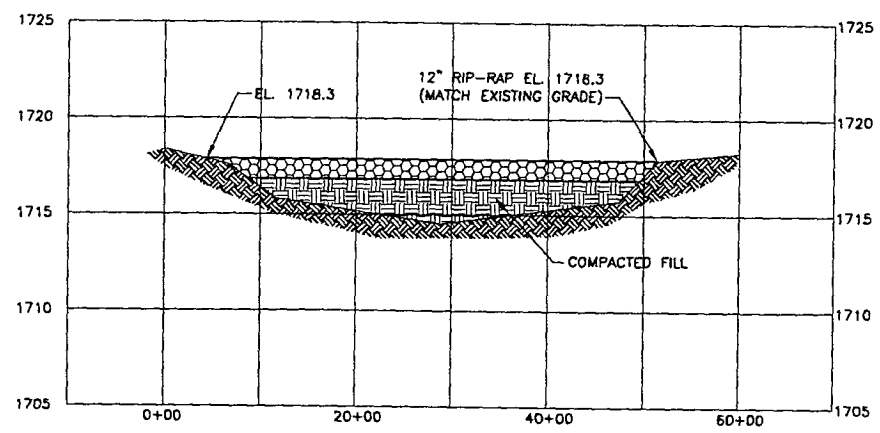


NOTES:
1. SEE DRAWING C-4 FOR WEIR SECTION.
2. SEE DRAWING C-4 FOR WOODEN STOP LOG DETAIL.



SECTION A-A

SCALE
HORIZ. 1"=20'
VERT. 1"=10'



SECTION B-B

SCALE
HORIZ. 1"=20'
VERT. 1"=10'

HDR

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

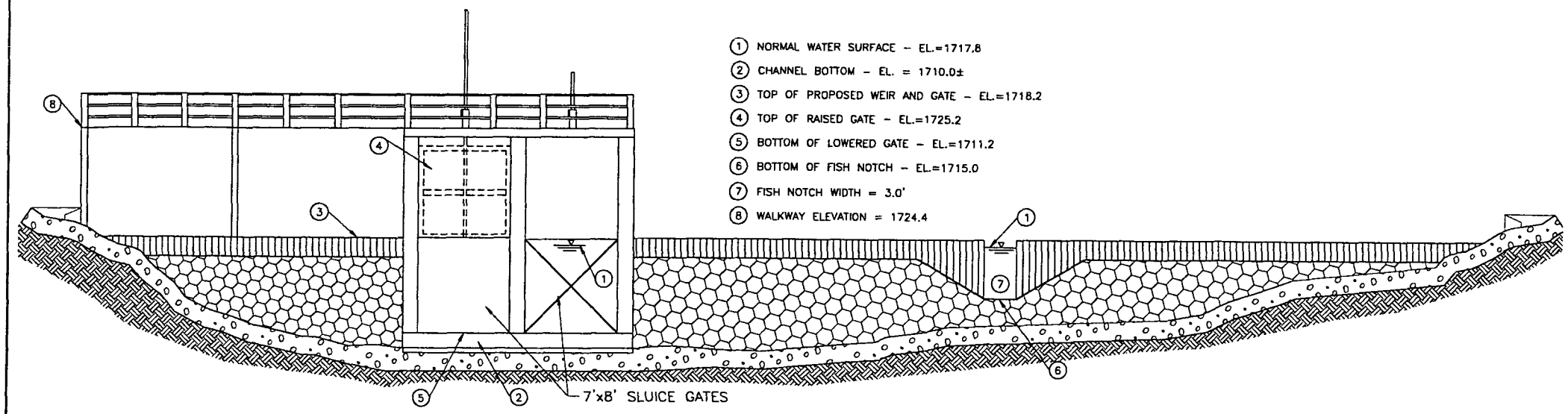
Project Manager: A. ERICKSON	
Architect	M&C/Process
Civil	Mechanical
Electrical	Structural
Project Engineer: L. CARRETTE ZOOK	Drawn By: M. ERIKSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

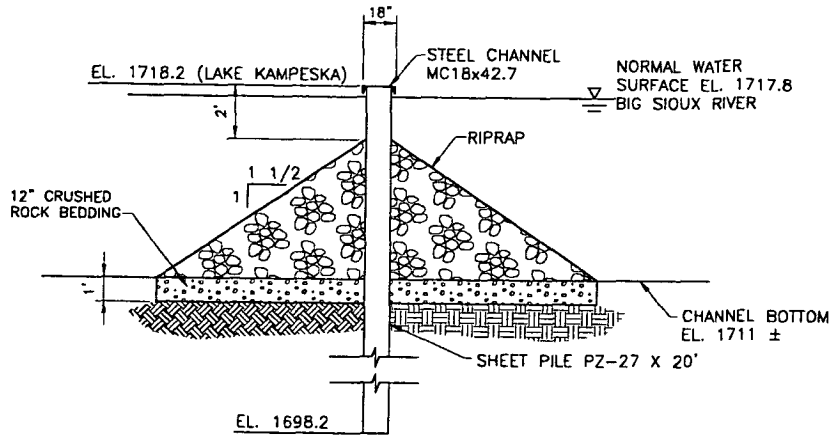
Watertown, South Dakota 2001

SITE LAYOUT
BIG SIOUX RIVER WEIR REPLACEMENT AND WASHOUT REPAIR

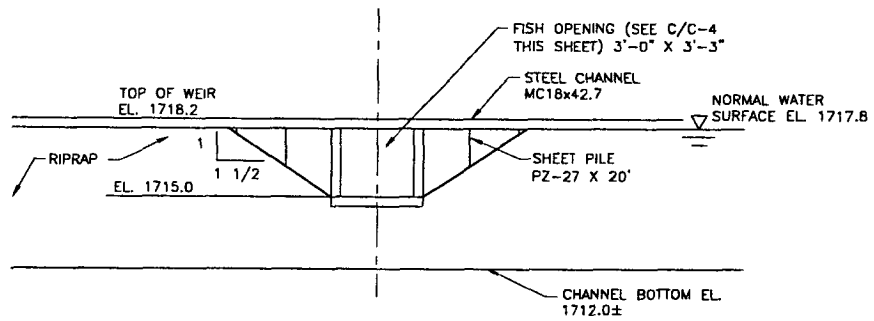
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APRIL 2001	08080-007-135	C-3	A
Scale: 1"=20'	File Name: C-3.DWG		



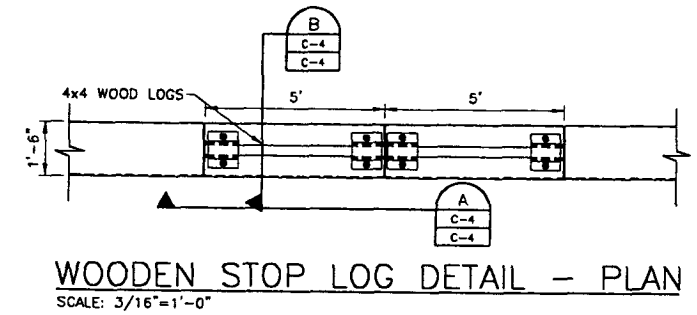
KAMPESKA SLUICE GATES AND FISH OPENING CROSS SECTION
NO SCALE



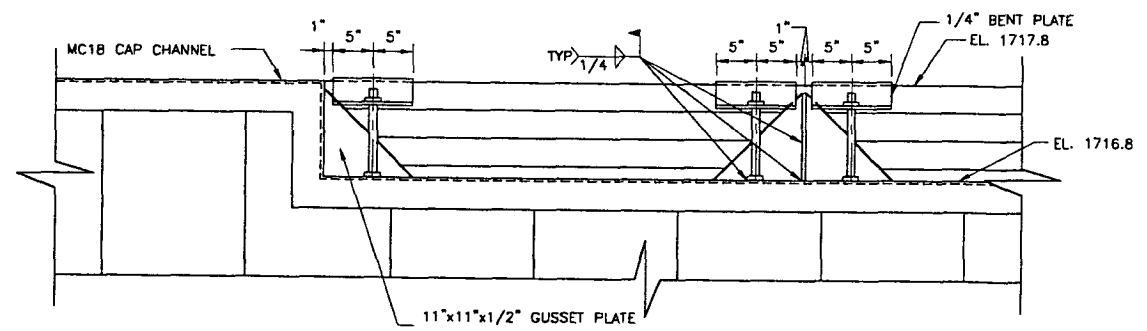
WEIR SECTION – LAKE KAMPESKA
NO SCALE



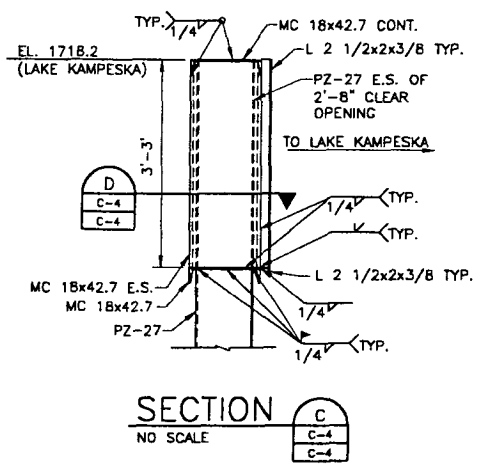
FISH OPENING ELEVATION
NO SCALE



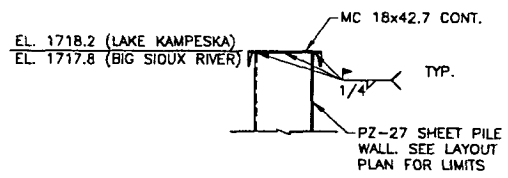
WOODEN STOP LOG DETAIL – PLAN
SCALE: 3/16"=1'-0"



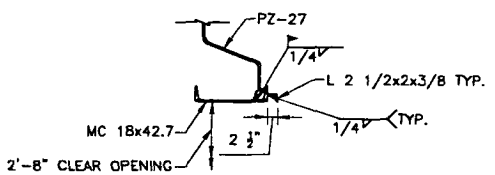
SECTION
SCALE: 1/2"=1'-0" (A C-4 / C-4)



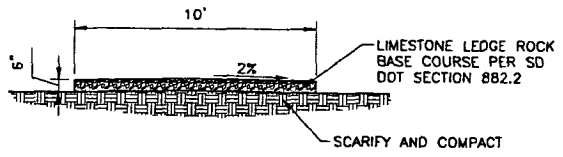
SECTION
NO SCALE (C C-4 / C-4)



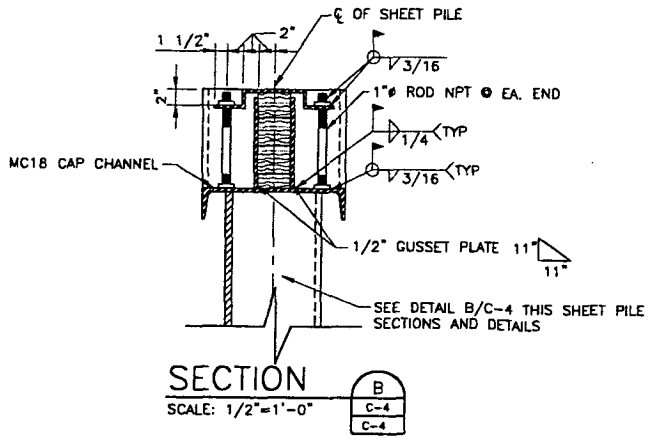
DETAIL B
NO SCALE



SECTION
NO SCALE (D C-4 / C-4)



ROCK ACCESS ROAD
NO SCALE



SECTION
SCALE: 1/2"=1'-0" (B C-4 / C-4)

HDR

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

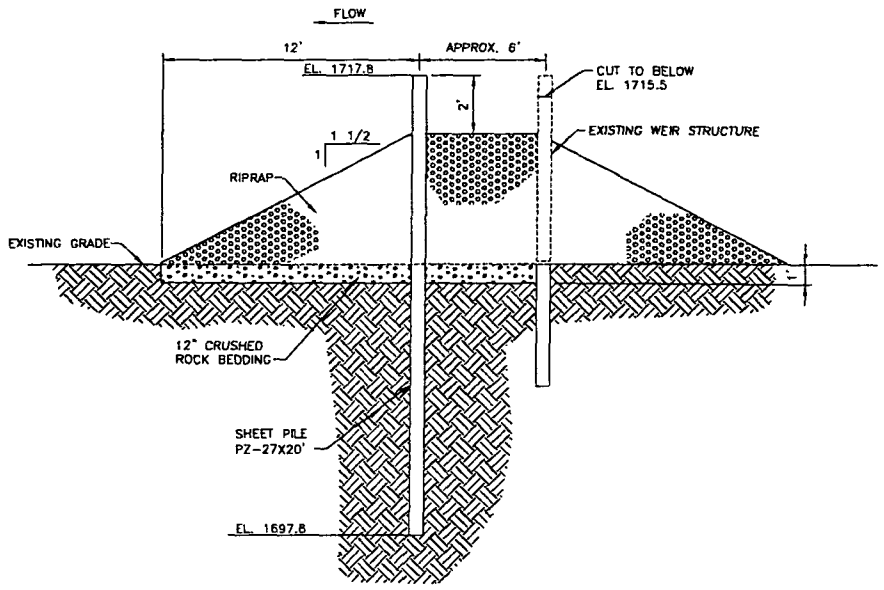
Project Manager: A. ERICKSON
Architect | I&C/Process
Civil | Mechanical
Electrical | Structural
Project Engineer: L. CARRETTE ZOOK | Drawn By: M. ERIKSEN

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

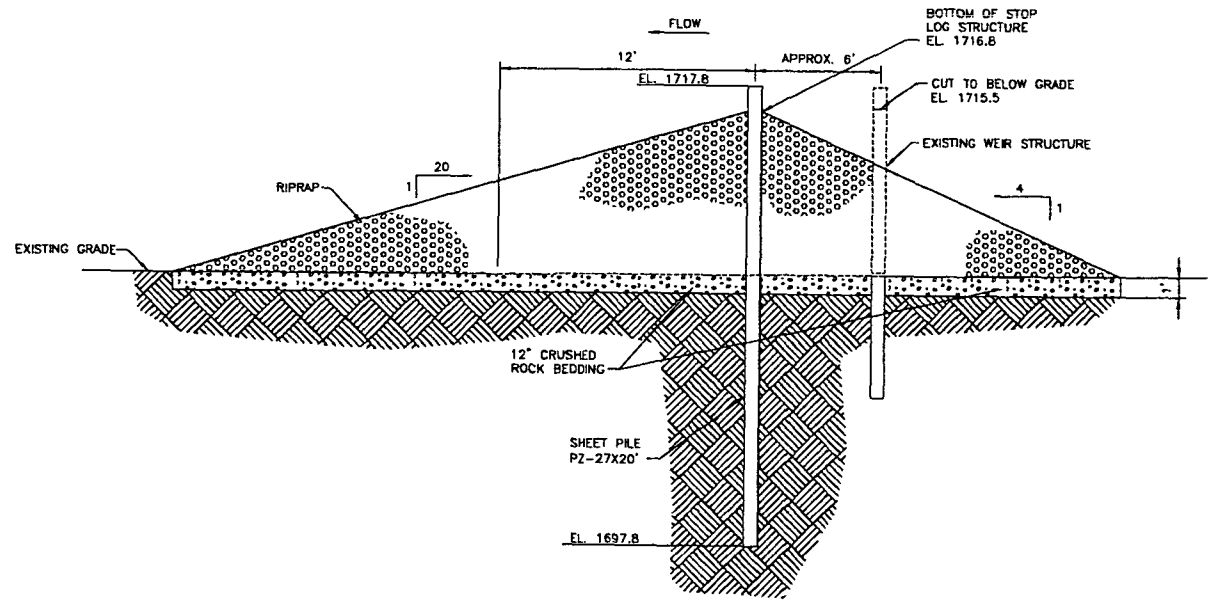
Watertown, South Dakota 2001

TYPICAL WEIR SECTION AND FISH OPENING

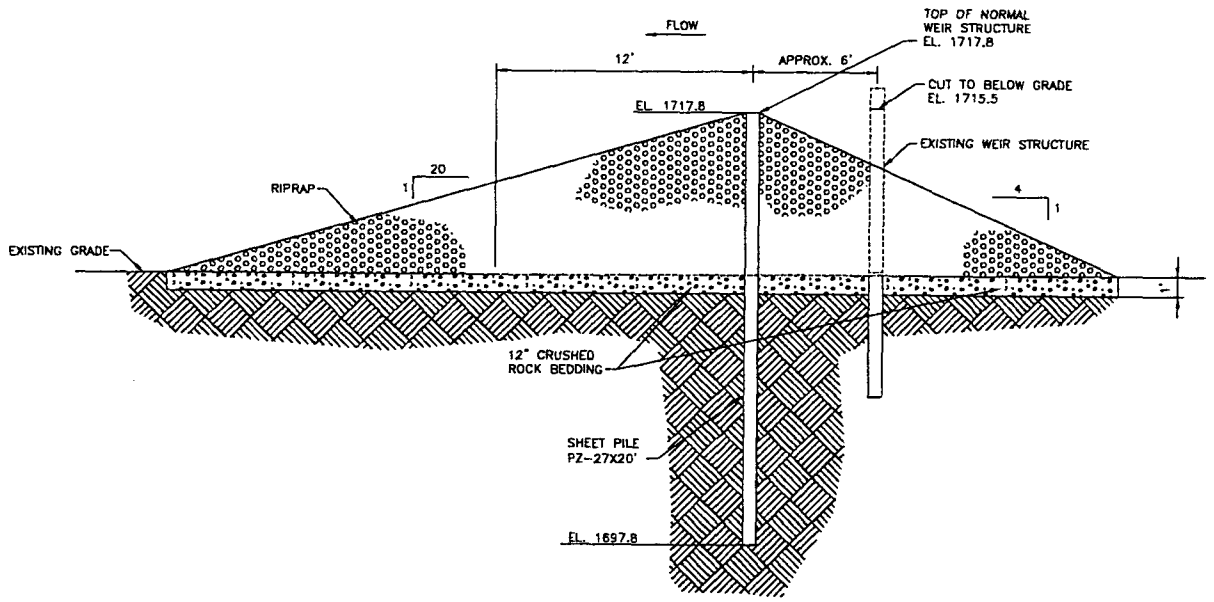
Date	Project No.	Drawing No.	Issue
APRIL 2001	08080-007-135	C-4	A
Scale: AS NOTED	File Name: C-4.DWG		



WEIR SECTION C-C – BIG SIOUX RIVER (CC, C-3, C-5)
NO SCALE



RIFFLE SECTION D-D – BIG SIOUX RIVER (DD, C-3, C-5)
NO SCALE



RIFFLE SECTION E-E – BIG SIOUX RIVER (EE, C-3, C-5)
NO SCALE

HDR

HDR Engineering, Inc.

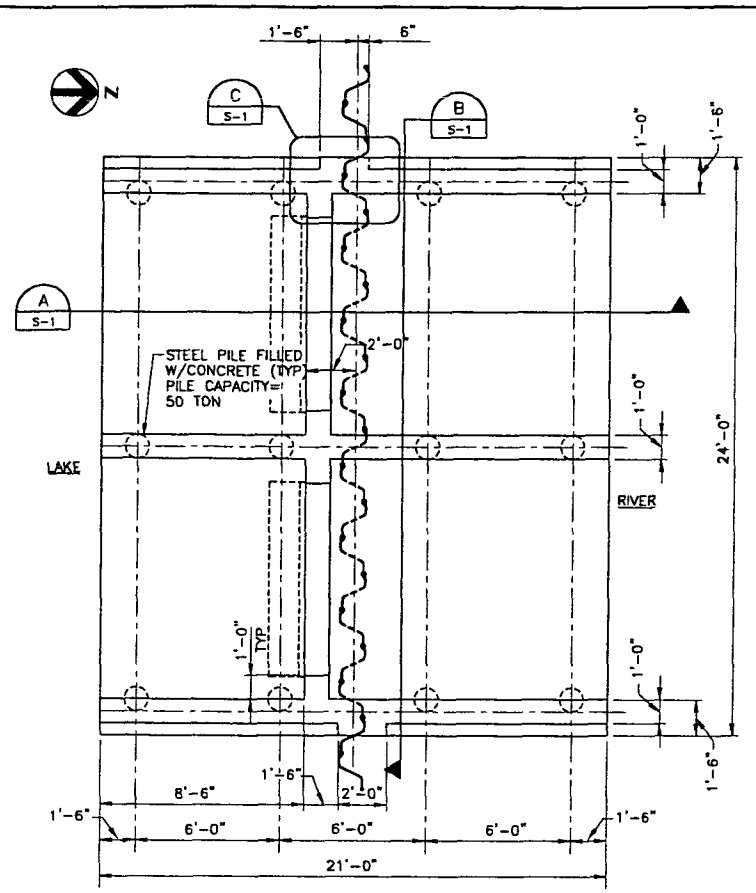
Issue No.	Description	Date	Drawn	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager: A. ERICKSON
Architect | I&C/Process
Civil | Mechanical
Electrical | Structural
Project Engineer: L. CARRETTE ZOOK | Drawn By: M. ERIKSEN

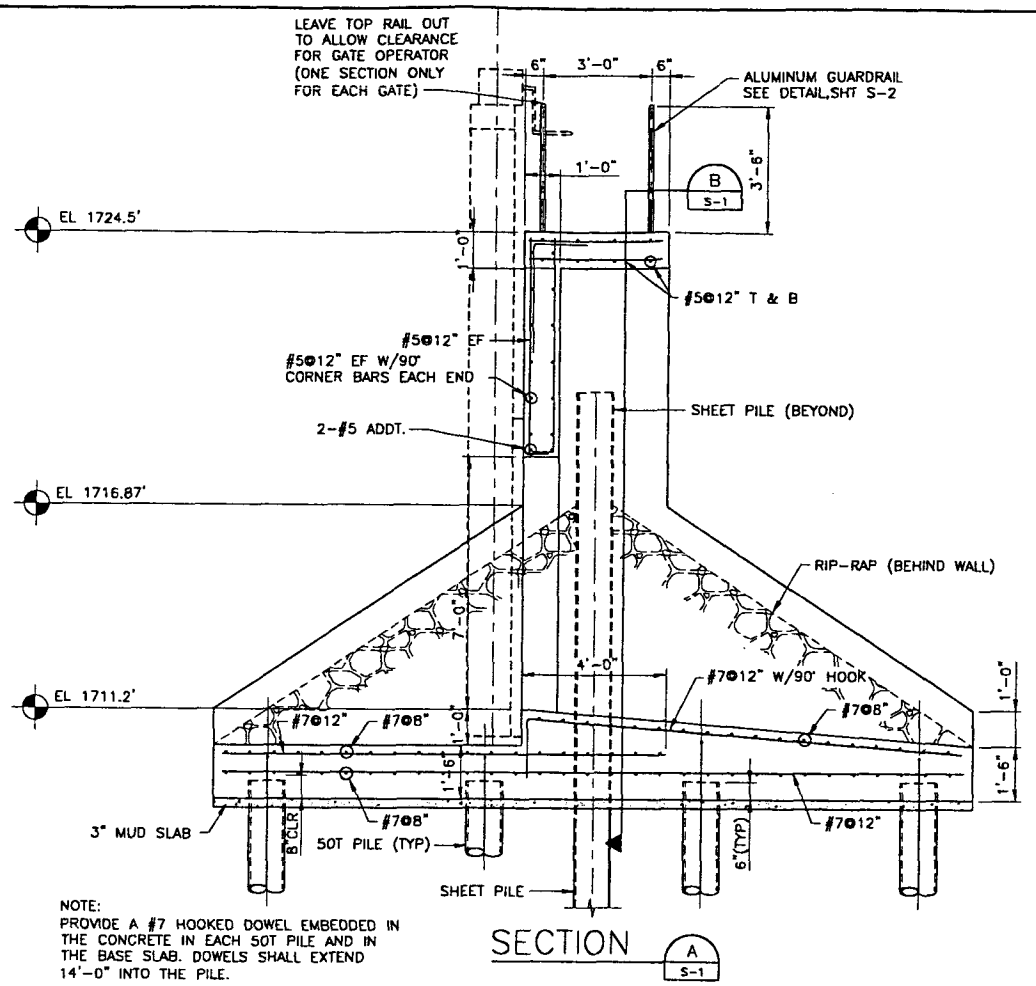
Lake Kampeska and Big Sioux River
Water Quality Diversion Weir Project
Watertown, South Dakota
2001

TYPICAL WEIR SECTION

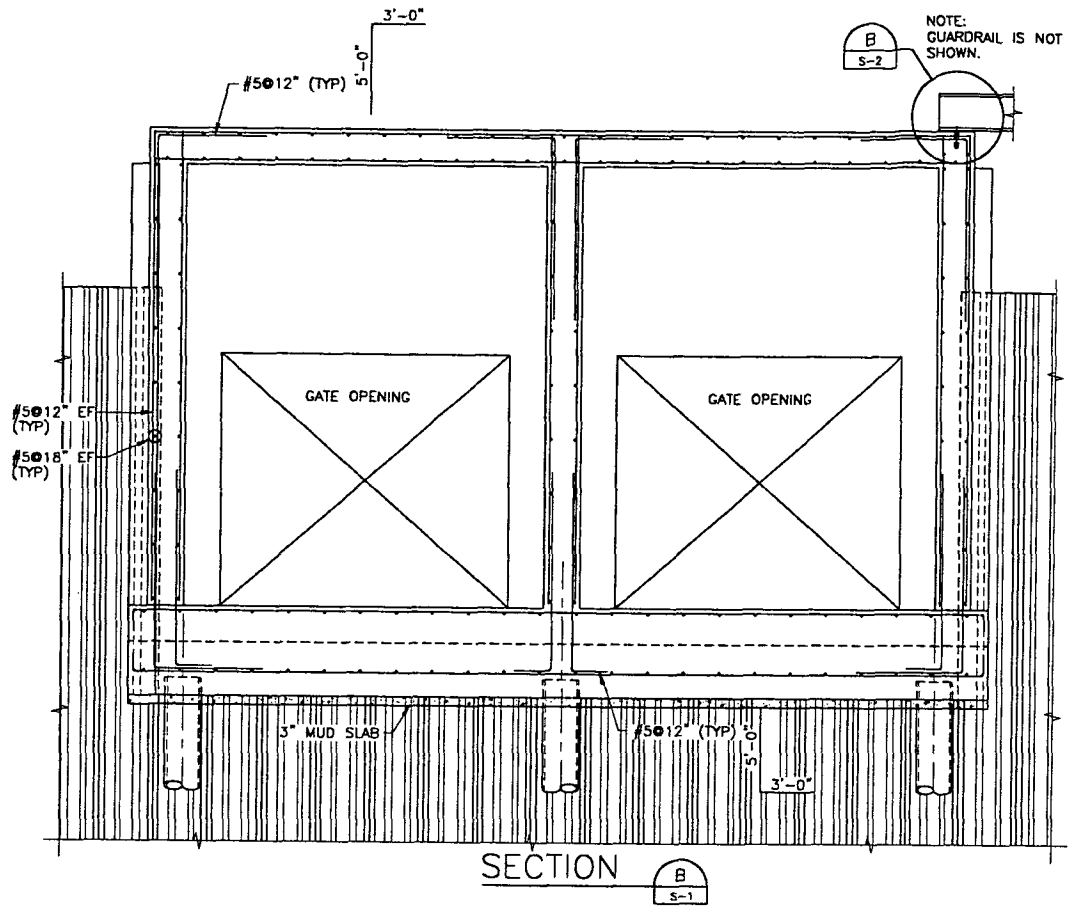
Date	Project No.	Drawing No.	Issue
APRIL 2001	08080-007-135	C-5	A
Scale: AS NOTED	File Name: C-5.DWG		



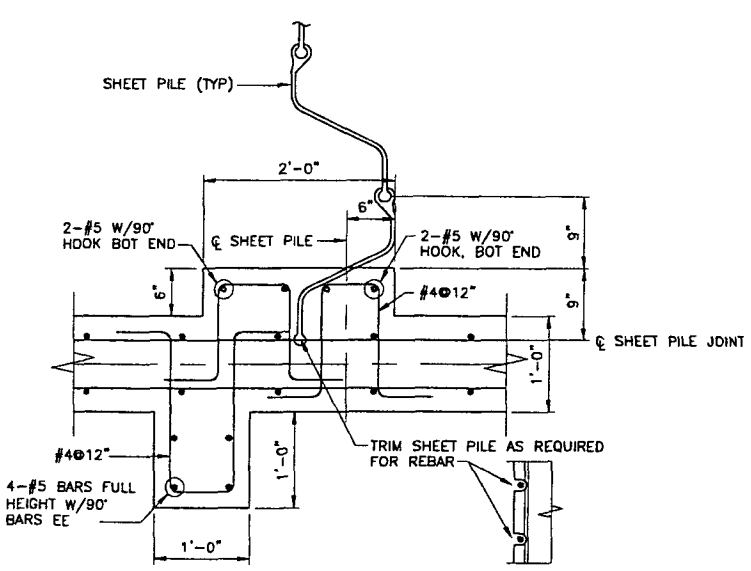
FOUNDATION PLAN



SECTION



SECTION



EXPANDED PLAN

APPLICABLE CODES AND STANDARDS

1. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318).
2. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN 9TH ED.
3. AMERICAN WELDING SOCIETY (AWS) D1.1, D1.2, D1.3, D1.4.

DESIGN LOADS

1. DEAD LOAD – ACTUAL WEIGHT OF MATERIALS USED
2. LIVE LOAD 100PSF FOR WALKWAY

FOUNDATION DESIGN

1. THE FOUNDATION DESIGN IS BASED ON 50 TON PILES

MATERIALS OF CONSTRUCTION

1. NORMAL WEIGHT CONCRETE		28 DAY COMPRESSIVE STRENGTH
GENERAL STRUCTURAL CONCRETE		F'c = 4500 PSI
2. REINFORCING STEEL – ASTM A615	– GRADE 60	Fy = 60 KSI
3. ALUMINUM 6061-T6	Fy = 11 KSI	
4. STRUCTURAL STEEL		
CHANNELS AND PLATE – ASTM A 36		Fy = 36 KSI
BOLTS – ASTM A325		
ANCHOR BOLTS – ASTM A36 OR ASTM F1554		Fy = 36 KSI
WELDING ELECTRODES – E70XX		

CONSTRUCTION NOTES

A. GENERAL CONSTRUCTION NOTES

1. STRUCTURAL DRAWINGS SHALL NOT BE SCALED.
2. WHERE DIMENSIONS ARE PROVIDED FOR OPENINGS, BLOCKOUTS, AND CURBS, ETC, BUT MAY BE AFFECTED BY THE EQUIPMENT PURCHASED, THE CONTRACTOR SHALL VERIFY THE INFORMATION PROVIDED PRIOR TO CONSTRUCTION
3. CONTRACTOR SHALL VISIT SITE AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE DESIGN AND CONSTRUCTION OF ALL FORMS, SHORING AND TEMPORARY BRACING.
   A. DO NOT PLACE CONSTRUCTION MATERIALS OR OTHER CONSTRUCTION LOADS ON THE STRUCTURE SUCH THAT THE LOADS PLACED EXCEED THE CAPACITY OF THE STRUCTURE.
   B. TAKE INTO CONSIDERATION THAT FULL STRUCTURAL CAPACITY OF MANY STRUCTURAL MEMBERS IS NOT REALIZED UNTIL STRUCTURAL ASSEMBLY IS COMPLETE
   C. PROVIDE TEMPORARY BRACING AND GUYING TO PROVIDE STABILITY AND RESIST ALL LOADS TO WHICH THE PARTIALLY COMPLETED STRUCTURE MAY BE SUBJECTED INCLUDING ERECTION EQUIPMENT AND IT'S OPERATION. ADEQUACY OF TEMPORARY BRACING AND GUYING FOR THIS PURPOSE IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

B. FOUNDATIONS

1. HORIZONTAL CONSTRUCTION JOINTS IN COLUMN, FOOTINGS, SLABS ON GRADE AND MAT FOUNDATIONS ARE NOT PERMITTED.
2. DOWELS FOR ALL WALLS EMBEDDED INTO MAT FOUNDATIONS SHALL BE THE SAME SIZE AND SPACING AS VERTICAL WALL REINFORCEMENT.

C. CONCRETE

1. ALL REINFORCEMENT SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315.
2. CONTINUOUS REINFORCEMENT IN WALLS AND FOOTINGS MAY BE SPLICED AS REQUIRED, PROVIDED THAT BARS ARE ON THE LONGEST PRACTICAL LENGTH AND ALL SPLICES ARE SHOWN ON THE REINFORCING BAR SHOP DRAWINGS. SPLICES ARE TO BE STAGGERED WHEN POSSIBLE. PROVIDE LAP SPLICES AND DEVELOPMENT LENGTHS IN ACCORDANCE WITH THE DEVELOPMENT LENGTH AND LAP SPLICE SCHEDULE.

F. EPOXY DOWELLED ANCHORS

1. REINFORCING, BAR DOWELS, REINFORCING BARS, THREADED RODS, BOLTS ETC. WHICH ARE INDICATED TO BE EPOXY DOWELLED INTO CONCRETE SHALL BE ACCOMPLISHED USING HIT HY-150 ADHESIVE BY HILTI FASTENING SYSTEMS OF TULSA, OK.(ICBO REPORT NO. ES AC58 OR ASTM E-1512), OR EQUAL.
2. DRILL AND CLEAN ALL HOLES, AND INSTALL ALL ANCHORS IN COMPLETE ACCORDANCE WITH MANUFACTURERS PUBLISHED RECOMMENDATIONS, AS WELL AS ALL APPLICABLE BUILDING CODES OR ENGINEERING REPORTS.

B. BOLTS OR THREADED RODS

DIAMETER	EMBEDMENT DEPTH
3/8"(10)	5" (125)
1/2"(12)	7" (175)
5/8"(16)	8" (200)
3/4"(19)	10"(250)
7/8"(22)	10"(250)
1" (25)	13"(330)

H. STRUCTURAL STEEL

1. ALL FIELD BOLTED SHEAR CONNECTIONS SHALL BE MADE WITH 7/8"(22) DIAMETER A307 BOLTS, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE
2. ALL GROOVE WELDS INDICATED ON PLANS AND SECTIONS SHALL BE COMPLETE JOINT PENETRATION WELDS (CJP) UNLESS SPECIFICALLY INDICATED TO BE PARTIAL PENETRATION WELDS.
3. E70XX ELECTRODES SHALL BE USED FOR ALL WELDING. ALL WELDING SHALL BE PERFORMED BY PROPERLY QUALIFIED WELDERS, AS PRESCRIBED UNDER "STANDARD QUALIFICATION PROCEDURE" OF THE AMERICAN WELDING SOCIETY.

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

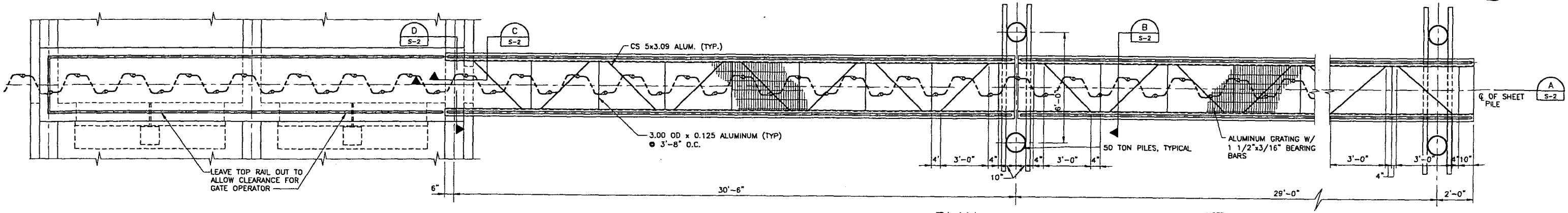
Project Manager: A. ERICKSON
Architect | I&C/Process
Civil | Mechanical
Electrical | Structural
Project Engineer | Drawn By: D. DENTON

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

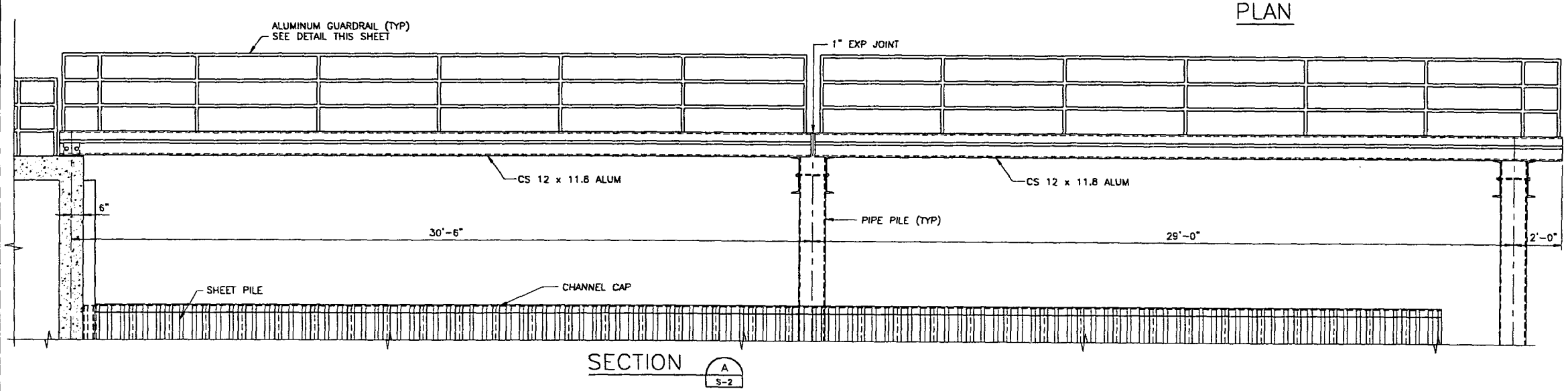
Watertown, South Dakota 2001

GATE STRUCTURE PLAN, SECTION AND NOTES

Date	Project No.	Drawing No.	Issue
APRIL 2001	08080-007-135	S-1	A
Scale: AS NOTED	File Name: S-1.DWG		

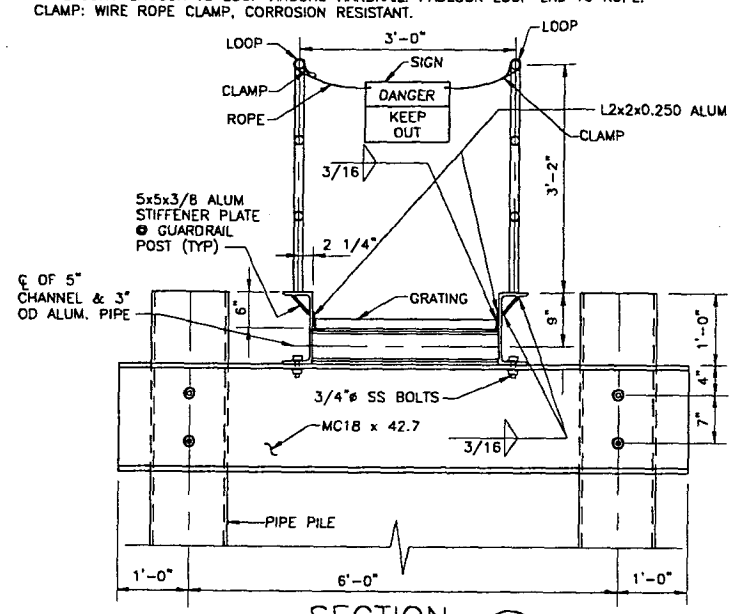


PLAN

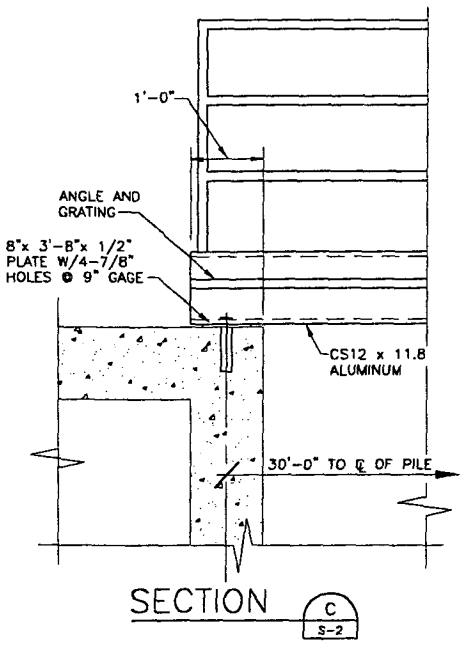


SECTION A S-2

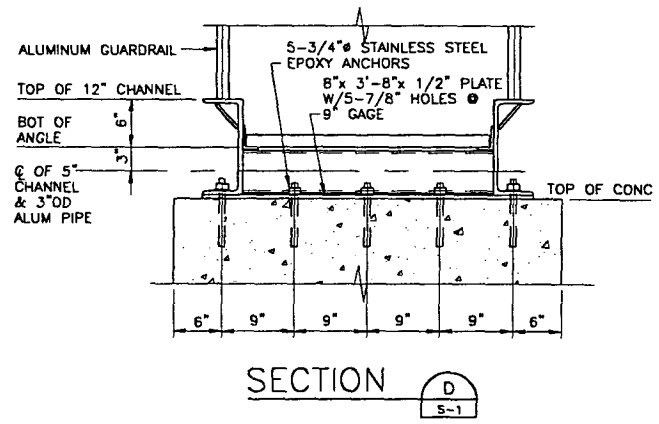
NOTE:
SIGN: 14"x10" GALVANIZED STEEL. SIGN SHALL READ: DANGER KEEP OUT.
ROPE: DOUBLE BRAIDED POLYESTER AND KEVLAR, 5/16" MIN. DIAMETER. MAKE ROPE LONG ENOUGH TO LOOP AROUND HANDRAIL. PADLOCK LOOP END TO ROPE.
CLAMP: WIRE ROPE CLAMP, CORROSION RESISTANT.



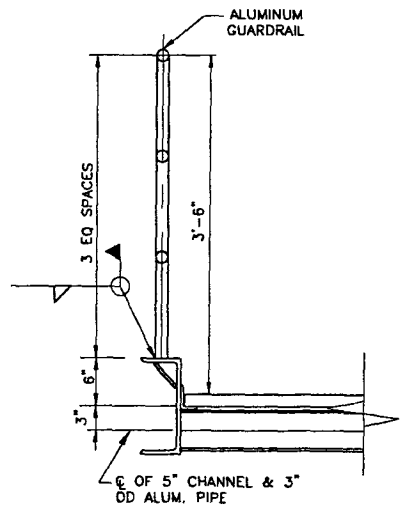
SECTION B S-2



SECTION C S-2



SECTION D S-1



GUARDRAIL DETAIL

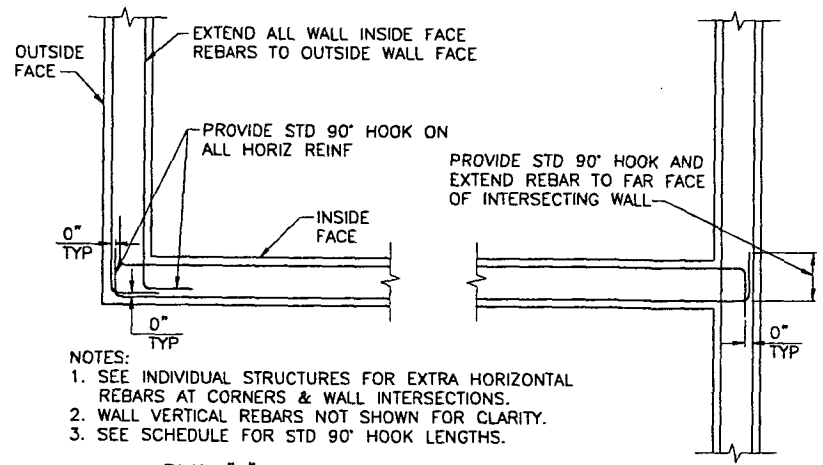
3. MINIMUM BAR SPLICE: PER TABLE UNLESS OTHERWISE NOTED.

MIN. LAP SPLICE LENGTHS		
BAR	VERTICAL (AND BOTTOM)	TOP BARS
#3	1'-4"	1'-6"
#4	1'-8"	2'-0"
#5	2'-0"	2'-6"
#6	2'-8"	3'-6"
#7	3'-6"	4'-6"
#8	4'-8"	6'-0"
#9	5'-9"	7'-6"
#10	7'-4"	9'-6"
#11	9'-0"	11'-8"

3.1 ALL REBAR SPLICE LENGTHS SHALL BE CLASS "B" AS SHOWN UNDER HEADING "VERTICAL" EXCEPT IF SPLICED BARS ARE HORIZONTAL BARS WITH 12" OR MORE CONCRETE BELOW. THEN SPLICE LENGTH SHALL BE CLASS "B" AS SHOWN UNDER HEADING "TOP BARS".

3.2 ALL SPLICES SHALL BE CONTACT SPLICES AND WIRED TOGETHER.

4. NO WELDED OR MECHANICAL SPLICES ARE PERMITTED UNLESS INDICATED OTHERWISE.



NOTES:
1. SEE INDIVIDUAL STRUCTURES FOR EXTRA HORIZONTAL REBARS AT CORNERS & WALL INTERSECTIONS.
2. WALL VERTICAL REBARS NOT SHOWN FOR CLARITY.
3. SEE SCHEDULE FOR STD 90° HOOK LENGTHS.

PLAN "A" WALL CORNER

PLAN "B" WALL INTERSECTION

TYPICAL WALL HORIZ REINFORCING DETAILS
(UNLESS SHOWN OTHERWISE) NO SCALE

HDR Engineering, Inc.

Issue No.	Description	Date	Drwn.	Chkd.	Resp. Engr.	Proj. Mgr.

Project Manager: A. ERICKSON
Architect | M&C/Process
Civil | Mechanical
Electrical | Structural
Project Engineer | Drawn By: D. DENTON

Lake Kampeska and Big Sioux River Water Quality Diversion Weir Project

Watertown, South Dakota

2001

GATE STRUCTURE PLAN, SECTIONS AND DETAILS

Date	Project No.	Drawing No.	Issue
APRIL 2001	08080-007-135	S-2	A
Scale: AS NOTED	File Name: S-2.DWG		

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
South Dakota's Rising Star

April 5, 2002

Mr. Julian Wick, Chairman
Lake Pelican Water Project District
4002 20th Avenue SW
Watertown, SD 57201

RECEIVED
APR - 8 2002
WATER RIGHTS
PROGRAM

Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing
Inspection Dept.
605-882-6201

Mt. Hope Cemetery
605-882-6208

City Attorney
605-882-6200

Engineering Dept.
605-882-6202

Finance Office
605-882-6203
FAX 605-882-6218

Fire Department
605-886-4733
FAX 605-886-0795

Library
605-882-6220
FAX 605-882-6221

Park, Rec &
Forestry Dept.
605-882-6260
FAX 605-882-5204

Police Dept.
605-882-6210
FAX 605-882-6216

Public Works Dept.
605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

Dear Mr. Wick:

We write to provide notice to the Lake Pelican Water Project District that the City of Watertown will be replacing the standard area velocity sensor at the Lake Pelican Diversion Weir during the week of April 12, 2002. The current sensor will be replaced with more readily available components that serve the same function. The design of this replacement has been discussed with, and approved by, staff of the Department of Environment and Natural Resources, (DENR) Water Rights Program. Because Lake Pelican Water Project District holds the flood control permit for the weir, (FC-19), we wanted to make you aware of this activity.

By way of background, the standard area velocity sensor is a component part of the system recently installed in conjunction with flood control permit number FC-29 for the Lake Kampeska Diversion Weir. To protect this sensor from loss or damage, it was mounted directly on the weir structure which, as you know, is jointly-owned by the City of Watertown and the Lake Pelican Water Project District.

In the short time since its original installation, we have discovered problems with both the sensor and cable. Some problems were caused by intentional damage, and other problems were due to defects in replacement equipment. Regrettably, these problems were not foreseen when the structure was installed. Nevertheless, in conjunction with DENR, we have arrived at what we trust will result in a permanent fix, as well as the elimination of future problems.

To ensure the continued effectiveness of the water monitoring system at this site, Watertown will replace the current sensor equipment with the same standard area velocity sensor with a 25-foot cable, an area velocity sensor quick disconnect, and standard area velocity cable. With the exception of a "cut-to-length" standard area velocity cable that Watertown will carry in its inventory, all other parts are stock items that, if necessary, are available for quick delivery to Watertown. The equipment components are also interchangeable with monitoring equipment utilized by the City's Wastewater Treatment Plant and in conjunction with the industrial pre-treatment program.

For proper operation, it is essential that the quick disconnect be able to sense atmospheric pressure and be located within 25' of the standard area velocity sensor due to the length of the integral cable. Accordingly, the quick disconnect will be installed in a protective housing on a riser pipe that extends approximately 4 ½ feet above the weir crest. The riser pipe will be attached to the weir and, for reference, will be located just to the left of the fish notch.

Thank you in advance for your understanding as we make these minor necessary adjustments to the weir structure. Please call with any questions.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Mayor Brenda S. Barger
Garland Erbele, Chief Engineer, DENR Water Rights
Herb Blomquist, Watertown Public Works Director
Mike Boerger, Watertown Wastewaster & Solid Waste Department
Craig Mitchell, Watertown Wastewater Department

CITY OF WATERTOWN

23 Second St. NE • P.O. Box 910 • Watertown, South Dakota 57201-0910
FAX 605-882-5214 • Website: www.watertownsd.com

WATERTOWN
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Mayor
605-882-6204

Municipal Airport
605-882-6209

Building & Plumbing
Inspection Dept.
605-882-6201

Mt. Hope Cemetery
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FAX 605-882-6216

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605-882-6204

Solid Waste Dept.
605-882-6219

Street Dept.
605-882-6207

Watertown
Community
Recreation Center
605-882-6250
FAX 605-882-6254

Waste Water
Treatment Facility
605-882-6243
FAX 605-882-6242

April 18, 2002

RECEIVED
APR 2 2 2002
WATER RIGHTS
PROGRAM

Mr. Garland Erbele, Chief Engineer
SD DENR - Water Rights Program
523 East Capitol Avenue
Pierre, SD 57501

Re: Flood Control Permit No. FC-29
Lake Kampeska Diversion Weir, Watertown, SD

Dear Mr. Erbele:

In the matter of Flood Control Permit No. FC-29, I have been the City of Watertown's contact for the purpose of the application and the subsequent flood control permit.

Now that the permitting and construction of the project is complete, Watertown is transitioning into the operation and maintenance phase of the project. As part of this process, the city has re-assigned the primary responsibility of the operation and maintenance of the project, as well as compliance with the conditions of the flood control permit, to the Watertown Municipal Utilities Department.

Mr. Jeff DeVille of the Watertown Municipal Utilities Department will replace me as the project contact person effective immediately. Mr. DeVille can be reached at Watertown Municipal Utilities Department, 901 Fourth Avenue SW, Watertown, SD 57201, (605) 882-6233.

Sincerely,

Richard L. Schlechter

Richard L. Schlechter, PE

cc: Brenda S. Barger, Mayor
Herb Blomquist, Public Works Director
Geoff Heig, Watertown Municipal Utilities Department
Jeff DeVille, Watertown Municipal Utilities Department
Mike Boerger, Watertown Wastewater & Solid Waste Department
Craig Mitchell, Watertown Wastewater Department
Julian Wick, Lake Pelican Water Project District

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

October 21, 2002

RECEIVED
OCT 24 2002
WATER RIGHTS
PROGRAM

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Garland we did not get a composite sample of the Big Sioux River at the Sioux Conifer Road site for the sampling period between October 10th and October 17th. The sample did not get taken due to the pump tubing not being appropriately placed in the sample bottle. All other samples were collected and will be reported at the end of the sampling season.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Julian Wick, Lake Pelican Water Project District
Rick Schlechter, Watertown Special Projects Engineer
Craig Mitchell, Watertown Waste Water Department.

STATE OF SOUTH DAKOTA

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Pierre, South Dakota 57501-5070
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MARK BARNETT
ATTORNEY GENERAL

LAWRENCE LONG
CHIEF DEPUTY ATTORNEY GENERAL

December 19, 2002

RECEIVED
DEC 19 2002
WATER RIGHTS
PROGRAM

Connie Hartley
Codington County Clerk of Courts
P.O. Box 1054
Watertown, SD 57201-1054

Re: Lake Pelican Water Project District v. SD Water Management Board (Civ. No. 00-0333)

Dear Connie:

Enclosed find the original civil file in the above-referenced case. As we discussed on the telephone, the administrative agency's settled record and exhibits have been returned to the administrative agency. These documents were your docket entries 8-22.

Thank you for contacting me and getting this handled.

Sincerely,

Diane Best

Diane Best
Assistant Attorney General

DB:js
Enclosure

j-ltr178.db

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

RECEIVED
FEB 12 2003
WATER RIGHTS PROGRAM

February 10, 2003

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Garland following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. There were no events this year that caused us to operate the gates on the weir. The sampling periods for 2002 was from May 9th to October 31st. Grab samples and the composite sample were collected on Thursday of each week during the sampling period. The stage and stream flow information listed in the summary are readings also taken on Thursday. The graph for the stage information for the Lake Kampeska sight from the USGS web sight is very erratic. I believe this is from the waves and does not chart a line that you can read. I used the lake level information that we take at the Lake Kampeska Water Treatment Plant. The USGS station is located at the treatment plant. I converted our information into the stage level the USGS uses. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is a total of all the rainfall for the week divided by the number of sights that recorded information that week.

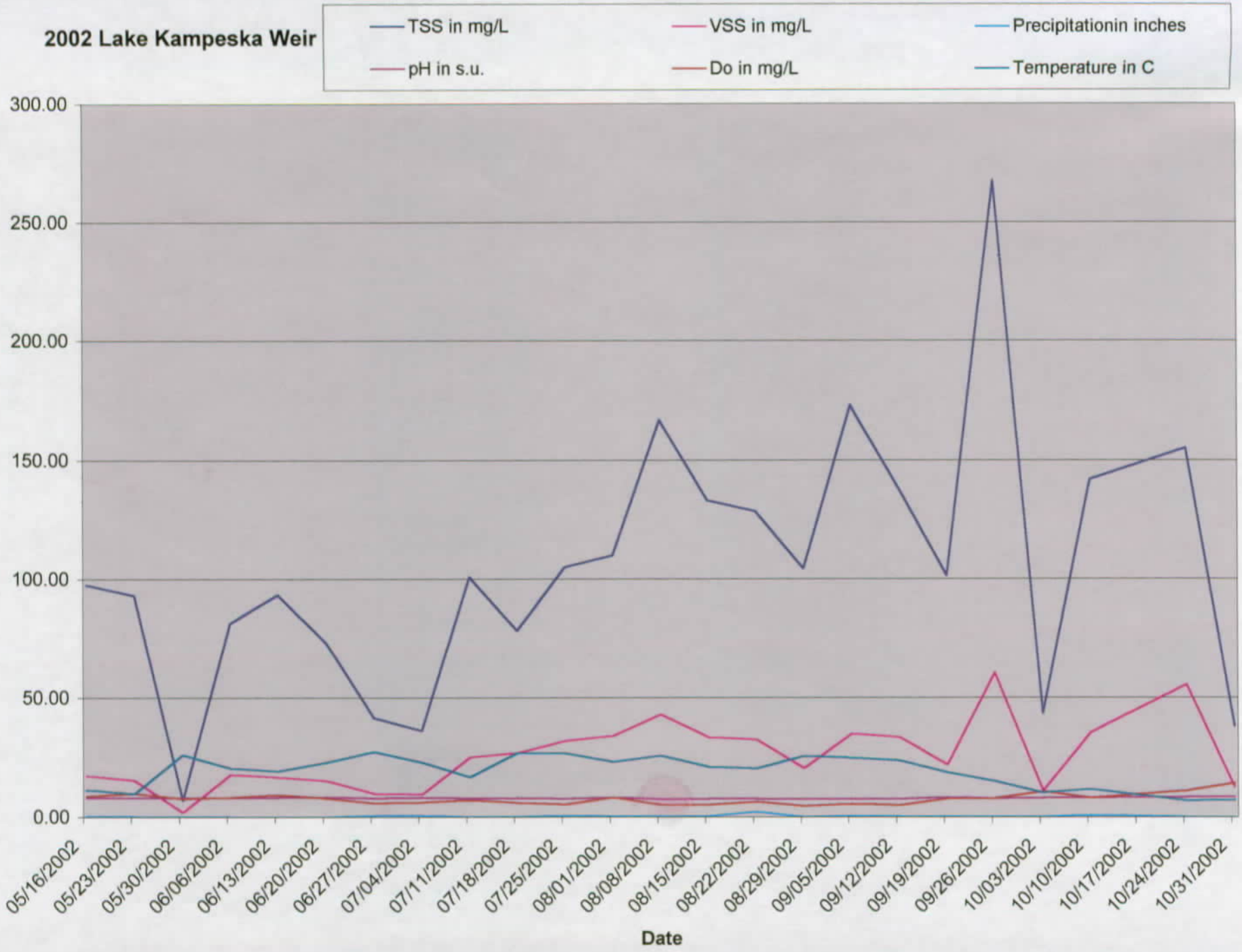
If you would like the information submitted to you in a different format please let me know and I will get it set up for future reporting periods.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Julian Wick, Lake Pelican Water Project District
Rick Schlechter, Watertown Special Projects Engineer
Craig Mitchell, Watertown Waste Water Department.


2002 Lake Kampeska Weir
TSS in mg/L
VSS in mg/L
Precipitationin inches
pH in s.u.
Do in mg/L
Temperature in C
300.00
250.00
200.00
150.00
100.00
50.00
0.00
05/16/2002
05/23/2002
05/30/2002
06/06/2002
06/13/2002
06/20/2002
06/27/2002
07/04/2002
07/11/2002
07/18/2002
07/25/2002
08/01/2002
08/08/2002
08/15/2002
08/22/2002
08/29/2002
09/05/2002
09/12/2002
09/19/2002
09/26/2002
10/03/2002
10/10/2002
10/17/2002
10/24/2002
10/31/2002
Date

2002 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Location	Parameter			Parameter			Average TSS	Average VSS
			Sample ID	TSS EPA Method 160.2		Sample ID	VSS EPA Method 160.4			
05/09/02	05/16/02	WQM55	1	93.5	mg/L	3	16.25	mg/L		
05/09/02	05/16/02	WQM55	2	101.75	mg/L	4	18.5	mg/L	97.63	17.38
05/16/02	05/23/02	WQM55	9	91	mg/L	11	15	mg/L		
05/16/02	05/23/02	WQM55	10	95.5	mg/L	12	16	mg/L	93.25	15.50
05/23/02	05/30/02	WQM55	17	7	mg/L	19	2	mg/L		
05/23/02	05/30/02	WQM55	18	7.2	mg/L	20	2.2	mg/L	7.10	2.10
05/30/02	06/06/02	WQM55	27	81	mg/L	29	18	mg/L		
05/30/02	06/06/02	WQM55	28	82	mg/L	30	18	mg/L	81.50	18.00
06/06/02	06/13/02	WQM55	35	94	mg/L	37	17.5	mg/L		
06/06/02	06/13/02	WQM55	36	93	mg/L	38	16	mg/L	93.50	16.75
06/13/02	06/20/02	WQM55	43	75.5	mg/L	45	15	mg/L		
06/13/02	06/20/02	WQM55	44	71	mg/L	46	15.5	mg/L	73.25	15.25
06/20/02	06/27/02	WQM55	51	41.6	mg/L	53	10.2	mg/L		
06/20/02	06/27/02	WQM55	52	41.6	mg/L	54	9.8	mg/L	41.60	10.00
06/27/02	07/04/02	WQM55	59	33.67	mg/L	61	9	mg/L		
06/27/02	07/04/02	WQM55	60	38.67	mg/L	62	10.33	mg/L	36.17	9.67
07/04/02	07/11/02	WQM55	67	100.8	mg/L	69	25.2	mg/L		
07/04/02	07/11/02	WQM55	68	101.2	mg/L	70	25.2	mg/L	101.00	25.20
07/11/02	07/18/02	WQM55	75	78.8	mg/L	77	27.2	mg/L		
07/11/02	07/18/02	WQM55	76	78	mg/L	78	26.8	mg/L	78.40	27.00
07/18/02	07/25/02	WQM55	83	103	mg/L	85	32	mg/L		
07/18/02	07/25/02	WQM55	84	107	mg/L	86	32	mg/L	105.00	32.00

2002 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Location	Parameter			Parameter			Average TSS	Average VSS
			Sample ID	TSS EPA Method 160.2		Sample ID	VSS EPA Method 160.4			
07/25/02	08/01/02	WQM55	91	109	mg/L	93	36	mg/L		
07/25/02	08/01/02	WQM55	92	111	mg/L	94	32	mg/L	110.00	34.00
08/01/02	08/08/02	WQM55	99	164	mg/L	101	42	mg/L		
08/01/02	08/08/02	WQM55	100	170	mg/L	102	44	mg/L	167.00	43.00
8/8/2002	8/15/2002	WQM55	107	134	mg/L	109	34	mg/L		
8/8/2002	8/15/2002	WQM55	108	132	mg/L	110	33	mg/L	133.00	33.50
8/15/2002	8/22/2002	WQM55	115	127	mg/L	117	33	mg/L		
8/15/2002	8/22/2002	WQM55	116	130	mg/L	118	32	mg/L	128.50	32.50
8/22/2002	8/29/2002	WQM55	123	104	mg/L	125	21	mg/L		
8/22/2002	8/29/2002	WQM55	124	105	mg/L	126	20	mg/L	104.50	20.50
8/29/2002	9/5/2002	WQM55	139	176	mg/L	141	35	mg/L		
8/29/2002	9/5/2002	WQM55	140	170	mg/L	142	35	mg/L	173.00	35.00
9/5/2002	9/12/2002	WQM55	147	139	mg/L	149	34	mg/L		
9/5/2002	9/12/2002	WQM55	148	137	mg/L	150	33	mg/L	138.00	33.50
9/12/2002	9/19/2002	WQM55	155	101	mg/L	157	22	mg/L		
9/12/2002	9/19/2002	WQM55	156	102	mg/L	158	22	mg/L	101.50	22.00
9/19/2002	9/26/2002	WQM55	163	265	mg/L	165	60	mg/L		
9/19/2002	9/26/2002	WQM55	164	270	mg/L	166	61	mg/L	267.50	60.50
9/26/2002	10/3/2002	WQM55	171	42	mg/L	173	10	mg/L		
9/26/2002	10/3/2002	WQM55	172	45	mg/L	174	12	mg/L	43.50	11.00
10/3/2002	10/10/2002	WQM55	179	131	mg/L	181	32	mg/L		
10/3/2002	10/10/2002	WQM55	180	153	mg/L	182	39	mg/L	142.00	35.50
10/17/2002	10/24/2002	WQM55	195	157	mg/L	197	57	mg/L		
10/17/2002	10/24/2002	WQM55	196	153	mg/L	198	54	mg/L	155.00	55.50
10/24/2002	10/31/2002	WQM55	203	37	mg/L	205	11	mg/L		
10/24/2002	10/31/2002	WQM55	204	39	mg/L	206	14	mg/L	38.00	12.50

Composite End Date	Location	TSS Average	VSS Average
5/16/02	WQM55	97.63	17.38
5/23/02	WQM55	93.25	15.50
5/30/02	WQM55	7.10	2.10
6/6/02	WQM55	81.50	18.00
6/13/02	WQM55	93.50	16.75
6/20/02	WQM55	73.25	15.25
6/27/02	WQM55	41.60	10.00
7/4/02	WQM55	36.17	9.67
7/11/02	WQM55	101.00	25.20
7/18/02	WQM55	78.40	27.00
7/25/02	WQM55	105.00	32.00
8/1/02	WQM55	110.00	34.00
8/8/02	WQM55	167.00	43.00
8/15/02	WQM55	133.00	33.50
8/22/02	WQM55	128.50	32.50
8/29/02	WQM55	104.50	20.50
9/5/02	WQM55	173.00	35.00
9/12/02	WQM55	138.00	33.50
9/19/02	WQM55	101.50	22.00
9/26/02	WQM55	267.50	60.50
10/3/02	WQM55	43.50	11.00
10/10/02	WQM55	142.00	35.50
10/24/02	WQM55	155.00	55.50
10/31/02	WQM55	38.00	12.50

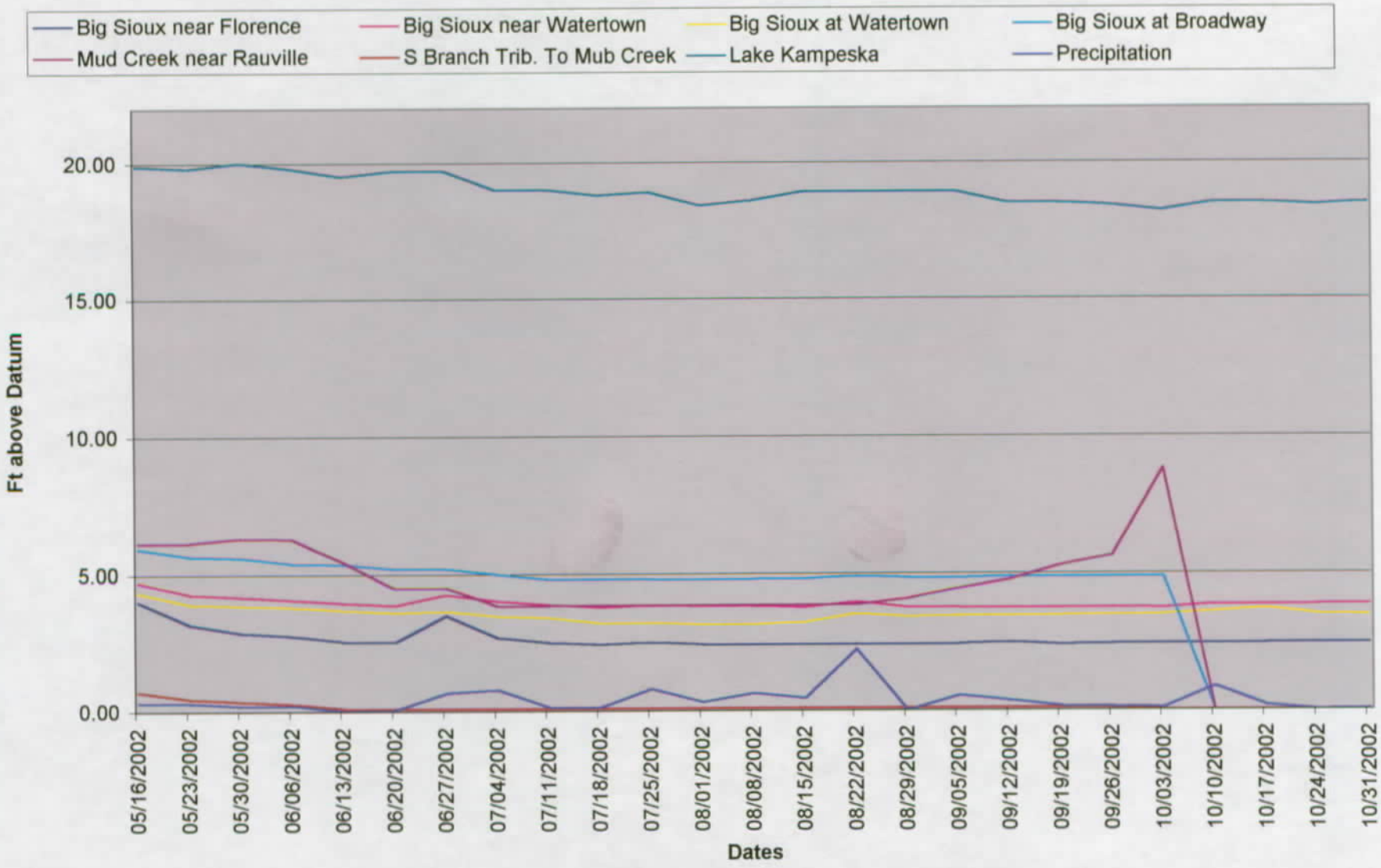
2002 Lake Kampeska Weir Grab Samples

Date	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method EPA 150.1	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method EPA 170.1
05/16/02	WQM55	5	758 uS/cm	6	8.21 s.u.	7	8.87 mg/L	8	11.5 ° C
05/23/02	WQM55	13	745 uS/cm	14	8.18 s.u.	15	9.90 mg/L	16	9.8 ° C
05/30/02	WQM55	23	703 uS/cm	24	8.06 s.u.	25	7.71 mg/L	26	26.1 ° C
06/06/02	WQM55	31	648 uS/cm	32	8.22 s.u.	33	8.33 mg/L	34	20.5 ° C
06/13/02	WQM55	39	623 uS/cm	40	8.32 s.u.	41	9.39 mg/L	42	19.2 ° C
06/20/02	WQM55	47	616 uS/cm	48	8.46 s.u.	49	7.99 mg/L	50	23.0 ° C
06/27/02	WQM55	55	600 uS/cm	56	7.89 s.u.	57	5.94 mg/L	58	27.3 ° C
07/04/02	WQM55	63	610 uS/cm	64	8.31 s.u.	65	6.35 mg/L	66	23.0 ° C
07/11/02	WQM55	70	591 uS/cm	71	7.99 s.u.	72	7.12 mg/L	73	16.8 ° C
07/18/02	WQM55	79	587 uS/cm	80	8.14 s.u.	81	6.12 mg/L	82	27.0 ° C
07/25/02	WQM55	87	651 uS/cm	88	7.74 s.u.	89	5.38 mg/L	90	26.8 ° C
08/01/02	WQM55	95	688 uS/cm	96	8.40 s.u.	97	8.25 mg/L	98	23.1 ° C
08/08/02	WQM55	102	698 uS/cm	103	7.65 s.u.	104	5.22 mg/L	105	25.7 ° C
08/15/02	WQM55	106	759 uS/cm	107	7.72 s.u.	108	5.23 mg/L	109	21.1 ° C
08/22/02	WQM55	119	670 uS/cm	120	7.82 s.u.	121	6.48 mg/L	122	20.4 ° C
08/29/02	WQM55	127	751 uS/cm	128	7.67 s.u.	129	4.61 mg/L	130	25.6 ° C
09/05/02	WQM55	143	693 uS/cm	144	7.72 s.u.	145	5.60 mg/L	146	24.8 ° C
09/12/02	WQM55	151	637 uS/cm	152	7.61 s.u.	153	4.95 mg/L	154	23.7 ° C
09/19/02	WQM55	159	671 uS/cm	160	8.29 s.u.	161	7.73 mg/L	162	18.7 ° C
09/26/02	WQM55	167	661 uS/cm	168	7.79 s.u.	169	7.88 mg/L	170	15.0 ° C
10/03/02	WQM55	175	674 uS/cm	176	8.06 s.u.	177	10.64 mg/L	178	10.1 ° C
10/10/02	WQM55	183	830 uS/cm	184	8.22 s.u.	185	8.16 mg/L	186	11.6 ° C
10/17/02	WQM55	191	854 uS/cm	192	8.48 s.u.	193	11.08 mg/L	194	6.8 ° C
10/24/02	WQM55	199	768 uS/cm	200	8.53 s.u.	201	14.27 mg/L	202	7.3 ° C

2002 Field Observations

Date	Time	Rain Fall	Wind		Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
			Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
5/16/02	15:10	N/A	12	N	42	Overcast	Normal	Normal	No	No	No	Yes	No	No	A lot of birds
5/23/02	9:32	N/A	21	NW	46	Overcast	Normal	Normal	No	No	No	Yes	No	No	A lot of birds
5/30/02	11:20	N/A	13	W	85	Clear	Normal	Normal	No	No	No	Yes	No	No	Birds
6/6/02	9:12	N/A	15	S	71	Overcast	Normal	Normal	No	No	No	Yes	No	No	Birds
6/13/02	13:53	Light	17-26	W	64	Overcast	Normal	Normal	No	No	No	No	No	No	
6/20/02	9:26	N/A	8	W	64	Clear	Normal	Normal	No	No	No	Yes	No	No	A lot of birds Barn Swallows
6/27/02	9:37	N/A	3	E	78	Overcast	Normal	Normal	No	No	No	Yes	No	No	A lot of birds
7/4/02	9:22	N/A	14	SE	76	Overcast	Normal	Normal	No	No	No	Yes	No	No	Birds flying around bridge
7/11/02	9:22	Light	13	E	60	Overcast	Normal	Normal	No	No	No	No	No	No	
7/18/02	13:35	N/A	10	E	80	Overcast	Normal	Normal	No	No	No	Yes	No	No	Birds
7/25/02	11:00	N/A	9	W	75	Overcast	Normal	Normal	No	No	No	Yes	No	No	Birds
8/1/02	14:23	N/A	25	NW	70	Clear	Normal	Normal	No	No	No	No	No	No	
8/8/02	10:43	N/A	20-23	S	79	Overcast	Normal	Normal	No	No	No	Yes	No	No	Ducks and birds
8/15/02	10:52	N/A	16-22	W	65	Overcast	Normal	Normal	No	No	No	No	No	No	
8/22/02	11:25	N/A	6	S	70	Overcast	Normal	Normal	No	No	No	Yes	Yes	No	Birds and Cows
8/29/02	11:25	N/A	15	S	81	Clear	Normal	Normal	No	No	No	No	Yes	No	Cows
9/5/02	11:41	N/A	13	S	78	Clear	Normal	Normal	No	No	No	No	No	No	
9/12/02	9:46	N/A	7	SW	66	Clear	Normal	Normal	No	No	No	No	No	No	
9/19/02	13:30	N/A	20-24	N	66	Overcast	Normal	Normal	No	No	No	No	No	No	
9/26/02	11:27	N/A	3		58	Clear	Normal	Normal	No	No	No	No	No	No	
10/3/02	14:47	Light	13	S	49	Overcast	Normal	Normal	No	No	No	No	No	No	
10/10/02	11:16	N/A	13	SE	57	Overcast	Normal	Normal	No	No	No	No	No	No	
10/17/02	10:52	N/A	13	NW	39	Overcast	Normal	Normal	No	No	No	No	No	No	
10/24/02	13:37	N/A	8	S	31	Clear	Normal	Normal	No	Yes	No	No	No	No	Ice covering water
10/31/02	11:01	N/A	15	W	21	Clear	Normal	Normal	No	Yes	No	No	No	No	

Stage Chart from Watertown's Enhanced Flood Forecasting System



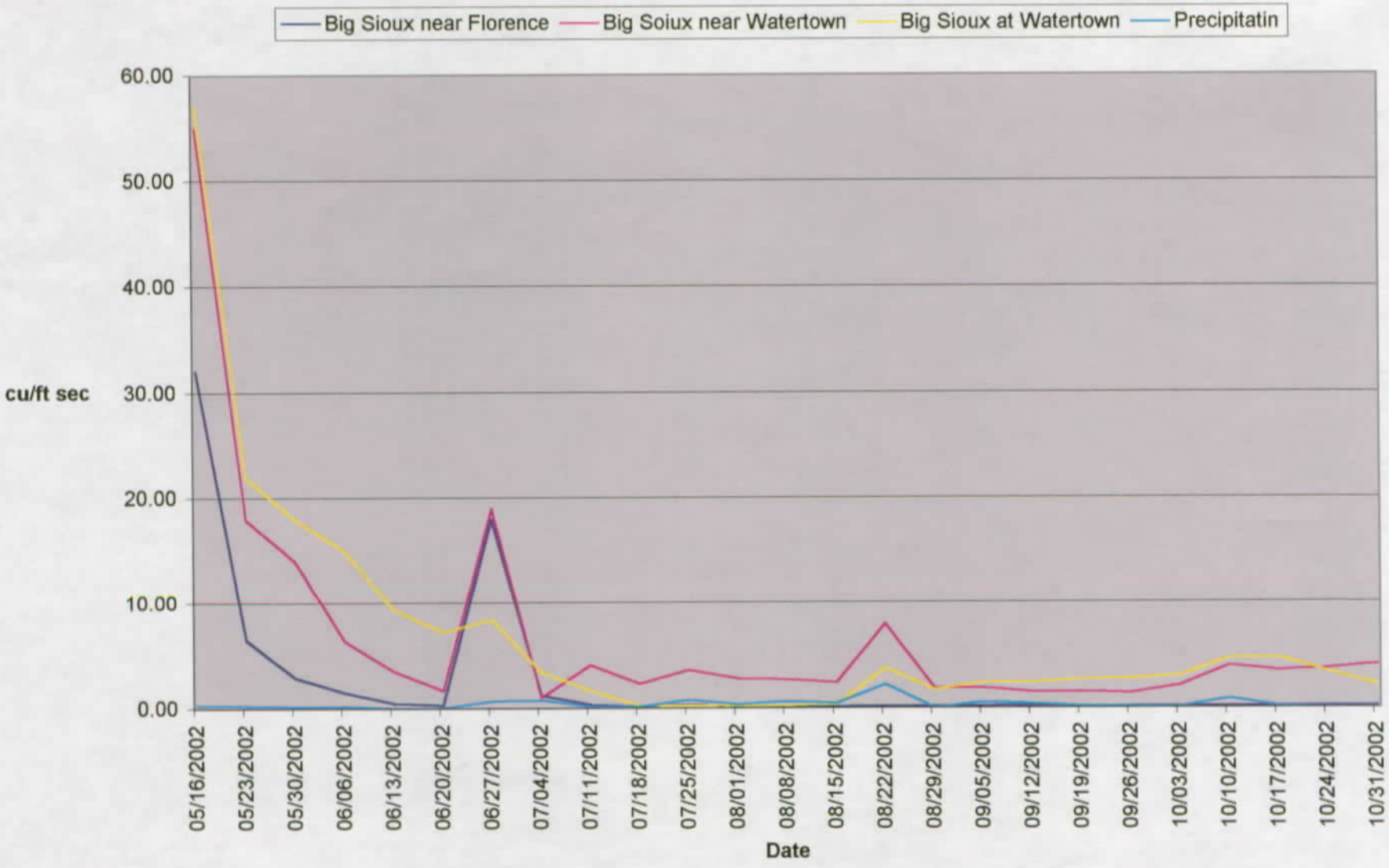
2002 Stage from Watertown's Enhanced Flood Forecasting System

	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
5/16/2002	3.97	4.74	4.33	5.94	6.14	0.73	19.91
5/23/2002	3.15	4.25	3.90	5.68	6.17	0.47	19.81
5/30/2002	2.85	4.15	3.85	5.63	6.34	0.38	20.01
6/6/2002	2.74	4.04	3.78	5.41	6.30	0.28	19.81
6/13/2002	2.55	3.94	3.67	5.36	5.45	0.11	19.51
6/20/2002	2.53	3.85	3.58	5.19	4.50	0.10	19.71
6/27/2002	3.48	4.23	3.64	5.20	4.52	0.10	19.71
7/4/2002	2.68	3.99	3.46	5.00	3.81	0.10	19.01
7/11/2002	2.49	3.86	3.39	4.81	3.83	0.10	19.01
7/18/2002	2.41	3.75	3.19	4.80	3.83	0.10	18.81
7/25/2002	2.49	3.83	3.21	4.80	3.83	0.10	18.91
8/1/2002	2.41	3.78	3.14	4.79	3.83	0.10	18.41
8/8/2002	2.40	3.78	3.14	4.80	3.83	0.10	18.61
8/15/2002	2.40	3.73	3.22	4.80	3.83	0.12	18.91
8/22/2002	2.42	3.94	3.50	4.90	3.83	0.10	18.91
8/29/2002	2.40	3.73	3.40	4.84	4.04	0.10	18.91
9/5/2002	2.41	3.73	3.44	4.83	4.45	0.10	18.91
9/12/2002	2.46	3.71	3.43	4.88	4.77	0.10	18.51
9/19/2002	2.38	3.72	3.45	4.86	5.29	0.10	18.51
9/26/2002	2.42	3.73	3.46	4.86	5.64	0.10	18.41
10/3/2002	2.41	3.69	3.47	4.87	8.82	Ssn	18.21
10/10/2002	2.41	3.83	3.56	Ssn	Ssn	Ssn	18.51
10/17/2002	2.44	3.81	3.67	Ssn	Ssn	Ssn	18.51
10/24/2002	2.43	3.83	3.48	Ssn	Ssn	Ssn	18.41
10/31/2002	2.44	3.83	3.43	Ssn	Ssn	Ssn	18.51

2002 Lake Stage Level Adjustment

Date	Lake Level Recorded at the Treatment Plant	Adjusted Level Recorded at the Treatment Plant	Stage in Feet above Datum
5/16/2002	1717.6	1717.8	19.91
5/23/2002	1717.5	1717.7	19.81
5/30/2002	1717.7	1717.9	20.01
6/6/2002	1717.5	1717.7	19.81
6/13/2002	1717.2	1717.4	19.51
6/20/2002	1717.4	1717.6	19.71
6/27/2002	1717.4	1717.6	19.71
7/4/2002	1716.7	1716.9	19.01
7/11/2002	1716.7	1716.9	19.01
7/18/2002	1716.5	1716.7	18.81
7/25/2002	1716.6	1716.8	18.91
8/1/2002	1716.1	1716.3	18.41
8/8/2002	1716.3	1716.5	18.61
8/15/2002	1716.6	1716.8	18.91
8/22/2002	1716.6	1716.8	18.91
8/29/2002	1716.6	1716.8	18.91
9/5/2002	1716.6	1716.8	18.91
9/12/2002	1716.2	1716.4	18.51
9/19/2002	1716.2	1716.4	18.51
9/26/2002	1716.1	1716.3	18.41
10/3/2002	1715.9	1716.1	18.21
10/10/2002	1716.2	1716.4	18.51
10/17/2002	1716.2	1716.4	18.51
10/24/2002	1716.1	1716.3	18.41
10/31/2002	1716.2	1716.4	18.51

Stream Flow


Big Sioux near Florence
Big Soiux near Watertown
Big Sioux at Watertown
Precipitatin
60.00
50.00
40.00
30.00
20.00
10.00
0.00
cu/ft sec
05/16/2002
05/23/2002
05/30/2002
06/06/2002
06/13/2002
06/20/2002
06/27/2002
07/04/2002
07/11/2002
07/18/2002
07/25/2002
08/01/2002
08/08/2002
08/15/2002
08/22/2002
08/29/2002
09/05/2002
09/12/2002
09/19/2002
09/26/2002
10/03/2002
10/10/2002
10/17/2002
10/24/2002
10/31/2002
Date

2002 Stream Flow in cfs Summary

Location And Site Number

Date	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800
5/16/2002	32.00	55.00	57.00	N/A	N/A	N/A	N/A	N/A
5/23/2002	6.50	18.00	22.00	N/A	N/A	N/A	N/A	N/A
5/30/2002	2.90	14.00	18.00	N/A	N/A	N/A	N/A	N/A
6/6/2002	1.50	6.40	15.00	N/A	N/A	N/A	N/A	N/A
6/13/2002	0.50	3.50	9.40	N/A	N/A	N/A	N/A	N/A
6/20/2002	0.30	1.70	7.20	N/A	N/A	N/A	N/A	N/A
6/27/2002	18.00	19.00	8.40	N/A	N/A	N/A	N/A	N/A
7/4/2002	1.20	1.00	3.40	N/A	N/A	N/A	N/A	N/A
7/11/2002	0.34	4.10	1.70	N/A	N/A	N/A	N/A	N/A
7/18/2002	0.13	2.30	0.22	N/A	N/A	N/A	N/A	N/A
7/25/2002	0.34	3.60	0.28	N/A	N/A	N/A	N/A	N/A
8/1/2002	0.14	2.80	0.19	N/A	N/A	N/A	N/A	N/A
8/8/2002	0.13	2.70	0.19	N/A	N/A	N/A	N/A	N/A
8/15/2002	0.12	2.40	0.37	N/A	N/A	N/A	N/A	N/A
8/22/2002	0.19	8.00	3.80	N/A	N/A	N/A	N/A	N/A
8/29/2002	0.13	1.90	1.75	N/A	N/A	N/A	N/A	N/A
9/5/2002	0.13	1.90	2.40	N/A	N/A	N/A	N/A	N/A
9/12/2002	0.24	1.50	2.40	N/A	N/A	N/A	N/A	N/A
9/19/2002	0.13	1.55	2.70	N/A	N/A	N/A	N/A	N/A
9/26/2002	0.16	1.40	2.80	N/A	N/A	N/A	N/A	N/A
10/3/2002	0.15	2.10	3.10	N/A	N/A	N/A	N/A	N/A
10/10/2002	0.15	4.00	4.70	N/A	N/A	N/A	N/A	N/A
10/17/2002	0.16	3.50	4.75	N/A	N/A	N/A	N/A	N/A
10/24/2002	0.16	3.70	3.40	N/A	N/A	N/A	N/A	N/A
10/31/2002	0.19	4.10	2.20	N/A	N/A	N/A	N/A	N/A

2002 Precipitation in Inches Summary

Location And Site Number

Date	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800	Average Precipitation For The Week
5/16/02	0.53	0.30	0.17	0.23	0.34	0.27	0.38	0.44	0.33
5/23/02	0.03	.04	0.06	0.05	0.16	0.06	0.03	2.10	0.31
5/30/02	0.07	.13	0.37	0.13	0.26	0.46	0.27	0.06	0.20
6/6/02	0.27	.22	0.23	0.30	0.26	0.22	0.26	0.28	0.23
6/13/02	0.00	0	0.00	0.01	0.00	0.00	0.05	0.10	0.02
6/20/02	0.10	.08	0.04	0.03	0.08	0.14	0.03	0.07	0.06
6/27/02	0.22	.61	0.67	0.20	0.71	0.76	1.30	1.50	0.67
7/4/02	0.08	1.14	0.16	0.07	0.79	0.24	0.20	4.70	0.78
7/11/02	0.13	.07	0.23	0.08	0.12	0.28	0.18	0.20	0.15
7/18/02	0.00	.07	0.04	0.01	0.70	0.03	0.13	0.16	0.13
7/25/02	1.20	.17	0.63	0.27	1.70	0.60	1.10	0.85	0.79
8/1/02	0.86	.51	0.35	0.25	0.22	0.26	0.31	0.32	0.32
8/8/02	0.33	.37	0.51	0.42	0.53	0.85	1.10	1.25	0.62
8/15/02	0.32	.62	0.57	0.54	0.64	0.52	0.42	0.60	0.45
8/22/02	1.20	.69	3.50	3.61	2.20	2.85	2.40	2.10	2.23
8/29/02	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/5/02	0.80	.54	0.50	0.51	0.63	0.67	0.47	0.66	0.53
9/12/02	0.13	.22	0.76	0.37	0.40	0.65	0.38	0.20	0.36
9/19/02	0.03	.11	0.12	0.23	0.34	0.17	0.13	0.12	0.14
9/26/02	0.11	.13	0.16	0.10	0.11	0.15	0.20	0.16	0.12
10/3/02	0.18	.2	0.12	0.11	0.11	0.07	N/A	N/A	0.10
10/10/02	1.14	1.6	1.40	Ssn	Ssn	Ssn	N/A	N/A	0.85
10/17/02	0.24	.26	0.26	Ssn	Ssn	Ssn	N/A	N/A	0.17
10/24/02	0.00	0	0.00	Ssn	Ssn	Ssn	N/A	N/A	0.00
10/31/02	0.06	.06	0.06	Ssn	Ssn	Ssn	N/A	N/A	0.04

FC-29

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

April 7, 2004

RECEIVED
APR 12 2004
WATER RIGHTS
PROGRAM

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Garland following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. There were no events this year that caused us to operate the gates on the weir. The sampling period for 2003 was from April 10th to October 30th. Grab samples and the composite sample were collected on Thursday of each week during the sampling period. The stage and stream flow information listed in the summary are readings also taken on Thursday. The graph for the stage information for the Lake Kampeska sight from the USGS web sight is very erratic. I believe this is from the waves and does not chart a line that you can read. I used the lake level information that we take at the Lake Kampeska Water Treatment Plant. The USGS station is located at the treatment plant. I converted our information into the stage level the USGS uses. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is a total of all the rainfall for the week divided by the number of sights that recorded information that week.

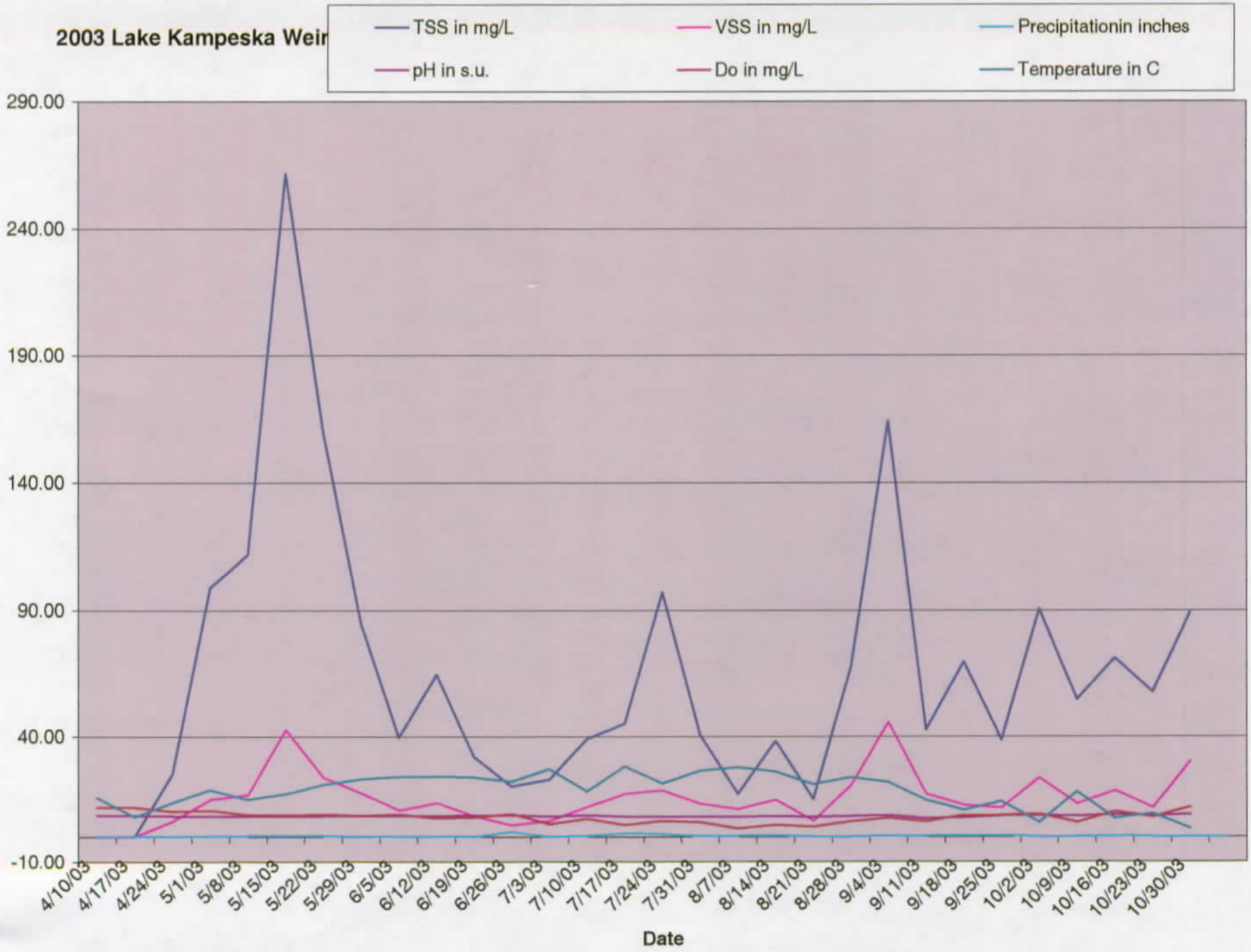
If you would like the information submitted to you in a different format please let me know and I will get it set up for future reporting periods.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Ken Bunde, Lake Pelican Water Project District
Rick Schlechter, Watertown Special Projects Engineer
Craig Mitchell, Watertown Waste Water Department.


2003 Lake Kampeska Weir
TSS in mg/L
VSS in mg/L
Precipitationin inches
pH in s.u.
Do in mg/L
Temperature in C
290.00
240.00
190.00
140.00
90.00
40.00
-10.00
4/10/03
4/17/03
4/24/03
5/1/03
5/8/03
5/15/03
5/22/03
5/29/03
6/5/03
6/12/03
6/19/03
6/26/03
7/3/03
7/10/03
7/17/03
7/24/03
7/31/03
8/7/03
8/14/03
8/21/03
8/28/03
9/4/03
9/11/03
9/18/03
9/25/03
10/2/03
10/9/03
10/16/03
10/23/03
10/30/03
Date

2003 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter Sample ID	Parameter TSS EPA Method 160.2		Parameter Sample ID	Parameter VSS EPA Method 160.4		Average TSS	Average VSS
4/3/03	4/10/03	GL/CM	WQM55			mg/L			mg/L		
4/3/03	4/10/03	GL/CM	WQM55			mg/L			mg/L	#VALUE!	#VALUE!
4/10/03	4/17/03	GL	WQM55			mg/L			mg/L		
4/10/03	4/17/03	GL	WQM55			mg/L			mg/L	#VALUE!	#VALUE!
4/17/03	4/24/03	GL/CM	WQM55		25.4	mg/L		6	mg/L		
4/17/03	4/24/03	GL/CM	WQM55		24.8	mg/L		6.4	mg/L	25.10	6.20
4/24/03	5/1/03	CM/GL	WQM55		102.8	mg/L		15.4	mg/L		
4/24/03	5/1/03	CM/GL	WQM55		94.8	mg/L		14.2	mg/L	98.80	14.80
5/1/03	5/8/03	GL	WQM55		114.4	mg/L		18	mg/L		
5/1/03	5/8/03	GL	WQM55		108.8	mg/L		15.6	mg/L	111.60	16.80
5/8/03	5/15/03	GL	WQM55		265	mg/L		43	mg/L		
5/8/03	5/15/03	GL	WQM55		258	mg/L		42	mg/L	261.50	42.50
5/15/03	5/22/03	GL/CM	WQM55		156	mg/L		21	mg/L		
5/15/03	5/22/03	GL/CM	WQM55		163	mg/L		26	mg/L	159.50	23.50
5/22/03	5/29/03	CM/GL	WQM55		84	mg/L		16	mg/L		
5/22/03	5/29/03	CM/GL	WQM55		85	mg/L		19	mg/L	84.50	17.50
5/29/03	6/5/03	GL	WQM55		39	mg/L		10	mg/L		
5/29/03	6/5/03	GL	WQM55		40	mg/L		11	mg/L	39.50	10.50
6/5/03	6/12/03	GL	WQM55		62	mg/L		13	mg/L		
6/5/03	6/12/03	GL	WQM55		67	mg/L		14	mg/L	64.50	13.50
6/12/03	6/19/03	GL	WQM55		31.5	mg/L		8	mg/L		
6/12/03	6/19/03	GL	WQM55		32	mg/L		8.5	mg/L	31.75	8.25
6/19/03	6/26/03	GL	WQM55		21	mg/L		5	mg/L		
6/19/03	6/26/03	GL	WQM55		19	mg/L		4	mg/L	20.00	4.50
6/26/03	7/3/03	GL	WQM55		23.4	mg/L		6.6	mg/L		
6/26/03	7/3/03	GL	WQM55		22.2	mg/L		6	mg/L	22.80	6.30
7/3/03	7/10/03	GL	WQM55		39.2	mg/L		11.6	mg/L		
7/3/03	7/10/03	GL	WQM55		38.8	mg/L		12	mg/L	39.00	11.80
7/10/03	7/17/03	GL	WQM55		47	mg/L		18	mg/L		
7/10/03	7/17/03	GL	WQM55		43	mg/L		16	mg/L	45.00	17.00

2003 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date		Location	Parameter Sample ID	Parameter TSS EPA Method 160.2		Parameter Sample ID	Parameter VSS EPA Method 160.4		Average TSS	Average VSS
7/17/03	7/24/03	GL/CM	WQM55		95	mg/L		18	mg/L	97.00	18.50
7/17/03	7/24/03	GL/CM	WQM55		99	mg/L		19	mg/L		
7/24/03	7/31/03	GL/CM	WQM55		41	mg/L		14	mg/L		
7/24/03	7/31/03	GL/CM	WQM55		40	mg/L		12	mg/L	40.50	13.00
7/31/03	8/7/03	GL	WQM55		17	mg/L		11	mg/L		
7/31/03	8/7/03	GL	WQM55		17	mg/L		11	mg/L	17.00	11.00
8/7/03	8/14/03	GL	WQM55		38.4	mg/L		14.4	mg/L		
8/7/03	8/14/03	GL	WQM55		37.6	mg/L		14.8	mg/L	38.00	14.60
8/14/03	8/21/03	GL	WQM55		14.67	mg/L		4.67	mg/L		
8/14/03	8/21/03	GL	WQM55		15.33	mg/L		8	mg/L	15.00	6.34
8/21/03	8/28/03	GL	WQM55		67	mg/L		20	mg/L		
8/21/03	8/28/03	GL	WQM55		68	mg/L		21	mg/L	67.50	20.50
8/28/03	9/4/03	GL/RJ	WQM55		166	mg/L		47	mg/L		
8/28/03	9/4/03	GL/RJ	WQM55		162	mg/L		44	mg/L	164.00	45.50
9/4/03	9/11/03	RJ/GL	WQM55		48	mg/L		23	mg/L		
9/4/03	9/11/03	RJ/GL	WQM55		37	mg/L		11	mg/L	42.50	17.00
9/11/03	9/18/03	GL	WQM55		71	mg/L		14	mg/L		
9/11/03	9/18/03	GL	WQM55		68	mg/L		11	mg/L	69.50	12.50
9/18/03	9/25/03	GL	WQM55		38	mg/L		11	mg/L		
9/18/03	9/25/03	GL	WQM55		39	mg/L		12	mg/L	38.50	11.50
9/25/03	10/2/03	GL	WQM55		88	mg/L		23	mg/L		
9/25/03	10/2/03	GL	WQM55		93	mg/L		24	mg/L	90.50	23.50
10/2/03	10/9/03	GL	WQM55		54	mg/L		16	mg/L		
10/2/03	10/9/03	GL	WQM55		55	mg/L		10	mg/L	54.50	13.00
10/9/03	10/16/03	GL	WQM55		74	mg/L		19	mg/L		
10/9/03	10/16/03	GL	WQM55		68	mg/L		18	mg/L	71.00	18.50
10/16/2003	10/23/03	GL	WQM55		58	mg/L		10	mg/L		
10/16/2003	10/23/03	GL	WQM55		57	mg/L		13	mg/L	57.50	11.50
10/23/2003	10/30/03	GL	WQM55		90	mg/L		30	mg/L		
10/23/2003	10/30/03	GL	WQM55		88	mg/L		30	mg/L	89.00	30.00

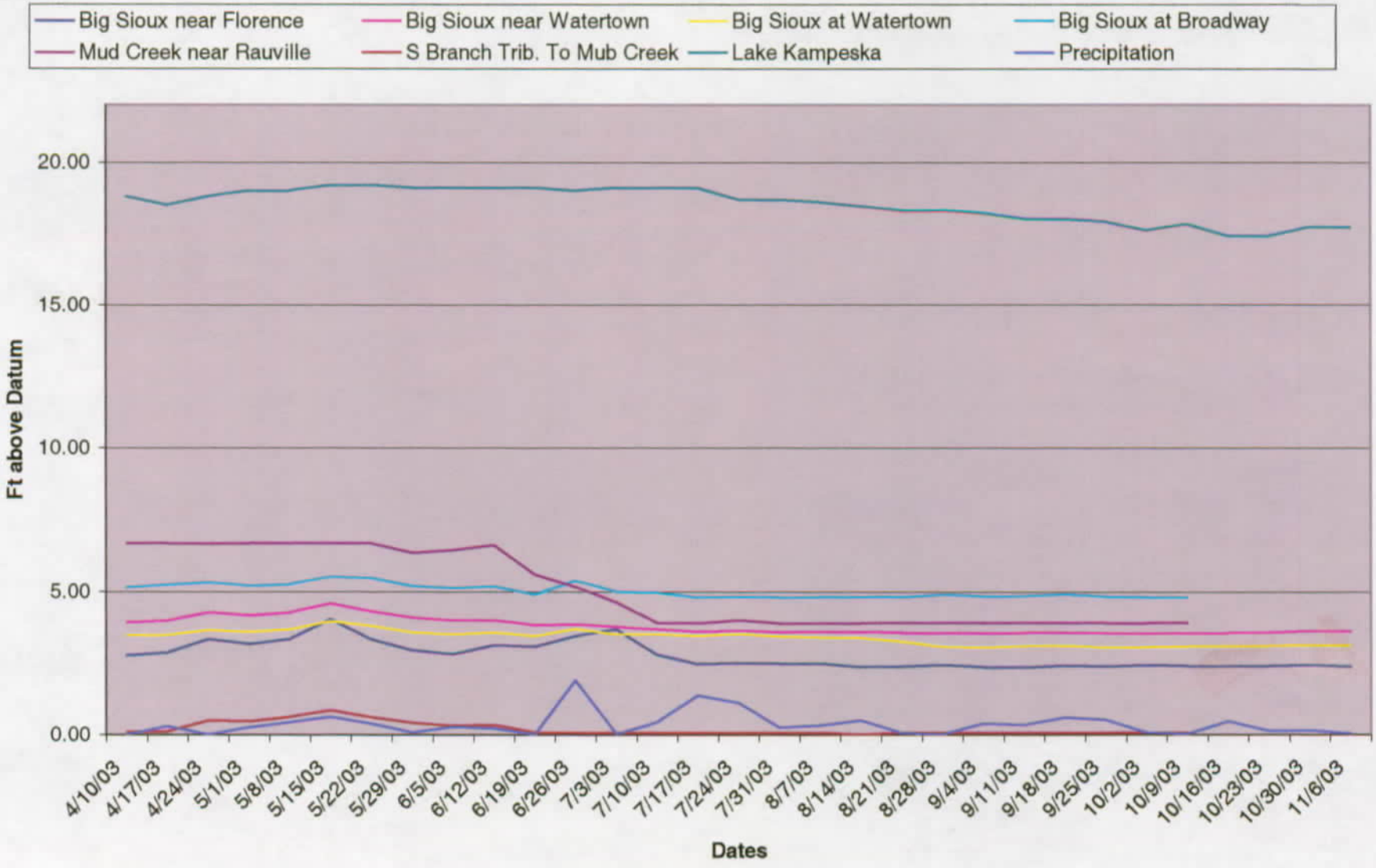
2003 Lake Kampeska Weir Composite Samples

Composite End Date		Location	TSS Average	VSS Average
4/10/03	GL/CM	WQM55	#VALUE!	#VALUE!
4/17/03	GL	WQM55	#VALUE!	#VALUE!
4/24/03	GL/CM	WQM55	25.10	6.20
5/1/03	CM/GL	WQM55	98.80	14.80
5/8/03	GL	WQM55	111.60	16.80
5/15/03	GL	WQM55	261.50	42.50
5/22/03	GL/CM	WQM55	159.50	23.50
5/29/03	CM/GL	WQM55	84.50	17.50
6/5/03	GL	WQM55	39.50	10.50
6/12/03	GL	WQM55	64.50	13.50
06/19/03	GL	WQM55	31.75	8.25
06/26/03	GL	WQM55	20.00	4.50
07/03/03	GL	WQM55	22.80	6.30
7/10/2003	GL	WQM55	39.00	11.80
7/17/2003	GL	WQM55	45.00	17.00
7/24/2003	GL/CM	WQM55	97.00	18.50
7/31/2003	GL/CM	WQM55	40.50	13.00
8/7/2003	GL	WQM55	17.00	11.00
8/14/2003	GL	WQM55	38.00	14.60
8/21/2003	GL	WQM55	15.00	6.34
8/28/2003	GL	WQM55	67.50	20.50
9/4/2003	GL/RJ	WQM55	164.00	45.50
9/11/2003	RJ/GL	WQM55	42.50	17.00
9/18/2003	GL	WQM55	69.50	12.50
9/25/2003	GL	WQM55	38.50	11.50
10/2/2003	GL	WQM55	90.50	23.50
10/9/2003	GL	WQM55	54.50	13.00
10/16/2003	GL	WQM55	71.00	18.50
10/23/2003	GL	WQM55	57.50	11.50
10/30/2003	GL	WQM55	89.00	30.00

2003 Lake Kampeska Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method EPA 150.1	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method EPA 170.1
4/10/03	GL/CM	WQM55		737 uS/cm		8.48 s.u.		11.84 mg/L		15.6 ° C
4/17/03	GL	WQM55		830 uS/cm		8.39 s.u.		11.70 mg/L		7.8 ° C
4/24/03	GL/CM	WQM55		737 uS/cm		8.26 s.u.		10.21 mg/L		13.6 ° C
5/1/03	CM/GL	WQM55		802 uS/cm		8.23 s.u.		10.55 mg/L		18.6 ° C
5/8/03	GL	WQM55		840 uS/cm		8.18 s.u.		8.74 mg/L		14.8 ° C
5/15/03	GL	WQM55		922 uS/cm		8.25 s.u.		8.53 mg/L		17.0 ° C
5/22/03	GL/CM	WQM55		727 uS/cm		8.28 s.u.		8.96 mg/L		20.7 ° C
5/29/03	CM/GL	WQM55		765 uS/cm		8.42 s.u.		8.39 mg/L		23.0 ° C
6/5/03	GL	WQM55		797 uS/cm		8.40 s.u.		8.84 mg/L		23.8 ° C
6/12/03	GL	WQM55		727 uS/cm		8.20 s.u.		7.43 mg/L		24.0 ° C
6/19/03	GL	WQM55		746 uS/cm		8.52 s.u.		7.75 mg/L		23.7 ° C
6/26/03	GL	WQM55		770 uS/cm		8.48 s.u.		9.16 mg/L		22.0 ° C
7/3/03	GL	WQM55		836 uS/cm		8.12 s.u.		5.12 mg/L		26.9 ° C
7/10/03	GL	WQM55		793 uS/cm		8.64 s.u.		7.20 mg/L		18.1 ° C
7/17/03	GL	WQM55		616 uS/cm		8.02 s.u.		4.82 mg/L		28.0 ° C
7/24/03	GL/CM	WQM55		563 uS/cm		8.04 s.u.		6.24 mg/L		21.2 ° C
7/31/03	GL/CM	WQM55		609 uS/cm		8.04 s.u.		5.76 mg/L		26.2 ° C
8/7/03	GL	WQM55		602 uS/cm		7.88 s.u.		3.39 mg/L		27.7 ° C
8/14/03	GL	WQM55		622 uS/cm		8.20 s.u.		4.70 mg/L		26.0 ° C
8/21/03	GL	WQM55		804 uS/cm		7.89 s.u.		4.07 mg/L		20.9 ° C
8/28/03	GL	WQM55		668 uS/cm		8.23 s.u.		6.12 mg/L		23.6 ° C
9/4/03	GL/RJ	WQM55		695 uS/cm		8.49 s.u.		7.55 mg/L		21.7 ° C
9/11/03	RJ/GL	WQM55		680 uS/cm		7.36 s.u.		6.22 mg/L		14.6 ° C
9/18/03	GL	WQM55		665 uS/cm		7.69 s.u.		8.65 mg/L		10.7 ° C
9/25/03	GL	WQM55		703 uS/cm		8.42 s.u.		8.54 mg/L		14.2 ° C
10/2/03	GL	WQM55		805 uS/cm		8.56 s.u.		9.02 mg/L		5.8 ° C
10/9/03	GL	WQM55		723 uS/cm		8.22 s.u.		5.71 mg/L		17.9 ° C
10/16/03	GL	WQM55		675 uS/cm		8.88 s.u.		10.14 mg/L		7.4 ° C
10/23/03	GL	WQM55		725 uS/cm		8.39 s.u.		7.90 mg/L		9.3 ° C
10/30/03	GL	WQM55		1027 uS/cm		8.92 s.u.		11.81 mg/L		3.4 ° C

Stage Chart from Watertown's Enhanced Flood Forecasting System 2003

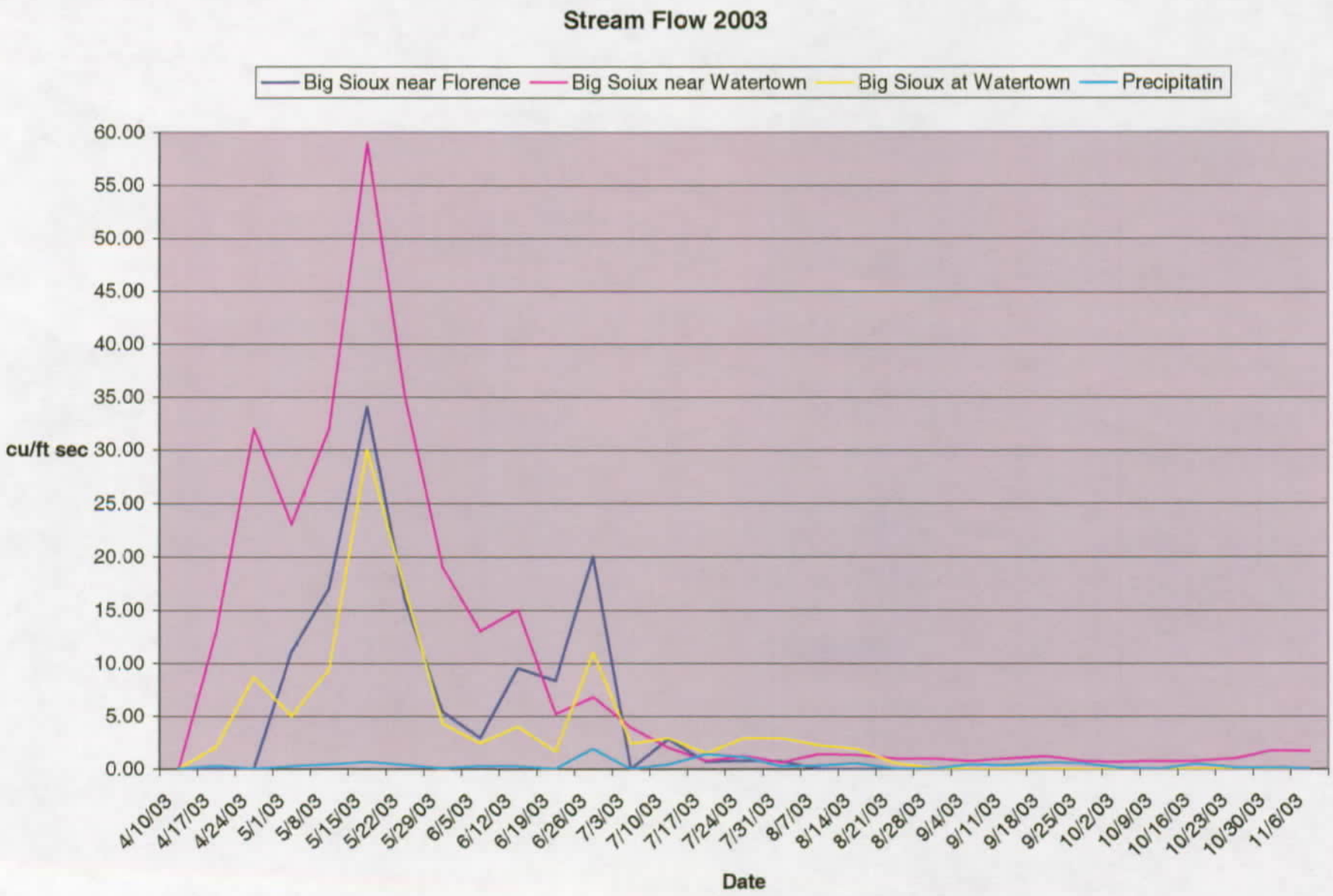


2003 Stage from Watertown's Enhanced Flood Forecasting System

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
4/10/03	GL/CM	2.78	3.93	3.49	5.14	6.69	0.10	18.81
4/17/03	GL	2.87	3.98	3.49	5.24	6.68	0.10	18.51
4/24/03	GL/CM	3.34	4.27	3.67	5.32	6.67	0.49	18.81
5/1/03	CM/GL	3.17	4.16	3.60	5.20	6.68	0.47	19.01
5/8/03	GL	3.35	4.28	3.68	5.25	6.69	0.63	19.01
5/15/03	GL	4.04	4.57	3.97	5.51	6.69	0.86	19.21
5/22/03	GL/CM	3.33	4.31	3.81	5.47	6.68	0.60	19.21
5/29/03	CM/GL	2.96	4.09	3.58	5.19	6.35	0.41	19.11
6/5/03	GL	2.81	3.99	3.51	5.11	6.44	0.31	19.11
6/12/03	GL	3.13	4.01	3.57	5.18	6.63	0.34	19.11
6/19/03	GL	3.08	3.82	3.46	4.90	5.59	0.07	19.11
6/26/03	GL	3.46	3.86	3.71	5.37	5.17	0.08	19.01
7/3/03	GL	3.68	3.78	3.51	5.01	4.63	0.07	19.11
7/10/03	GL	2.80	3.69	3.53	4.96	3.91	0.08	19.11
7/17/03	GL	2.48	3.59	3.45	4.80	3.90	0.07	19.11
7/24/03	GL/CM	2.51	3.63	3.53	4.83	4.00	0.07	18.71
7/31/03	GL/CM	2.49	3.57	3.43	4.81	3.90	0.07	18.71
8/7/03	GL	2.49	3.60	3.40	4.81	3.90	0.07	18.61
8/14/03	GL	2.37	3.59	3.38	4.83	3.90	0.00	18.48
8/21/03	GL	2.38	3.56	3.25	4.81	3.91	0.07	18.31
8/28/03	GL	2.43	3.56	3.08	4.90	3.91	0.08	18.31
9/4/03	GL/RJ	2.37	3.54	3.05	4.85	3.90	0.07	18.21
9/11/03	RJ/GL	2.35	3.56	3.09	4.85	3.91	0.08	18.01
9/18/03	GL	2.42	3.58	3.11	4.91	3.91	0.08	18.01
9/25/03	GL	2.39	3.54	3.05	4.83	3.90	0.07	17.91
10/2/03	GL	2.44	3.53	3.06	4.81	3.90	0.07	17.61
10/9/03	GL	2.41	3.54	3.08	4.81	3.91	0.07	17.81
10/16/03	GL	2.40	3.54	3.10				17.41
10/23/03	GL	2.40	3.56	3.09				17.41
10/30/03	GL	2.44	3.62	3.13				17.71
11/6/03	GL	2.39	3.62	3.11				17.71

2003 Lake Stage Level Adjustment

Date	Lake Level Recorded at the Treatment Plant	Adjusted Level Recorded at the Treatment Plant	Stage in Feet above Datum
04/11/03	1716.5	1716.7	18.81
04/18/03	1716.2	1716.4	18.51
04/20/03	1716.5	1716.7	18.81
04/30/03	1716.7	1716.9	19.01
05/12/03	1716.7	1716.9	19.01
05/16/03	1716.9	1717.1	19.21
05/23/03	1716.9	1717.1	19.21
06/01/03	1716.8	1717	19.11
06/05/03	1716.8	1717	19.11
06/12/03	1716.8	1717	19.11
06/19/03	1716.8	1717	19.11
06/23/03	1716.7	1716.9	19.01
07/03/03	1716.8	1717	19.11
07/03/03	1716.8	1717	19.11
07/03/03	1716.8	1717	19.11
07/24/03	1716.4	1716.6	18.71
08/01/03	1716.4	1716.6	18.71
08/07/03	1716.3	1716.5	18.61
08/14/03	1716.1	1716.3	18.41
08/23/03	1716.0	1716.2	18.31
08/29/03	1716.0	1716.2	18.31
09/03/03	1715.9	1716.1	18.21
09/12/03	1715.7	1715.9	18.01
09/16/03	1715.7	1715.9	18.01
09/25/03	1715.6	1715.8	17.91
10/01/03	1715.3	1715.5	17.61
10/08/03	1715.5	1715.7	17.81
10/15/03	1715.1	1715.3	17.41
10/22/03	1715.1	1715.3	17.41
10/29/03	1715.4	1715.6	17.71
10/29/03	1715.4	1715.6	17.71


Stream Flow 2003
Big Sioux near Florence
Big Soiux near Watertown
Big Sioux at Watertown
Precipitatin
60.00
55.00
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
cu/ft sec
4/10/03
4/17/03
4/24/03
5/1/03
5/8/03
5/15/03
5/22/03
5/29/03
6/5/03
6/12/03
6/19/03
6/26/03
7/3/03
7/10/03
7/17/03
7/24/03
7/31/03
8/7/03
8/14/03
8/21/03
8/28/03
9/4/03
9/11/03
9/18/03
9/25/03
10/2/03
10/9/03
10/16/03
10/23/03
10/30/03
11/6/03
Date

2003 Stream Flow in cfs Summary

		Location And Site Number							
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800
4/10/03	GL/CM	0.00	0.00	0.00					
4/17/03	GL	3.9	13.00	2.10					
4/24/03	GL/CM	17	32.00	8.70					
5/1/03	CM/GL	11.00	23.00	5.00					
5/8/03	GL	17.00	32.00	9.40					
5/15/03	GL	34.00	59.00	30.00					
5/22/03	GL/CM	16.00	35.00	17.00					
5/29/03	CM/GL	5.40	19.00	4.30					
6/5/03	GL	2.90	13.00	2.40					
6/12/03	GL	9.50	15.00	4.00					
6/19/03	GL	8.30	5.20	1.60					
6/26/03	GL	20.00	6.80	11.00					
7/3/03	GL	0.00	3.90	2.40					
7/10/03	GL	2.80	2.00	2.90					
7/17/03	GL	0.64	0.74	1.50					
7/24/03	GL/CM	0.78	1.20	2.90					
7/31/03	GL/CM	0.69	0.58	2.90					
8/7/03	GL	0.00	1.40	2.20					
8/14/03	GL	0.00	1.30	1.90					
8/21/03	GL	0.00	0.95	0.57					
8/28/03	GL	0.00	0.95	0.10					
9/4/03	GL/RJ	0.00	0.74	0.00					
9/11/03	RJ/GL	0.00	0.95	0.02					
9/18/03	GL	0.00	1.20	0.05					
9/25/03	GL	0.00	0.74	0.00					
10/2/03	GL	0.00	0.66	0.00					
10/9/03	GL	0.00	0.74	0.01					
10/16/03	GL	0.00	0.74	0.04					
10/23/03	GL	0.00	0.95	0.02					
10/30/03	GL	0.00	1.70	0.08					
11/6/03	GL	0.00	1.70	0.05					

2003 Precipitation in Inches Summary

		Location And Site Number								
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800	Average Precipitation For The Week
4/10/03	GL/CM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/17/03	GL	0.02	0.17	0.11	0.08	0.27	0.30	0.70	0.60	0.28
4/24/03	GL/CM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5/1/03	CM/GL	0.30	0.23	0.13	0.15	0.37	0.23	0.21	0.35	0.25
5/8/03	GL	0.41	0.25	0.38	0.07	0.41	0.70	0.54	0.70	0.43
5/15/03	GL	0.70	0.63	0.58	0.39	0.59	0.26	0.70	1.20	0.63
5/22/03	GL/CM	0.43	0.24	0.24	0.13	0.42	0.40	0.47	0.60	0.37
5/29/03	CM/GL	0.06	0.06	0.08	0.06	0.08	0.03	0.10	0.06	0.07
6/5/03	GL	0.22	0.55	0.18	0.16	0.31	0.04	0.37	0.30	0.27
6/12/03	GL	0.12	0.10	0.11	0.10	0.33	0.01	0.81	0.12	0.21
6/19/03	GL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/26/03	GL	1.80	0.56	7.20	0.68	1.35	1.51	0.56	1.60	1.91
7/3/03	GL	n/a	n/a	0.04	n/a	n/a	n/a	0.02	0.00	0.02
7/10/03	GL	0.13	0.68	0.05	n/a	n/a	n/a	0.71	0.60	0.43
7/17/03	GL	n/a	n/a	n/a	n/a	n/a	n/a	1.50	1.23	1.37
7/24/03	GL/CM	0.13	1.58	1.60	n/a	n/a	n/a	1.50	0.71	1.10
7/31/03	GL/CM	0.05	0.50	0.44	n/a	n/a	n/a	n/a	0.23	0.24
8/7/03	GL	0.14	0.25	0.18	n/a	n/a	n/a	0.07	0.98	0.32
8/14/03	GL	0.37	0.55	0.58	n/a	n/a	n/a	0.56	0.46	0.50
8/21/03	GL	0.02	0.02	0.10	n/a	n/a	n/a	0.10	0.05	0.06
8/28/03	GL	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9/4/03	GL/RJ	0.16	0.29	0.27	n/a	n/a	n/a	0.46	0.80	0.40
9/11/03	RJ/GL	0.08	0.22	0.46	n/a	n/a	n/a	0.43	0.52	0.34
9/18/03	GL	0.65	0.78	0.72	0.30	0.68	0.50	0.43	0.80	0.61
9/25/03	GL	0.52	0.65	0.43	0.15	0.52	0.45	0.58	0.78	0.51
10/2/03	GL	0.05	.16	0.02	0	0.04	0.13	0.08	0.08	0.07
10/9/03	GL	0	0	0	0	0	0	0.16	0	0.02
10/16/03	GL	0.45	.59	0.39	0.13	0.59	0.5	0.52	0.52	0.46
10/23/03	GL	0	.12	0	n/a	n/a	n/a	n/a	n/a	0.12
10/30/03	GL	0.07	.09	0.27	n/a	n/a	n/a	n/a	n/a	0.14
11/6/03		0.01	.02	0.06	n/a	n/a	n/a	n/a	n/a	0.03

2003 Field Observations

Date	Time	Sample Collector	Rain Fall	Wind		Air Temperature	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
				Velocity mph	Direction	Degrees F							Wildlife	Domestic Animals	Dead Fish	
4/10/03		GL/CM	N/A	21	N	71	N	NORMAL	NORMAL	N	N	N	Y	N	N	
4/17/03		GL	N/A	8	NW	37	Y	NORMAL	NORMAL	N	N	N	N	N	N	
4/24/03		GL/CM	N/A	10	E	54	Y	NORMAL	NORMAL	N	N	N	N	N	N	
5/1/03		CM/GL	N/A	10	N/A	51	N	NORMAL	NORMAL	N	N	N	N	N	N	
5/8/03		GL	N/A	35	SE	58	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
5/15/03		GL	N/A	12	SE	62	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
5/22/03		GL/CM	N/A	14	NE	63	N	NORMAL	NORMAL	N	N	N	Y	N	N	
5/29/03		CM/GL	N/A	13	S	74	Y	NORMAL	NORMAL	N	N	N	Y	Y	N	
6/5/03		GL	N/A	3	N/A	70	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
6/12/03		GL	N/A	17	NW	77	N	NORMAL	NORMAL	N	N	N	Y	Y	N	
6/19/03		GL	N/A	13	E	74	N	NORMAL	NORMAL	N	N	N	Y	N	N	
6/26/03		GL	N/A	26	W	70	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
7/3/03		GL	NA	16	N	74	N	NORMAL	NORMAL	N	N	N	Y	N	N	
7/10/03		GL	N/A	13	NW	60	Y	NORMAL	NORMAL	N	N	N	N	N	N	
7/17/03		GL	N/A	9		74	Y	NORMAL	NORMAL	N	N	N	N	N	N	
7/24/03		GL/CM	N/A	15	SE	70	Y	NORMAL	NORMAL	N	N	N	N	N	N	
7/31/03		GL/CM	N/A	15	NW	80	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/7/03		GL	N/A	0	N/A	77	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/14/03		GL	N/A	17	S	78	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/21/03		GL	N/A	15	NW	68	Y	NORMAL	NORMAL	N	N	N	N	N	N	
8/28/03		GL	N/A	15	NW	75	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/4/03		GL/RJ	N/A	8	S	77	N	NORMAL	NORMAL	N	N	N	Y	Y	N	
9/11/03		RJ/GL	N/A	7	W	55	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/18/03		GL	LIGHT	14	NW	47	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/25/03		GL	N/A	24	S	57	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/2/03		GL	N/A	13	S	39	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/9/03		GL	N/A	8	S	59	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/16/03		GL	N/A	8	S	39	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/23/03		GL	N/A	5	N	34	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/30/03		GL	N/A	10	N	33	Y	NORMAL	NORMAL	N	N	N	N	N	N	

Bridge Over Big Sioux River Monitoring LocationFrom: Craig Mitchell [mitchell@watertownsd.com]
Sent: Thursday, July 03, 2003 2:39 PM
To: Jeff DeVille
Subject: Bridge Over Big Sioux River Monitoring Location

On May 1, 2003 Staff failed to document if there was precipitation that day, wind velocity, wind direction, and the air temperature. I was able to go back using an internet site and get all the required information except for the wind direction. Again, we are required to get this information so I thought I would let you know.

Craig Mitchell
Assistant Wastewater Superintendent

FC 29-3

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

RECEIVED
MAR 31 2005
WATER RIGHTS
PROGRAM

March 30, 2005

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. The sampling period for 2004 was from March 26th to November 29th. Grab samples and the composite sample were collected weekly during this sampling period. The stage and stream flow information were also taken weekly. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is an average of that week.

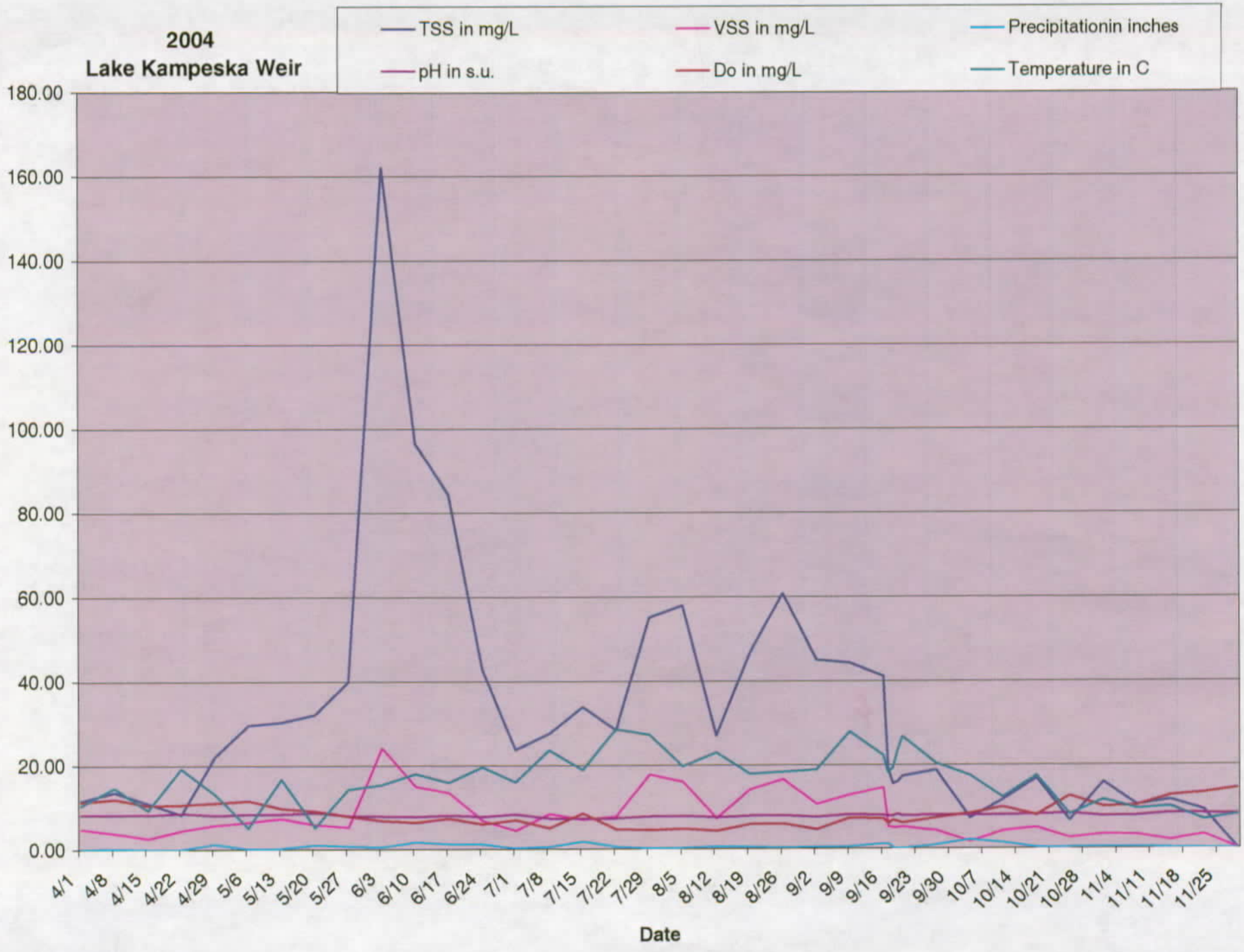
The gates were opened on September 17th based on the lake elevation and they were closed again on October 29th based on the elevation of the lake. Increased sampling was conducted in accordance to Flood Control Permit No. FC-29. The additional testing is listed separately in this packet.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Ken Bunde, Lake Pelican Water Project District
Rick Schlechter, Planning & Zoning Official
Craig Mitchell, Watertown Waste Water Department.


2004
Lake Kampeska Weir
TSS in mg/L
VSS in mg/L
Precipitationin inches
pH in s.u.
Do in mg/L
Temperature in C
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
4/1
4/8
4/15
4/22
4/29
5/6
5/13
5/20
5/27
6/3
6/10
6/17
6/24
7/1
7/8
7/15
7/22
7/29
8/5
8/12
8/19
8/26
9/2
9/9
9/16
9/23
9/30
10/7
10/14
10/21
10/28
11/4
11/11
11/18
11/25
Date

2004 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter Sample ID	Parameter TSS EPA Method 160.2	Parameter Sample ID	Parameter VSS EPA Method 160.4	Average TSS	Average VSS
03/26/04	04/01/04	LH	WQM55		11 mg/L		4 mg/L		
03/26/04	04/01/04	LH	WQM55		12 mg/L		5.5 mg/L	11.50	4.75
04/01/04	04/08/04	LH	WQM55		13.2 mg/L		3.8 mg/L		
04/01/04	04/08/04	LH	WQM55		14 mg/L		3.8 mg/L	13.60	3.80
04/08/04	04/15/04	LH	WQM55		10.8 mg/L		2.8 mg/L		
04/08/04	04/15/04	LH	WQM55		11 mg/L		2.4 mg/L	10.90	2.60
04/15/04	04/22/04	LH	WQM55		8 mg/L		4.5 mg/L		
04/15/04	04/22/04	LH	WQM55		8.5 mg/L		4.5 mg/L	8.25	4.50
04/22/04	04/29/04	LH	WQM55		21.5 mg/L		5.5 mg/L		
04/22/04	04/29/04	LH	WQM55		22.5 mg/L		6 mg/L	22.00	5.75
04/29/04	05/06/04	LH	WQM55		31 mg/L		8 mg/L		
04/29/04	05/06/04	LH	WQM55		28 mg/L		5 mg/L	29.50	6.50
05/06/04	05/13/04	LH/BM/RLJ	WQM55		29.5 mg/L		7.5 mg/L		
05/06/04	05/13/04	LH/BM/RLJ	WQM55		31 mg/L		7 mg/L	30.25	7.25
05/13/04	05/20/04	RJ/BM/LH	WQM55		31.33 mg/L		6 mg/L		
05/13/04	05/20/04	RJ/BM/LH	WQM55		32.67 mg/L		5.67 mg/L	32.00	5.84
05/20/04	05/27/04	LH	WQM55		39.5 mg/L		5.5 mg/L		
05/20/04	05/27/04	LH	WQM55		40 mg/L		5 mg/L	39.75	5.25
05/27/04	06/03/04	LH	WQM55		160 mg/L		23 mg/L		
05/27/04	06/03/04	LH	WQM55		164 mg/L		25 mg/L	162.00	24.00
06/03/04	06/10/04	LH/CM	WQM55		94 mg/L		14 mg/L		
06/03/04	06/10/04	LH/CM	WQM55		99 mg/L		16 mg/L	96.50	15.00
06/10/04	06/17/04	CM/LH	WQM55		84 mg/L		13.6 mg/L		
06/10/04	06/17/04	CM/LH	WQM55		84.8 mg/L		13.2 mg/L	84.40	13.40
06/17/04	06/24/04	LH/CM	WQM55		42 mg/L		5.5 mg/L		
06/17/04	06/24/04	LH/CM	WQM55		43.5 mg/L		8 mg/L	42.75	6.75
6/24/2004	7/1/2004	CM/LH	WQM55		23.6 mg/L		4.2 mg/L		
6/24/2004	7/1/2004	CM/LH	WQM55		23.6 mg/L		4.6 mg/L	23.60	4.40
7/1/2004	7/8/2004	LH	WQM55		27.33 mg/L		8.67 mg/L		
7/1/2004	7/8/2004	LH	WQM55		27.56 mg/L		8 mg/L	27.45	8.34

2004 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date		Location	Parameter		Parameter		Average TSS	Average VSS
				Sample ID	TSS EPA Method 160.2	Sample ID	VSS EPA Method 160.4		
7/8/2004	7/15/2004	LH	WQM55		33 mg/L		7.2 mg/L		
7/8/2004	7/15/2004	LH	WQM55		34.6 mg/L		6.8 mg/L	33.80	7.00
7/15/2004	7/22/2004	LH	WQM55		28 mg/L		8 mg/L		
7/15/2004	7/22/2004	LH	WQM55		28.5 mg/L		7.5 mg/L	28.25	7.75
7/22/2004	7/29/2004	LH	WQM55		56.67 mg/L		17.33 mg/L		
7/22/2004	7/29/2004	LH	WQM55		53.33 mg/L		18 mg/L	55.00	17.67
7/29/2004	8/5/2004	LH	WQM55		57.5 mg/L		16.5 mg/L		
7/29/2004	8/5/2004	LH	WQM55		58.5 mg/L		15.5 mg/L	58.00	16.00
8/5/2004	8/12/2004	LH	WQM55		26.4 mg/L		7.2 mg/L		
8/5/2004	8/12/2004	LH	WQM55		27.6 mg/L		7.2 mg/L	27.00	7.20
8/12/2004	8/19/2004	LH	WQM55		46 mg/L		15 mg/L		
8/12/2004	8/19/2004	LH	WQM55		47 mg/L		13 mg/L	46.50	14.00
8/19/2004	8/26/2004	LH	WQM55		62 mg/L		17.5 mg/L		
8/19/2004	8/26/2004	LH	WQM55		59.5 mg/L		15.5 mg/L	60.75	16.50
8/26/2004	9/2/2004	LH/CM	WQM55		47 mg/L		10 mg/L		
8/26/2004	9/2/2004	LH/CM	WQM55		43 mg/L		11 mg/L	45.00	10.50
9/2/2004	9/9/2004	CM/LH	WQM55		42.8 mg/L		12.8 mg/L		
9/2/2004	9/9/2004	CM/LH	WQM55		45.6 mg/L		12.8 mg/L	44.20	12.80
9/9/2004	9/16/2004	LH	WQM55		38 mg/L		15 mg/L		
9/9/2004	9/16/2004	LH	WQM55		44 mg/L		14 mg/L	41.00	14.50
9/16/2004	9/17/2004	LH	WQM55		19 mg/L		5.5 mg/L		
9/16/2004	9/17/2004	LH	WQM55		19 mg/L		5 mg/L	19.00	5.25
9/17/2004	9/18/2004	LH/CM	WQM55		15.5 mg/L		5 mg/L		
9/17/2004	9/18/2004	LH/CM	WQM55		15.5 mg/L		5 mg/L	15.50	5.00
9/18/2004	9/19/2004	CM/LH	WQM55		15.5 mg/L		5.5 mg/L		
9/18/2004	9/19/2004	CM/LH	WQM55		16.5 mg/L		4.5 mg/L	16.00	5.00
9/19/2004	9/20/2004	LH	WQM55		17 mg/L		5.5 mg/L		
9/19/2004	9/20/2004	LH	WQM55		17.5 mg/L		5 mg/L	17.25	5.25
9/20/2004	9/27/2004	LH	WQM55		18 mg/L		4 mg/L		
9/20/2004	9/27/2004	LH	WQM55		19.5 mg/L		4.5 mg/L	18.75	4.25

2004 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter			Parameter			Average TSS	Average VSS
				Sample ID	TSS EPA Method 160.2		Sample ID	VSS EPA Method 160.4			
9/27/2004	10/4/2004	LH	WQM55		7.2	mg/L		1.8	mg/L		
9/27/2004	10/4/2004	LH	WQM55		7.4	mg/L		1.6	mg/L	7.30	1.70
10/4/2004	10/11/2004	LH/AJ	WQM55		11.25	mg/L		4.25	mg/L		
10/4/2004	10/11/2004	LH/AJ	WQM55		11.75	mg/L		4	mg/L	11.50	4.13
10/11/2004	10/18/2004	AJ/LH	WQM55		16.4	mg/L		5	mg/L		
10/11/2004	10/18/2004	AJ/LH	WQM55		17.2	mg/L		5	mg/L	16.80	5.00
10/18/2004	10/25/2004	LH	WQM55		6.8	mg/L		2.6	mg/L		
10/18/2004	10/25/2004	LH	WQM55		6.6	mg/L		2.4	mg/L	6.70	2.50
10/25/2004	11/1/2004	LH	WQM55		15.8	mg/L		4	mg/L		
10/25/2004	11/1/2004	LH	WQM55		15.8	mg/L		2.8	mg/L	15.80	3.40
11/1/2004	11/8/2004	LH/CM	WQM55		10.4	mg/L		3	mg/L		
11/1/2004	11/8/2004	LH/CM	WQM55		10.2	mg/L		3.4	mg/L	10.30	3.20
11/8/2004	11/15/2004	CM	WQM55		11.8	mg/L		2	mg/L		
11/8/2004	11/15/2004	CM	WQM55		11.4	mg/L		2	mg/L	11.60	2.00
11/15/2004	11/22/2004	CM/LH	WQM55		9.4	mg/L		3.2	mg/L		
11/15/2004	11/22/2004	CM/LH	WQM55		9	mg/L		3.4	mg/L	9.20	3.30
11/22/2004	11/29/2004	LH	WQM55			mg/L			mg/L		
11/22/2004	11/29/2004	LH	WQM55			mg/L			mg/L	0.00	0.00

	Composite End Date		Location	TSS Average	VSS Average						
	04/01/04		WQM55	11.50	4.75						
	04/08/04		WQM55	13.60	3.80						
	04/15/04		WQM55	10.90	2.60						
	04/22/04		WQM55	8.25	4.50						
	04/29/04		WQM55	22.00	5.75						
	05/06/04		WQM55	29.50	6.50						
	05/13/04		WQM55	30.25	7.25						
	05/20/04		WQM55	32.00	5.84						
	05/27/04		WQM55	39.75	5.25						
	06/03/04		WQM55	162.00	24.00						
	06/10/04		WQM55	96.50	15.00						
	06/17/04		WQM55	84.40	13.40						
	06/24/04		WQM55	42.75	6.75						
	07/01/04		WQM55	23.60	4.40						
	07/08/04		WQM55	27.45	8.34						
	07/15/04		WQM55	33.80	7.00						
	07/22/04		WQM55	28.25	7.75						
	07/29/04		WQM55	55.00	17.67						
	08/05/04		WQM55	58.00	16.00						
	08/12/04		WQM55	27.00	7.20						
	08/19/04		WQM55	46.50	14.00						
	08/26/04		WQM55	60.75	16.50						
	09/02/04		WQM55	45.00	10.50						
	09/09/04		WQM55	44.20	12.80						
	09/16/04		WQM55	41.00	14.50						
	09/17/04		WQM55	19.00	5.25						
	09/18/04		WQM55	15.50	5.00						
	09/19/04		WQM55	16.00	5.00						
	09/20/04		WQM55	17.25	5.25						
	09/27/04		WQM55	18.75	4.25						
	10/04/04		WQM55	7.30	1.70						
	10/11/04		WQM55	11.50	4.13						
	10/18/04		WQM55	16.80	5.00						
	10/25/04		WQM55	6.70	2.50						
	11/01/04		WQM55	15.80	3.40						
	11/08/04		WQM55	10.30	3.20						
	11/15/04		WQM55	11.60	2.00						
	11/22/04		WQM55	9.20	3.30						
	11/29/04		WQM55	0.00	0.00						

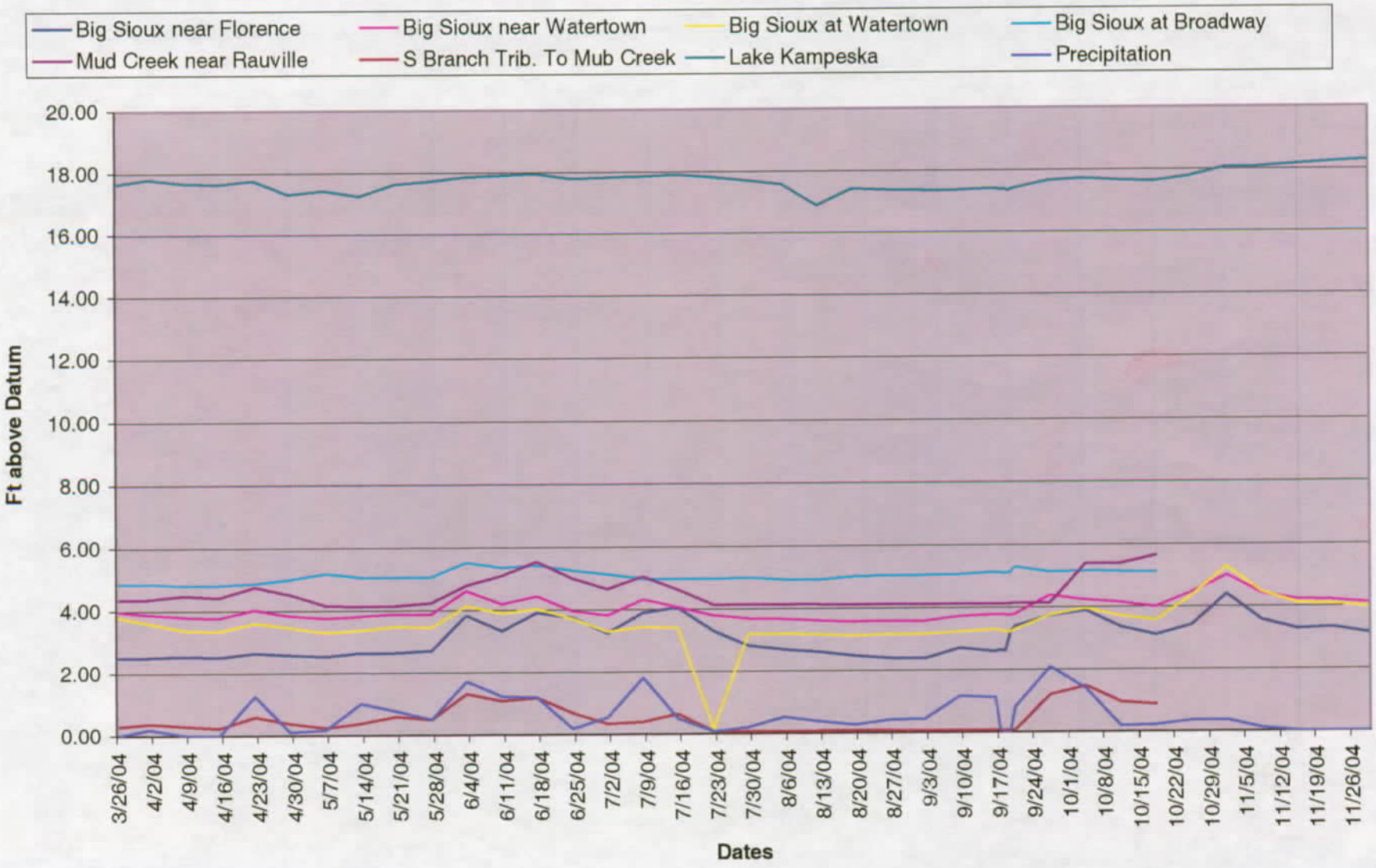
2004 Lake Kampeska Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method EPA 150.1	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method EPA 170.1
03/26/04	LH/CM	WQM55		566 uS/cm		8.08 s.u.		11.24 mg/L		10.4 ° C
04/01/04	LH	WQM55		736 uS/cm		8.26 s.u.		12.01 mg/L		14.7 ° C
04/08/04	LH	WQM55		767 uS/cm		8.13 s.u.		10.45 mg/L		9.3 ° C
04/15/04	LH	WQM55		767 uS/cm		8.51 s.u.		10.62 mg/L		19.2 ° C
04/22/04	LH	WQM55		803 uS/cm		8.00 s.u.		11.06 mg/L		13.2 ° C
04/29/04	LH	WQM55		814 uS/cm		8.33 s.u.		11.52 mg/L		5.1 ° C
05/06/04	LH	WQM55		770 uS/cm		8.31 s.u.		9.68 mg/L		16.8 ° C
05/13/04	LH/BM/RLJ	WQM55		751 uS/cm		8.67 s.u.		9.04 mg/L		5.2 ° C
05/20/04	RJ/BM/LH	WQM55		869 uS/cm		7.87 s.u.		7.78 mg/L		14.3 ° C
05/27/04	LH	WQM55		764 uS/cm		7.81 s.u.		6.76 mg/L		15.4 ° C
06/03/04	LH	WQM55		787 uS/cm		7.66 s.u.		6.33 mg/L		18.0 ° C
06/10/04	LH/CM	WQM55		765 uS/cm		8.03 s.u.		7.24 mg/L		15.9 ° C
06/17/04	CM/LH	WQM55		787 uS/cm		7.71 s.u.		5.98 mg/L		19.6 ° C
06/24/04	LH/CM	WQM55		725 uS/cm		8.20 s.u.		6.84 mg/L		16.0 ° C
07/01/04	CM/LH	WQM55		678 uS/cm		7.28 s.u.		4.98 mg/L		23.5 ° C
07/08/04	LH	WQM55		669 uS/cm		7.19 s.u.		8.39 mg/L		18.8 ° C
07/15/04	LH	WQM55		661 uS/cm		7.33 s.u.		4.67 mg/L		28.5 ° C
07/22/04	LH	WQM55		703 uS/cm		7.66 s.u.		4.50 mg/L		27.2 ° C
07/29/04	LH	WQM55		755 uS/cm		7.8 s.u.		4.77 mg/L		19.7 ° C
08/05/04	LH	WQM55		784 uS/cm		7.54 s.u.		4.29 mg/L		22.9 ° C
08/12/04	LH	WQM55		784 uS/cm		7.85 s.u.		5.87 mg/L		17.9 ° C
08/19/04	LH	WQM55		779 uS/cm		7.95 s.u.		5.95 mg/L		18.3 ° C
08/26/04	LH	WQM55		750 uS/cm		7.52 s.u.		4.55 mg/L		18.8 ° C
09/02/04	LH/CM	WQM55		743 uS/cm		8.08 s.u.		7.32 mg/L		27.8 ° C
09/09/04	CM/LH	WQM55		710 uS/cm		7.87 s.u.		7.06 mg/L		22.2 ° C
09/16/04	LH	WQM55		638 uS/cm		7.81 s.u.		6.02 mg/L		18.1 ° C
09/17/04	LH	WQM55		668 uS/cm		7.79 s.u.		6.75 mg/L		19.3 ° C
09/18/04	LH/CM	WQM55		705 uS/cm		8.17 s.u.		6.40 mg/L		23.4 ° C
09/19/04	CM/LH	WQM55		712 uS/cm		7.8 s.u.		6.17 mg/L		26.6 ° C
09/20/04	LH	WQM55		689 uS/cm		7.97 s.u.		7.32 mg/L		20.3 ° C
9/27/04	LH	WQM55		768 uS/cm		8.02 s.u.		8.31 mg/L		17.5 ° C
10/4/04	LH	WQM55		802 uS/cm		7.89 s.u.		9.80 mg/L		12.2 ° C
10/11/04	LH/AJ	WQM55		868 uS/cm		8.12 s.u.		7.86 mg/L		17.4 ° C
10/18/04	AJ/LH	WQM55		827 uS/cm		8.28 s.u.		12.48 mg/L		8.1 ° C
10/25/04	LH	WQM55		654 uS/cm		7.70 s.u.		9.88 mg/L		11.6 ° C
11/1/04	LH	WQM55		755 uS/cm		7.80 s.u.		10.15 mg/L		9.5 ° C
11/8/04	LH/CM	WQM55		844 uS/cm		8.41 s.u.		12.56 mg/L		10.0 ° C
11/15/04	CM	WQM55		854 uS/cm		8.29 s.u.		13.25 mg/L		6.9 ° C
11/22/04	CM/LH	WQM55		848 uS/cm		8.19 s.u.		14.39 mg/L		8.1 ° C
11/29/04	LH	WQM55		n/a uS/cm		n/a s.u.		n/a mg/L		n/a ° C

2004 Field Observations

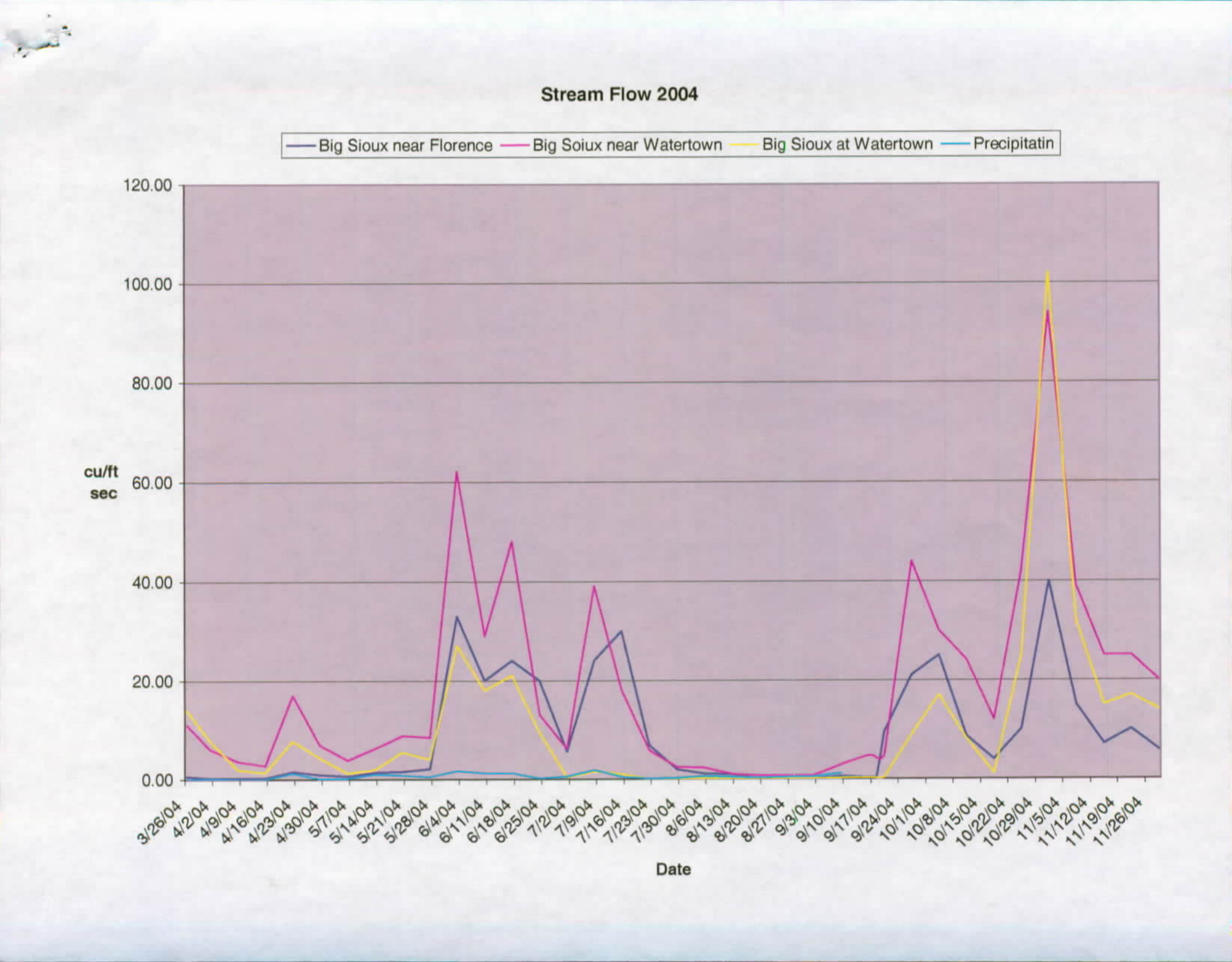
Date	Time	Sample Collector	Rain Fall	Wind		Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
				Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
3/26/2004		LH/CM	N/A	14	E	63	N	NORMAL	NORMAL	N	N	N	N	N	N	
4/1/2004		LH	N/A	15	SE	59	N	NORMAL	NORMAL	N	N	N	N	N	N	
4/8/2004		LH	N/A	13	N	50	N	NORMAL	NORMAL	N	N	N	N	N	N	
4/15/2004		LH	N/A	18	W	71	Y	NORMAL	NORMAL	N	N	N	N	N	N	
4/22/2004		LH	N/A	3	VARIABLE	48	N	NORMAL	NORMAL	N	N	N	N	N	N	
4/29/2004		LH	N/A	15	N	34	Y	NORMAL	NORMAL	N	N	N	N	N	N	
5/6/2004		LH	N/A	22	N	57	N	NORMAL	NORMAL	N	N	N	N	N	N	
5/13/2004		LH/BM/RLJ	N/A	15	N	34	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
5/20/2004		RJ/BM/LH	N/A	14	N	60	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
5/27/2004		LH	N/A	9	N	61	N	NORMAL	NORMAL	N	N	N	Y	N	N	
6/3/2004		LH	N/A	3	S	64	N	NORMAL	NORMAL	N	N	N	Y	N	N	
6/10/2004		LH/CM	N/A	12	E	57	Y	NORMAL	NORMAL	N	N	N	Y	Y	N	
6/17/2004		CM/LH	N/A	0	N/A	61	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
6/24/2004		LH/CM	N/A	15	NE	50	Y	NORMAL	NORMAL	N	N	N	Y	Y	N	
7/1/2004		CM/LH	N/A	3	SE	73	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
7/8/2004		LH	N/A	9	SE	62	N	NORMAL	NORMAL	N	N	N	Y	N	N	
7/15/2004		LH	N/A	8	S	81	Y	NORMAL	NORMAL	N	N	N	Y	N	N	
7/22/2004		LH	N/A	16	N	72	N	NORMAL	NORMAL	N	N	N	N	N	N	
7/29/2004		LH	N/A	9	NW	64	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/5/2004		LH	N/A	12	SE	68	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/12/2004		LH	N/A	10	NE	61	N	NORMAL	NORMAL	N	N	N	N	Y	N	
8/19/2004		LH	N/A	22	S	58	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/26/2004		LH	N/A	9	SW	65	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/2/2004		LH/CM	N/A	25	S	86	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/9/2004		CM/LH	N/A	17	S	64	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/16/2004		LH	N/A	10	S	52	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/17/2004		LH	N/A	16	S	66	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/18/2004		LH/CM	N/A	21	SE	80	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/19/2004		CM/LH	N/A	32	S	87	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/20/2004		LH	N/A	25	S	70	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/27/2004		LH	N/A	22	N	65	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/4/2004		LH	N/A	6	NW	47	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/11/2004		LH/AJ	N/A	13	S	66	N	NORMAL	NORMAL	N	N	N	N	Y	N	Cows West of the bridge.
10/18/2004		AJ/LH	N/A	10	E	48	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/25/2004		LH	N/A	5	VARIABLE	52	N	NORMAL	NORMAL	N	N	N	N	N	N	
11/1/2004		LH	N/A	15	N	47	Y	NORMAL	NORMAL	N	N	N	N	N	N	
11/8/2004		LH/CM	N/A	21	S	51	N	NORMAL	NORMAL	N	N	N	N	N	N	
11/15/2004		CM	N/A	15	S	46	N	NORMAL	NORMAL	N	N	N	N	N	N	
11/22/2004		CM/LH	N/A	16	SW	46	N	NORMAL	NORMAL	N	N	N	N	N	N	
11/29/2004		LH	N/A	16	SW	33	N	NORMAL	NORMAL	N	N	N	N	N	N	

Stage Chart from Watertown's Enhanced Flood Forecasting System 2004



2004 Stage from Watertown's Enhanced Flood Forecasting System

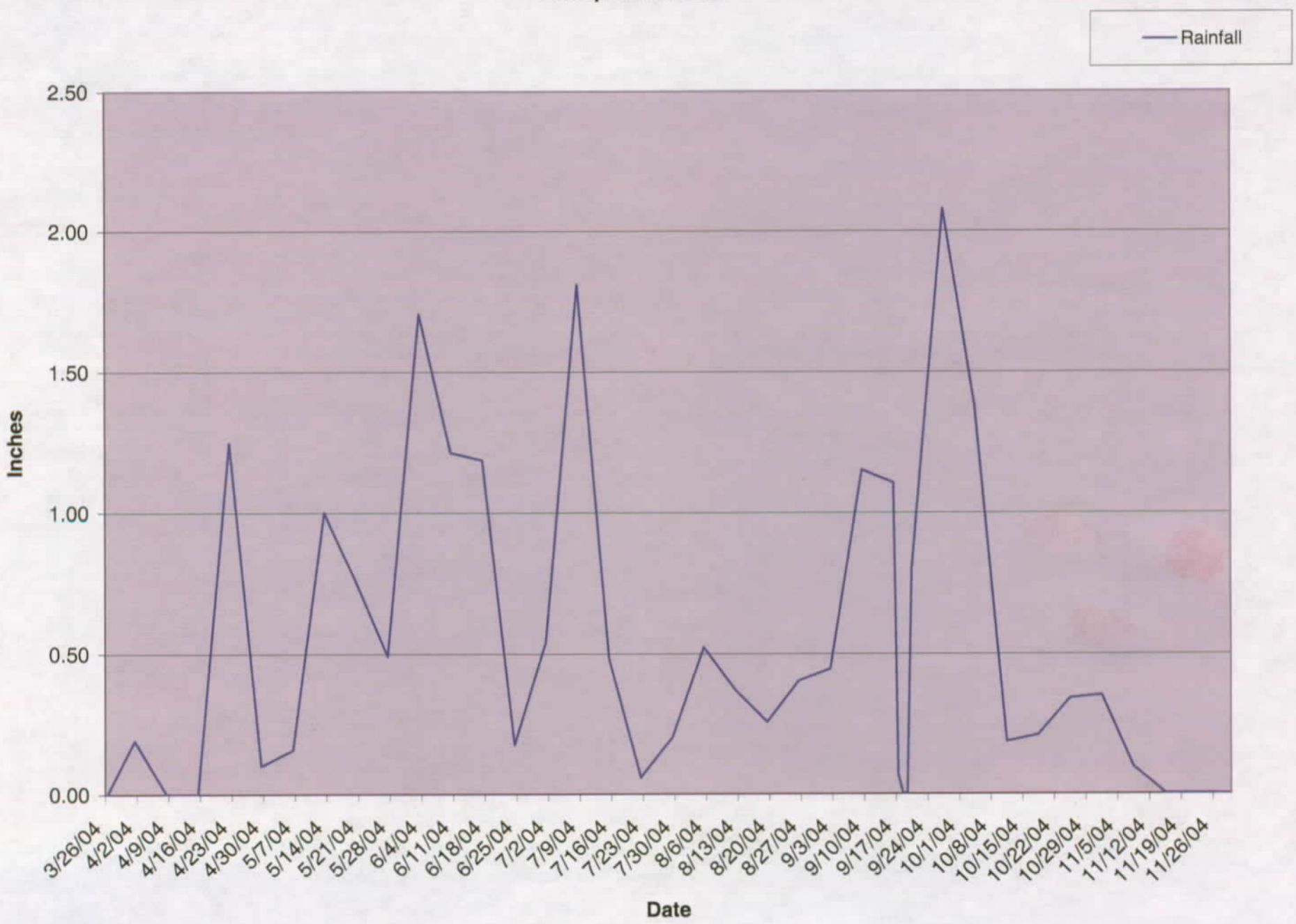
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
3/26/2004	LH/CM	2.51	3.97	3.79	4.86	4.33	0.30	17.66
4/1/2004	LH	2.51	3.87	3.59	4.85	4.36	0.37	17.80
4/8/2004	LH	2.53	3.79	3.37	4.80	4.46	0.29	17.68
4/15/2004	LH	2.51	3.75	3.33	4.81	4.40	0.22	17.65
4/22/2004	LH	2.64	4.02	3.59	4.86	4.74	0.59	17.75
4/29/2004	LH	2.57	3.82	3.45	4.99	4.50	0.37	17.32
5/6/2004	LH	2.52	3.73	3.29	5.17	4.14	0.23	17.43
5/13/2004	LH/BM/RLJ	2.63	3.80	3.34	5.05	4.11	0.37	17.26
5/20/2004	RJ/BM/LH	2.64	3.87	3.48	5.04	4.12	0.58	17.63
5/27/2004	LH	2.69	3.86	3.43	5.06	4.23	0.48	17.72
6/3/2004	LH	3.82	4.60	4.12	5.50	4.78	1.30	17.85
6/10/2004	LH/CM	3.31	4.18	3.88	5.34	5.08	1.08	17.91
6/17/2004	CM/LH	3.90	4.42	4.03	5.41	5.52	1.17	17.96
6/24/2004	LH/CM	3.73	3.95	3.71	5.25	4.99	0.69	17.79
7/1/2004	CM/LH	3.24	3.80	3.29	5.12	4.64	0.32	17.83
7/8/2004	LH	3.89	4.31	3.43	4.97	5.03	0.39	17.86
7/15/2004	LH	4.05	4.04	3.39	4.97	4.61	0.64	17.90
7/22/2004	LH	3.28	3.79	0.17	4.95	4.12	0.07	17.83
7/29/2004	LH	2.81	3.67	3.17	4.99	4.12	0.07	17.71
8/5/2004	LH	2.68	3.66	3.19	4.93	4.12	0.07	17.58
8/12/2004	LH	2.60	3.59	3.15	4.91	4.11	0.07	16.90
8/19/2004	LH	2.47	3.56	3.11	5.01	4.11	0.08	17.44
8/26/2004	LH	2.39	3.57	3.15	5.04	4.11	0.07	17.39
9/2/2004	LH/CM	2.38	3.57	3.15	5.04	4.11	0.07	17.37
9/9/2004	CM/LH	2.70	3.70	3.22	5.05	4.11	0.07	17.36
9/16/2004	LH	2.59	3.77	3.29	5.11	4.11	0.07	17.42
9/17/2004	LH	2.63	3.77	3.27	5.10	4.11	0.07	17.40
9/18/2004	LH/CM	2.60	3.75	3.22	5.09	4.11	0.07	17.40
9/19/2004	CM/LH	3.18	3.74	3.20	5.12	4.11	0.07	17.35
9/20/2004	LH	3.38	3.77	3.29	5.28	4.12	0.07	17.42
9/27/2004	LH	3.72	4.37	3.73	5.12	4.12	1.18	17.66
10/4/2004	LH	3.88	4.2	3.95	5.15	5.37	1.46	17.72
10/11/2004	LH/AJ	3.35	4.12	3.7	5.12	5.37	0.95	17.66
10/18/2004	AJ/LH	3.09	3.98	3.56	5.12	5.63	0.86	17.63
10/25/2004	LH	3.4	4.43	4.32				17.78
11/1/2004	LH	4.38	4.98	5.27				18.05
11/8/2004	LH/CM	3.56	4.4	4.45				18.06
11/15/2004	CM	3.27	4.2	4.1				18.14
11/22/2004	CM/LH	3.31	4.17	4.06				18.21
11/29/2004	LH	3.14	4.09	3.97				18.28


Stream Flow 2004
Big Sioux near Florence
Big Soiux near Watertown
Big Sioux at Watertown
Precipitatin
120.00
100.00
80.00
60.00
40.00
20.00
0.00
cu/ft sec
3/26/04
4/2/04
4/9/04
4/16/04
4/23/04
4/30/04
5/7/04
5/14/04
5/21/04
5/28/04
6/4/04
6/11/04
6/18/04
6/25/04
7/2/04
7/9/04
7/16/04
7/23/04
7/30/04
8/6/04
8/13/04
8/20/04
8/27/04
9/3/04
9/10/04
9/17/04
9/24/04
10/1/04
10/8/04
10/15/04
10/22/04
10/29/04
11/5/04
11/12/04
11/19/04
11/26/04
Date

2004 Stream Flow in cfs Summary

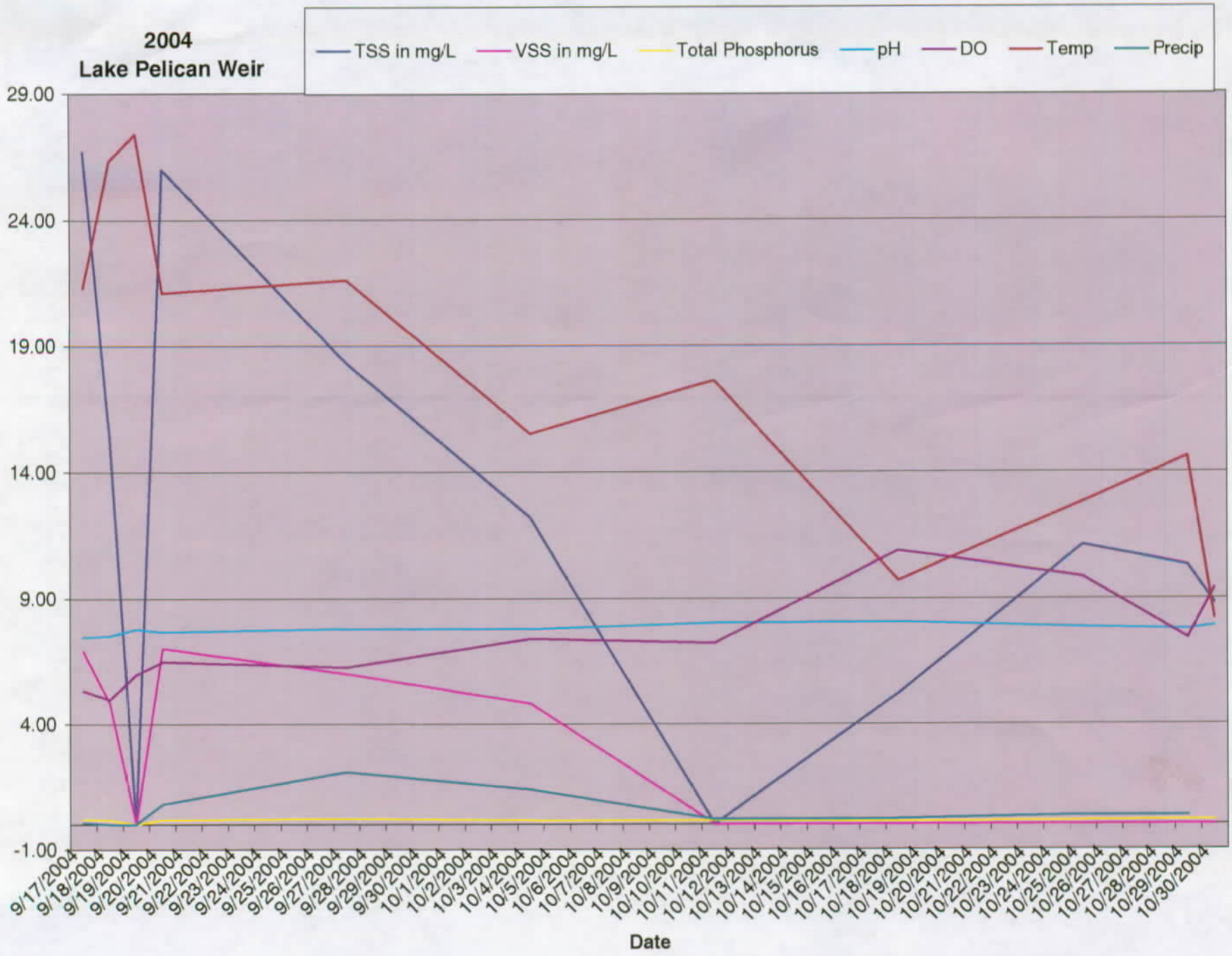
Location And Site Number

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800
3/26/2004	LH/CM	0.64	11.00	14.00					
4/1/2004	LH	0.24	6.00	7.70					
4/8/2004	LH	0.27	3.60	1.90					
4/15/2004	LH	0.24	2.70	1.30					
4/22/2004	LH	1.50	17.00	7.70					
4/29/2004	LH	0.89	6.80	4.30					
5/6/2004	LH	0.60	3.80	1.20					
5/13/2004	LH/BM/RLJ	1.40	6.10	1.90					
5/20/2004	RJ/BM/LH	1.50	8.80	5.40					
5/27/2004	LH	2.10	8.40	4.00					
6/3/2004	LH	33.00	62.00	27.00					
6/10/2004	LH/CM	20.00	29.00	18.00					
6/17/2004	CM/LH	24.00	48.00	21.00					
6/24/2004	LH/CM	20.00	13.00	9.40					
7/1/2004	CM/LH	5.60	6.10	0.39					
7/8/2004	LH	24.00	39.00	1.50					
7/15/2004	LH	30.00	18.00	1.00					
7/22/2004	LH	6.80	5.70	0.00					
7/29/2004	LH	1.90	2.40	0.13					
8/5/2004	LH	1.10	2.20	0.19					
8/12/2004	LH	0.89	1.00	0.08					
8/19/2004	LH	0.04	0.59	0.00					
8/26/2004	LH	0.00	0.68	0.01					
9/2/2004	LH/CM	0.00	0.68	0.01					
9/9/2004	CM/LH	0.55	2.80	0.13					
9/16/2004	LH	0.21	4.70	0.22					
9/17/2004	LH	0.33	4.70	0.21					
9/18/2004	LH/CM	0.24	4.10	0.13					
9/19/2004	CM/LH	4.80	3.80	0.08					
9/20/2004	LH	9.50	4.70	0.22					
9/27/2004	LH	21.00	44.00	9.00					
10/4/2004	LH	25	30	17					
10/11/2004	LH/AJ	8.6	24	8					
10/18/2004	AJ/LH	3.9	12	1.1					
10/25/2004	LH	10	42	25					
11/1/2004	LH	40	94	102					
11/8/2004	LH/CM	15	39	32					
11/15/2004	CM	7	25	15					
11/22/2004	CM/LH	10	25	17					
11/29/2004	LH	5.8	20	14					


Precipitation 2004
Rainfall
2.50
2.00
1.50
1.00
0.50
0.00
Inches
3/26/04
4/2/04
4/9/04
4/16/04
4/23/04
4/30/04
5/7/04
5/14/04
5/21/04
5/28/04
6/4/04
6/11/04
6/18/04
6/25/04
7/2/04
7/9/04
7/16/04
7/23/04
7/30/04
8/6/04
8/13/04
8/20/04
8/27/04
9/3/04
9/10/04
9/17/04
9/24/04
10/1/04
10/8/04
10/15/04
10/22/04
10/29/04
11/5/04
11/12/04
11/19/04
11/26/04
Date

2004 Precipitation in Inches Summary

		Location And Site Number								
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800	Average Precipitation For The Week
3-26 / 4-1-04	LH/CM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/01/04	LH	0.01	0.07	0.21	0.11	0.32	0.00	0.27	0.34	0.19
04/08/04	LH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/15/04	LH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
04/22/04	LH	0.72	1.31	1.43	0.13	1.35	1.25	1.15	1.39	1.25
04/29/04	LH	0.06	0.07	0.13	0.05	0.09	0.09	0.08	0.13	0.10
05/06/04	LH	0.12	0.05	0.07	0.11	0.31	0.09	0.16	0.19	0.16
05/13/04	LH/BM/RLJ	0.27	0.55	0.67	0.07	1.25	1.41	1.18	1.60	1.00
05/20/04	RJ/BM/LH	0.41	0.72	0.97	0.51	0.70	0.70	0.59	0.71	0.76
05/27/04	LH	0.42	0.21	0.47	0.32	0.59	0.40	0.41	0.62	0.49
06/03/04	LH	0.23	0.81	1.67	0.86	1.51	2.00	2.25	2.60	1.70
06/10/04	LH/CM	0.54	0.99	0.75	0.71	1.31	1.20	1.55	1.44	1.21
06/17/04	CM/LH	1.20	1.42	0.80	0.60	1.28	0.70	0.90	1.40	1.19
06/24/04	LH/CM	0.06	0.15	0.15	0.12	0.24	0.14	0.21	0.15	0.17
07/01/04	CM/LH	1.80	0.04	0.14	0.26	0.26	0.19	0.25	0.85	0.54
07/08/04	LH	1.12	1.16	1.24	0.85	1.44	1.05	2.30	3.50	1.81
07/15/04	LH	0.21	0.56	0.38	0.17	0.61	0.35	0.45	0.65	0.48
07/22/04	LH	0.01	0.02	0.03	0.16	0.01	0.01	0.06	0.11	0.06
07/29/04	LH	0.02	0.07	0.40	0.12	0.09	0.41	0.24	0.06	0.20
08/05/04	LH	0.32	0.17	0.47	0.26	0.65	0.45	0.46	0.88	0.52
08/12/04	LH	1.96	0.01	0.06	0.03	0.07	0.06	0.28	0.11	0.37
08/19/04	LH	0.38	0.10	0.11	0.04	0.23	0.06	0.63	0.24	0.26
08/26/04	LH	0.34	0.12	0.24	0.08	0.24	0.61	0.58	0.61	0.40
09/02/04	LH/CM	0.67	0.12	0.31	0.31	0.49	0.45	0.40	0.37	0.45
09/09/04	CM/LH	0.80	0.29	1.25	0.59	1.35	1.35	0.93	1.50	1.15
09/16/04	LH	0.78	0.66	0.79	0.51	1.00	1.90	1.40	0.70	1.11
09/17/04	LH	0.35	0.00	0.00	0.09	0.02	0.00	0.01	0.00	0.07
09/18/04	LH/CM	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09/19/04	CM/LH	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
09/20/04	LH	0.25	0.24	0.81	0.77	0.71	0.75	1.45	0.61	0.80
09/27/04	LH	1.25	1.03	0.27	1.85	2.00	2.65	3.25	2.25	2.08
10/04/04	LH	2.14	0.10	1.10	0.30	1.85	1.21	1.50	1.45	1.38
10/11/04	LH/AJ	1.26	0.00	0.00	0.02	0.01	0.00	0.00	0.01	0.19
10/18/04	AJ/LH	0.00	0.07	0.08	0.11	0.11	0.12	0.08	0.90	0.21
10/25/04	LH	0.00	0.74	1.64	n/a	n/a	n/a	n/a	n/a	0.34
11/01/04	LH	0.00	0.47	1.99	n/a	n/a	n/a	n/a	n/a	0.35
11/08/04	LH/CM	0.60	0.03	0.04	n/a	n/a	n/a	n/a	n/a	0.10
11/15/04	CM	0.01	0.00	0.00	n/a	n/a	n/a	n/a	n/a	0.00
11/22/04	CM/LH	0.00	0.00	0.01	n/a	n/a	n/a	n/a	n/a	0.00
11/29/04	LH	0.00	0.00	0.00	n/a	n/a	n/a	n/a	n/a	0.00


2004
Lake Pelican Weir
TSS in mg/L
VSS in mg/L
Total Phosphorus
pH
DO
Temp
Precip
29.00
24.00
19.00
14.00
9.00
4.00
-1.00
9/17/2004
9/18/2004
9/19/2004
9/20/2004
9/21/2004
9/22/2004
9/23/2004
9/24/2004
9/25/2004
9/26/2004
9/27/2004
9/28/2004
9/29/2004
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10/27/2004
10/28/2004
10/29/2004
10/30/2004
Date

2004 Lake Pelican Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter Sample ID	Parameter TSS EPA Method 160.2		Parameter Sample ID	Parameter VSS EPA Method 160.4		Parameter Sample ID	Parameter Total Phosphorus EPA Method 365.2		Average TSS	Average VSS	Average Phosphorus
09/16/04	09/17/04	CM/LH	PELICAN WEIR		26.2	mg/L		7	mg/L		0.213	mg/L			
09/16/04	09/17/04	CM/LH	PELICAN WEIR		27.2	mg/L		6.8	mg/L		0.215	mg/L	26.70	6.90	0.21
09/17/04	09/18/04	CM/LH	PELICAN WEIR		15.2	mg/L		4.8	mg/L		0.176	mg/L			
09/17/04	09/18/04	CM/LH	PELICAN WEIR		15.6	mg/L		4.8	mg/L		0.172	mg/L	15.40	4.80	0.17
09/18/04	09/19/04	CM/LH	PELICAN WEIR			mg/L			mg/L			mg/L			
09/18/04	09/19/04	CM/LH	PELICAN WEIR			mg/L			mg/L			mg/L	0.00	0.00	0.00
09/19/04	09/20/04	LH	PELICAN WEIR		26	mg/L		7.2	mg/L		0.177	mg/L			
09/19/04	09/20/04	LH	PELICAN WEIR		26	mg/L		6.8	mg/L		0.169	mg/L	26.00	7.00	0.17
09/20/04	09/27/04	LH/CM	PELICAN WEIR		18.2	mg/L		6	mg/L		0.222	mg/L			
09/20/04	09/27/04	LH/CM	PELICAN WEIR		18.4	mg/L		6	mg/L		0.22	mg/L	18.30	6.00	0.22
09/27/04	10/04/04	LH	PELICAN WEIR		12	mg/L		4.8	mg/L		0.166	mg/L			
09/27/04	10/04/04	LH	PELICAN WEIR		12.4	mg/L		4.8	mg/L		0.153	mg/L	12.20	4.80	0.16
10/04/04	10/11/04	LH/AJ	PELICAN WEIR		0	mg/L		0	mg/L		0.144	mg/L			
10/04/04	10/11/04	LH/AJ	PELICAN WEIR		0	mg/L		0	mg/L		0.147	mg/L	0.00	0.00	0.15
10/11/04	10/18/04	AJ/LH	PELICAN WEIR		5.2	mg/L		0	mg/L		0.111	mg/L			
10/11/04	10/18/04	AJ/LH	PELICAN WEIR		5.2	mg/L		0	mg/L		0.103	mg/L	5.20	0.00	0.11
10/18/04	10/25/04	LH	PELICAN WEIR		11	mg/L		0	mg/L		0.132	mg/L			
10/18/04	10/25/04	LH	PELICAN WEIR		11.2	mg/L		0	mg/L		0.132	mg/L	11.10	0.00	0.13
10/25/04	10/29/04	LH/CM/AJ	PELICAN WEIR		10.2	mg/L		0	mg/L		0.17	mg/L			
10/25/04	10/29/04	LH/CM/AJ	PELICAN WEIR		10.4	mg/L		0	mg/L		0.17	mg/L	10.30	0.00	0.17
10/29/04	10/30/04	CM/AJ	PELICAN WEIR		8.8	mg/L		0	mg/L		0.183	mg/L			
10/29/04	10/30/04	CM/AJ	PELICAN WEIR		8.8	mg/L		0	mg/L		0.176	mg/L	8.80	0.00	0.18

Composite End Date		Location	TSS Average	VSS Average	Phosphorus Average
9/17/2004		PELICAN WEIR	26.70	6.90	0.21
9/18/2004		PELICAN WEIR	15.40	4.80	0.17
9/19/2004		PELICAN WEIR	0.00	0.00	0.00
9/20/2004		PELICAN WEIR	26.00	7.00	0.17
9/27/2004		PELICAN WEIR	18.30	6.00	0.22
10/4/2004		PELICAN WEIR	12.20	4.80	0.16
10/11/2004		PELICAN WEIR	0.00	0.00	0.15
10/18/2004		PELICAN WEIR	5.20	0.00	0.11
10/25/2004		PELICAN WEIR	11.10	0.00	0.13
10/29/2004		PELICAN WEIR	10.30	0.00	0.17
10/30/2004		PELICAN WEIR	8.80	0.00	0.18

2004 Lake Pelican Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method EPA 150.1	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method EPA 170.1
09/17/04	CM/LH	Pelican weir		161 uS/cm		7.47 s.u.		5.33 mg/L		21.3 ° C
09/18/04	CM/LH	Pelican weir		244 uS/cm		7.51 s.u.		4.97 mg/L		26.3 ° C
09/19/04	CM/LH	Pelican weir		238 uS/cm		7.77 s.u.		5.96 mg/L		27.4 ° C
09/20/04	LH	Pelican weir		461 uS/cm		7.68 s.u.		6.48 mg/L		21.1 ° C
09/27/04	LH/CM	Pelican weir		721 uS/cm		7.80 s.u.		6.26 mg/L		21.6 ° C
10/04/04	LH	Pelican weir		825 uS/cm		7.77 s.u.		7.40 mg/L		15.5 ° C
10/11/04	LH/AJ	Pelican weir		888 uS/cm		8.02 s.u.		7.22 mg/L		17.6 ° C
10/18/04	AJ/LH	Pelican weir		852 uS/cm		8.06 s.u.		10.87 mg/L		9.7 ° C
10/25/04	LH	Pelican weir		788 uS/cm		7.84 s.u.		9.84 mg/L		12.8 ° C
10/29/04	LH/CM/AJ	Pelican weir		717 uS/cm		7.76 s.u.		7.41 mg/L		14.6 ° C
10/30/04	CM/AJ	Pelican weir		714 uS/cm		7.90 s.u.		9.38 mg/L		8.2 ° C

2004 Pelican Field Observations

Date	Time	Sample Collector	Rain Fall	Wind		Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
				Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
09/17/04		CM/LH	N/A	14	S	71	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/18/04		CM/LH	N/A	21	SE	80	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/19/04		CM/LH	N/A	32	S	87	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/20/04		LH	MODERATE	25	S	70	Y	NORMAL	NORMAL	N	N	N	N	N	N	
09/27/04		LH/CM	N/A	22	N	65	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/04/04		LH	N/A	6	NW	47	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/11/04		LH/AJ	N/A	12	S	69	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/18/04		AJ/LH	N/A	10	E	48	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/25/04		LH	N/A	5	VARIABLE	52	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/29/04		LH/CM/AJ	N/A	12	SW	58	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/30/04		CM/AJ	N/A	17	W	40	Y	NORMAL	NORMAL	N	N	N	N	N	N	

2004 Stage from Watertown's Enhanced Flood Forecasting System for Pelican Sampling

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
9/17/2004	CM/LH	2.62	3.76	3.27	5.06	4.11	0.07	17.41
9/18/2004	CM/LH	2.60	3.75	3.22	5.09	4.11	0.07	17.40
9/19/2004	CM/LH	3.18	3.74	3.20	5.12	4.11	0.07	17.35
9/20/2004	LH	3.38	3.77	3.29	5.28	4.12	0.07	17.42
9/27/2004	LH/CM	3.72	4.37	3.73	5.12	4.12	1.18	17.66
10/4/2004	LH	3.88	4.20	3.95	5.15	5.37	1.46	17.72
10/11/2004	LH/AJ	3.34	4.12	3.70	5.12	5.37	0.95	17.66
10/18/2004	AJ/LH	3.09	3.98	3.56	5.12	5.63	0.86	17.63
10/25/2004	LH	3.40	4.43	4.32				17.78
10/29/2004	LH/CM/AJ	4.13	4.55	4.50				18.08
10/30/2004	CM/AJ	4.66	4.65	5.23				18.07

2004 Stream Flow in cfs Summary for Pelican Sampling

Location And Site Number

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	North of South Shore 450628097060800
9/17/2004	CM/LH	0.30	4.30	0.21					
9/18/2004	CM/LH	0.24	4.10	0.13					
9/19/2004	CM/LH	4.80	3.80	0.08					
9/20/2004	LH	9.50	4.70	0.22					
9/27/2004	LH/CM	21.00	44.00	9.00					
10/4/2004	LH	25.00	30.00	17.00					
10/11/2004	LH/AJ	8.30	24.00	8.00					
10/18/2004	AJ/LH	3.90	12.00	1.10					
10/25/2004	LH	10.00	42.00	25.00					
10/29/2004	LH/CM/AJ	32.00	52.00	36.00					
10/30/2004	CM/AJ	49.00	60.00	99.00					

FC29-5

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

RECEIVED
APR 19 2007
WATER RIGHTS
PROGRAM

April 18, 2007

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. The sampling period for 2006 was from March 30th to November 16th. Grab samples and the composite sample were collected weekly during this sampling period. The stage and stream flow information were also taken weekly. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is a total of that week. Do to an instrument failure there is no data for TSS or VSS during the week of 8/24/06

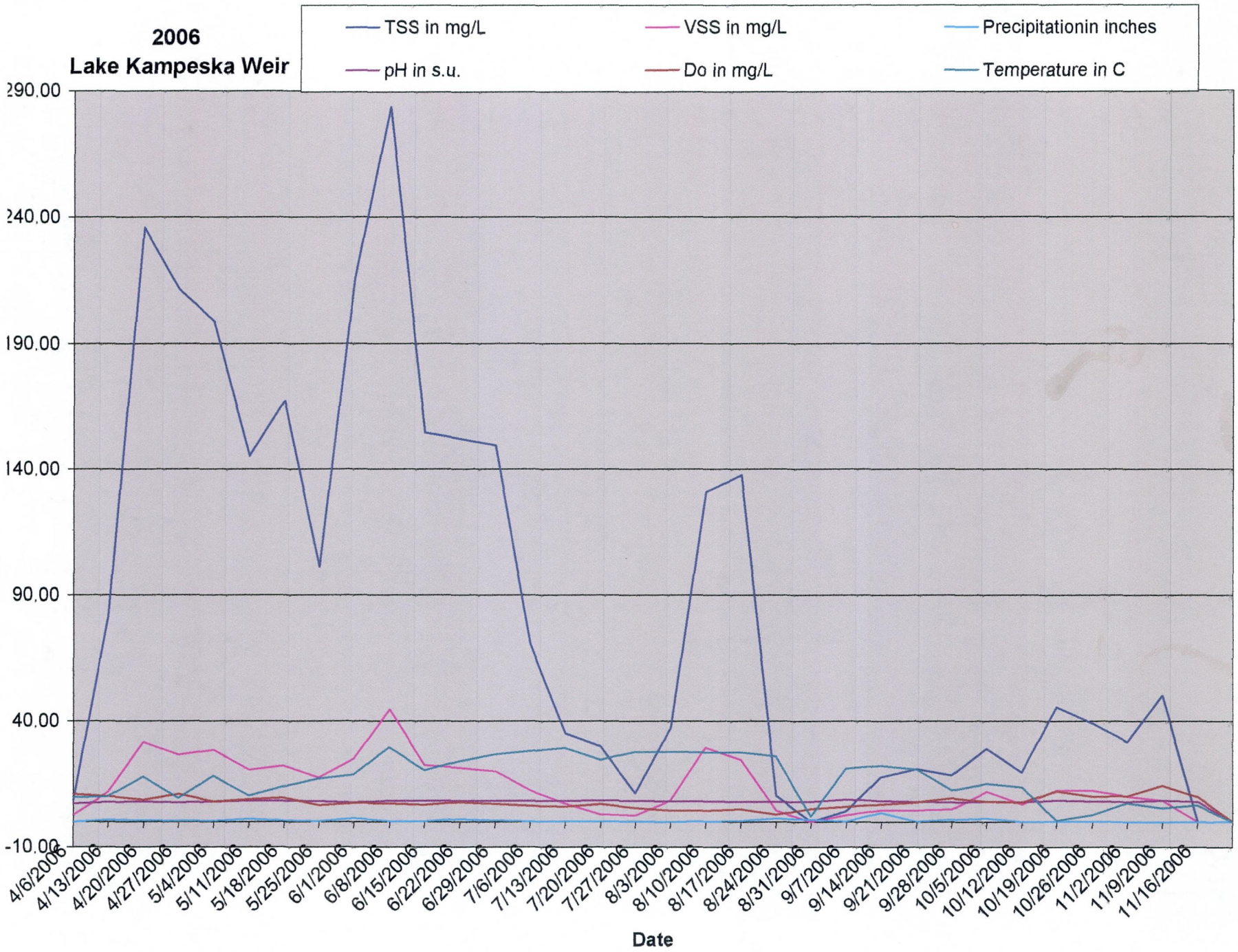
There were no triggers in 2006 that would have us operate the gates.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Ken Bunde, Lake Pelican Water Project District
Craig Mitchell, Watertown Waste Water Department.


2006
Lake Kampeska Weir
TSS in mg/L
VSS in mg/L
Precipitationin inches
pH in s.u.
Do in mg/L
Temperature in C
290.00
240.00
190.00
140.00
90.00
40.00
-10.00
4/6/2006
4/13/2006
4/20/2006
4/27/2006
5/4/2006
5/11/2006
5/18/2006
5/25/2006
6/1/2006
6/8/2006
6/15/2006
6/22/2006
6/29/2006
7/6/2006
7/13/2006
7/20/2006
7/27/2006
8/3/2006
8/10/2006
8/17/2006
8/24/2006
8/31/2006
9/7/2006
9/14/2006
9/21/2006
9/28/2006
10/5/2006
10/12/2006
10/19/2006
10/26/2006
11/2/2006
11/9/2006
11/16/2006
Date

2006 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter			Parameter			Average TSS	Average VSS
				Sample ID	TSS EPA Method 160.2		Sample ID	VSS EPA Method 160.4			
3/30/2006	4/6/2006	LH	WQM55		8	mg/L		2.4	mg/L		
3/30/2006	4/6/2006	LH	WQM55		8.6	mg/L		2.6	mg/L	8.30	2.50
4/6/2006	4/13/2006	LH	WQM55		79.6	mg/L		11	mg/L		
4/6/2006	4/13/2006	LH	WQM55		83.4	mg/L		12.2	mg/L	81.50	11.60
4/13/2006	4/20/2006	LH	WQM55		235	mg/L		30.8	mg/L		
4/13/2006	4/20/2006	LH	WQM55		236.8	mg/L		32.4	mg/L	235.90	31.60
4/20/2006	4/27/2006	LH	WQM55		203	mg/L		26	mg/L		
4/20/2006	4/27/2006	LH	WQM55		220	mg/L		27	mg/L	211.50	26.50
4/27/2006	5/4/2006	LH/LVH	WQM55		187.33	mg/L		28	mg/L		
4/27/2006	5/4/2006	LH/LVH	WQM55		210	mg/L		28.67	mg/L	198.67	28.34
5/4/2006	5/11/2006	LVH/TM	WQM55		146	mg/L		20	mg/L		
5/4/2006	5/11/2006	LVH/TM	WQM55		144	mg/L		21	mg/L	145.00	20.50
5/11/2006	5/18/2006	TM/LVH	WQM55		157	mg/L		21	mg/L		
5/11/2006	5/18/2006	TM/LVH	WQM55		177	mg/L		23.5	mg/L	167.00	22.25
5/18/2006	5/25/2006	LVH/LH	WQM55		112	mg/L		19	mg/L		
5/18/2006	5/25/2006	LVH/LH	WQM55		90	mg/L		16	mg/L	101.00	17.50
5/25/2006	6/1/2006	LH/TM	WQM55		211	mg/L		27	mg/L		
5/25/2006	6/1/2006	LH/TM	WQM55		220	mg/L		23	mg/L	215.50	25.00
6/1/2006	6/8/2006	TM / LH	WQM55		278	mg/L		42	mg/L		
6/1/2006	6/8/2006	TM / LH	WQM55		289	mg/L		47	mg/L	283.50	44.50
6/8/2006	6/15/2006	LH/LVH	WQM55		149	mg/L		20	mg/L		
6/8/2006	6/15/2006	LH/LVH	WQM55		160	mg/L		25	mg/L	154.50	22.50
6/15/2006	6/22/2006	LVH/TM	WQM55		155	mg/L		23	mg/L		
6/15/2006	6/22/2006	LVH/TM	WQM55		149	mg/L		20	mg/L	152.00	21.50
6/22/2006	6/29/2006	TM/LVH	WQM55		147	mg/L		20	mg/L		
6/22/2006	6/29/2006	TM/LVH	WQM55		152	mg/L		20	mg/L	149.50	20.00
6/29/2006	7/6/2006	LVH/TM	WQM55		70	mg/L		13	mg/L		
6/29/2006	7/6/2006	LVH/TM	WQM55		71	mg/L		12	mg/L	70.50	12.50
7/6/2006	7/13/2006	TM/LH	WQM55		34	mg/L		7	mg/L		
7/6/2006	7/13/2006	TM/LH	WQM55		36	mg/L		7.5	mg/L	35.00	7.25

7/13/2006	7/20/2006	LH/LVH	WQM55		30	mg/L		4	mg/L		
7/13/2006	7/20/2006	LH/LVH	WQM55		30	mg/L		2	mg/L	30.00	3.00
7/20/2006	7/27/2006	LVH/TM	WQM55		11.5	mg/L		3	mg/L		
7/20/2006	7/27/2006	LVH/TM	WQM55		11	mg/L		2	mg/L	11.25	2.50
7/27/2006	8/3/2006	TM/LH	WQM55		35	mg/L		7	mg/L		
7/27/2006	8/3/2006	TM/LH	WQM55		39	mg/L		10	mg/L	37.00	8.50
8/3/2006	8/10/2006	LH/LVH	WQM55		129	mg/L		25	mg/L		
8/3/2006	8/10/2006	LH/LVH	WQM55		133	mg/L		34	mg/L	131.00	29.50
8/10/2006	8/17/2006	LVH	WQM55		137	mg/L		24	mg/L		
8/10/2006	8/17/2006	LVH	WQM55		138	mg/L		25	mg/L	137.50	24.50
8/18/2006	8/24/2006	LVH/LH	WQM55		11.5	mg/L		5	mg/L		
8/18/2006	8/24/2006	LVH/LH	WQM55		9.5	mg/L		4	mg/L	10.50	4.50
8/24/2006	8/31/2006	LH/LVH	WQM55			mg/L			mg/L		
8/24/2006	8/31/2006	LH/LVH	WQM55			mg/L			mg/L	0.00	0.00
8/31/2006	9/7/2006	LH	WQM55		5	mg/L		3	mg/L		
8/31/2006	9/7/2006	LH	WQM55		3.5	mg/L		2.5	mg/L	4.25	2.75
9/7/2006	9/14/2006	LH	WQM55		18	mg/L		5	mg/L		
9/7/2006	9/14/2006	LH	WQM55		17.5	mg/L		4.5	mg/L	17.75	4.75
9/14/2006	9/21/2006	LH	WQM55		21	mg/L		4.5	mg/L		
9/14/2006	9/21/2006	LH	WQM55		21	mg/L		5	mg/L	21.00	4.75
9/21/2006	9/28/2006	LH/TM	WQM55		20	mg/L		6	mg/L		
9/21/2006	9/28/2006	LH/TM	WQM55		17	mg/L		4	mg/L	18.50	5.00
9/28/2006	10/5/2006	TM/LH	WQM55		30	mg/L		12	mg/L		
9/28/2006	10/5/2006	TM/LH	WQM55		28	mg/L		12	mg/L	29.00	12.00
10/5/2006	10/12/2006	LH/LVH	WQM55		20	mg/L		8	mg/L		
10/5/2006	10/12/2006	LH/LVH	WQM55		19	mg/L		6	mg/L	19.50	7.00
10/12/2006	10/19/2006	LVH/TM	WQM55		45	mg/L		13	mg/L		
10/12/2006	10/19/2006	LVH/TM	WQM55		46	mg/L		12	mg/L	45.50	12.50
10/19/2006	10/26/2006	TM/LH	WQM55		41	mg/L		12	mg/L		
10/19/2006	10/26/2006	TM/LH	WQM55		37	mg/L		13	mg/L	39.00	12.50
10/26/2006	11/2/2006	LH/LVH	WQM55		32	mg/L		10	mg/L		
10/26/2006	11/2/2006	LH/LVH	WQM55		31	mg/L		10	mg/L	31.50	10.00
11/2/2006	11/9/2006	LH/TM	WQM55		51	mg/L		8	mg/L		
11/2/2006	11/9/2006	LH/TM	WQM55		49	mg/L		9	mg/L	50.00	8.50
11/9/2006	11/16/2006	TM/LH	WQM55			mg/L			mg/L		
11/9/2006	11/16/2006	TM/LH	WQM55			mg/L			mg/L	0.00	0.00

Composite End Date		Location	TSS Average	VSS Average
04/06/06		WQM55	8.30	2.50
04/13/06		WQM55	81.50	11.60
04/20/06		WQM55	235.90	31.60
04/27/06		WQM55	211.50	26.50
05/04/06		WQM55	198.67	28.34
05/11/06		WQM55	145.00	20.50
05/18/06		WQM55	167.00	22.25
05/25/06		WQM55	101.00	17.50
06/01/06		WQM55	215.50	25.00
06/08/06		WQM55	283.50	44.50
06/15/06		WQM55	154.50	22.50
06/22/06		WQM55	152.00	21.50
06/29/06		WQM55	149.50	20.00
07/06/06		WQM55	70.50	12.50
07/13/06		WQM55	35.00	7.25
07/20/06		WQM55	30.00	3.00
07/27/06		WQM55	11.25	2.50
08/03/06		WQM55	37.00	8.50
08/10/06		WQM55	131.00	29.50
08/17/06		WQM55	137.50	24.50
08/24/06		WQM55	10.50	4.50
08/31/06		WQM55	0.00	0.00
09/07/06		WQM55	4.25	2.75
09/14/06		WQM55	17.75	4.75
09/21/06		WQM55	21.00	4.75
09/28/06		WQM55	18.50	5.00
10/05/06		WQM55	29.00	12.00
10/12/06		WQM55	19.50	7.00
10/19/06		WQM55	45.50	12.50
10/26/06		WQM55	39.00	12.50
11/02/06		WQM55	31.50	10.00
11/09/06		WQM55	50.00	8.50
11/16/06		WQM55	0.00	0.00

2006 Lake Kampeska Weir Grab Samples

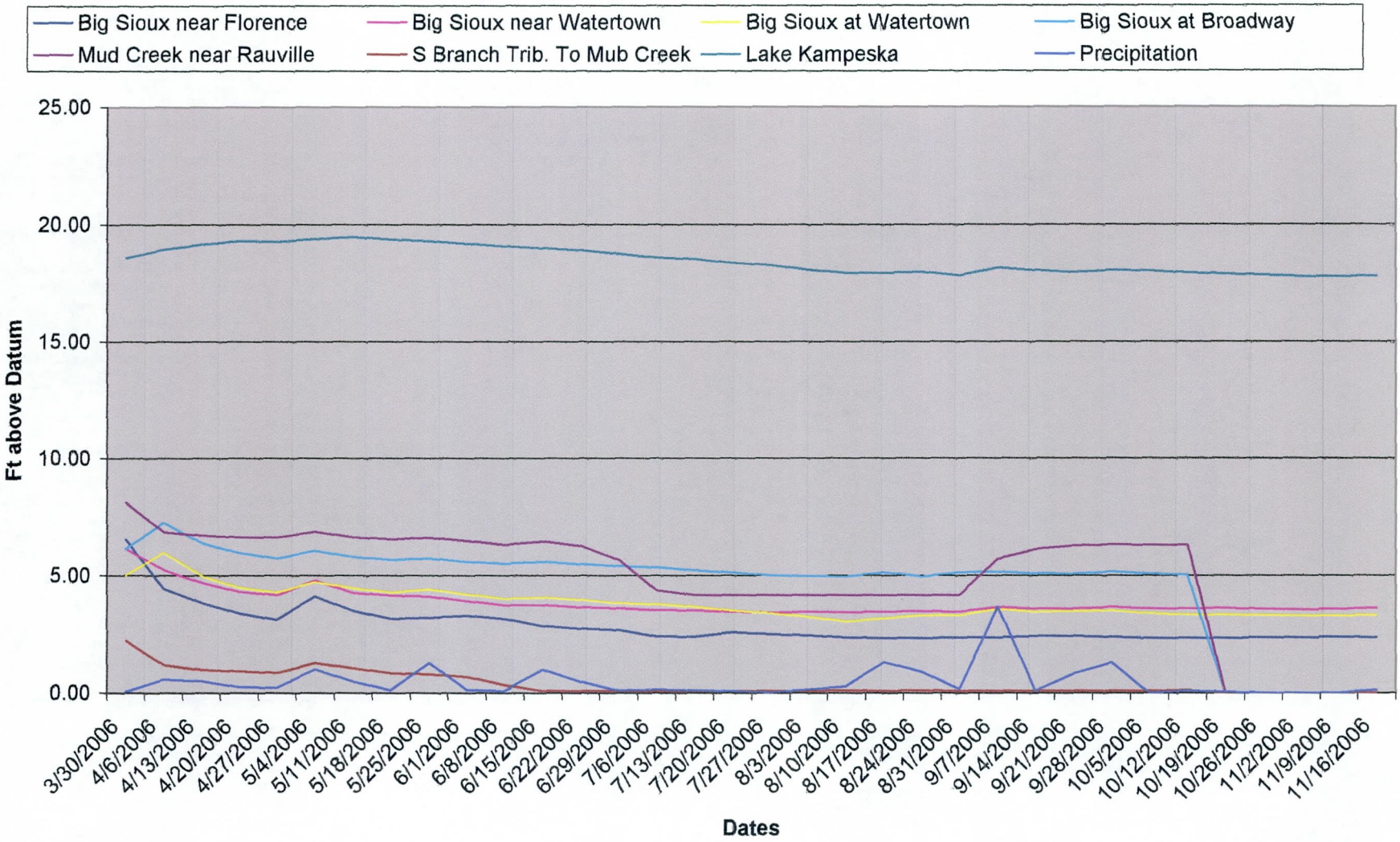
Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method EPA 150.1	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method EPA 170.1
3/30/2006	LH	WQM55		481 uS/cm		7.35 s.u.		10.92 mg/L		9.7 °C
4/6/2006	LH	WQM55		671 uS/cm		7.80 s.u.		10.14 mg/L		9.9 °C
4/13/2006	LH	WQM55		746 uS/cm		8.04 s.u.		8.72 mg/L		17.8 °C
4/20/2006	LH	WQM55		760 uS/cm		7.69 s.u.		10.92 mg/L		9.2 °C
4/27/2006	LH	WQM55		720 uS/cm		7.98 s.u.		7.99 mg/L		18.2 °C
5/4/2006	LH/LVH	WQM55		806 uS/cm		8.34 s.u.		8.85 mg/L		10.3 °C
5/11/2006	LVH/TM	WQM55		578 uS/cm		8.34 s.u.		9.57 mg/L		14.1 °C
5/18/2006	TM/LVH	WQM55		693 uS/cm		8.21 s.u.		6.66 mg/L		17.0 °C
5/25/2006	LVH/LH	WQM55		667 uS/cm		7.71 s.u.		7.40 mg/L		18.6 °C
6/1/2006	LH/TM	WQM55		661 uS/cm		8.26 s.u.		7.32 mg/L		29.4 °C
6/8/2006	TM / LH	WQM55		684 uS/cm		8.33 s.u.		6.70 mg/L		20.4 °C
6/15/2006	LH/LVH	WQM55		661 uS/cm		8.42 s.u.		7.84 mg/L		24.0 °C
6/22/2006	LVH/TM	WQM55		692 uS/cm		8.35 s.u.		7.17 mg/L		26.7 °C
6/29/2006	TM/LVH	WQM55		701 uS/cm		8.37 s.u.		6.40 mg/L		28.0 °C
7/6/2006	LVH/TM	WQM55		726 uS/cm		8.35 s.u.		6.02 mg/L		29.3 °C
7/13/2006	TM/LH	WQM55		720 uS/cm		8.45 s.u.		7.20 mg/L		24.6 °C
7/20/2006	LH/LVH	WQM55		693 uS/cm		8.4 s.u.		5.61 mg/L		27.7 °C
7/27/2006	LVH/TM	WQM55		696 uS/cm		8.24 s.u.		4.50 mg/L		27.8 °C
8/3/2006	TM/LH	WQM55		720 uS/cm		8.2 s.u.		4.48 mg/L		27.5 °C
8/10/2006	LH/LVH	WQM55		752 uS/cm		7.97 s.u.		4.97 mg/L		27.6 °C
8/17/2006	LVH	WQM55		830 uS/cm		7.96 s.u.		2.97 mg/L		25.9 °C
8/24/2006	LVH/LH	WQM55		810 uS/cm		8.07 s.u.		5.12 mg/L		2.1 °C
8/31/2006	LH/LVH	WQM55		717 uS/cm		8.79 s.u.		6.02 mg/L		21.2 °C
9/7/2006	LH	WQM55		666 uS/cm		8.31 s.u.		6.96 mg/L		22.3 °C
9/14/2006	LH	WQM55		689 uS/cm		7.99 s.u.		7.86 mg/L		20.9 °C
9/21/2006	LH	WQM55		728 uS/cm		7.75 s.u.		9.40 mg/L		12.5 °C
9/28/2006	LH/TM	WQM55		724 uS/cm		7.99 s.u.		7.98 mg/L		15.2 °C
10/5/2006	TM/LH	WQM55		723 uS/cm		7.76 s.u.		7.67 mg/L		13.7 °C
10/12/2006	LH/LVH	WQM55		756 uS/cm		8.44 s.u.		12.09 mg/L		0.5 °C
10/19/2006	LVH/TM	WQM55		725 uS/cm		8.15 s.u.		10.15 mg/L		2.7 °C
10/26/2006	TM/LH	WQM55		748 uS/cm		7.98 s.u.		10.18 mg/L		7.4 °C
11/2/2006	LH/LVH	WQM55		827 uS/cm		8.47 s.u.		14.39 mg/L		5.6 °C
11/9/2006	LH/TM	WQM55		725 uS/cm		8.06 s.u.		9.96 mg/L		6.6 °C
11/16/2006	TM/LH	WQM55		uS/cm		s.u.		mg/L		°C

2006 Field Observations

Date	Sample Collector	Rain Fall	Wind		Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
			Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
3/30/2006	LH	N/A	15	SE	56	Y	NORMAL	NORMAL	N	N	N	N	N	N	Location 06479215 - Discharge Value = Ice, Location 06479438 - Discharge Value = Ice, Location 06479500 - Discharge Value = Ice
4/6/2006	LH	LIGHT	26	E	48	Y	NORMAL	NORMAL	N	N	N	N	N	N	Location 06479215 - Discharge Value = Ice, Location 06479438 - Discharge Value = Ice, Location 06479500 - Discharge Value = Ice
4/13/2006	LH	N/A	21	SW	70	N	NORMAL	NORMAL	N	N	N	N	N	N	
4/20/2006	LH	LIGHT	14	NW	51	Y	NORMAL	NORMAL	N	N	N	N	N	N	
4/27/2006	LH	N/A	10	SW	57	N	NORMAL	NORMAL	N	N	N	N	N	N	
5/4/2006	LH/LVH	N/A	18	NW	43	Y	NORMAL	NORMAL	N	N	N	Y	Y	N	Horses in pasture near fence on N side of river (E side of bridge); ducks in river
5/11/2006	LVH/TM	N/A	22	N	50	Y	NORMAL	NORMAL	N	N	N	N	N	N	
5/18/2006	TM/LVH	LIGHT	7	NE	59	Y	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows under bridge.
5/25/2006	LVH/LH	N/A	15	NW	65	Y	NORMAL	NORMAL	N	N	N	N	Y	N	Cows upstream 150 yards.
6/1/2006	LH/TM	N/A	6	SW	73	N	NORMAL	NORMAL	N	N	N	N	N	N	
6/8/2006	TM / LH	N/A	9	E	68	Y	NORMAL	NORMAL	N	N	N	N	N	N	
6/15/2006	LH/LVH	N/A	22	S	76	N	NORMAL	NORMAL	N	N	N	N	N	N	Wind gusts up to 30 MPH
6/22/2006	LVH/TM	N/A	13	NW	72	N	NORMAL	NORMAL	N	N	N	N	N	N	
6/29/2006	TM/LVH	N/A	13	S	77	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows around bridge
7/6/2006	LVH/TM	N/A	17	S	77	N	NORMAL	NORMAL	N	N	N	N	N	N	
7/13/2006	TM/LH	N/A	14	S	83	Y	NORMAL	NORMAL	N	N	N	N	N	N	

7/20/2006	LH/LVH	N/A	10	NE	78	N	NORMAL	NORMAL	N	N	N	N	N	N	
7/27/2006	LVH/TM	N/A	8	SW	83	N	NORMAL	NORMAL	N	N	N	Y	N	N	Birds, ducks, and a crane near bridge.
8/3/2006	TM/LH	N/A	10	SW	86	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/10/2006	LH/LVH	N/A	8	SE	80	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/17/2006	LVH	N/A	3	SW	75	Y	NORMAL	NORMAL	N	N	N	N	N	N	A lot of duckweed on surface of water
8/24/2006	LVH/LH	N/A	14	E	68	Y	NORMAL	NORMAL	N	N	N	N	N	N	
8/31/2006	LH/LVH	N/A	23	S	72	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/7/2006	LH	N/A	7	S	68	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/14/2006	LH	N/A	23	S	70	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/21/2006	LH	N/A	10	E	52	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/28/2006	LH/TM	N/A	8	NW	43	N	NORMAL	NORMAL	N	N	N	Y	Y	N	Duck in water. Cows near bridge.
10/5/2006	TM/LH	N/A	10	S	61	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/12/2006	LH/LVH	LIGHT	20	NW	27	Y	NORMAL	NORMAL	N	N	N	N	N	N	Flurries, river partially frozen
10/19/2006	LVH/TM	N/A	7	S	31	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/26/2006	TM/LH	N/A	0	N/A	42	N	NORMAL	NORMAL	N	N	N	Y	N	N	Ducks on west side of bridge.
11/2/2006	LH/LVH	N/A	13	W	26	N	NORMAL	NORMAL	N	N	N	N	N	N	River partially frozen.
11/9/2006	LH/TM	N/A	14	N	38	Y	NORMAL	NORMAL	N	N	N	N	N	N	
11/16/2006	TM/LH	N/A	14	S	32	N	NORMAL	NORMAL	N	N	N	N	N	N	Tubing and river frozen. Shut sampler down for the year.

Stage Chart from Watertown's Enhanced Flood Forecasting System 2006



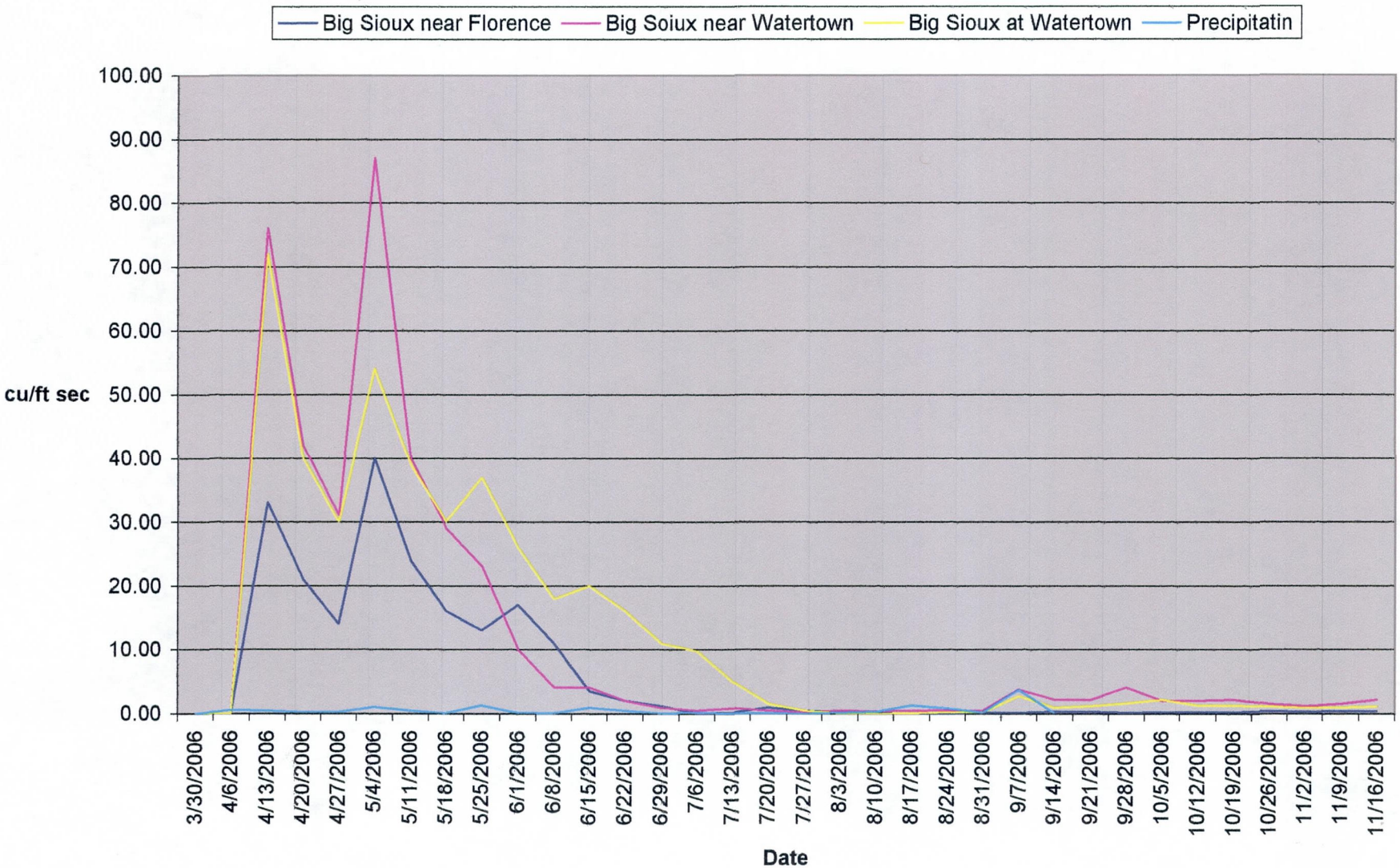
2006 Stage from Watertown's Enhanced Flood Forecasting System

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
3/30/2006	LH	6.53	6.14	5.01	6.12	8.09	2.22	18.57
4/6/2006	LH	4.43	5.23	5.97	7.24	6.85	1.18	18.95
4/13/2006	LH	3.85	4.70	4.98	6.38	6.72	0.99	19.17
4/20/2006	LH	3.38	4.30	4.47	5.96	6.63	0.93	19.29
4/27/2006	LH	3.12	4.16	4.28	5.72	6.62	0.85	19.27
5/4/2006	LH/LVH	4.10	4.79	4.72	6.06	6.88	1.28	19.39
5/11/2006	LVH/TM	3.50	4.26	4.45	5.80	6.63	1.05	19.46
5/18/2006	TM/LVH	3.17	4.14	4.28	5.66	6.55	0.83	19.36
5/25/2006	LVH/LH	3.21	4.10	4.41	5.72	6.61	0.80	19.29
6/1/2006	LH/TM	3.30	3.90	4.19	5.57	6.48	0.68	19.18
6/8/2006	TM / LH	3.16	3.74	4.02	5.52	6.32	0.33	19.07
6/15/2006	LH/LVH	2.86	3.74	4.05	5.58	6.45	0.09	18.98
6/22/2006	LVH/TM	2.75	3.65	3.97	5.49	6.28	0.09	18.90
6/29/2006	TM/LVH	2.67	3.59	3.82	5.41	5.66	0.09	18.75
7/6/2006	LVH/TM	2.41	3.54	3.78	5.35	4.36	0.09	18.59
7/13/2006	TM/LH	2.40	3.51	3.67	5.22	4.18	0.09	18.53
7/20/2006	LH/LVH	2.60	3.46	3.52	5.14	4.17	0.09	18.34
7/27/2006	LVH/TM	2.51	3.43	3.40	5.01	4.17	0.09	18.24
8/3/2006	TM/LH	2.46	3.46	3.25	4.98	4.17	0.09	18.05
8/10/2006	LH/LVH	2.38	3.45	3.06	4.95	4.17	0.10	17.91
8/17/2006	LVH	2.35	3.47	3.19	5.13	4.18	0.09	17.91
8/24/2006	LVH/LH	2.35	3.48	3.32	4.97	4.18	0.10	17.95
8/31/2006	LH/LVH	2.36	3.46	3.31	5.14	4.17	0.09	17.81
9/7/2006	LH	2.37	3.66	3.57	5.16	5.71	0.09	18.12
9/14/2006	LH	2.44	3.59	3.46	5.09	6.13	0.09	18.01
9/21/2006	LH	2.44	3.59	3.48	5.07	6.27	0.09	17.94
9/28/2006	LH/TM	2.39	3.67	3.51	5.16	6.32	0.09	18.03
10/5/2006	TM/LH	2.34	3.61	3.40	5.06	6.30	0.09	17.99
10/12/2006	LH/LVH	2.35	3.61	3.34	5.03	6.31	0.11	17.92
10/19/2006	LVH/TM	2.35	3.62	3.34				17.86
10/26/2006	TM/LH	2.38	3.58	3.32				17.83
11/2/2006	LH/LVH	2.36	3.56	3.3				17.75
11/9/2006	LH/TM	2.39	3.58	3.3				17.76
11/16/2006	TM/LH	2.38	3.62	3.32				17.77

2006 Lake Stage Level Adjustment

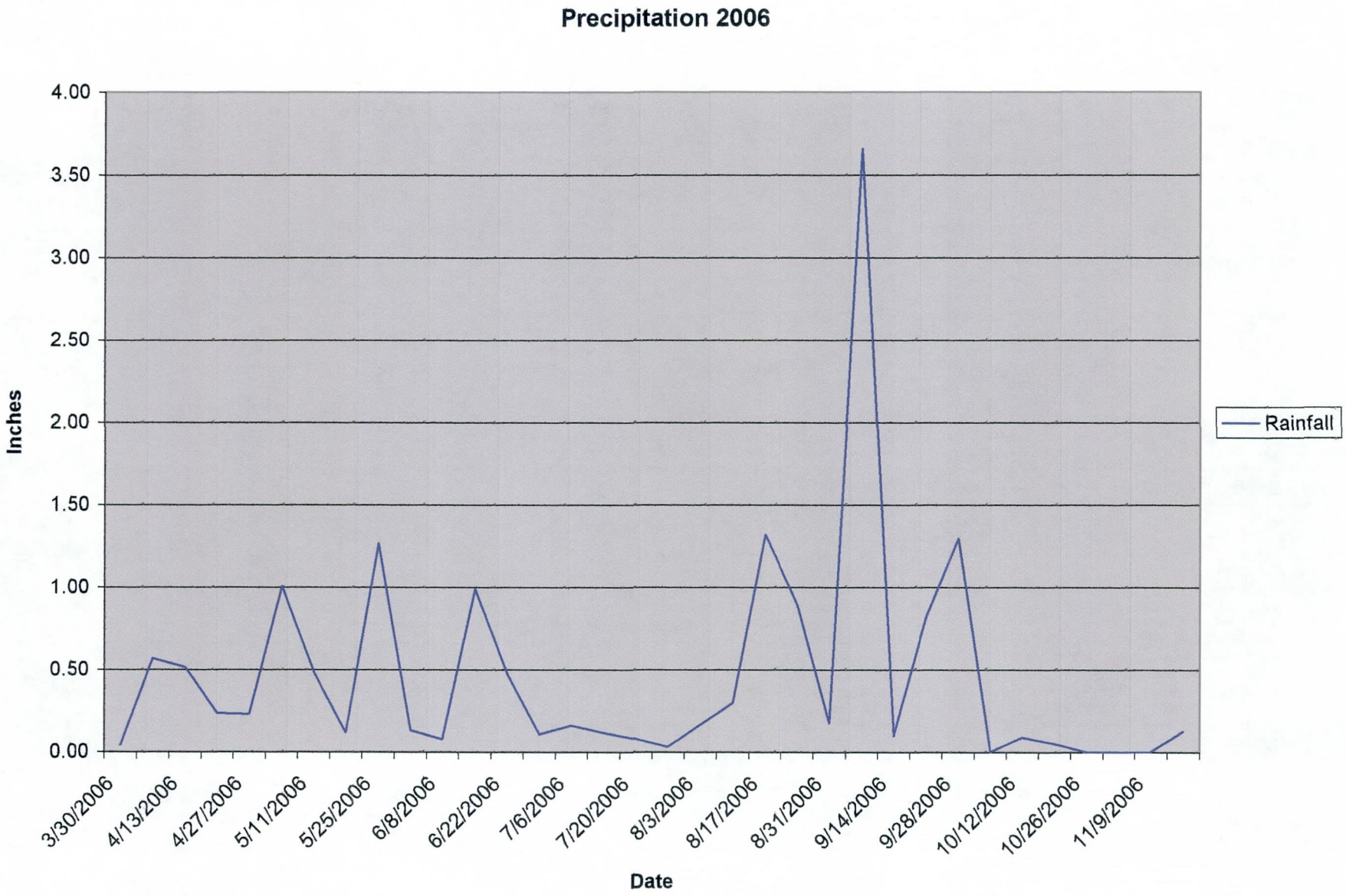
Date	Lake Level Recorded at the Treatment Plant	Adjusted Level Recorded at the Treatment Plant	Stage in Feet above Datum
3/30/2006	1716.4	1716.6	18.71
4/6/2006	1716.7	1716.9	19.01
4/13/2006	1716.9	1717.1	19.21
4/20/2006	1717	1717.2	19.31
4/27/2006	1717	1717.2	19.31
5/4/2006	1717	1717.2	19.31
5/11/2006	1717.1	1717.3	19.41
5/18/2006	1717.1	1717.3	19.41
5/25/2006	1717.1	1717.3	19.41
6/1/2006	1717.1	1717.3	19.41
6/8/2006	1717	1717.2	19.31
6/15/2006	1716.8	1717	19.11
6/22/2006	1716.8	1717	19.11
6/29/2006	1716.6	1716.8	18.91
7/6/2006	1716.6	1716.8	18.91
7/13/2006	1716.2	1716.4	18.51
7/20/2006	1716.2	1716.4	18.51
7/27/2006	1716.1	1716.3	18.41
8/3/2006	1715.8	1716	18.11
8/10/2006	1715.6	1715.8	17.91
8/17/2006	1715.7	1715.9	18.01
8/24/2006	1715.7	1715.9	18.01
8/31/2006	1715.6	1715.8	17.91
9/7/2006	1715.9	1716.1	18.21
9/14/2006	1715.8	1716	18.11
9/21/2006	1715.8	1716	18.11
9/28/2006	1715.8	1716	18.11
10/5/2006	1715.8	1716	18.11
10/12/2006	1715.8	1716	18.11
10/19/2006	1715.6	1715.8	17.91
10/26/2006	1715.6	1715.8	17.91
11/2/2006	1715.6	1715.8	17.91
11/9/2006	1715.5	1715.7	17.81
11/16/2006	1715.5	1715.7	17.81

Stream Flow 2006



2006 Stream Flow in cfs Summary

		Location And Site Number							
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	Near South Shore 450628097060800
3/30/2006	LH								
4/6/2006	LH								
4/13/2006	LH	33.00	76.00	72.00					
4/20/2006	LH	21.00	42.00	40.00					
4/27/2006	LH	14.00	31.00	30.00					
5/4/2006	LH/LVH	40.00	87.00	54.00					
5/11/2006	LVH/TM	24.00	40.00	39.00					
5/18/2006	TM/LVH	16.00	29.00	30.00					
5/25/2006	LVH/LH	13.00	23.00	37.00					
6/1/2006	LH/TM	17.00	10.00	26.00					
6/8/2006	TM / LH	11.00	4.10	18.00					
6/15/2006	LH/LVH	3.50	4.10	20.00					
6/22/2006	LVH/TM	2.00	2.00	16.00					
6/29/2006	TM/LVH	1.20	1.00	11.00					
7/6/2006	LVH/TM	0.11	0.52	9.80					
7/13/2006	TM/LH	0.13	0.89	5.00					
7/20/2006	LH/LVH	0.94	0.45	1.50					
7/27/2006	LVH/TM	0.45	0.27	0.47					
8/3/2006	TM/LH	0.27	0.45	0.10					
8/10/2006	LH/LVH	0.10	0.39	0.00					
8/17/2006	LVH	0.11	0.52	0.08					
8/24/2006	LVH/LH	0.11	0.59	0.28					
8/31/2006	LH/LVH	0.13	0.45	0.25					
9/7/2006	LH	0.14	3.80	2.70					
9/14/2006	LH	0.33	2.20	1.00					
9/21/2006	LH	0.33	2.20	1.20					
9/28/2006	LH/TM	0.19	4.10	1.60					
10/5/2006	TM/LH	0.24	2.00	2.20					
10/12/2006	LH/LVH	0.27	2.00	1.30					
10/19/2006	LVH/TM	0.27	2.20	1.30					
10/26/2006	TM/LH	0.37	1.50	1.10					
11/2/2006	LH/LVH	0.3	1.2	0.93					
11/9/2006	LH/TM	0.41	1.5	0.93					
11/16/2006	TM/LH	0.37	2.2	1.1					


Precipitation 2006
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Inches
3/30/2006
4/13/2006
4/27/2006
5/11/2006
5/25/2006
6/8/2006
6/22/2006
7/6/2006
7/20/2006
8/3/2006
8/17/2006
8/31/2006
9/14/2006
9/28/2006
10/12/2006
10/26/2006
11/9/2006
Date
Rainfall

2006 Precipitation in Inches Summary

Date			Location And Site Number								
To	From	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	Near South Shore 450628097060800	Average Precipitation For The Week
03/23/06	3/30/2006	LH	0.00	0.00	0.01	0.00	0.08	0.07	0.05	0.06	0.04
3/30/2006	4/6/2006	LH	0.04	0.04	0.02	0.13	0.82	0.82	1.05	1.05	0.57
4/6/2006	4/13/2006	LH	0.85	0.32	0.18		0.50	0.17	0.72	0.86	0.51
4/13/2006	4/20/2006	LH	0.18	0.18	0.23	0.36	0.09	0.18	0.21	0.21	0.23
4/20/2006	4/27/2006	LH	0.27	0.18	0.19	0.12	0.19	0.24	0.22	0.19	0.23
4/27/2006	5/4/2006	LH/LVH	0.99	0.85		1.18	0.85	0.99	1.06	1.12	1.01
5/4/2006	5/11/2006	LVH/TM	0.31	0.51	0.44	0.51	0.45	0.38	0.37	0.43	0.49
5/11/2006	5/18/2006	TM/LVH	0.05	0.05	0.21	0.22	0.06	0.06	0.11	0.05	0.12
5/18/2006	5/25/2006	LVH/LH	1.13	1.18	1.43	0.59	1.16	0.74	1.20	1.43	1.27
5/25/2006	6/1/2006	LH/TM	0.10	0.04	0.03	0.06	0.07	0.05	0.30	0.26	0.13
6/1/2006	6/8/2006	TM / LH	0.00	0.10	0.03	0.11	0.15	0.09	0.00	0.07	0.08
6/8/2006	6/15/2006	LH/LVH	0.68	0.85	0.61	1.10	0.81	0.64	1.69	0.54	0.99
6/15/2006	6/22/2006	LVH/TM	0.35	0.22	0.37	0.35	0.38	0.28	1.01	0.38	0.48
6/22/2006	6/29/2006	TM/LVH	0.20	0.03	0.09	0.22	0.02	0.05	0.04	0.11	0.11
6/29/2006	7/6/2006	LVH/TM	0.06	0.02	0.02	0.10	0.03	0.05	0.13	0.71	0.16
7/6/2006	7/13/2006	TM/LH	0.09	0.14	0.30	0.05	0.07	0.07	0.05	0.05	0.12
7/13/2006	7/20/2006	LH/LVH	0.00	0.01	0.28	0.00	0.03	0.20	0.00	0.04	0.08
7/20/2006	7/27/2006	LVH/TM	0.07	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.03
7/27/2006	8/3/2006	TM/LH	0.02	0.04	0.30	0.05	0.17	0.09	0.47	0.01	0.16
8/3/2006	8/10/2006	LH/LVH	0.45	0.02	0.12	0.74	0.01	0.22	0.34	0.16	0.29
8/10/2006	8/17/2006	LVH	1.60	0.38	1.60	0.69	1.39	1.28	1.02	1.27	1.32
8/17/2006	8/24/2006	LVH/LH	0.81	1.15	0.90	0.99	0.81	0.67	0.52	0.43	0.90
8/24/2006	8/31/2006	LH/LVH	0.09	0.13	0.18	0.23	0.14	0.15	0.14	0.14	0.17
8/31/2006	9/7/2006	LH	2.70	2.60	3.50	3.30	3.00	3.30	3.42	3.79	3.66
9/7/2006	9/14/2006	LH	0.48	0.03	0.03	0.00	0.05	0.01	0.05	0.01	0.09
9/14/2006	9/21/2006	LH	0.43	1.00	0.43	0.23	1.14	0.41	1.45	0.64	0.82
9/21/2006	9/28/2006	LH/TM	1.42	0.92	1.10	1.19	0.85	0.99	1.37	1.22	1.29
9/28/2006	10/5/2006	TM/LH	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
10/5/2006	10/12/2006	LH/LVH	0.17	0.20	0.07	0.10	0.11	0.09	0.10	0.14	0.09
10/12/2006	10/19/2006	LVH/TM	0.10	0.08	0.07				0.05	0.06	0.05
10/19/2006	10/26/2006	TM/LH	0.00	0.00	0.01				0.00	0.00	0.00
10/26/2006	11/2/2006	LH/LVH	0.00	0.00	0.00				0.00	0.00	0.00
11/2/2006	11/9/2006	LH/TM	0.00	0.00	0.00				0.00	0.01	0.00
11/9/2006	11/16/2006	TM/LH	0.16	0.18	0.17				0.17	0.20	0.13

FC-29

DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

March 14, 2008

Jeff DeVille, Water Superintendent
Municipal Utilities Department
901 4th Avenue SW
Watertown SD 57201-4107

Dear Mr. DeVille:

The city of Watertown holds Flood Control Permit No. FC-29 authorizing a weir and gate system between the inlet/outlet channel for the Big Sioux River and Lake Kampeska. A permit condition requires a plan be in place to measure any effect the weir has on sediment load entering Lake Pelican. This plan entitled "Lake Kampeska Diversion Weir on Sediment Load and Transport to Downstream Areas" dated January 26, 2001 has been approved by DENR.

On March 12, 2008, you contacted the Water Rights Program regarding the method for total suspended solids analysis. The current plan on page 4 states of the analysis will be conducted according to approved EPA method 160.2. You stated that method 160.2 is no longer cited as an approved EPA method and inquired about amending the plan.

Based on your inquiry, I authorize the "Sample Analysis" section of the plan to be amended to change the language from a specifically listed method type to an "approved EPA standard method".

If you have any questions, please contact Eric Gronlund at 605 773-3352.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program

FC 29-3

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

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WATER RIGHTS PROGRAM

April 8, 2009

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. The sampling period for 2008 was from April 3rd to November 17th. Grab samples and the composite sample were collected weekly during this sampling period. The stage and stream flow information were also taken weekly. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is an average total of that week. The sampling period from 4/10 to 4/17 did not get sampled. During this time the suction tube from the sampler to the river got disconnected. Only a parcel sample was collect but it was not enough to analyzed and reported.

There were no triggers in 2008 that would have us operate the gates.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Vicki Maag, Lake Pelican Water Project District
Craig Mitchell, Watertown Waste Water Department.

FC 29

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

April 3, 2006

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APR 0 4 2006
WATER RIGHTS PROGRAM

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. The sampling period for 2005 was from March 31st to November 17th. Grab samples and the composite sample were collected weekly during this sampling period. The stage and stream flow information were also taken weekly. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is a total of that week.

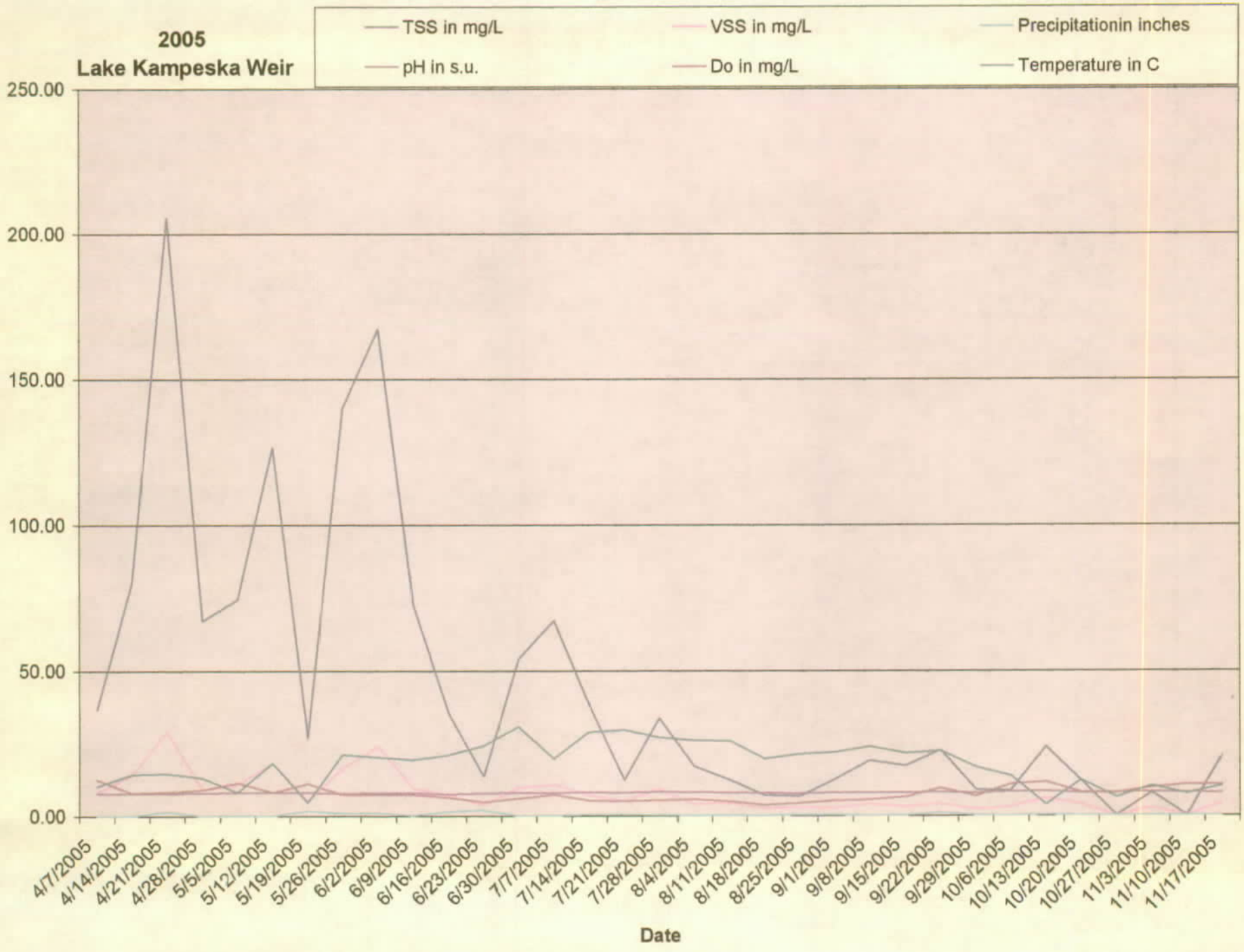
There were no triggers in 2005 that would have us operate the gates.

Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Ken Bunde, Lake Pelican Water Project District
Craig Mitchell, Watertown Waste Water Department.


2005
Lake Kampeska Weir
TSS in mg/L
VSS in mg/L
Precipitationin inches
pH in s.u.
Do in mg/L
Temperature in C
250.00
200.00
150.00
100.00
50.00
0.00
4/7/2005
4/14/2005
4/21/2005
4/28/2005
5/5/2005
5/12/2005
5/19/2005
5/26/2005
6/2/2005
6/9/2005
6/16/2005
6/23/2005
6/30/2005
7/7/2005
7/14/2005
7/21/2005
7/28/2005
8/4/2005
8/11/2005
8/18/2005
8/25/2005
9/1/2005
9/8/2005
9/15/2005
9/22/2005
9/29/2005
10/6/2005
10/13/2005
10/20/2005
10/27/2005
11/3/2005
11/10/2005
11/17/2005
Date

2005 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter		Parameter		Average TSS	Average VSS
				Sample ID	TSS EPA Method 160.2	Sample ID	VSS EPA Method 160.4		
3/31/2005	4/7/2005	LH/CM	WQM55		34.86 mg/L		8.28 mg/L		
3/31/2005	4/7/2005	LH/CM	WQM55		38.28 mg/L		8.28 mg/L	36.57	8.28
4/7/2005	4/14/2005	CM/LH	WQM55		80 mg/L		15 mg/L		
4/7/2005	4/14/2005	CM/LH	WQM55		80 mg/L		13 mg/L	80.00	14.00
4/14/2005	4/21/2005	LH/CM	WQM55		207 mg/L		28 mg/L		
4/14/2005	4/21/2005	LH/CM	WQM55		204 mg/L		30 mg/L	205.50	29.00
4/21/2005	4/28/2005	CM/LH	WQM55		67 mg/L		9 mg/L		
4/21/2005	4/28/2005	CM/LH	WQM55		67 mg/L		9 mg/L	67.00	9.00
4/28/2005	5/5/2005	LH/KH	WQM55		75.6 mg/L		10.8 mg/L		
4/28/2005	5/5/2005	LH/KH	WQM55		73 mg/L		10.6 mg/L	74.30	10.70
5/5/2005	5/12/2005	KARA/LVH	WQM55		125.67 mg/L		17.67 mg/L		
5/5/2005	5/12/2005	KARA/LVH	WQM55		127.33 mg/L		18.67 mg/L	126.50	18.17
5/12/2005	5/19/2005	LVH/LH	WQM55		27 mg/L		5 mg/L		
5/12/2005	5/19/2005	LVH/LH	WQM55		26.5 mg/L		5 mg/L	26.75	5.00
5/19/2005	5/26/2005	LH/KARA	WQM55		139 mg/L		17 mg/L		
5/19/2005	5/26/2005	LH/KARA	WQM55		141 mg/L		16 mg/L	140.00	16.50
5/26/2005	6/2/2005	KARA/LVH	WQM55		168.8 mg/L		24.8 mg/L		
5/26/2005	6/2/2005	KARA/LVH	WQM55		165.2 mg/L		22.8 mg/L	167.00	23.80
6/2/2005	6/9/2005	LVH/LH	WQM55		73.5 mg/L		9 mg/L		
6/2/2005	6/9/2005	LVH/LH	WQM55		72 mg/L		10 mg/L	72.75	9.50
6/9/2005	6/16/2005	LH/KARA	WQM55		34.8 mg/L		7.6 mg/L		
6/9/2005	6/16/2005	LH/KARA	WQM55		36 mg/L		6.8 mg/L	35.40	7.20

2005 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter		Parameter		Average TSS	Average VSS
				Sample ID	TSS EPA Method 160.2	Sample ID	VSS EPA Method 160.4		
6/16/2005	6/23/2005	KARA/LVH	WQM55		14 mg/L		4.4 mg/L		
6/16/2005	6/23/2005	KARA/LVH	WQM55		13.2 mg/L		3.2 mg/L	13.60	3.80
6/23/2005	6/30/2005	LVH/LH	WQM55		53.67 mg/L		10 mg/L		
6/23/2005	6/30/2005	LVH/LH	WQM55		54.33 mg/L		9.33 mg/L	54.00	9.67
6/30/2005	7/7/2005	LH/KARA	WQM55		66 mg/L		10.5 mg/L		
6/30/2005	7/7/2005	LH/KARA	WQM55		68.5 mg/L		11 mg/L	67.25	10.75
7/7/2005	7/14/2005	KARA/LH	WQM55		38 mg/L		7 mg/L		
7/7/2005	7/14/2005	KARA/LH	WQM55		38.4 mg/L		7.2 mg/L	38.20	7.10
7/14/2005	7/21/2005	LH/LVH	WQM55		10.8 mg/L		4.8 mg/L		
7/14/2005	7/21/2005	LH/LVH	WQM55		13.6 mg/L		5.6 mg/L	12.20	5.20
7/21/2005	7/28/2005	LVH/KARA	WQM55		32.2 mg/L		8.8 mg/L		
7/21/2005	7/28/2005	LVH/KARA	WQM55		34.8 mg/L		10 mg/L	33.50	9.40
7/28/2005	8/4/2005	KARA/LVH	WQM55		16.8 mg/L		4 mg/L		
7/28/2005	8/4/2005	KARA/LVH	WQM55		17.2 mg/L		3.8 mg/L	17.00	3.90
8/4/2005	8/11/2005	LVH/LH	WQM55		12.4 mg/L		5.2 mg/L		
8/4/2005	8/11/2005	LVH/LH	WQM55		12.4 mg/L		3.6 mg/L	12.40	4.40
8/11/2005	8/18/2005	LH	WQM55		7 mg/L		2.6 mg/L		
8/11/2005	8/18/2005	LH	WQM55		7.2 mg/L		2.6 mg/L	7.10	2.60
8/18/2005	8/25/2005	LH/LVH	WQM55		6.6 mg/L		2.4 mg/L		
8/18/2005	8/25/2005	LH/LVH	WQM55		7 mg/L		3.2 mg/L	6.80	2.80
8/25/2005	9/1/2005	LVH/KARA	WQM55		12.4 mg/L		2.8 mg/L		
8/25/2005	9/1/2005	LVH/KARA	WQM55		12.8 mg/L		2.6 mg/L	12.60	2.70
9/1/2005	9/8/2005	KARA/LH	WQM55		18.6 mg/L		3.6 mg/L		
9/1/2005	9/8/2005	KARA/LH	WQM55		19.4 mg/L		4.4 mg/L	19.00	4.00
9/8/2005	9/15/2005	LH	WQM55		16.8 mg/L		3.4 mg/L		
9/8/2005	9/15/2005	LH	WQM55		17.6 mg/L		3 mg/L	17.20	3.20

2005 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter		Parameter		Average TSS	Average VSS
				Sample ID	TSS EPA Method 160.2	Sample ID	VSS EPA Method 160.4		
9/15/2005	9/22/2005	LH	WQM55		21.8 mg/L		3.8 mg/L		
9/15/2005	9/22/2005	LH	WQM55		23.4 mg/L		4.4 mg/L	22.60	4.10
9/22/2005	9/29/2005	LH	WQM55		8.8 mg/L		2.4 mg/L		
9/22/2005	9/29/2005	LH	WQM55		9 mg/L		2.2 mg/L	8.90	2.30
9/29/2005	10/6/2005	LH	WQM55		9 mg/L		2.8 mg/L		
9/29/2005	10/6/2005	LH	WQM55		8.2 mg/L		3.2 mg/L	8.60	3.00
10/6/2005	10/13/2005	LH	WQM55		24.4 mg/L		6.4 mg/L		
10/6/2005	10/13/2005	LH	WQM55		23 mg/L		5.6 mg/L	23.70	6.00
10/13/2005	10/20/2005	LH/CM	WQM55		11.6 mg/L		3.2 mg/L		
10/13/2005	10/20/2005	LH/CM	WQM55		12.4 mg/L		4.8 mg/L	12.00	4.00
10/20/2005	10/27/2005	CM/LVH	WQM55		mg/L		mg/L		
10/20/2005	10/27/2005	CM/LVH	WQM55		mg/L		mg/L	0.00	0.00
10/27/2005	11/3/2005	LVH/LH	WQM55		8 mg/L		3.2 mg/L		
10/27/2005	11/3/2005	LVH/LH	WQM55		7.6 mg/L		2.4 mg/L	7.80	2.80
11/3/2005	11/10/2005	LH	WQM55		mg/L		mg/L		
11/3/2005	11/10/2005	LH	WQM55		mg/L		mg/L	0.00	0.00
11/10/2005	11/17/2005	LH	WQM55		21 mg/L		3.67 mg/L		
11/10/2005	11/17/2005	LH	WQM55		20 mg/L		5 mg/L	20.50	4.34

2005 Lake Kampeska Weir Composite Samples

Composite End Date		Location	TSS Average	VSS Average
4/7/2005		WQM55	36.57	8.28
4/14/2005		WQM55	80.00	14.00
4/21/2005		WQM55	205.50	29.00
4/28/2005		WQM55	67.00	9.00
5/5/2005		WQM55	74.30	10.70
5/12/2005		WQM55	126.50	18.17
5/19/2005		WQM55	26.75	5.00
5/26/2005		WQM55	140.00	16.50
6/2/2005		WQM55	167.00	23.80
6/9/2005		WQM55	72.75	9.50
6/16/2005		WQM55	35.40	7.20
6/23/2005		WQM55	13.60	3.80
6/30/2005		WQM55	54.00	9.67
7/7/2005		WQM55	67.25	10.75
7/14/2005		WQM55	38.20	7.10
7/21/2005		WQM55	12.20	5.20
7/28/2005		WQM55	33.50	9.40
8/4/2005		WQM55	17.00	3.90
8/11/2005		WQM55	12.40	4.40
8/18/2005		WQM55	7.10	2.60
8/25/2005		WQM55	6.80	2.80
9/1/2005		WQM55	12.60	2.70
9/8/2005		WQM55	19.00	4.00
9/15/2005		WQM55	17.20	3.20
9/22/2005		WQM55	22.60	4.10
9/29/2005		WQM55	8.90	2.30
10/6/2005		WQM55	8.60	3.00
10/13/2005		WQM55	23.70	6.00
10/20/2005		WQM55	12.00	4.00
10/27/2005		WQM55	0.00	0.00
11/3/2005		WQM55	7.80	2.80
11/10/2005		WQM55	0.00	0.00
11/17/2005		WQM55	20.50	4.34

2005 Lake Kampeska Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method EPA 150.1	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method EPA 170.1
3/31/2005	LH	WQM55		479 uS/cm		7.91 s.u.		12.54 mg/L		10.2 °C
4/7/2005	LH/CM	WQM55		657 uS/cm		7.80 s.u.		8.05 mg/L		14.4 °C
4/14/2005	CM/LH	WQM55		908 uS/cm		7.82 s.u.		8.24 mg/L		14.6 °C
4/21/2005	LH/CM	WQM55		902 uS/cm		8.06 s.u.		9.08 mg/L		13.1 °C
4/28/2005	CM/LH	WQM55		872 uS/cm		8.21 s.u.		11.48 mg/L		8.1 °C
5/5/2005	LH/KH	WQM55		830 uS/cm		8.20 s.u.		8.23 mg/L		18.1 °C
5/12/2005	KARA/LVH	WQM55		802 uS/cm		8.15 s.u.		11.11 mg/L		4.5 °C
5/19/2005	LVH/LH	WQM55		831 uS/cm		7.93 s.u.		7.36 mg/L		21.1 °C
5/26/2005	LH/KARA	WQM55		809 uS/cm		8.08 s.u.		7.40 mg/L		20.3 °C
6/2/2005	KARA/LVH	WQM55		790 uS/cm		8.05 s.u.		7.37 mg/L		19.4 °C
6/9/2005	LVH/LH	WQM55		791 uS/cm		7.61 s.u.		6.34 mg/L		21.0 °C
6/16/2005	LH/KARA	WQM55		648 uS/cm		7.82 s.u.		4.87 mg/L		24.2 °C
6/23/2005	KARA/LVH	WQM55		698 uS/cm		8.06 s.u.		6.10 mg/L		30.6 °C
6/30/2005	LVH/LH	WQM55		701 uS/cm		8.01 s.u.		7.45 mg/L		19.6 °C
7/7/2005	LH/KARA	WQM55		693 uS/cm		8.17 s.u.		5.27 mg/L		28.9 °C
7/14/2005	KARA/LH	WQM55		614 uS/cm		7.98 s.u.		5.20 mg/L		29.6 °C
7/21/2005	LH/LVH	WQM55		669 uS/cm		8.27 s.u.		5.48 mg/L		27.0 °C
7/28/2005	LVH/KARA	WQM55		734 uS/cm		8.18 s.u.		5.68 mg/L		26.0 °C
8/4/2005	KARA/LVH	WQM55		647 uS/cm		7.94 s.u.		4.94 mg/L		25.9 °C
8/11/2005	LVH/LH	WQM55		662 uS/cm		7.8 s.u.		3.73 mg/L		19.6 °C
8/18/2005	LH	WQM55		678 uS/cm		7.7 s.u.		4.33 mg/L		21.3 °C
8/25/2005	LH/LVH	WQM55		707 uS/cm		7.96 s.u.		5.29 mg/L		21.9 °C
9/1/2005	LVH/KARA	WQM55		772 uS/cm		8.07 s.u.		5.57 mg/L		23.9 °C
9/8/2005	KARA/LH	WQM55		663 uS/cm		7.99 s.u.		6.50 mg/L		21.6 °C
9/15/2005	LH	WQM55		689 uS/cm		8.13 s.u.		9.55 mg/L		22.3 °C
9/22/2005	LH	WQM55		707 uS/cm		7.88 s.u.		6.76 mg/L		16.7 °C
9/29/2005	LH	WQM55		697 uS/cm		8.33 s.u.		10.81 mg/L		13.8 °C
10/6/2005	LH	WQM55		414 uS/cm		8.4 s.u.		11.65 mg/L		3.8 °C
10/13/2005	LH	WQM55		713 uS/cm		7.9 s.u.		7.95 mg/L		12.3 °C
10/20/2005	LH/CM	WQM55		658 uS/cm		8 s.u.		7.80 mg/L		6.3 °C
10/27/2005	CM/LVH	WQM55		667 uS/cm		8.09 s.u.		9.63 mg/L		10.3 °C
11/3/2005	LVH/LH	WQM55		718 uS/cm		8.01 s.u.		10.77 mg/L		7.6 °C
11/10/2005	LH	WQM55		691 uS/cm		7.81 s.u.		10.78 mg/L		10.2 °C

2005 Field Observations

Date	Time	Sample Collector	Rain Fall	Wind		Air Temp Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
				Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
3/31/2005		LH	N/A	17	NW	51	N	NORMAL	NORMAL	N	N	N	N	N	N	Location 06479215 - Discharge Value = Ice, Location 06479438 - Discharge Value = Ice, Location 06479500 - Discharge Value = Ice
4/7/2005		LH/CM	N/A	3	VARIABLE	50	N	NORMAL	NORMAL	N	N	N	Y	N	N	Wildlife = Ducks
4/14/2005		CM/LH	N/A	25	S	57	N	NORMAL	NORMAL	N	N	N	N	N	N	Location 06479498 - There was no data for this site at time of sampling and report generation.
4/21/2005		LH/CM	N/A	8	NE	53	Y	NORMAL	NORMAL	N	N	N	N	N	N	
4/28/2005		CM/LH	N/A	14	W	39	N	NORMAL	NORMAL	N	N	N	N	N	N	
5/5/2005		LH/KH	N/A	13	SW	63	N	NORMAL	NORMAL	N	N	N	N	N	N	
5/12/2005		KARA/LVH	MODERATE	16	E	36	Y	NORMAL	NORMAL	N	N	N	N	N	N	
5/19/2005		LVH/LH	N/A	12	NW	66	N	NORMAL	NORMAL	N	N	N	Y	N	N	Birds - Barn Swallows
5/26/2005		LH/KARA	N/A	16	W	59	N	NORMAL	NORMAL	N	N	N	N	N	N	
6/2/2005		KARA/LVH	N/A	12	S	68	Y	NORMAL	NORMAL	N	N	N	Y	N	N	A lot of birds flying around bridge.
6/9/2005		LVH/LH	N/A	9	NE	68	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn Swallows
6/16/2005		LH/KARA	N/A	16	S	68	N	NORMAL	NORMAL	N	N	N	Y	N	N	a lot of little birds
6/23/2005		KARA/LVH	N/A	20	S	85	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn Swallows
6/30/2005		LVH/LH	N/A	24	W	65	Y	NORMAL	NORMAL	N	N	N	N	N	N	
7/7/2005		LH/KARA	N/A	13	S	77	N	NORMAL	NORMAL	N	N	N	Y	N	N	A lot of little birds
7/14/2005		KARA/LH	N/A	10	SE	86	N	NORMAL	NORMAL	N	N	N	Y	N	N	Wildlife - Various Birds

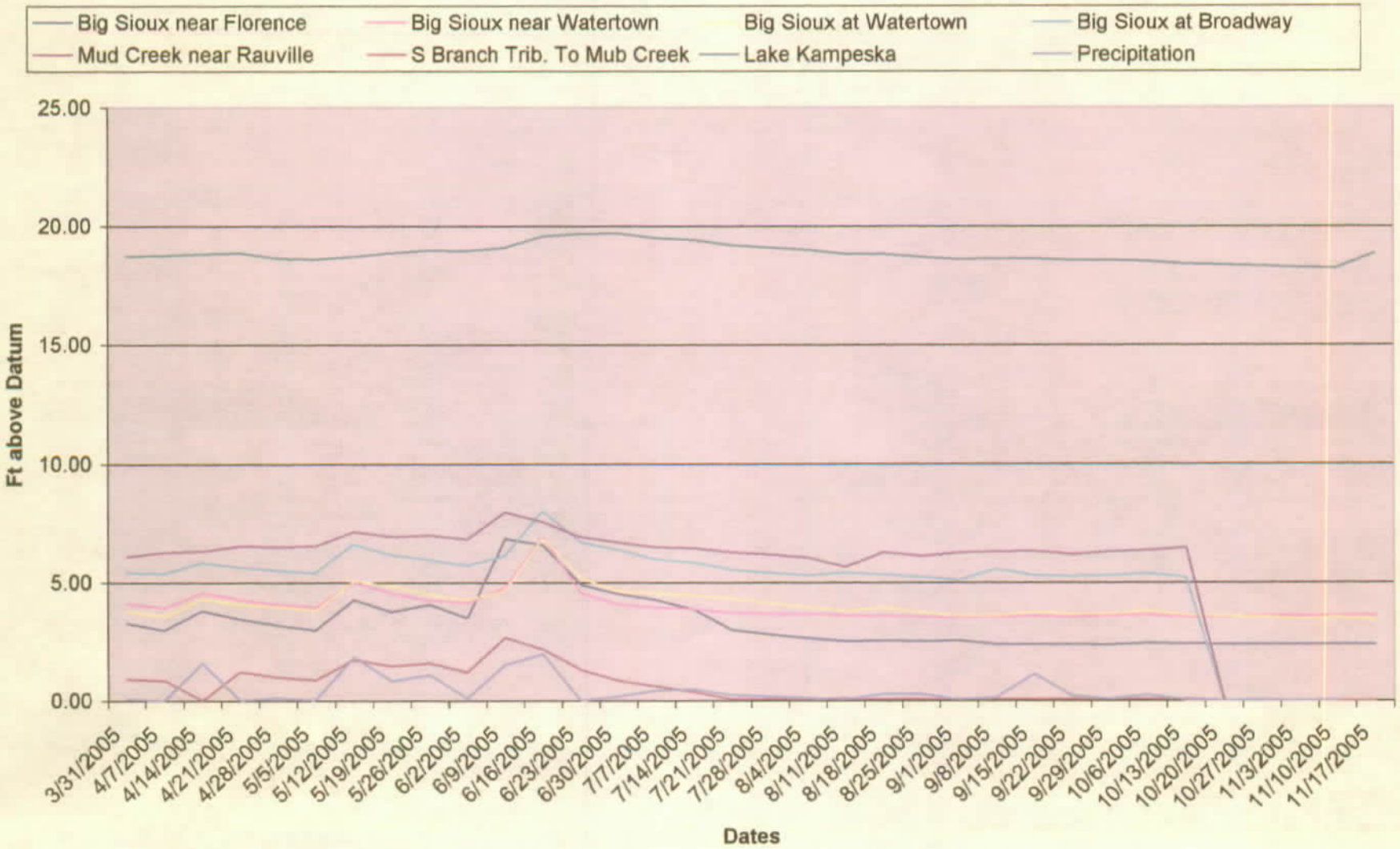
2005 Field Observations

Date	Time	Sample Collector	Rain Fall	Wind		Air Temp Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
				Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
7/21/2005		LH/LVH	N/A	5	VARIABLE	75	N	NORMAL	NORMAL	N	N	N	N	Y	N	horses in pasture near river on E. side of bridge; cattle in river on west side of bridge
7/28/2005		LVH/KARA	N/A	12	NW	72	N	NORMAL	NORMAL	N	N	N	N	N	N	
8/4/2005		KARA/LVH	N/A	12	NW	72	N	NORMAL	NORMAL	N	N	N	N	N	N	8/5/05 - Phone Mike Burr from USGS - 352-4241. Asked him why no discharge data for 06479215 for last couple of weeks. He said they need to do another stream profile. The flow is backed up in this area he thinks so it shows more flow than what is actual
8/11/2005		LVH/LH	LIGHT	12	S	67	Y	NORMAL	NORMAL	N	N	N	N	N	N	
8/18/2005		LH	N/A	10	NW	70	Y	NORMAL	NORMAL	N	N	N	N	N	N	
8/25/2005		LH/LVH	N/A	12	SSE	72	Y	NORMAL	NORMAL	N	N	N	N	N	N	
9/1/2005		LVH/KARA	N/A	15	W	70	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/8/2005		KARA/LH	N/A	14	S	75	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/15/2005		LH	N/A	0	N/A	74	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/22/2005		LH	N/A	15	N	60	N	NORMAL	NORMAL	N	N	N	N	N	N	
9/29/2005		LH	N/A	26	S	63	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/6/2005		LH	N/A	17	NW	35	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/13/2005		LH	N/A	6	SW	54	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/20/2005		LH/CM	N/A	5	E	38	N	NORMAL	NORMAL	N	N	N	N	Y	N	Cows on west side of bridge. Spoke to Mike Burr, USGS. Sites 06479490, 06479498, 06479512, 445959096582600, and 450628097060800 shut down
10/27/2005		CM/LVH	N/A	15	S	46	N	NORMAL	NORMAL	N	N	N	Y	Y	N	Cattle and ducks on west side of bridge.

2005 Field Observations

Date	Time	Sample Collector	Rain Fall	Wind		Air Temp Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
				Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
11/3/2005		LVH/LH	N/A	9	E	42	Y	NORMAL	NORMAL	N	N	N	N	Y	N	Cows in the river west side of bridge.
11/10/2005		LH	N/A	6	W	56	N	NORMAL	NORMAL	N	N	N	N	Y	N	Cattle was along river on west side of bridge.
11/17/2005		LH	N/A	18	SE	19	Y	NORMAL	NORMAL	N	N	N	N	N	N	The river was completely iced over. The station was shut down for the year.

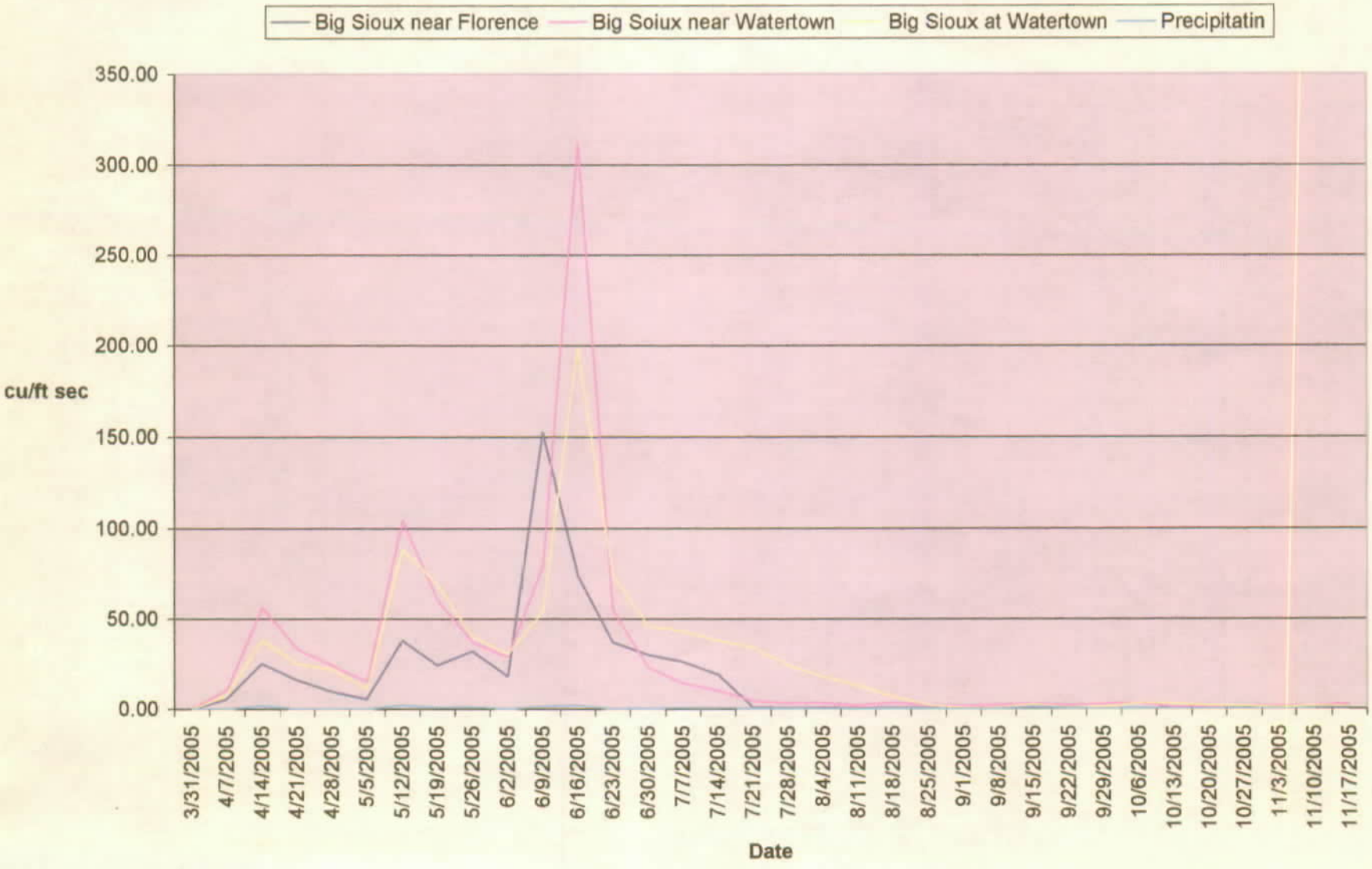
Stage Chart from Watertown's Enhanced Flood Forecasting System 2005



2005 Stage from Watertown's Enhanced Flood Forecasting System

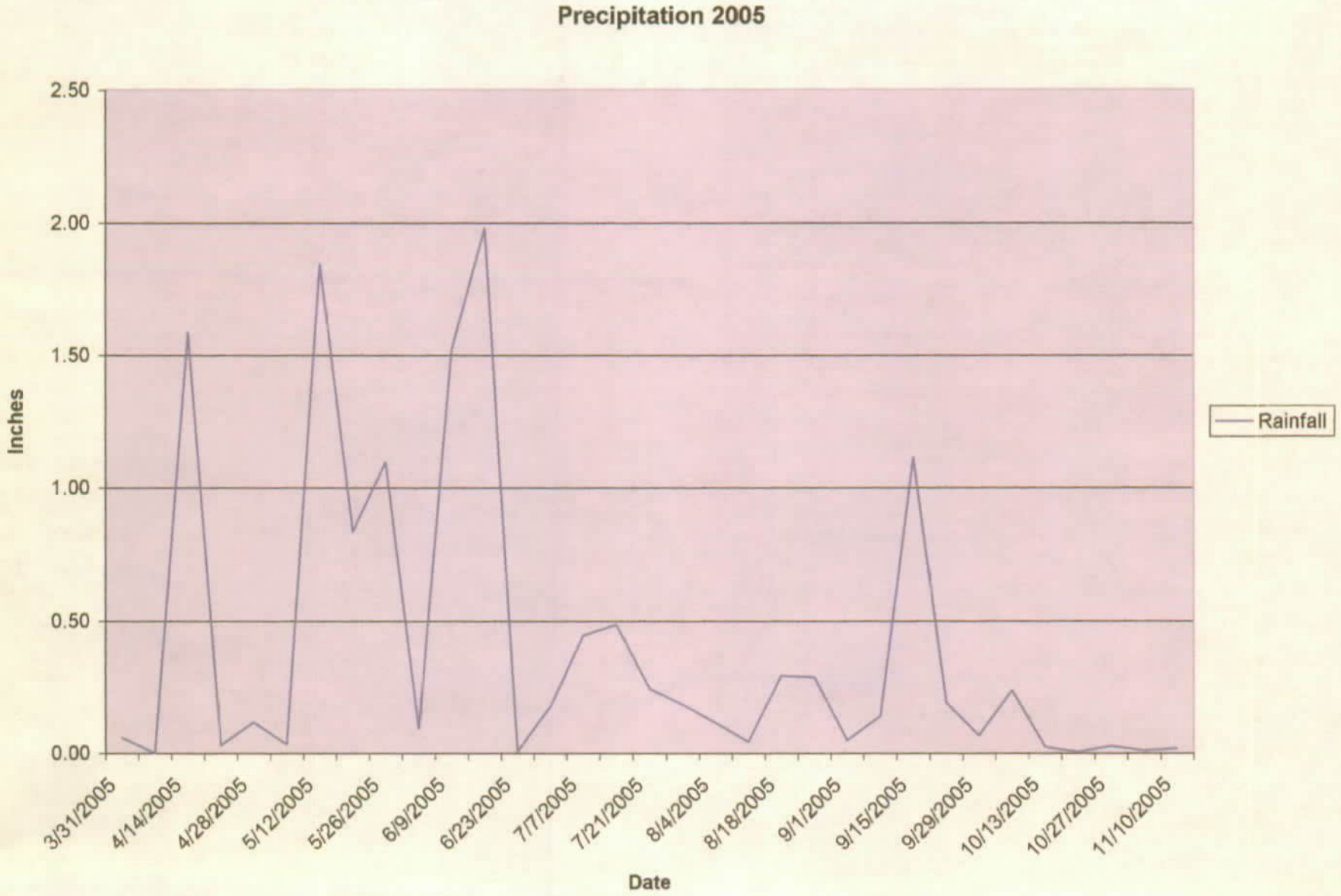
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
3/31/2005	LH	3.30	4.12	3.80	5.43	6.11	0.92	18.73
4/7/2005	LH/CM	2.98	3.92	3.61	5.37	6.28	0.86	18.74
4/14/2005	CM/LH	3.82	4.58	4.32	5.83	6.34		18.81
4/21/2005	LH/CM	3.47	4.29	4.08	5.64	6.53	1.22	18.85
4/28/2005	CM/LH	3.20	4.09	4.01	5.51	6.52	1.00	18.63
5/5/2005	LH/KH	2.99	3.95	3.81	5.41	6.53	0.87	18.60
5/12/2005	KARA/LVH	4.28	5.00	5.08	6.60	7.16	1.73	18.70
5/19/2005	LVH/LH	3.78	4.55	4.88	6.16	6.94	1.47	18.86
5/26/2005	LH/KARA	4.09	4.25	4.50	5.95	7.01	1.60	18.96
6/2/2005	KARA/LVH	3.52	4.14	4.29	5.70	6.82	1.20	18.94
6/9/2005	LVH/LH	6.85	4.78	4.65	6.12	7.96	2.67	19.08
6/16/2005	LH/KARA	6.58	6.92	6.87	8.01	7.56	2.18	19.55
6/23/2005	KARA/LVH	4.92	4.56	5.20	6.69	6.93	1.32	19.67
6/30/2005	LVH/LH	4.53	4.09	4.63	6.39	6.69	0.85	19.68
7/7/2005	LH/KARA	4.29	3.96	4.56	5.98	6.49	0.61	19.49
7/14/2005	KARA/LH	3.87	3.88	4.45	5.83	6.46	0.38	19.40
7/21/2005	LH/LVH	3.01	3.73	4.35	5.54	6.28	0.07	19.19
7/28/2005	LVH/KARA	2.80	3.68	4.13	5.39	6.20	0.07	19.07
8/4/2005	KARA/LVH	2.65	3.68	3.98	5.29	6.05	0.08	18.99
8/11/2005	LVH/LH	2.53	3.62	3.82	5.39	5.67	0.08	18.80
8/18/2005	LH	2.54	3.61	3.94	5.33	6.27	0.07	18.80
8/25/2005	LH/LVH	2.53	3.56	3.76	5.22	6.13	0.07	18.67
9/1/2005	LVH/KARA	2.55	3.53	3.59	5.09	6.26	0.07	18.60
9/8/2005	KARA/LH	2.39	3.56	3.61	5.55	6.31	0.07	18.62
9/15/2005	LH	2.40	3.58	3.77	5.30	6.33	0.07	18.62
9/22/2005	LH	2.39	3.56	3.66	5.25	6.20	0.07	18.54
9/29/2005	LH	2.37	3.59	3.67	5.29	6.31	0.07	18.54
10/6/2005	LH	2.44	3.64	3.82	5.36	6.36	0.07	18.50
10/13/2005	LH	2.42	3.55	3.63	5.22	6.48	0.07	18.40
10/20/2005	LH/CM	2.39	3.56	3.57				18.34
10/27/2005	CM/LVH	2.39	3.59	3.55				18.30
11/3/2005	LVH/LH	2.39	3.6	3.49				18.23
11/10/2005	LH	2.39	3.6	3.54				18.22
11/17/2005	LH	2.4	3.63	3.44				18.84

Stream Flow 2005



2005 Stream Flow in cfs Summary

		Location And Site Number		
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500
3/31/2005	LH			
4/7/2005	LH/CM	5.20	10.00	7.40
4/14/2005	CM/LH	25.00	56.00	38.00
4/21/2005	LH/CM	16.00	33.00	25.00
4/28/2005	CM/LH	9.50	24.00	22.00
5/5/2005	LH/KH	5.40	15.00	11.00
5/12/2005	KARA/LVH	38.00	104.00	88.00
5/19/2005	LVH/LH	24.00	60.00	69.00
5/26/2005	LH/KARA	32.00	37.00	40.00
6/2/2005	KARA/LVH	18.00	29.00	30.00
6/9/2005	LVH/LH	152.00	79.00	54.00
6/16/2005	LH/KARA	74.00	312.00	199.00
6/23/2005	KARA/LVH	37.00	55.00	74.00
6/30/2005	LVH/LH	30.00	23.00	46.00
7/7/2005	LH/KARA	26.00	14.00	43.00
7/14/2005	KARA/LH	19.00	10.00	38.00
7/21/2005	LH/LVH	0.90	4.30	34.00
7/28/2005	LVH/KARA	0.70	3.10	24.00
8/4/2005	KARA/LVH	0.70	3.10	18.00
8/11/2005	LVH/LH	0.40	1.80	13.00
8/18/2005	LH	0.55	3.10	6.70
8/25/2005	LH/LVH	0.55	2.00	2.10
9/1/2005	LVH/KARA	0.60	1.50	0.43
9/8/2005	KARA/LH	0.14	2.00	0.52
9/15/2005	LH	0.16	2.40	2.20
9/22/2005	LH	0.14	2.00	0.84
9/29/2005	LH	0.11	2.60	0.93
10/6/2005	LH	0.27	3.50	3.40
10/13/2005	LH	0.30	0.89	2.90
10/20/2005	LH/CM	0.24	1.00	1.70
10/27/2005	CM/LVH	0.24	1.50	1.50
11/3/2005	LVH/LH	0.24	1.5	0.84
11/10/2005	LH	0.24	1.5	1.3
11/17/2005	LH	0.37	2.4	1.5


Precipitation 2005
2.50
2.00
1.50
1.00
0.50
0.00
Inches
3/31/2005
4/14/2005
4/28/2005
5/12/2005
5/26/2005
6/9/2005
6/23/2005
7/7/2005
7/21/2005
8/4/2005
8/18/2005
9/1/2005
9/15/2005
9/29/2005
10/13/2005
10/27/2005
11/10/2005
Date
Rainfall

2005 Precipitation in Inches Summary

Date			Location And Site Number								
To	From	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	Near South Shore 450628097060800	Average Precipitation For The Week
03/24/05	3/31/2005	Howard	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.06
3/31/2005	4/7/2005	Howard	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/7/2005	4/14/2005	Mitchell	0.38	0.22	0.40	0.28	7.90		1.00	0.90	1.58
4/14/2005	4/21/2005	Howard	0.00	0.00	0.04	0.02	0.00	0.06	0.07	0.00	0.03
4/21/2005	4/28/2005	Mitchell	0.00	0.00	0.20	0.20	0.20	0.00	0.20	0.01	0.12
4/28/2005	5/5/2005	Howard	0.02	0.02	0.04	0.03	0.00	0.03	0.03	0.05	0.03
5/5/2005	5/12/2005	Hible	1.55	1.04	1.30	1.42	1.53	2.00	2.25	1.80	1.84
5/12/2005	5/19/2005	VanHeel	0.02	0.84	0.09	0.85	0.75	1.10	0.95	1.25	0.84
5/19/2005	5/26/2005	Howard	0.70	1.10	0.80	0 65	1.25	1.00	1.08	1.08	1.09
5/26/2005	6/2/2005	Hible	0.05	0.05	0.12	0.12	0.06	0.11	0.07	0.06	0.09
6/2/2005	6/9/2005	VanHeel	0.09	1.55	2.60	0.17	1.10	2.20	1.30	1.60	1.52
6/9/2005	6/16/2005	Howard	0.82	2.80	2.10	0.82	1.80	1.60	1.70	2.20	1.98
6/16/2005	6/23/2005	Hible	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
6/23/2005	6/30/2005	VanHeel	0.07	0.10	0.25	0.00	0.23	0.15	0.08	0.35	0.18
6/30/2005	7/7/2005	Howard	0.21	0.41	0.27	0.13	0.85	0.38	0.44	0.42	0.44
7/7/2005	7/14/2005	Hible	0.40	0.51	0.30	0.08	0.39	0.45	0.73	0.54	0.49
7/14/2005	7/21/2005	Howard	0.00	0.12	0.27	0.06	0.36	0.39	0.34	0.17	0.24
7/21/2005	7/28/2005	VanHeel	0.10	0.11	0.13	0.04	0.35	0.20	0.18	0.17	0.18
7/28/2005	8/4/2005	Hible	0.08	0.48	0.23	0.25	0.32	0.17	0.35	0.75	0.11
8/4/2005	8/11/2005	VanHeel	0.05	0.22	0.02	0.05	0.27	0.18	0.27	0.45	0.04
8/11/2005	8/18/2005	Howard	0.30	0.75	1.00	0.12	0.90	0.90	0.60	0.75	0.29
8/18/2005	8/25/2005	Howard	0.42	0.48	1.10	0.12	0.55	1.30	4.10	0.27	0.29
8/25/2005	9/1/2005	VanHeel	0.02	0.16	0.14	0.14	0.18	0.51	0.70	0.12	0.05
9/1/2005	9/8/2005	Hible	0.06	0.41	0.49	0.22	0.50	0.65	0.35	0.45	0.14
9/8/2005	9/15/2005	Howard	0.28	1.00	6.50	1.05	1.90	2.10	2.30	1.35	1.11
9/15/2005	9/22/2005	Howard	0.13	0.46	0.75	0.22	0.55	0.55	0.68	0.35	0.19
9/22/2005	9/29/2005	Howard	0.13	0.18	0.15	0.06	0.26	0.26	0.27	0.40	0.07
9/29/2005	10/6/2005	Howard	0.35	0.71	0.59	0.42	1.15	1.34	1.10	0.90	0.24
10/6/2005	10/13/2005	Howard	0.03	0.07	0.05	0.03	0.07	0.05	0.03	0.04	0.02
10/13/2005	10/20/2005	Howard	0.00	0.01	0.00						0.00
10/20/2005	10/27/2005	Mitchell	0.00	0.02	0.06						0.03
10/27/2005	11/3/2005	VanHeel	0.00	0.01	0.02						0.01
11/3/2005	11/10/2005	Howard	0.01	0.02	0.02						0.02

FC-29

MUNICIPAL UTILITIES DEPARTMENT

901 Fourth Avenue Southwest
WATERTOWN, SOUTH DAKOTA 57201-4107
PHONE (605) 882-6233 • FAX (605) 882-6238

April 22, 2010

Garland Erbele, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

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RE: Flood Control Permit No. FC-29

Dear Mr. Erbele:

Following this letter is a summary report and graphs of the testing done in accordance to Flood Control Permit No. FC-29. The sampling period for 2009 was from March 19th to November 19th. Grab samples and the composite sample were collected weekly during this sampling period. The stage and stream flow information were also taken weekly. The precipitation recorded for each sample sight is a total amount of rainfall for the week of each sample sight. The precipitation information used in the graphs is an average total of that week. There were 3 times during 2009 that samples could not be analyzed. The sampling period from 7/16 to 7/23 did not get sampled because the sample was not at the proper temperature. The sampling period from 10/8 to 10/15 did not get sampled because the sample tube froze and broke so there was not enough of a sample collected to run the test. The sampling period from 10/15 to 10/23 did not get sampled because the battery pack that runs the sampling equipment failed and there was not enough of a sample collected to run the test. These 3 sample dates have been left blank on the summary reports.

The gates were opened on April 2nd based on the lake elevation and that the river had went over flood stage. The gates were closed again on May 12th based on the elevation of the lake. Increased sampling was conducted in accordance to Flood Control Permit No. FC-29. The additional testing is listed separately in this packet.

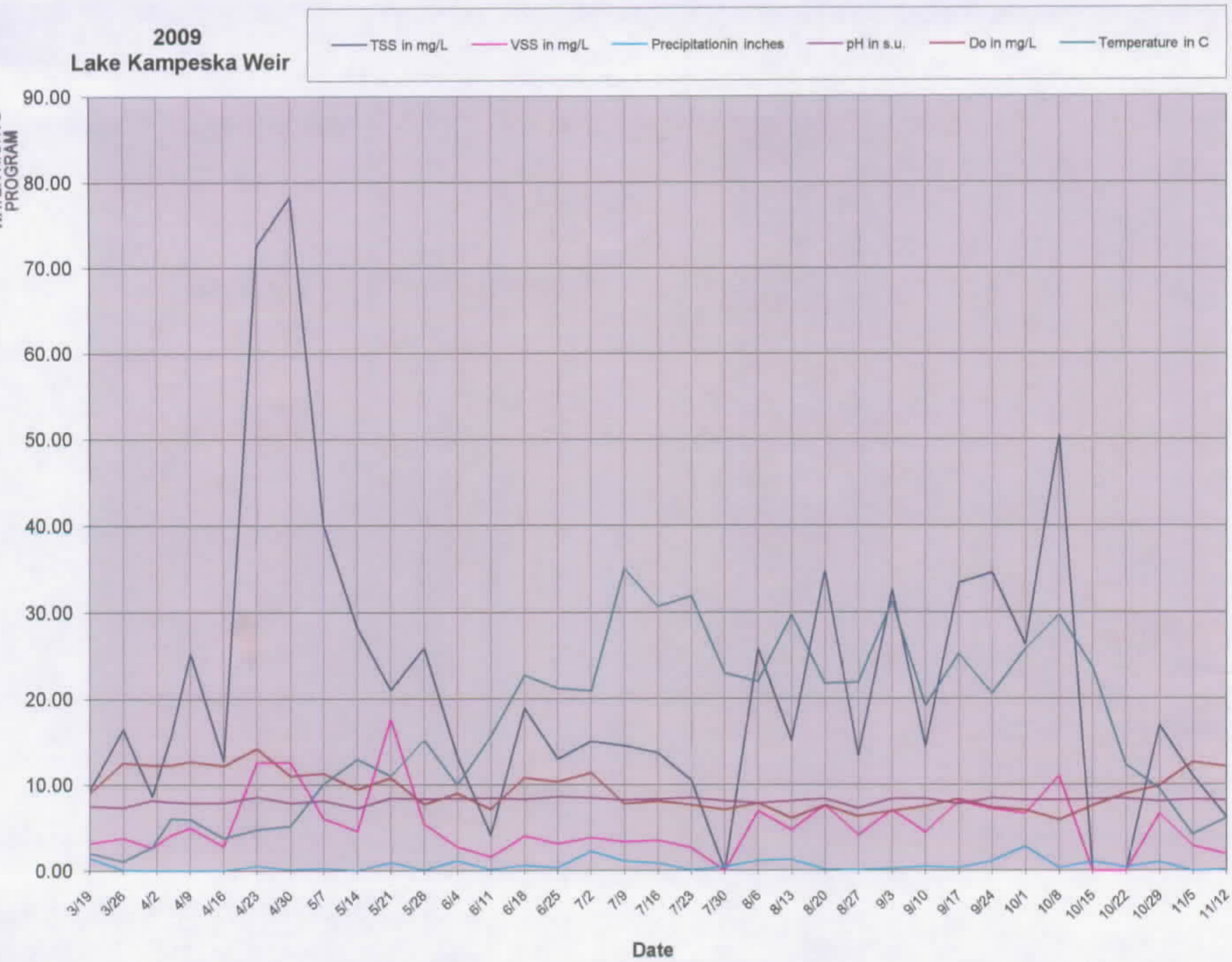
Thank you and please call if you have any questions.

Sincerely,

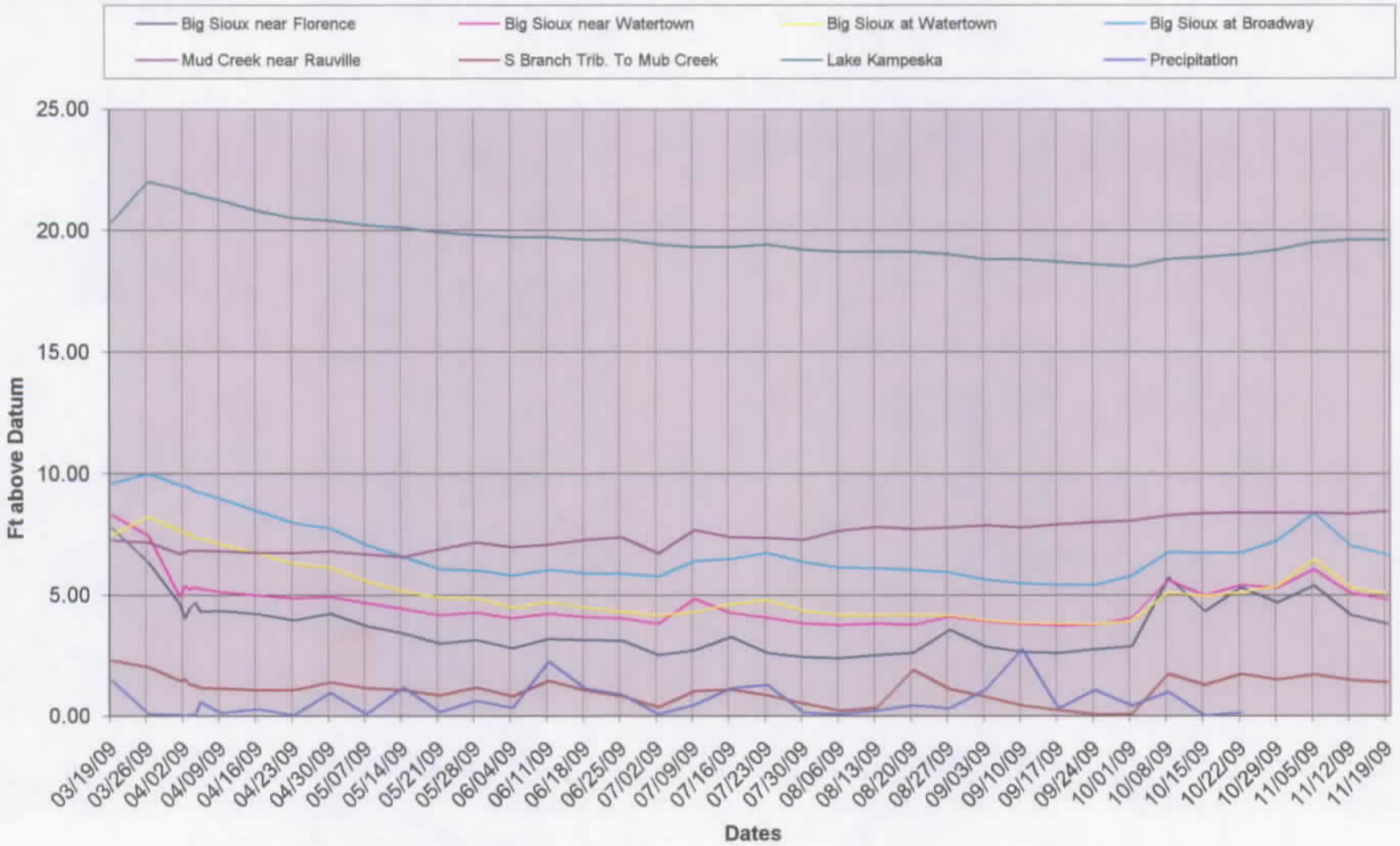
Jeff DeVille
Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Vicki Maag, Lake Pelican Water Project District
Craig Mitchell, Watertown Waste Water Department.

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Stage Chart from Watertown's Enhanced Flood Forecasting System 2009



2009 Field Observations

Date	Sample Collector	Rain Fall	Wind		Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Excessive Turbidity	Presence of			Comments
			Velocity mph	Direction								Wildlife	Domestic Animals	Dead Fish	
03/19/09	LH	N/A	6	E	27	N	NORMAL	NORMAL	N	N	N	N	N	N	
03/26/09	LH	N/A	17	NW	23	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/01/09	LH/CM	N/A	18	W	30	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/02/09	CM/LH	N/A	3	W	37	N	NORMAL	NORMAL	N	N	N	Y	N	N	Geese in river upstream.
04/03/09	CM/LH	N/A	10	E	41	N	NORMAL	NORMAL	N	N	N	N	N	N	
04/04/09	LH	N/A	21	NE	33	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/05/09	LH	N/A	22	N	31	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/09/09	LH	N/A	12	NE	35	N	NORMAL	NORMAL	N	N	N	Y	N	N	Ducks in river upstream.
04/16/09	LH	N/A	15	S	50	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/23/09	LH	N/A	16	S	57	N	NORMAL	NORMAL	N	N	N	N	N	N	
04/30/09	LH/LVH	N/A	16	W	49	Y	NORMAL	NORMAL	N	N	N	N	N	N	
05/07/09	LH/TM	N/A	7	W	51	Y	NORMAL	NORMAL	N	N	N	N	N	N	
05/14/09	TM	N/A	12	NW	42	Y	NORMAL	NORMAL	N	N	N	N	N	N	
05/21/09	TM/LVH	N/A	8	NE	54	Y	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows around bridge.
05/28/09	LVH/TM	N/A	8	NW	67	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn Swallows
06/04/09	TM/LH	N/A	8	W	63	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn Swallows
06/11/09	LH/LVH	N/A	5	N	64	N	NORMAL	NORMAL	N	N	N	Y	Y	N	Barn swallows around bridge. Cattle in pature near river.
06/18/09	LVH/TM	N/A	0	N/A	78	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows.

06/25/09	TM/LH	N/A	7	NW	77	N	NORMAL	NORMAL	N	N	N	Y	Y	N	Swallows around bridge and cows upstream in river.
07/02/09	LH/LVH	N/A	6	W	74	N	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows
07/09/09	LVH/TM	N/A	13	SW	72	Y	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows.
07/16/09	TM/LH	N/A	21	NW	62	N	NORMAL	NORMAL	N	N	N	N	Y	N	Cows in river upstream.
07/23/09	LH/LVH	N/A	6	S	75	N	NORMAL	NORMAL	N	N	N	Y	N	N	Duckweed; Barn swallows around bridge, Geese in river
07/30/09	LVH/TM	N/A	13	NW	63	Y	NORMAL	NORMAL	N	N	N	Y	N	N	Barn swallows.
08/06/09	TM/LH	N/A	8	SE	70	Y	NORMAL	NORMAL	N	N	N	N	N	N	
08/13/09	LH/LVH	N/A	8	S	81	N	NORMAL	NORMAL	N	N	N	N	N	N	
08/20/09	LVH/TM	N/A	16	NW	63	Y	NORMAL	NORMAL	N	N	N	N	N	N	
08/27/09	TM/LH	N/A	0	N/A	70	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/03/09	LH	N/A	7	VARIABLE	68	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/10/09	LH	N/A	9	S	72	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/17/09	LH/LVH	N/A	5	W	72	N	NORMAL	NORMAL	N	N	N	N	N	N	
09/24/09	LVH	N/A	8	NE	69	N	NORMAL	NORMAL	N	N	N	N	N	N	
10/01/09	LVH/TM	DDERA	8	SE	52	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/08/09	TM/LH	N/A	16	NW	40	N	NORMAL	NORMAL	N	N	N	N	Y	N	Cows in river upstream.
10/15/09	LH/LVH	LIGHT	7	NE	34	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/22/09	LVH/TM/LH	N/A	17	NE	34	Y	NORMAL	NORMAL	N	N	N	N	N	N	
10/29/09	LH	LIGHT	7	E	48	Y	NORMAL	NORMAL	N	N	N	N	N	N	
11/05/09	LH/LVH	N/A	10	SE	44	N	NORMAL	NORMAL	N	N	N	N	Y	N	Cows on river bank
11/12/09	LVH/TM	N/A	21	S	51	Y	NORMAL	NORMAL	N	N	N	N	N	N	
11/19/09	TM/LH	N/A	9	S	43	N	NORMAL	NORMAL	N	N	N	N	N	N	

2009 Lake Kampeska Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method USGS I-1586-85	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method SM 2550 B - 20th Edition
03/19/09	LH	WQM55		231 uS/cm		7.52 s.u.		9.07 mg/L		2.1 ° C
03/26/09	LH	WQM55		404 uS/cm		7.39 s.u.		12.58 mg/L		1.1 ° C
04/01/09	LH/CM	WQM55		600 uS/cm		8.23 s.u.		12.30 mg/L		2.8 ° C
04/02/09	CM/LH	WQM55		594 uS/cm		8.03 s.u.		12.33 mg/L		6.1 ° C
04/03/09	CM/LH	WQM55		401 uS/cm		7.89 s.u.		12.70 mg/L		6.0 ° C
04/04/09	LH	WQM55		625 uS/cm		7.88 s.u.		12.22 mg/L		3.8 ° C
04/05/09	LH	WQM55		357 uS/cm		8.59 s.u.		14.21 mg/L		4.8 ° C
04/09/09	LH	WQM55		671 uS/cm		7.84 s.u.		11.03 mg/L		5.2 ° C
04/16/09	LH	WQM55		655 uS/cm		8.09 s.u.		11.34 mg/L		10.1 ° C
04/23/09	LH	WQM55		685 uS/cm		7.27 s.u.		9.46 mg/L		13.0 ° C
04/30/09	LH/LVH	WQM55		713 uS/cm		8.41 s.u.		10.83 mg/L		11.0 ° C
05/07/09	LH/TM	WQM55		736 uS/cm		8.31 s.u.		7.68 mg/L		15.2 ° C
05/14/09	TM	WQM55		798 uS/cm		8.37 s.u.		9.01 mg/L		10.0 ° C
05/21/09	TM/LVH	WQM55		798 uS/cm		8.40 s.u.		7.14 mg/L		15.6 ° C
05/28/09	LVH/TM	WQM55		684 uS/cm		8.31 s.u.		10.83 mg/L		22.7 ° C
06/04/09	TM/LH	WQM55		644 uS/cm		8.59 s.u.		10.36 mg/L		21.2 ° C
06/11/09	LH/LVH	WQM55		664 uS/cm		8.49 s.u.		11.37 mg/L		20.9 ° C
06/18/09	LVH/TM	WQM55		688 uS/cm		8.21 s.u.		7.74 mg/L		35.1 ° C
06/25/09	TM/LH	WQM55		647 uS/cm		8.3 s.u.		8.10 mg/L		30.7 ° C
07/02/09	LH/LVH	WQM55		634 uS/cm		8.49 s.u.		7.65 mg/L		31.9 ° C
07/09/09	LVH/TM	WQM55		661 uS/cm		8.1 s.u.		7.10 mg/L		23.0 ° C
07/16/09	TM/LH	WQM55		720 uS/cm		7.86 s.u.		7.85 mg/L		22.0 ° C
07/23/09	LH/LVH	WQM55		629 uS/cm		8.09 s.u.		6.07 mg/L		29.7 ° C
07/30/09	LVH/TM	WQM55		674 uS/cm		8.37 s.u.		7.61 mg/L		21.8 ° C
08/06/09	TM/LH	WQM55		642 uS/cm		7.25 s.u.		6.29 mg/L		21.9 ° C
08/13/09	LH/LVH	WQM55		642 uS/cm		8.36 s.u.		6.91 mg/L		31.3 ° C
08/20/09	LVH/TM	WQM55		689 uS/cm		8.35 s.u.		7.50 mg/L		19.2 ° C
08/27/09	TM/LH	WQM55		540 uS/cm		7.75 s.u.		8.34 mg/L		25.2 ° C
09/03/09	LH	WQM55		638 uS/cm		8.43 s.u.		7.36 mg/L		20.6 ° C
09/10/09	LH	WQM55		642 uS/cm		8.24 s.u.		7.05 mg/L		25.8 ° C
09/17/09	LH/LVH	WQM55		657 uS/cm		8.24 s.u.		5.91 mg/L		29.7 ° C
09/24/09	LVH	WQM55		651 uS/cm		8.32 s.u.		7.54 mg/L		23.6 ° C
10/01/09	LVH/TM	WQM55		673 uS/cm		8.38 s.u.		8.92 mg/L		12.3 ° C
10/08/09	TM/LH	WQM55		718 uS/cm		8.05 s.u.		9.90 mg/L		9.5 ° C
10/15/09	LH/LVH	WQM55		729 uS/cm		8.26 s.u.		12.62 mg/L		4.2 ° C
10/22/09	LVH/TM/LH	WQM55		819 uS/cm		8.15 s.u.		12.09 mg/L		6.1 ° C
10/29/09	LH	WQM55		777 uS/cm		8.11 s.u.		10.09 mg/L		8.6 ° C
11/05/09	LH/LVH	WQM55		712 uS/cm		8.08 s.u.		11.75 mg/L		9.0 ° C
11/12/09	LVH/TM	WQM55		805 uS/cm		8.12 s.u.		11.54 mg/L		11.0 ° C
11/19/09	TM/LH	WQM55		822 uS/cm		7.94 s.u.		15.13 mg/L		6.0 ° C

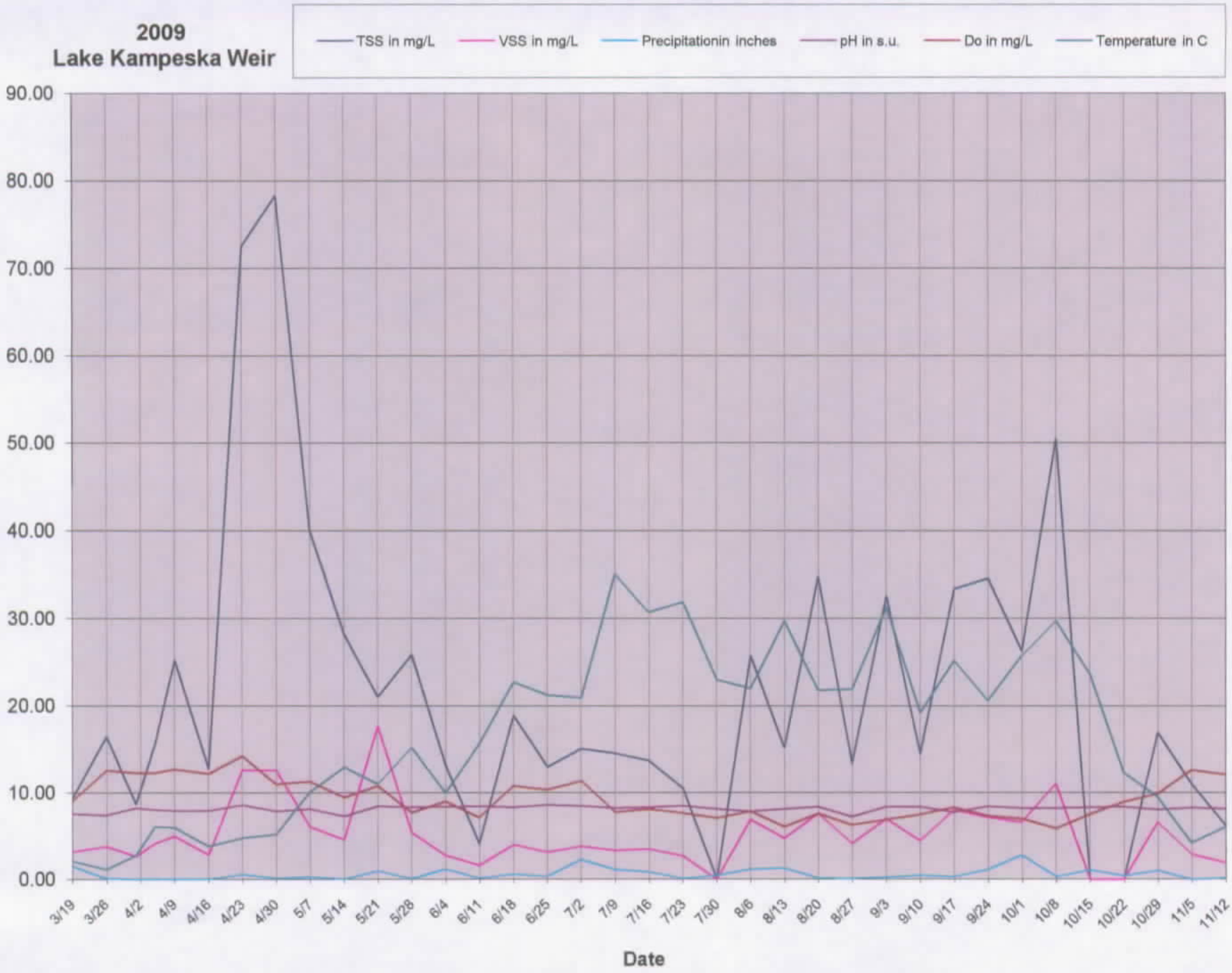
2009 Lake Kampeska Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter			Parameter			Average TSS	Average VSS
				Sample ID	TSS SM 2540 D - 20th Edition		Sample ID	VSS EPA Method 160.4			
03/19/09	03/26/09	LH	WQM55		9.6	mg/L		3.4	mg/L		
03/19/09	03/26/09	LH	WQM55		9.2	mg/L		3	mg/L	9.40	3.20
03/26/09	04/01/09	LH/CM	WQM55		16.75	mg/L		3.62	mg/L		
03/26/09	04/01/09	LH/CM	WQM55		16.12	mg/L		4	mg/L	16.44	3.81
04/01/09	04/02/09	CM/LH	WQM55		8.75	mg/L		2.62	mg/L		
04/01/09	04/02/09	CM/LH	WQM55		8.62	mg/L		2.75	mg/L	8.69	2.69
04/02/09	04/03/09	CM/LH	WQM55		16.25	mg/L		3.75	mg/L		
04/02/09	04/03/09	CM/LH	WQM55		15	mg/L		4.62	mg/L	15.63	4.19
04/03/09	04/04/09	LH	WQM55		25.78	mg/L		5	mg/L		
04/03/09	04/04/09	LH	WQM55		24.78	mg/L		5	mg/L	25.28	5.00
04/04/09	04/05/09	LH	WQM55		13	mg/L		2.8	mg/L		
04/04/09	04/05/09	LH	WQM55		12.6	mg/L		2.9	mg/L	12.80	2.85
04/09/09	04/16/09	LH	WQM55		77.4	mg/L		12	mg/L		
04/09/09	04/16/09	LH	WQM55		67.6	mg/L		13.2	mg/L	72.50	12.60
04/16/09	04/23/09	LH	WQM55		79.6	mg/L		12.4	mg/L		
04/16/09	04/23/09	LH	WQM55		77	mg/L		12.8	mg/L	78.30	12.60
04/23/09	04/30/09	LH/LVH	WQM55		39.8	mg/L		6.2	mg/L		
04/23/09	04/30/09	LH/LVH	WQM55		40.2	mg/L		6	mg/L	40.00	6.10
04/30/09	05/07/09	LH/TM	WQM55		28.6	mg/L		4.2	mg/L		
04/30/09	05/07/09	LH/TM	WQM55		27.8	mg/L		5	mg/L	28.20	4.60
05/07/09	05/14/09	TM	WQM55		22.17	mg/L		16.83	mg/L		
05/07/09	05/14/09	TM	WQM55		19.83	mg/L		18.5	mg/L	21.00	17.67
05/14/09	05/21/09	TM/LVH	WQM55		25.8	mg/L		5.6	mg/L		
05/14/09	05/21/09	TM/LVH	WQM55		26	mg/L		5.2	mg/L	25.90	5.40
05/21/09	05/28/09	LVH/TM	WQM55		13.6	mg/L		2.8	mg/L		
05/21/09	05/28/09	LVH/TM	WQM55		12.8	mg/L		2.8	mg/L	13.20	2.80
05/28/09	06/04/09	TM/LH	WQM55		4.1	mg/L		1.6	mg/L		
05/28/09	06/04/09	TM/LH	WQM55		4.1	mg/L		1.6	mg/L	4.10	1.60
06/04/09	06/11/09	LH/LVH	WQM55		19.6	mg/L		4	mg/L		
06/04/09	06/11/09	LH/LVH	WQM55		18.2	mg/L		4	mg/L	18.90	4.00

06/11/09	06/18/09	LVH/TM	WQM55		13.1	mg/L		3.2	mg/L		
06/11/09	06/18/09	LVH/TM	WQM55		12.9	mg/L		3.1	mg/L	13.00	3.15
06/18/09	06/25/09	TM/LH	WQM55		15.1	mg/L		3.7	mg/L		
06/18/09	06/25/09	TM/LH	WQM55		15	mg/L		3.9	mg/L	15.05	3.80
06/25/09	07/02/09	LH/LVH	WQM55		14.5	mg/L		3.3	mg/L		
06/25/09	07/02/09	LH/LVH	WQM55		14.6	mg/L		3.4	mg/L	14.55	3.35
07/02/09	07/09/09	LVH/TM	WQM55		14.38	mg/L		3.25	mg/L		
07/02/09	07/09/09	LVH/TM	WQM55		13	mg/L		3.75	mg/L	13.69	3.50
07/09/09	07/16/09	TM/LH	WQM55		10.4	mg/L		2.6	mg/L		
07/09/09	07/16/09	TM/LH	WQM55		10.6	mg/L		2.7	mg/L	10.50	2.65
07/16/09	07/23/09	LH/LVH	WQM55			mg/L			mg/L		
07/16/09	07/23/09	LH/LVH	WQM55			mg/L			mg/L	0.00	0.00
07/23/09	07/30/09	LVH/TM	WQM55		26.71	mg/L		6.71	mg/L		
07/23/09	07/30/09	LVH/TM	WQM55		24.86	mg/L		7.14	mg/L	25.79	6.93
07/30/09	08/06/09	TM/LH	WQM55		16.5	mg/L		4.17	mg/L		
07/30/09	08/06/09	TM/LH	WQM55		13.83	mg/L		5.33	mg/L	15.17	4.75
08/06/09	08/13/09	LH/LVH	WQM55		35.69	mg/L		7.54	mg/L		
08/06/09	08/13/09	LH/LVH	WQM55		33.85	mg/L		7.69	mg/L	34.77	7.62
08/13/09	08/20/09	LVH/TM	WQM55		11.88	mg/L		4.62	mg/L		
08/13/09	08/20/09	LVH/TM	WQM55		14.88	mg/L		3.62	mg/L	13.38	4.12
08/20/09	08/27/09	TM/LH	WQM55		32.6	mg/L		7	mg/L		
08/20/09	08/27/09	TM/LH	WQM55		32.6	mg/L		7	mg/L	32.60	7.00
08/27/09	09/03/09	LH	WQM55		15	mg/L		4.2	mg/L		
08/27/09	09/03/09	LH	WQM55		14	mg/L		4.7	mg/L	14.50	4.45
09/03/09	09/10/09	LH	WQM55		33.6	mg/L		8	mg/L		
09/03/09	09/10/09	LH	WQM55		33.2	mg/L		8	mg/L	33.40	8.00
09/10/09	09/17/09	LH/LVH	WQM55		34.4	mg/L		7	mg/L		
09/10/09	09/17/09	LH/LVH	WQM55		34.8	mg/L		7.4	mg/L	34.60	7.20
09/17/09	09/24/09	LVH	WQM55		26.4	mg/L		6.8	mg/L		
09/17/09	09/24/09	LVH	WQM55		26.2	mg/L		6.4	mg/L	26.30	6.60
09/24/09	10/01/09	LVH/TM	WQM55		52	mg/L		10	mg/L		

09/24/09	10/01/09	LVH/TM	WQM55		49	mg/L		12	mg/L	50.50	11.00
10/01/09	10/08/09	TM/LH	WQM55		8.8	mg/L		1.8	mg/L		
10/01/09	10/08/09	TM/LH	WQM55		8	mg/L		2.6	mg/L	8.40	2.20
10/08/09	10/15/09	LH/LVH	WQM55			mg/L			mg/L		
10/08/09	10/15/09	LH/LVH	WQM55			mg/L			mg/L	0.00	0.00
10/15/09	10/22/09	LVH/TM/LH	WQM55			mg/L			mg/L		
10/15/09	10/22/09	LVH/TM/LH	WQM55			mg/L			mg/L	0.00	0.00
10/22/09	10/29/09	LH	WQM55		17.2	mg/L		6.6	mg/L		
10/22/09	10/29/09	LH	WQM55		16.6	mg/L		6.6	mg/L	16.90	6.60
10/29/09	11/05/09	LH/LVH	WQM55		11.2	mg/L		2.8	mg/L		
10/29/09	11/05/09	LH/LVH	WQM55		10.8	mg/L		3	mg/L	11.00	2.90
11/05/09	11/12/09	LVH/TM	WQM55		6.2	mg/L		2	mg/L		
11/05/09	11/12/09	LVH/TM	WQM55		6.2	mg/L		1.8	mg/L	6.20	1.90
11/12/09	11/19/09	TM/LH	WQM55		15.38	mg/L		4.5	mg/L		
11/12/09	11/19/09	TM/LH	WQM55		15.38	mg/L		4	mg/L	15.38	4.25

Composite End Date		Location	TSS Average	VSS Average
03/19/09		WQM55	9.40	3.20
03/26/09		WQM55	16.44	3.81
04/01/09		WQM55	8.69	2.69
04/05/09		WQM55	15.63	4.19
04/09/09		WQM55	25.28	5.00
04/16/09		WQM55	12.80	2.85
04/23/09		WQM55	72.50	12.60
04/30/09		WQM55	78.30	12.60
05/07/09		WQM55	40.00	6.10
05/14/09		WQM55	28.20	4.60
05/21/09		WQM55	21.00	17.67
05/28/09		WQM55	25.90	5.40
06/04/09		WQM55	13.20	2.80
06/11/09		WQM55	4.10	1.60
06/18/09		WQM55	18.90	4.00
06/25/09		WQM55	13.00	3.15
07/02/09		WQM55	15.05	3.80
07/09/09		WQM55	14.55	3.35
07/16/09		WQM55	13.69	3.50
07/23/09		WQM55	10.50	2.65
07/30/09		WQM55	0.00	0.00
08/06/09		WQM55	25.79	6.93
08/13/09		WQM55	15.17	4.75
08/20/09		WQM55	34.77	7.62
08/27/09		WQM55	13.38	4.12
09/03/09		WQM55	32.60	7.00
09/10/09		WQM55	14.50	4.45
09/17/09		WQM55	33.40	8.00
09/24/09		WQM55	34.60	7.20
10/01/09		WQM55	26.30	6.60
10/08/09		WQM55	50.50	11.00
10/15/09		WQM55	0.00	0.00
10/22/09		WQM55	0.00	0.00
10/29/09		WQM55	16.90	6.60
11/05/09		WQM55	11.00	2.90
11/12/09		WQM55	6.20	1.90


2009
Lake Kampeska Weir
TSS in mg/L
VSS in mg/L
Precipitationin inches
pH in s.u.
Do in mg/L
Temperature in C
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
3/19
3/26
4/2
4/9
4/16
4/23
4/30
5/7
5/14
5/21
5/28
6/4
6/11
6/18
6/25
7/2
7/9
7/16
7/23
7/30
8/6
8/13
8/20
8/27
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9/17
9/24
10/1
10/8
10/15
10/22
10/29
11/5
11/12
Date

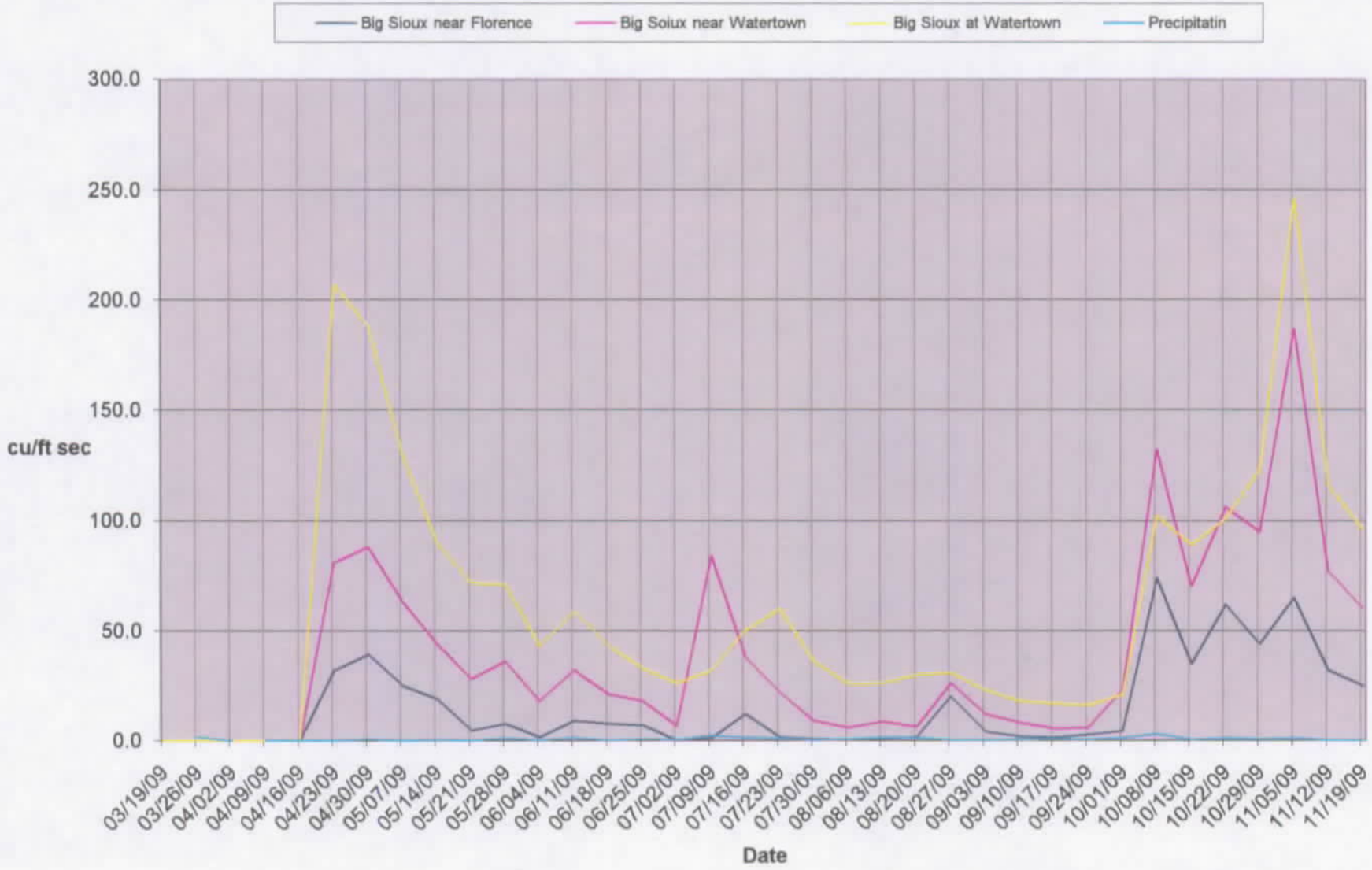
2009 Stage from Watertown's Enhanced Flood Forecasting System

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
03/19/09	LH	7.76	8.30	7.46	9.60	7.25	2.30	20.31
03/26/09	LH	6.33	7.44	8.25	10.01	7.16	2.03	22.01
04/01/09	LH/CM	4.62	4.92	7.67	9.53	6.70	1.47	21.71
04/02/09	CM/LH	4.04	5.37	7.58	9.49	6.76	1.52	21.61
04/03/09	CM/LH	4.46	5.24	7.49	9.39	6.82	1.29	21.51
04/04/09	LH	4.68	5.32	7.38	9.28	6.83	1.27	21.51
04/05/09	LH	4.32	5.27	7.34	9.22	6.82	1.17	21.41
04/09/09	LH	4.34	5.10	7.11	8.95	6.80	1.14	21.21
04/16/09	LH	4.20	4.98	6.71	8.45	6.73	1.08	20.81
04/23/09	LH	3.96	4.86	6.31	7.96	6.73	1.08	20.51
04/30/09	LH/LVH	4.23	4.92	6.15	7.74	6.80	1.39	20.41
05/07/09	LH/TM	3.71	4.66	5.59	7.07	6.68	1.17	20.21
05/14/09	TM	3.42	4.43	5.15	6.57	6.57	1.08	20.11
05/21/09	TM/LVH	2.99	4.17	4.90	6.06	6.89	0.86	19.91
05/28/09	LVH/TM	3.14	4.27	4.88	6.02	7.16	1.19	19.81
06/04/09	TM/LH	2.79	4.03	4.48	5.80	6.98	0.81	19.71
06/11/09	LH/LVH	3.19	4.22	4.73	6.03	7.09	1.47	19.71
06/18/09	LVH/TM	3.14	4.08	4.49	5.88	7.28	1.07	19.61
06/25/09	TM/LH	3.11	4.04	4.32	5.88	7.39	0.81	19.61
07/02/09	LH/LVH	2.52	3.81	4.17	5.75	6.71	0.38	19.41
07/09/09	LVH/TM	2.71	4.83	4.30	6.39	7.69	1.03	19.31
07/16/09	TM/LH	3.27	4.26	4.63	6.49	7.39	1.09	19.31
07/23/09	LH/LVH	2.60	4.05	4.78	6.73	7.36	0.87	19.41
07/30/09	LVH/TM	2.43	3.83	4.36	6.35	7.28	0.52	19.21
08/06/09	TM/LH	2.39	3.75	4.18	6.12	7.66	0.23	19.11
08/13/09	LH/LVH	2.51	3.82	4.18	6.09	7.81	0.35	19.11
08/20/09	LVH/TM	2.61	3.76	4.18	6.03	7.72	1.92	19.11
08/27/09	TM/LH	3.57	4.10	4.16	5.92	7.80	1.11	19.01
09/03/09	LH	2.86	3.90	3.96	5.62	7.88	0.79	18.81
09/10/09	LH	2.65	3.81	3.85	5.47	7.79	0.44	18.81
09/17/09	LH/LVH	2.60	3.74	3.82	5.42	7.93	0.24	18.71
09/24/09	LVH	2.74	3.75	3.8	5.4	8	0.07	18.61
10/01/09	LVH/TM	2.88	4.06	3.92	5.8	8.06	0.07	18.51
10/08/09	TM/LH	5.71	5.62	5.12	6.77	8.29	1.75	18.81
10/15/09	LH/LVH	4.31	4.96	4.96	6.74	8.36	1.3	18.91
10/22/09	LVH/TM/LH	5.3	5.41	5.11	6.74	8.4	1.75	19.01
10/29/09	LH	4.68	5.3	5.37	7.25	8.4	1.51	19.21
11/05/09	LH/LVH	5.38	6.05	6.49	8.38	8.4	1.72	19.51
11/12/09	LVH/TM	4.17	5.07	5.3	7.02	8.35	1.49	19.61
11/19/09	TM/LH	3.81	4.8	5.05	6.66	8.45	1.41	19.61

2009 Lake Stage Level Adjustment

Date	Lake Level Recorded at the Treatment Plant	Adjusted Level Recorded at the Treatment Plant	Stage in Feet above Datum
03/19/09	1718.0	1718.2	20.31
03/26/09	1719.7	1719.9	22.01
04/01/09	1719.4	1719.6	21.71
04/02/09	1719.3	1719.5	21.61
04/03/09	1719.2	1719.4	21.51
04/04/09	1719.2	1719.4	21.51
04/05/09	1719.1	1719.3	21.41
04/09/09	1718.9	1719.1	21.21
04/16/09	1718.5	1718.7	20.81
04/23/09	1718.2	1718.4	20.51
04/30/09	1718.1	1718.3	20.41
05/07/09	1717.9	1718.1	20.21
05/14/09	1717.8	1718.0	20.11
05/21/09	1717.6	1717.8	19.91
05/28/09	1717.5	1717.7	19.81
06/04/09	1717.4	1717.6	19.71
06/11/09	1717.4	1717.6	19.71
06/18/09	1717.3	1717.5	19.61
06/25/09	1717.3	1717.5	19.61
07/02/09	1717.1	1717.3	19.41
07/09/09	1717.0	1717.2	19.31
07/16/09	1717.0	1717.2	19.31
07/23/09	1717.1	1717.3	19.41
07/30/09	1716.9	1717.1	19.21
08/06/09	1716.8	1717.0	19.11
08/13/09	1716.8	1717.0	19.11
08/20/09	1716.8	1717.0	19.11
08/27/09	1716.7	1716.9	19.01
09/03/09	1716.5	1716.7	18.81
09/10/09	1716.5	1716.7	18.81
09/17/09	1716.4	1716.6	18.71
09/24/09	1716.3	1716.5	18.61
10/01/09	1716.2	1716.4	18.51
10/08/09	1716.5	1716.7	18.81
10/15/09	1716.6	1716.8	18.91
10/22/09	1716.7	1716.9	19.01
10/29/09	1716.9	1717.1	19.21
11/05/09	1717.2	1717.4	19.51
11/12/09	1717.3	1717.5	19.61
11/19/09	1717.3	1717.5	19.61

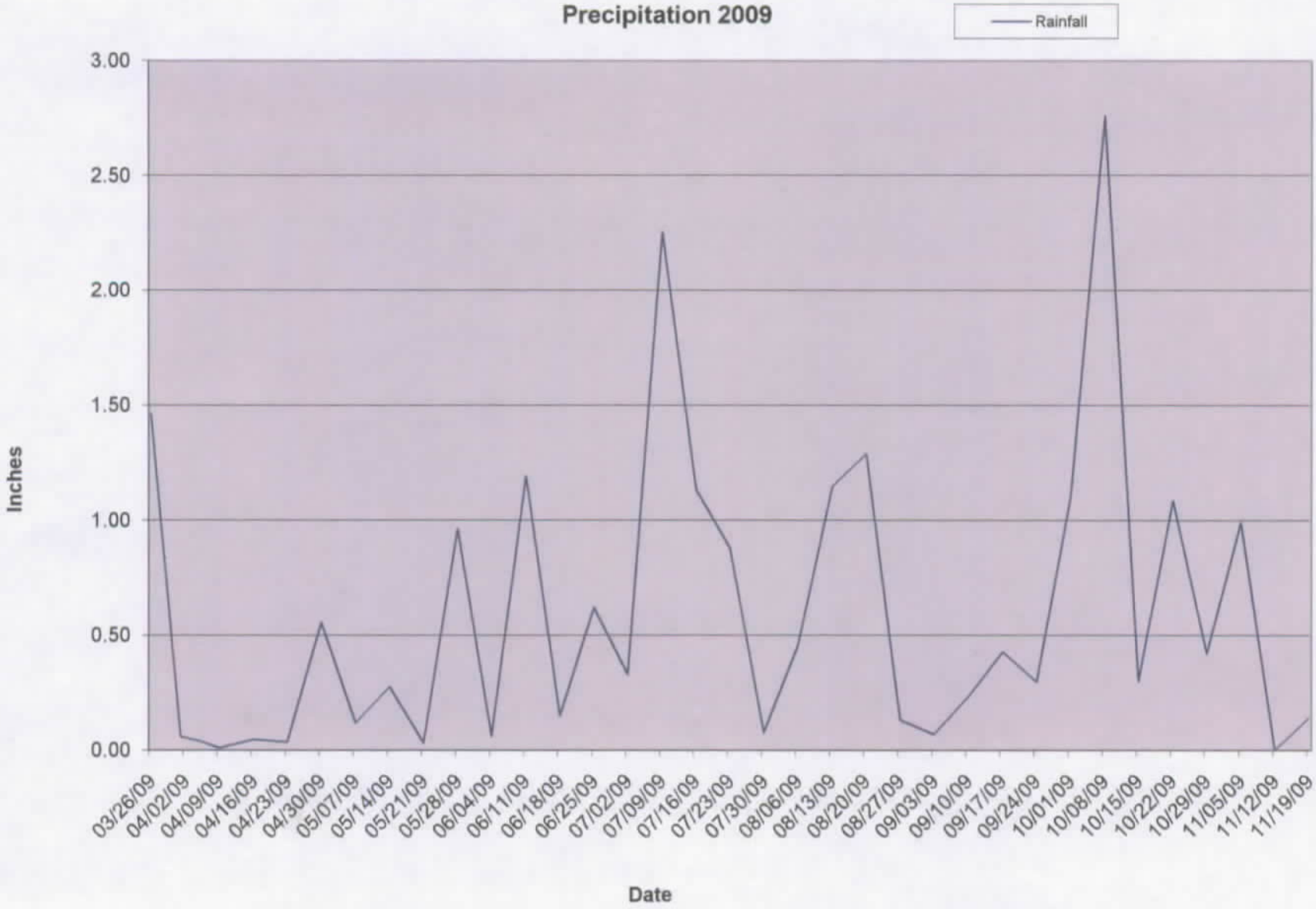
Stream Flow 2009



2009 Stream Flow in cfs Summary

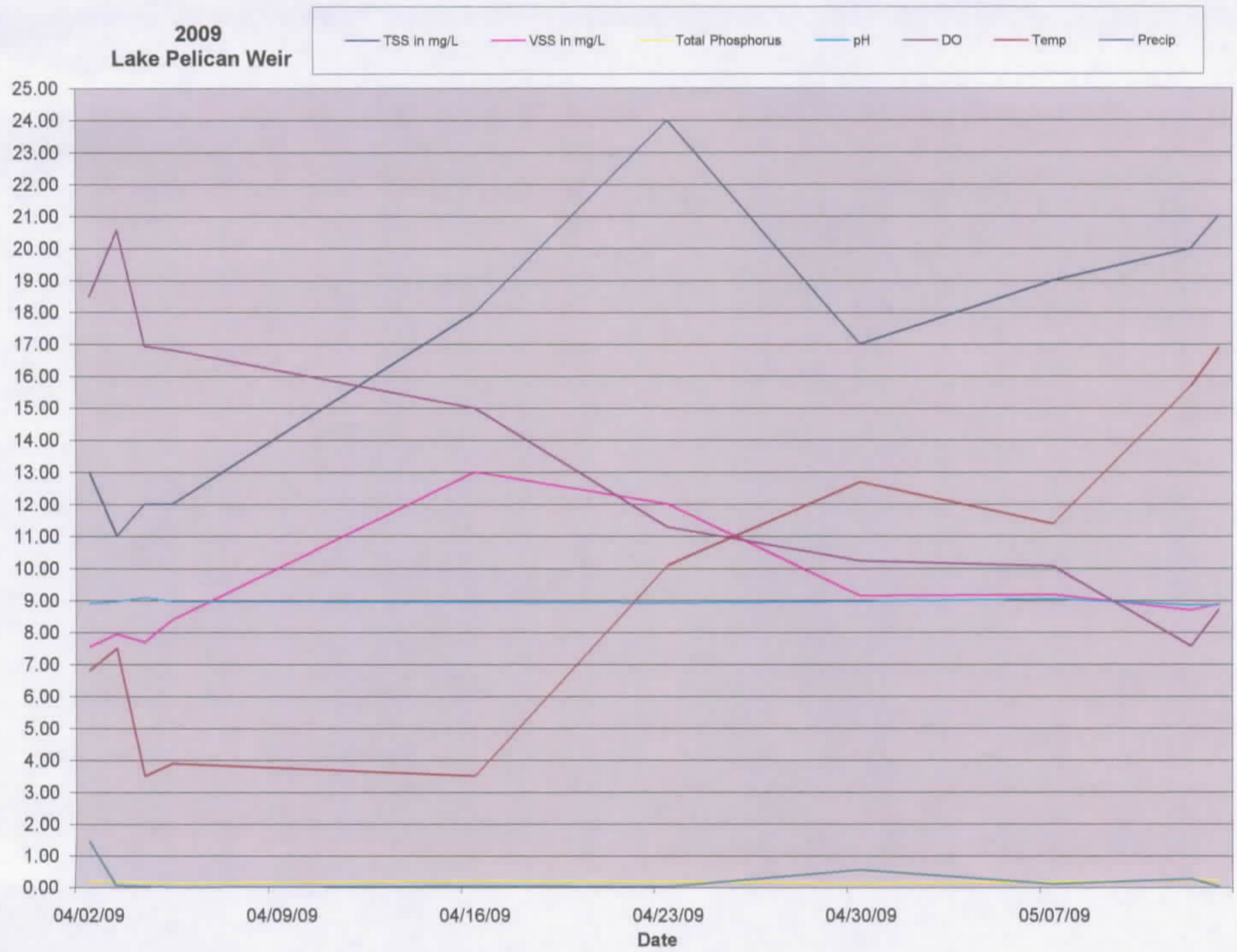
Location And Site Number

Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Average Precipitation For The Week
03/19/09	LH	0.0	0.0	0.0	
03/26/09	LH	0.0	0.0	0.0	1.46
04/01/09	LH/CM	0.0	0.0	0.0	0.06
04/02/09	CM/LH	0.0	0.0	0.0	0.04
04/03/09	CM/LH	0.0	0.0	0.0	
04/04/09	LH	0.0	0.0	0.0	
04/05/09	LH	0.0	0.0	0.0	
04/09/09	LH	0.0	0.0	0.0	0.01
04/16/09	LH	0.0	0.0	0.0	0.05
04/23/09	LH	32.0	81.0	207.0	0.04
04/30/09	LH/LVH	39.0	88.0	188.0	0.56
05/07/09	LH/TM	25.0	63.0	129.0	0.12
05/14/09	TM	19.0	44.0	90.0	0.28
05/21/09	TM/LVH	4.4	28.0	72.0	0.03
05/28/09	LVH/TM	7.5	36.0	71.0	0.96
06/04/09	TM/LH	1.5	18.0	43.0	0.06
06/11/09	LH/LVH	8.9	32.0	59.0	1.19
06/18/09	LVH/TM	7.5	21.0	43.0	0.15
06/25/09	TM/LH	6.8	18.0	33.0	0.62
07/02/09	LH/LVH	0.1	6.5	26.0	0.33
07/09/09	LVH/TM	0.9	84.0	32.0	2.26
07/16/09	TM/LH	12.0	38.0	50.0	1.14
07/23/09	LH/LVH	1.4	22.0	60.0	0.88
07/30/09	LVH/TM	0.5	8.8	36.0	0.08
08/06/09	TM/LH	0.3	5.7	26.0	0.45
08/13/09	LH/LVH	0.8	8.4	26.0	1.15
08/20/09	LVH/TM	1.4	6.1	30.0	1.29
08/27/09	TM/LH	20.0	26.0	31.0	0.13
09/03/09	LH	4.0	12.0	23.0	0.07
09/10/09	LH	1.7	8.0	18.0	0.23
09/17/09	LH/LVH	1.3	5.4	17.0	0.43
09/24/09	LVH	2.5	5.7	16.0	0.30
10/01/09	LVH/TM	4.2	23.0	21.0	1.10
10/08/09	TM/LH	74.0	132.0	102.0	2.76
10/15/09	LH/LVH	35.0	70.0	89.0	0.30
10/22/09	LVH/TM/LH	62.0	106.0	101.0	1.09
10/29/09	LH	44.0	95.0	123.0	0.42
11/05/09	LH/LVH	65.0	187.0	247.0	0.99
11/12/09	LVH/TM	32.0	77.0	116.0	0.00
11/19/09	TM/LH	25.0	60.0	96.0	0.14


Precipitation 2009
Rainfall
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Inches
03/26/09
04/02/09
04/09/09
04/16/09
04/23/09
04/30/09
05/07/09
05/14/09
05/21/09
05/28/09
06/04/09
06/11/09
06/18/09
06/25/09
07/02/09
07/09/09
07/16/09
07/23/09
07/30/09
08/06/09
08/13/09
08/20/09
08/27/09
09/03/09
09/10/09
09/17/09
09/24/09
10/01/09
10/08/09
10/15/09
10/22/09
10/29/09
11/05/09
11/12/09
11/19/09
Date

2009 Precipitation in Inches Summary

Date			Location And Site Number								
From	To	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600	Near South Shore 450628097060800	Average Precipitation For The Week
03/19/09	03/26/09	Howard	0.95	1.19	1.75	1.90	1.40	1.56	1.45	1.50	1.46
03/26/09	04/01/09	Howard	0.02	0.05	0.03	0.01	0.06	0.03	0.17	0.11	0.06
04/01/09	04/05/09	Howard	0.02	0.05	0.03	0.01	0.06	0.03	0.06	0.05	0.04
04/05/09	04/09/09	Howard	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.04	0.01
04/09/09	04/16/09	Howard	0.09	0.02	0.05	0.03	0.03	0.04	0.01	0.10	0.05
04/16/09	04/23/09	Howard	0.03	0.01	0.04	0.06	0.00	0.04	0.00	0.10	0.04
04/23/09	04/30/09	Howard	0.58	0.38	0.51	0.80	0.41	0.65	0.51	0.61	0.56
04/30/09	05/07/09	Howard	0.15	0.15	0.12	0.10	0.09	0.07	0.12	0.15	0.12
05/07/09	05/14/09	Murray	0.29	0.27	0.27	0.17	0.21	0.15	0.15	0.70	0.28
05/14/09	05/21/09	Murray	0.04	0.03	0.07	0.01	0.02	0.03	0.02	0.02	0.03
05/21/09	05/28/09	VanHeel	0.80	1.00	1.00	1.25	1.05	0.75	0.66	1.20	0.96
05/28/09	06/04/09	Murray	0.01	0.08	0.10	0.21	0.04	0.05	0.00	0.00	0.06
06/04/09	06/11/09	Howard	1.15	1.20	1.60	1.00	1.15	1.35	0.90	1.20	1.19
06/11/09	06/18/09	VanHeel	0.17	.07	0.16	0.01	0.10	0.13	0.10	0.45	0.15
06/18/09	06/25/09	Murray	0.70	0.73	0.48	0.50	0.69	0.50	0.55	0.81	0.62
06/25/09	07/02/09	Howard	0.45	0.17	0.39	0.06	0.17	0.30	0.32	0.78	0.33
07/02/09	07/09/09	VanHeel	2.4	2.10	2.10	1.75	2.00	2.40	2.50	2.80	2.26
07/09/09	07/16/09	Murray	1.6	1.14	1.00	1.05	1.10	0.74	1.35	1.10	1.14
07/16/09	07/23/09	Howard	0.06	2.55	0.55	0.60	1.75	0.90	0.42	0.20	0.88
07/23/09	07/30/09	VanHeel	0.06	0.10	0.08	0.07	0.09	0.09	0.06	0.07	0.08
07/30/09	08/06/09	Murray	0.41	0.27	0.24	0.25	0.61	0.25	0.50	1.10	0.45
08/06/09	08/13/09	Howard	0.45	3.50	0.41	0.90	1.42	0.60	0.90	1.00	1.15
08/13/09	08/20/09	VanHeel	1.45	1.10	1.05	2.00	0.62	1.20	1.75	1.15	1.29
08/20/09	08/27/09	Murray	0.21	0.19	0.27	0.15	0.06	0.00	0.08	0.08	0.13
08/27/09	09/03/09	Howard	0.04	0.17	0.09	0.24	0.01	0.00	0.00	0.00	0.07
09/03/09	09/10/09	Howard	0.1	0.39	0.10	0.15	0.17	0.01	0.79	0.13	0.23
09/10/09	09/17/09	Howard	0.45	0.65	0.61	0.48	0.38	0.20	0.35	0.30	0.43
09/17/09	09/24/09	VanHeel	0.62	0.22	0.42	0.30	0.16	0.10	0.25	0.30	0.30
09/24/09	10/01/09	VanHeel	1.18	1.19	1.00	0.70	1.10	0.46	1.50	1.70	1.10
10/01/09	10/08/09	Murray	2.8	3.20	3.10	3.00	2.90	0.62	2.90	3.55	2.76
10/08/09	10/15/09	Howard	0.32	0.46	0.39	0.50	0.35	0.00	0.18	0.21	0.30
10/15/09	10/22/09	VanHeel	2.1	1.00	0.95	0.95	1.10	0.00	1.30	1.30	1.09
10/22/09	10/29/09	Howard	0.51	0.55	0.45	0.45	0.46	0.00	0.42	0.52	0.42
10/29/09	11/05/09	Howard	0.9	0.94	0.90	1.15	1.00	n/a	1.05	1.00	0.99
11/05/09	11/12/09	VanHeel	0	0.00	0.00	0.00	0.00	n/a	0.00	0.00	0.00
11/12/09	11/19/09	Murray	0.15	0.16	0.13	0.15	0.14	n/a	0.12	0.15	0.14


2009
Lake Pelican Weir
TSS in mg/L
VSS in mg/L
Total Phosphorus
pH
DO
Temp
Precip
25.00
24.00
23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
04/02/09
04/09/09
04/16/09
04/23/09
04/30/09
05/07/09
Date

2009 Lake Pelican Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510B	Sample ID #	pH Method USGS I-1586-85	Sample ID #	DO Method 4500 - O&G	Sample ID #	Temperature Method SM 2550 B - 20th Edition
04/02/09	LH/CM	Pelican weir		731 uS/cm		8.91 s.u.		18.51 mg/L		6.8 ° C
04/03/09	LH	Pelican weir		468 uS/cm		8.97 s.u.		20.57 mg/L		7.5 ° C
04/04/09	LH/CM	Pelican weir		715 uS/cm		9.09 s.u.		16.94 mg/L		3.5 ° C
04/05/09	LH	Pelican weir		428 uS/cm		8.97 s.u.		16.82 mg/L		3.9 ° C
04/09/09	LH	Pelican weir		707 uS/cm		8.95 s.u.		14.99 mg/L		3.5 ° C
04/16/09	LH	Pelican weir		682 uS/cm		8.93 s.u.		11.29 mg/L		10.1 ° C
04/23/09	LH	Pelican weir		686 uS/cm		8.97 s.u.		10.23 mg/L		12.7 ° C
04/30/09	LH/LVH	Pelican weir		691 uS/cm		9.04 s.u.		10.07 mg/L		11.4 ° C
05/07/09	LH/TM	Pelican weir		717 uS/cm		8.85 s.u.		7.57 mg/L		15.7 ° C
05/12/09	TM	Pelican weir		732 uS/cm		8.86 s.u.		8.71 mg/L		16.9 ° C
05/13/09	TM	Pelican weir		730 uS/cm		8.78 s.u.		8.50 mg/L		17.6 ° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C

2009 Lake Pelican Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter Sample ID	Parameter TSS EPA Method 160.2	Parameter Sample ID	Parameter VSS EPA Method 160.4	Parameter Sample ID	Parameter Total Phosphorus EPA Method 365.2	Average TSS	Average VSS	Average Phosphorus
04/01/09	04/02/09	LH/CM	PELICAN WEIR		13 mg/L		7.6 mg/L		0.219 mg/L			
04/01/09	04/02/09	LH/CM	PELICAN WEIR		13 mg/L		7.5 mg/L		0.207 mg/L	13.00	7.55	0.21
04/02/09	04/03/09	LH/CM	PELICAN WEIR		11 mg/L		7.9 mg/L		0.18 mg/L			
04/02/09	04/03/09	LH/CM	PELICAN WEIR		11 mg/L		8 mg/L		0.175 mg/L	11.00	7.95	0.18
04/03/09	04/04/09	LH/CM	PELICAN WEIR		12 mg/L		7.6 mg/L		0.153 mg/L			
04/03/09	04/04/09	LH/CM	PELICAN WEIR		12 mg/L		7.8 mg/L		0.169 mg/L	12.00	7.70	0.16
04/04/09	04/05/09	LH	PELICAN WEIR		12 mg/L		8.4 mg/L		0.14 mg/L			
04/04/09	04/05/09	LH	PELICAN WEIR		12 mg/L		8.4 mg/L		0.137 mg/L	12.00	8.40	0.14
04/09/09	**04/16/09**	**LH**	**PELICAN WEIR**		**18 mg/L**		**13 mg/L**		**0.219 mg/L**			
04/09/09	**04/16/09**	**LH**	**PELICAN WEIR**		**mg/L**		**mg/L**		**mg/L**	**18.00**	**13.00**	**0.22**
04/16/09	04/23/09	LH	PELICAN WEIR		24 mg/L		12 mg/L		0.191 mg/L			
04/16/09	04/23/09	LH	PELICAN WEIR		24 mg/L		12 mg/L		0.187 mg/L	24.00	12.00	0.19
04/23/09	04/30/09	LH/LVH	PELICAN WEIR		17 mg/L		9.1 mg/L		0.144 mg/L			
04/23/09	04/30/09	LH/LVH	PELICAN WEIR		17 mg/L		9.2 mg/L		0.131 mg/L	17.00	9.15	0.14
04/30/09	05/07/09	LH/TM	PELICAN WEIR		19 mg/L		9.2 mg/L		0.178 mg/L			
04/30/09	05/07/09	LH/TM	PELICAN WEIR		19 mg/L		9.2 mg/L		0.176 mg/L	19.00	9.20	0.18
05/07/09	05/12/09	TM	PELICAN WEIR		20 mg/L		8.6 mg/L		0.248 mg/L			
05/07/09	05/12/09	TM	PELICAN WEIR		20 mg/L		8.8 mg/L		0.26 mg/L	20.00	8.70	0.25
05/12/09	05/13/09	TM	PELICAN WEIR		21 mg/L		8.8 mg/L		0.229 mg/L			
05/12/09	05/13/09	TM	PELICAN WEIR		21 mg/L		9 mg/L		0.252 mg/L	21.00	8.90	0.24

Average wrong. No Duplicates.

Composite End Date	Location	TSS Average	VSS Average	Phosphorus Average
04/02/09	PELICAN WEIR	13.00	7.55	0.21
04/03/09	PELICAN WEIR	11.00	7.95	0.18
04/04/09	PELICAN WEIR	12.00	7.70	0.16
04/05/09	PELICAN WEIR	12.00	8.40	0.14
04/16/09	PELICAN WEIR	18.00	13.00	0.22
04/23/09	PELICAN WEIR	24.00	12.00	0.19
04/30/09	PELICAN WEIR	17.00	9.15	0.14
05/07/09	PELICAN WEIR	19.00	9.20	0.18
05/12/09	PELICAN WEIR	20.00	8.70	0.25
05/13/09	PELICAN WEIR	21.00	8.90	0.24

2009 Pelican Field Observations

Date	Time	Sample Collector	Rain Fall	Wind Velocity mph	Wind Direction	Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Presence of Excessive Turbidity	Presence of Wildlife	Presence of Domestic Animals	Presence of Dead Fish	Comments
04/02/09		LH/CM	N/A	3	W	37	N	NORMAL	NORMAL	N	N	N	N	N	N	
04/03/09		LH	N/A	10	E	41	N	NORMAL	NORMAL	N	N	N	N	N	N	
04/04/09		LH/CM	N/A	21	NE	33	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/05/09		LH	N/A	22	N	31	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/09/09		LH	N/A	12	NE	35	N	NORMAL	NORMAL	N	N	N	N	N	N	
04/16/09		LH	N/A	15	S	50	Y	NORMAL	NORMAL	N	N	N	N	N	N	
04/23/09		LH	N/A	16	S	57	N	NORMAL	NORMAL	N	N	N	N	N	N	Removed railroad tie from in front of fish notch.
04/30/09		LH/LVH	N/A	16	W	49	Y	NORMAL	NORMAL	N	N	N	Y	N	N	Ducks in river.
05/07/09		LH/TM	N/A	7	W	51	Y	NORMAL	NORMAL	N	N	N	Y	N	N	Birds
05/12/09		TM	N/A	26	S	62	N	NORMAL	NORMAL	N	N	N	N	N	N	
05/13/09		TM	N/A	16	W	60	N	NORMAL	NORMAL	N	N	N	Y	N	Y	Geese

Pelican Stream Flow in cfs Summary 2009

		Location And Site Number						
Date	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	Tributary to Mud Creek Near Rauville 06479498	At Waverly 445959096582600
4/2/2009	LH/CM	ICE	ICE	ICE				
4/3/2009	LH	ICE	ICE	ICE				
4/4/2009	LH/CM	ICE	ICE	ICE				
4/5/2009	LH	ICE	ICE	ICE				
4/9/2009	LH	ICE	ICE	ICE				
4/16/2009	LH	***	***	***				
4/23/2009	LH	32	81	207				
4/30/2009	LH/LVH	39	88	188				
5/7/2009	LH/TM	25	63	129				
5/12/2009	TM	19	48	102				
5/13/2009	TM	19	44	99				

Pelican Stage from Watertown's Enhanced Flood Forecasting System 2009

Stage from Watertown's Enhanced Flood Forecasting	Sample Collector	Big Sioux Near Florence 06479215	Big Sioux Near Watertown 06479438	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Mud Creek Near Rauville 06479490	South Branch Tributary to Mud Creek Near Rauville 06479498	Lake Kampeska at Watertown 06479449
04/02/09	LH/CM	4.04	5.37	7.58	9.49	6.76	1.52	21.44
04/03/09	LH	4.46	5.24	7.49	9.39	6.82	1.29	21.37
04/04/09	LH/CM	4.68	5.32	7.38	9.28	6.83	1.27	21.33
04/05/09	LH	4.32	5.27	7.34	9.22	6.82	1.17	21.23
04/09/09	LH	4.34	5.10	7.11	8.95	6.80	1.14	21.03
04/16/09	LH	4.20	4.98	6.71	8.45	6.73	1.08	20.72
04/23/09	LH	3.96	4.86	6.31	7.96	6.73	1.08	20.42
04/30/09	LH/LVH	4.23	4.92	6.15	7.74	6.80	1.39	20.28
05/07/09	LH/TM	3.71	4.66	5.59	7.07	6.68	1.17	20.13
05/12/09	TM	3.40	4.48	5.30	6.77	6.60	1.13	20.00
05/13/09	TM	3.42	4.43	5.25	6.72	6.62	1.11	19.91

2009 Lake Stage Level Adjustment

Date	Lake Level Recorded at the Treatment Plant	Adjusted Level Recorded at the Treatment Plant	Stage in Feet above Datum
04/02/09	1719.3	1719.5	21.61
04/03/09	1719.2	1719.4	21.51
04/04/09	1719.2	1719.4	21.51
04/05/09	1719.1	1719.3	21.41
04/09/09	1718.9	1719.1	21.21
04/16/09	1718.5	1718.7	20.81
04/23/09	1718.2	1718.4	20.51
04/30/09	1718.1	1718.3	20.41
05/07/09	1717.9	1718.1	20.21
05/12/09	1717.8	1718.0	20.11
5/13/2009	1717.8	1718.0	20.11

FC-29

Gronlund, Eric

From: Jeff DeVille <jdeville@watertownmu.com>
Sent: Friday, June 03, 2011 3:23 PM
To: Gronlund, Eric
Cc: Vicki Maag (vmaager@live.com)
Subject: New sampling plan for FC29
Attachments: New sampling plan sent to the state.docx; HDR Kampeska report.pdf

Hello Eric

Attached is the proposed new sampling plan for FC29. I have been working with The Lake Pelican Water District to adjust the sampling plan to better analyze the conditions of the Sioux river when there is a large flow. I do not know if this change can be done administratively or if it will need to go before the Board of Water Management. The Lake Pelican Water District is in the process of sending me a support letter on the new sampling plan. My initial hope was to send the letter from the Lake Pelican Water District but I am going to be out of the office for a few days and wanted to get this initiated. If this needs to be decided by the Board of Water Management please put this on the next agenda. Please let me know which way this will need to be approved and I will forward the Lake Pelican Water District's letter as soon as I get it. Also attached is the report from HDR Engineering that summarizes the past sampling.

Thank You

Jeff DeVille
Watertown Municipal Utilities Dept.
Water Superintendent
605-882-6233

HDR | ONE COMPANY *Many Solutions*℠

Memo

To: Watertown Municipal Utilities	
From: Al Erickson, P.E. (Project Manager) Todd Yerdon, P.E. (Project Engineer)	Project: Lake Kampeska Diversion Water Quality Evaluation
CC:	
Date: 2/22/11	Job No: 152566

RE: Lake Kampeska Diversion Water Quality Evaluation

Project Background

In 2001, the Watertown Municipal Utilities submitted a flood control permit for the construction of the Lake Kampeska and Big Sioux River Water Quality Diversion Weir project. The purpose of the project was to reduce the sediment loading entering Lake Kampeska from the Big Sioux River, particularly from first-flush events immediately after a heavy rainfall or rapid snowmelt event, by constructing a weir at the lake inlet/outlet at the Big Sioux River. The weir is primarily a passive weir approximately 350 ft in length. It also contains a sluice gate to expedite the equalization of the water surface elevations between Lake Kampeska and the Big Sioux River. There is a fish notch three feet in width installed in the weir to allow fish to pass from the Big Sioux River and Lake Kampeska. The fish notch allows water surfaces on either side to approach the same elevation under normal conditions. When a larger runoff event occurs in the river, the fish notch and weir limit the flow rate into the lake initially, during the period typically referred to as the "first-flush". The first-flush typically has a higher sediment load, and diverting that load reduces sediment deposit into the lake. As flows continue to rise, the passive weir is overtopped and flow into the lake resumes as if the weir is not there due to its long length and low friction losses.

During the permitting process, there were concerns regarding the amount of sediment being diverted from the entrance of Lake Kampeska and sent downstream in the Big Sioux River to Lake Pelican. To address the concern, a plan was developed to establish background or baseline data as a means of indicating and understanding the sediment dynamics of the immediate lake and river system. The proposed plan was approved by the Lake Pelican Water Project District and the Department of Environment and Natural Resources in 2001. Lake Pelican also has a similar passive weir and fish notch at its connection to the Big Sioux River for the same purpose of reducing the first flush sediment load into the lake.

The approved sediment load monitoring plan states that water samples must be collected continuously during the open water season. The water quality testing will provide information regarding total suspended solids (TSS), volatile suspended solids (VSS), dissolved oxygen (DO), pH, conductivity, and water temperature at the testing locations. The normal water samples will be collected 5 times during each 24-hour day of a 7-day sampling period at the proposed Lake Kampeska sampling site which generates a composite sample for testing at the end of each weekly period (see Figure 1). A grab sample is also collected at the end of each week to test for the DO, pH, conductivity, and water temperature. Additional samples are taken at the proposed Lake Pelican and Lake Kampeska sampling sites (see Figure 1) when the weir sluice gate is opened. During the gate operation, samples will be collected daily for one day prior to gate opening, 3 days following gate opening, and returning to the typical weekly sampling until the gate is closed. Once the gate is closed, the Lake Pelican sampling continues for one day following the closure.

The Watertown Municipal Utilities has been conducting the baseline weekly composite and grab sampling and processing for nine years since the inception of the plan in 2002. In November of 2010, the Watertown Municipal Utilities contacted HDR to evaluate water quality samples taken on the Big Sioux River

downstream of the Lake Kampeska weir and at the Lake Pelican weir to determine any findings from the collected data.

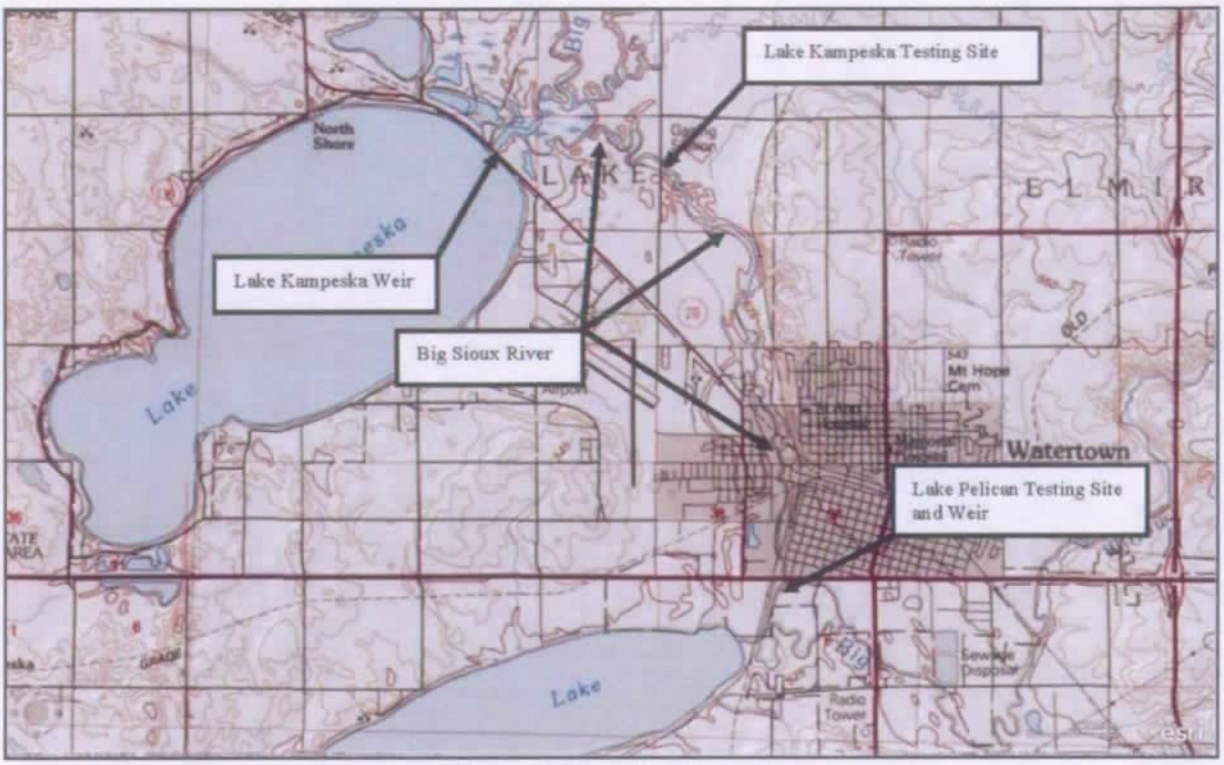


Figure 1: Sampling Locations

Sample Analysis

Eight years worth of samples from 2002 until 2009 were provided to HDR for analysis to determine any significant findings from the testing data. Testing data was provided in an Excel table format, and testing data was documented based on the end date of each weekly or daily sample period. The Lake Kampeska composite and grab samples were tested and documented every week during the open water periods for the last nine years. Unlike Lake Kampeska, the Lake Pelican composite samples were only tested twice during the nine year period since the gate was only opened twice during the testing timeframe in accordance with the permit requirements.

From 2002 to 2009, water quality means, minimums, maximums, and number of water quality samples exceeding the allowable beneficial use levels were documented at the Lake Kampeska and Lake Pelican testing sites and are summarized in Tables 1 and 2 respectively. Tables 3 and 4 also show the mean and medians values respectively for the Lake Kampeska sampling site for each individual year during the testing timeframe.

Table 1: Water Quality Averages at Lake Kampeska Testing Site (2002-2009)

Test	Mean	Minimum	Maximum	Allowable for Beneficial Uses	Number of Times Exceeding Allowable	Percent of Times Exceeding Allowable
TSS (mg/L)	50.5	2.7	283.5	≤ 158	14	5.8%
VSS (mg/L)	10.6	1.3	60.5	NA	NA	NA
DO (mg/L)	8.3	3.0	15.2	≥ 5	25	10.3%
pH (s.u.)	8.1	7.2	8.9	≥ 6.5 - ≤ 9	0	0%
Conductivity	695.1	231	1027	≤ 4,375	0	0%
Weekly Precipitation (inches per week)	0.53	0.0	3.7	NA	NA	NA
Flow (cfs)	33.2	0.0	309.0	NA	NA	NA

Table 2: Water Quality Averages at Lake Pelican Testing Site (2002-2009*)

Test	Mean	Minimum	Maximum	Allowable for Beneficial Uses	Number of Times Exceeding Allowable	Percent of Times Exceeding Allowable
TSS (mg/L)	14.3	0	26.7	≤ 158	0	0%
VSS (mg/L)	5.8	0	13.0	NA	NA	NA
DO (mg/L)	8.4	4.97	20.6	≥ 5	1	4.5%
pH (s.u.)	10.2	7.5	9.1	≥ 6.5 - ≤ 9	2	9.1%
Conductivity	632	161	888	≤ 4,375	0	0%
Total Phosphorus (mg/L)	0.17	0.11	0.25	NA	NA	NA
Weekly Precipitation (inches per week)	0.36	0.0	2.1	NA	NA	NA
Flow (cfs)	38.8	0.0	207	NA	NA	NA

* Samples were only taken twice at the Lake Pelican testing site from 2002 to 2009. The first sample was taken in the fall of 2004, and the second sample was taken in the spring of 2009. A total of 22 samples were taken during these two testing periods.

Table 3: Water Quality Mean Values at Lake Kampeska Testing Site

	TSS (mg/L)	VSS (mg/L)	DO (mg/L)	pH (s.u.)	Conductivity (µS/cm)	Precipitation (in/week)	Flow (cfs)
2002	104.6	25.7	7.6	8.1	686.9	0.4	7.1
2003	69.8	16.4	7.8	8.3	740.4	0.4	3.6
2004	34.3	7.9	8.4	7.9	756.5	0.6	10.0
2005	46.7	8.0	7.7	8.0	712.5	0.4	27.3
2006	91.7	15.0	7.9	8.1	712.0	0.5	13.3
2007	19.6	4.7	8.2	8.2	646.0	0.6	72.8
2008	30.0	5.8	8.8	8.2	649.1	0.8	58.7
2009	24.2	5.6	9.4	8.1	660.8	0.6	71.6
Total Mean	**50.5**	**10.6**	**8.3**	**8.1**	**695.1**	**0.5**	**33.2**

Table 4: Water Quality Median Values at Lake Kampeska Testing Site

	TSS (mg/L)	VSS (mg/L)	DO (mg/L)	pH (s.u.)	Conductivity (µS/cm)	Precipitation (in/week)	Flow (cfs)
2002	101.3	23.6	8.1	7.7	686.9	0.2	3.1
2003	56.0	14.1	8.3	8.1	740.4	0.3	1.9
2004	27.4	5.8	8.0	7.8	756.5	0.4	4.0
2005	23.7	5.2	8.0	7.4	712.5	0.2	13.0
2006	50.0	12.5	8.2	7.7	712.0	0.2	1.9
2007	15.1	3.8	8.2	7.5	646.0	0.4	18.0
2008	20.3	4.2	8.1	8.2	649.1	0.5	50.5
2009	16.7	4.4	8.2	9.0	660.8	0.3	50.0
Total Median	**29.3**	**7.0**	**8.1**	**8.0**	**695.1**	**0.3**	**11.0**

TSS and VSS

Based on the water quality samples, the TSS and VSS values at the Lake Kampeska testing site were consistently higher during years of lower precipitation and lower flows in the Big Sioux River. TSS and VSS values were typically higher during the spring and early summer which is possibly due to the fact that there is less established plant cover to protect the top soil at that time. Peak TSS and VSS events typically coincided with large rain events.

A load duration curve (Figure 2) was generated to help show which type of events typically exceeded the maximum allowable TSS limit of 158 mg/L for the Big Sioux River for beneficial use. The curve shows that over the last eight years, there have been 14 samples of the overall 242 samples which exceeded the allowable TSS limits of 158 mg/L. These 14 samples represent 5.8% of the total samples taken which is well below the allowable 10% guidelines used when 20 or more samples are taken at a site. Therefore, the TSS levels in the Big Sioux River at the Lake Kampeska testing site have not exceeded the allowable amounts set for the river for beneficial use.

During the two sampling periods at the Lake Pelican sampling site, the Big Sioux River TSS values did not exceed 27 mg/L which is well below the maximum allowable limit of 158 mg/L; therefore, TSS was not a concern when the gates at Lake Kampeska were open.

Dissolved Oxygen

The minimum dissolved oxygen limit for this type of river is 5 mg/L for beneficial use. Over the last eight years, there have been 25 samples at the Lake Kampeska sampling site which fell below the 5 mg/L standard for dissolved oxygen. These 25 samples represent 10.3% of the grab samples which is slightly higher than the allowable 10%. During the two sampling periods at the Lake Pelican sampling site, only one sample of the overall 22 samples fell below a value of 5 mg/L which is within the 10% guidelines for the river. It was observed that a maximum DO level of 15.2 was recorded. This is higher than the saturation level, possibly indicating the sample was mixed thoroughly before analysis.

pH

The allowable range for pH for the Big Sioux River for beneficial use is between 6.5 and 9. Over the last eight years, there have been no samples outside of the allowable pH range for the Lake Kampeska sampling site. The Lake Pelican sampling site had 2 samples out of the 22 total samples which had a pH above 9.0. The two high samples are within the allowable 10% guidelines for exceeding samples on the river.

Conductivity

The maximum allowable conductivity for the Big Sioux River at this location is 4,375 µS/cm. Over the last eight years there have been no samples above the maximum allowable conductivity value for the Big Sioux River at the Lake Kampeska and Lake Pelican sampling sites.

Testing Summary and Conclusions

According to the proposed testing plan, the main purpose of the continual testing over the last nine years was to establish a baseline of data for the Big Sioux River between the Lake Kampeska and Lake Pelican. According to past TMDL studies for the Big Sioux River, 20 samples must be taken at a site to create a baseline of data in order to apply the 10% exceedance guideline for beneficial use. The Watertown Municipal Utilities has been responsible for taking for over 200 testing samples during the nine year time frame which creates a long standing baseline of samples for this area, well above the required 20 samples. The testing period also overlaps both dry years (dry years are defined as the driest ⅓ of years over the last 100-years of precipitation data) and wet years (wet years are defined as the wettest ¼ of years over the last 100-years of precipitation data) which helps establish a more reliable baseline sampling of the area. Lake Pelican testing site had 22 samples taken over the last nine years which is also above the 20 samples required for baseline data for beneficial use.

With the current testing protocol, it is really only feasible to compare the standard values for beneficial use. The plan did not have baseline data prior to the construction of the weir to compare with. Additionally, there is no baseline testing upstream from the weir to compare with. When comparing the data to the standard values for beneficial use, there appears to be no significant TSS concerns for the Big Sioux River downstream of Lake Kampeska after the construction of the weir at Lake Kampeska. As part of the monitoring plan, additional tests were required at Lake Pelican when the gate at Lake Kampeska was open. This occurrence only happened twice during the nine years of testing, and there were no significant differences in TSS when the gate was open and closed.

As far as the other testing parameters beyond TSS, dissolved oxygen was the only parameter that did not meet the values for beneficial use. It is likely that this is not related to the Kampeska weir as similar results have been measured in the Big Sioux River elsewhere. For example, the USGS monitoring station at Dell Rapids on the Big Sioux River monitors DO on a real-time basis. Levels below the 5mg/l level for beneficial use have been recording in 2004, 2005, and 2006. The average DO at that location is higher than at Watertown, likely due to larger flows and additional turbulence and aeration occurring in the Dell Rapids area.

The purpose of the testing was to generate a baseline of data for the Big Sioux River. This baseline of over 200 samples has been developed over the last nine years which is well above the 20 samples required to determine 10% exceedance for beneficial use. Based on the current sampling plan, any additional years of testing would only add to the currently established base line. The additional testing would not add any additional value regarding sediment impacts of the Lake Kampeska weir since there is no existing baseline data prior to the weir construction and no monitoring program upstream of Kampeska to compare with. It is our opinion that this goal has been met for establishing a baseline of data, and the sampling can be suspended.

If sampling is desired for reasons other than stated in the permit, Watertown Municipal Utilities should examine finding alternate funding sources through the State or various grant programs to help support this program or transfer the sampling responsibilities to the interested agency/group. If sampling continues, we recommend reviewing the extent and methods of sampling to better fit what needs to be tested and analyzed, and sampling on a weekly basis is not justified based on the nine-year sampling history.

revised plan submitted June 3, 2011

Lake Kampeska Diversion Weir

Sampling plan to measure sediment load
on Lake Pelican during flood condition on the Big Sioux River.

Introduction

The Upper Big Sioux River watershed in extreme southern Roberts, western Grant, and east central Codington Counties has been faced with difficult sedimentation and other water quality problems. Lakes Pelican and Kampeska are direct reflections of their watershed and have also fallen victim to water quality impairments due to sediment accumulation and other water quality impacts.

As part of a comprehensive approach to improving conditions in the watershed, a diversion structure was constructed across the canal leading to Lake Pelican in 1998. The Lake Pelican Diversion Weir was constructed under the authority of Flood Control Permit FC-19 granted by the South Dakota Water Management Board on December 26, 1996. The purpose of the weir is to control the amount of sediment entering Lake Pelican from the Big Sioux River.

The Lake Kampeska Diversion Weir, a structure similar to the Lake Pelican Diversion Weir, was constructed in the inlet/outlet channel of Lake Kampeska to reduce the amount of sediment entering the lake from the Big Sioux River. The South Dakota Water Management Board on June 15, 2000 granted Flood Control Permit FC-29 authorizing the construction of the Lake Kampeska Diversion Weir. As required in the Water Management Board's Final Decision for Flood Control Permit FC-29 a sampling plan was put in place to measure any effect of the weir on the sediment load entering Lake. This sampling started in 2002 and has taken place since.

Upon request by the Watertown Municipal Utilities HDR Engineering reviewed the sample data and reported their conclusion to the Watertown Municipal Utilities. In February 2011 HDR Engineering complete the analysis of the data that was collected from 2002 through 2009. Their conclusion is that the sampling plan that was established with FC-29 has established a base line and that further sampling in not beneficial. (A copy of the report is attached)

This new sampling plan does not change the operation of the gate as set under the conditions of FC-29.

Establishing a New Monitoring Plan

A new monitoring plan will replace the previous plan. This plan will test for the same parameters that where tested in the previous plan for the Lake Pelican Diversion Weir Sampling Site. The new plan will provide for the explicit measurement of certain water quality parameters at the fish notch of the Lake Pelican Diversion Weir during times when the Big Sioux River is visually discharging into Lake Pelican and the gates of the Lake Kampeska Diversion Weir are operated an open position.

This plan also addresses the Water Management Board's intent regarding notifications prior to operation of the gates, recordkeeping, and reporting.

For sampling during the times the Big Sioux River is visually discharging into Lake Pelican and the gates of the Lake Kampeska Diversion Weir are in the open position, the time composite sample will consist of individual sample portions collected in a single composite container a minimum of 6 times during each 24-hour day of a 7-day sampling period. At the time the criteria for operating the gates are met, the length of the sampling period will be reduced to 1 day. One day prior to, and 3 days following the opening of the gates a 6-sample (minimum) 24-hour daily time composite sample will be collected for analysis. Thereafter, the sampling frequency will return to the weekly schedule.

Sample analysis - Lake Pelican Diversion Weir Sampling Site

Watertown's wastewater treatment facility laboratory staff will analyze the water sample for Total Suspended Solids and Volatile Suspended Solids. The total suspended solids analysis will be conducted according to an approved EPA method and the Wastewater Department's standard operating procedure. This is the same methodology and procedure used by the Wastewater Department to determine, document, and report compliance with the City's Surface Water Discharge permit issued by the South Department of Environment and Natural Resources.

The City's Surface Water Discharge permit does not require monitoring and reporting of volatile suspended solids concentrations. However, Watertown's Wastewater Department conducts volatile suspended solids analyses for in-house process control using an approved EPA method and the Wastewater Department's standard operating procedure.

Duplicate sample analyses will be conducted for every 10th (NOTE: CHANGED TO MATCH BELOW) sample to demonstrate laboratory quality assurance and quality control. Duplicate samples for QA/QC analyses will be representative sample portions obtained after splitting the sufficiently mixed, homogeneous composite sample delivered to the laboratory for analysis. The results of duplicate sample analyses will be reported in the same manner as normal samples.

Lake Pelican Diversion Weir Sampling Site Location

A water quality sampling and monitoring site will also be established and located at the fish notch of the Lake Pelican Diversion Weir. The Lake Pelican Diversion Weir was constructed across the man-made canal leading from the Big Sioux River to Lake Pelican in 1998. It is located approximately 265 to 340 feet south of the centerline of United States highway 212 in the northwest ¼ of section 6, township 116 north, range 52 west, Codington County, South Dakota (see attached map).

Sample collection and frequency of sampling - Lake Pelican Diversion Weir Sampling Site

Water Sampling and analysis will be conducted at this Lake Pelican Diversion Weir site when flows from the Big Sioux River are visually entering Lake Pelican and the Lake Kampeska Diversion Weir gates are operated and in any open position. Sample collection, pick-up, and analysis will be conducted on a time composite daily basis 1 day before the gates of the Lake Kampeska Diversion Weir are opened and for the 3 days immediately after the gates opened. Following the third day after the gates were opened, sample collection, pick-up, and analysis during the extended periods during which the gates remain open will continue with the weekly sampling. When the criteria is meet to close the Lake Kampeska Diversion Weir gates sampling will continue for 1 day following the closure of the Lake Kampeska Diversion Weir gates.

Watertown's wastewater treatment facility staff will monitor flow direction visually at the Lake Pelican Diversion Weir Sampling Site. Visual observations of flow direction will occur at the time each sample event is initiatiated and concluded. The fish not notch does not give accurate flow direction with the flow meter that is in place and will be removed with the approval of this plan. When flow from the river has visually stopped discharging into Lake Pelican sampling will be discontinued.

The City of Watertown will furnish, operate and maintain the stationary automated sampler. The automated sampler will be equipped to cool and heat the composite water sample from 0 to 6 degrees Celsius and will be capable of time-based sample collection. The suction line and strainer will be installed so that the strainer is located in the middle of the fish notch of the weir as close to the bottom of the fish notch as possible.

All equipment furnished at this Lake Pelican Diversion Weir site for use in implementing this monitoring plan will be removed or relocated only upon mutual agreement by the City of Watertown and the Lake Pelican Water Project District.

The primary purpose of the equipment installed under this monitoring plan at the Lake Pelican Diversion Weir is to monitor the quality of Big Sioux River flows that visually enter Lake Pelican during those times when the Lake Kampeska Diversion Weir gates are operated and in an open position. When not in use for this primary purpose, Lake Pelican Water Project District may use the equipment for sample collection at the District's expense which may include without limitation the costs associated with activities such as picking up the sample, shipping, laboratory analysis, and other related water quality sampling activities.

All sampling at this Lake Pelican Diversion Weir site will be time-paced with sample portions of equal volume delivered into a compositing bottle in the automatic sampler base. Pacing will be adjusted to collect 6-samples (minimum) in a 24hour period and sample holding times associated with the standard methods of analysis for total suspended solids, volatile suspended solids, and total phosphorus.

Sample pickup and transport - Lake Pelican Diversion Weir Sampling Site

Personnel of Watertown's Wastewater Department will pick up the sample at the end of each sampling period and transport the sample to Watertown's wastewater treatment facility laboratory. Chain of custody procedures will be employed to trace the possession of the sample from the time it is collected and picked up until the lab analysis has been completed. This procedure will demonstrate that the samples have not been tampered with during collection, pickup, transport, storage, and analysis.

At the time the sample is picked up, Watertown Wastewater Department personnel will record stage-discharge-rainfall information available from Watertown's flood forecasting system. This information is available by accessing the Internet at the USGS home page (http://water.usgs.gov/nsip/). The real-time streamflow and rainfall data can be found most specifically at http://waterdata.usgs.gov/sd/nwis/uv/?site_no=06479500&agency_cd=USGS& and http://waterdata.usgs.gov/sd/nwis/uv/?site_no=06479512&agency_cd=USGS&.

Observations regarding precipitation, wind, cloud cover, water odor, septic condition, presence of dead fish, noticeable films or sheens, turbidity, color, and the presence of wildlife or domestic animals near the sampling site will be recorded at the time the sample is picked up.

Additionally, portable hand-held meters will be used to measure and record field measurements for dissolved oxygen, pH, conductivity, and water temperature.

Sample analysis - Lake Pelican Diversion Weir Sampling Site

Watertown Wastewater Department Staff will ship adequately-sized, representative sample portions to a contract commercial laboratory for total phosphorus analysis. The contract laboratory will be mutually agreed upon by Watertown and Lake Pelican Water Project District. Composite samples collected at the Lake Pelican Diversion Weir site will also be analyzed for total suspended solids, volatile suspended solids, and total phosphorus at Watertown's expense.

Duplicate sample analyses will be conducted for every 10th sample to demonstrate laboratory quality assurance and quality control. Duplicate samples for QA/QC analyses will be representative sample portions obtained after splitting the sufficiently mixed, homogeneous composite sample delivered to the laboratory for analysis. The results of duplicate sample analyses will be reported in the same manner as normal samples.

Notification

Prior to operating the gates of the Lake Kampeska Diversion Weir, the City of Watertown will contact the chairperson of Lake Pelican Water Project District by telephone. This verbal communication will be followed up with a notification/confirmation letter. A form letter may be developed and used to

facilitate this notification process. The notification/confirmation letter will be delivered via certified mail, return receipt requested.

Report Monitoring Results

Watertown will provide one (1) copy of a summary reporting form for each sample analyzed to Chief Engineer, Water Rights program, South Dakota Department of Environment and Natural Resources and one (1) copy to Lake Pelican Water Project District. The summary reporting form will contain the results of laboratory analyses (total suspended solids, volatile suspended solids, total phosphorus as applicable), field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, chain of custody record, and pertinent information regarding the operational status of the Lake Kampeska Diversion Weir gates.

Maintain Monitoring Records

Watertown will maintain a file and electronic database containing the results of laboratory analyses, field water quality measurements, visual observations, watershed streamflow and rainfall conditions summary, chain of custody record, and pertinent information regarding the operational status of the Lake Kampeska Diversion Weir gates.

RECEIVED
JUN 24 2011
WATER RIGHTS
PROGRAM

Vicky Maag, Chairperson

Lake Pelican Water Project District

PO Box 172

Watertown, SD 57201

South Dakota Water Management Board

Joe Foss Building

523 E Capitol Ave

Pierre, SD 57501

June 22, 2011

To: Water Management Board Members,

This is a letter of support with regard to the Lake Kampeska Diversion Weir. The board members of the Lake Pelican Water Project District have reviewed the revised sampling plan to measure sediment load on Lake Pelican during flood conditions on the Big Sioux River. After review of the proposed plan, a motion was made to support the revised plan as written. The motion was passed.

If you have any questions or concerns with regard to this matter, please call me. My home phone is 605-886-8106 or cell phone number is 605-881-5138.

Best regards,

Vicky Maag, Chairperson

Lake Pelican Water Project District

FC-29

DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

June 30, 2011

Jeff DeVille, Water Superintendent
Watertown Municipal Utilities Department
901 4th Avenue SW
Watertown SD 57201-4107

Dear Mr. DeVille:

The city of Watertown holds Flood Control Permit No. FC-29 authorizing a weir and gate system between the inlet/outlet channel for the Big Sioux River and Lake Kampeska. A condition on the permit requires the city to have an approved plan to measure any effect of the weir on the sediment load entering Lake Pelican. An existing plan has been in place for nine year to obtain baseline data on the Big Sioux River below the Kampeska weir and at the Lake Pelican weir.

A revised plan entitled "Lake Kampeska Diversion Weir – Sampling plan to measure sediment load on Lake Pelican during flood condition on the Big Sioux River" was submitted June 3, 2011. DENR is also in receipt of a letter from the Lake Pelican Water Project District in support of the revised sampling plan.

DENR has reviewed the June 3, 2011 revised plan and hereby approves it without modification.

If you have any questions, please contact Eric Gronlund at 605 773-3352.

Sincerely,

Garland Erbele

Garland Erbele, Chief Engineer
Water Rights Program, DENR

c: Vicky Maag, Chairperson, Lake Pelican Water Project District, PO Box 172, Watertown SD 57201

FC-29-3

Gronlund, Eric

From: Gronlund, Eric
Sent: Friday, April 12, 2019 11:44 AM
To: 'Jeff DeVille'
Cc: Steve Lehner; Rath, Mark
Subject: RE: [EXT] Weir gates
Attachments: Pages from FC29-3.pdf

Jeff – They are saying Pierre received 15" but my guess is we got a little more than that. Talked to a guy from Redfield this morning who figured they received 30". I've worked for DENR for 35 years and this is the first time state offices closed for three consecutive days! I feel for livestock producers that are in the middle of calving.

I discussed Watertown's question with Mark Rath. Our recommendation is that Watertown leave the gates open until the river stage is approaching a higher stage than the lake level which would cause the river flow backing into the lake. Then close the weir. Maintain in the closed position until once river stage recedes to where the lake level is higher than river stage. Then reopen and maintain open until the lake level reaches its normal level of 1717.8 fmsl as set forth in the permit. To us that is the logical approach and is in line with the intent of how the weir was to function.

I agree when the permit was considered, no one envisioned back to back flooding events. Please don't consider this a mandate - you are the people with "boots on the ground" and DENR willing to discuss alternatives if Watertown thinks there are better options.

Eric

From: Jeff DeVille [mailto:jdeville@watertownmu.com]
Sent: Friday, April 12, 2019 10:59 AM
To: Gronlund, Eric
Cc: Steve Lehner
Subject: [EXT] Weir gates

Hello Eric,

How bad did Pierre get hit with the snow?

This storm has brought up some questions on the operation of the gates on Lake Kampeska. The gates are open now as we hit all of the triggers for opening them. I do not think the operation plan ever anticipated a second flooding event to come in behind a flood event or if it did it is not spelled out in the plan.

The clarification that I am looking for is:
Do we leave the gates open regardless if water is flowing back into the lake on a flood event?
Do we close the gates before the snow starts to melt and leave them closed until water starts running out of the lake and then reopen them?

Thank You

Jeff DeVille
Watertown Municipal Utilities
Water Superintendent
605-882-6233

FC-29

WATERTOWN MUNICIPAL UTILITIES

901 - 4TH AVENUE SW • WATERTOWN, SD 57201-4107
PHONE: (605) 882-6233 • FAX: (605) 882-6238
WWW.WATERTOWNMU.COM

March 10, 2020

RECEIVED
MAR 11 2020
WATER RIGHTS PROGRAM

Eric Gronlund, Chief Engineer
DENR – Water Rights Program
Joe Foss Building 523 East Capitol
Pierre S.D. 57501-3182

RE: Flood Control Permit No. FC-29

Dear Mr. Gronlund:

Included with this letter is a summary report and graphs of the testing done during 2019 in accordance to Flood Control Permit No. FC-29. The sampling period for 2019 was different than we have had in the past because we had multiple events that triggered the sampling process. Precipitation amounts are no longer taken at USGS stations by Watertown so that information was unattainable for 2019. If there is another location that you would like us to collect precipitation from please let us know and we could include that in future sampling events. The sample period from 8/8 to 8/15 did not get sampled. During this time the suction tube from the sampler got twisted and not enough water was collected to do the testing. The picture below is of the twisted sampler line.



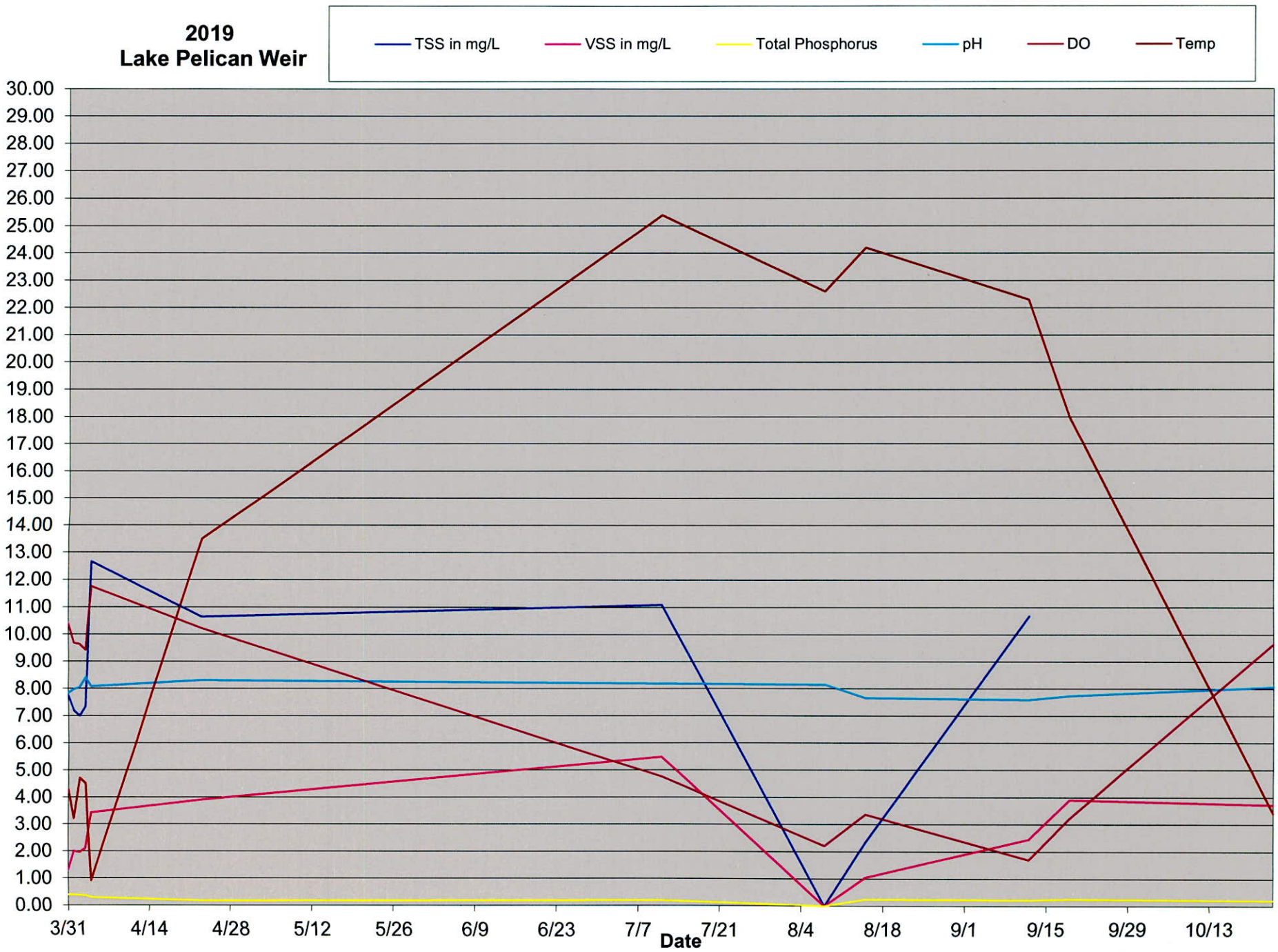
Thank you and please call if you have any questions.

Sincerely,

Jeff DeVille

Water Superintendent
Watertown Municipal Utilities Dept.

Cc: Sheila Maag, Lake Pelican Water Project District
Craig Mitchell, Watertown Wastewater Department.


2019
Lake Pelican Weir
TSS in mg/L
VSS in mg/L
Total Phosphorus
pH
DO
Temp
30.00
29.00
28.00
27.00
26.00
25.00
24.00
23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
3/31
4/14
4/28
5/12
5/26
6/9
6/23
7/7
7/21
8/4
8/18
9/1
9/15
9/29
10/13
Date

2019 Lake Pelican Weir Composite Samples

Composite Start Date	Composite End Date	Sample Collector	Location	Parameter		Parameter		Parameter		Average TSS	Average VSS	Average Phosphorus
				Sample ID	TSS SM 2540 D - 2011, 22nd Edition	Sample ID	VSS EPA 160.4 - Issued 1971	Sample ID	Total Phosphorus SM 4500 P B(5) - 2011 & 4500 P E - 2011			
03/31/19	03/31/19	CM/RLL	Pelican Weir		7.28 mg/L		1.43 mg/L	19-1084	0.41 mg/L			
03/31/19	03/31/19	CM/RLL	Pelican Weir		8.28 mg/L		1.14 mg/L	19-1085	0.38 mg/L	7.78	1.29	0.40
04/01/19	04/01/19	CM/RLL	Pelican Weir		7.25 mg/L		2 mg/L	19-1086	0.41 mg/L			
04/01/19	04/01/19	CM/RLL	Pelican Weir		7.12 mg/L		2 mg/L	19-1087	0.38 mg/L	7.19	2.00	0.40
04/02/19	04/02/19	RLL	Pelican Weir		7.1 mg/L		2 mg/L	19-1088	0.38 mg/L			
04/02/19	04/02/19	RLL	Pelican Weir		6.9 mg/L		1.9 mg/L	19-1089	0.36 mg/L	7.00	1.95	0.37
04/03/19	04/03/19	RLL	Pelican Weir		7.3 mg/L		2.2 mg/L	19-1090	0.37 mg/L			
04/03/19	04/03/19	RLL	Pelican Weir		7.4 mg/L		2 mg/L	19-1091	0.35 mg/L	7.35	2.10	0.36
04/04/19	04/04/19	RLL/CM	Pelican Weir		12.17 mg/L		3.67 mg/L	19-1178	0.29 mg/L			
04/04/19	04/04/19	RLL/CM	Pelican Weir		13.17 mg/L		3.17 mg/L	19-1179	0.29 mg/L	12.67	3.42	0.29
04/23/19	04/23/19	CM/RLL	Pelican Weir		10.5 mg/L		3.9 mg/L	19-1433	0.19 mg/L			
04/23/19	04/23/19	CM/RLL	Pelican Weir		10.8 mg/L		3.9 mg/L	19-1434	0.16 mg/L	10.65	3.90	0.18
07/11/19	07/11/19	RLL	Pelican Weir		11.4 mg/L		5.4 mg/L	19-2608	0.2 mg/L			
07/11/19	07/11/19	RLL	Pelican Weir		10.8 mg/L		5.6 mg/L	19-2609	0.21 mg/L	11.10	5.50	0.21
08/08/19	08/08/19	RLL	Pelican Weir		mg/L		mg/L		mg/L			
08/08/19	08/08/19	RLL	Pelican Weir		mg/L		mg/L		mg/L	0.00	0.00	0.00
08/15/19	08/15/19	RLL	Pelican Weir		2.3 mg/L		1.1 mg/L	19-3359	0.26 mg/L			
08/15/19	08/15/19	RLL	Pelican Weir		2.4 mg/L		1 mg/L	19-3360	0.24 mg/L	2.35	1.05	0.25
09/12/19	09/12/19	RLL	Pelican Weir		11.1 mg/L		2.6 mg/L	19-3591	0.23 mg/L			
09/12/19	09/12/19	RLL	Pelican Weir		10.3 mg/L		2.3 mg/L	19-3592	0.24 mg/L	10.70	2.45	0.24
09/19/19	09/19/19	RLL/CM	Pelican Weir		22.6 mg/L		4 mg/L	19-3768	0.27 mg/L			
09/19/19	09/19/19	RLL/CM	Pelican Weir		23 mg/L		3.8 mg/L	19-3769	0.27 mg/L	22.80	3.90	0.27
10/24/19	10/24/19	RLL	Pelican Weir		8.14 mg/L		4 mg/L	19-4174	0.21 mg/L			
10/24/19	10/24/19	RLL	Pelican Weir		7.57 mg/L		3.43 mg/L	19-4175	0.21 mg/L	7.86	3.72	0.21

	Composite End Date		Location	TSS Average	VSS Average	Phosphorus Average
	03/31/19	03/31/19	PELICAN WEIR	7.78	1.29	0.40
	04/01/19	04/01/19	PELICAN WEIR	7.19	2.00	0.40
	04/02/19	04/02/19	PELICAN WEIR	7.00	1.95	0.37
	04/03/19	04/03/19	PELICAN WEIR	7.35	2.10	0.36
	04/04/19	04/04/19	PELICAN WEIR	12.67	3.42	0.29
	04/23/19	04/23/19	PELICAN WEIR	10.65	3.90	0.18
	07/11/19	07/11/19	PELICAN WEIR	11.10	5.50	0.21
	08/08/19	08/08/19	PELICAN WEIR	0.00	0.00	0.00
	08/15/19	08/15/19	PELICAN WEIR	2.35	1.05	0.25
	09/12/19	09/12/19	PELICAN WEIR	10.70	2.45	0.24
	09/19/19	09/19/19	PELICAN WEIR	22.80	3.90	0.27
	10/24/19	10/24/19	PELICAN WEIR	7.86	3.72	0.21

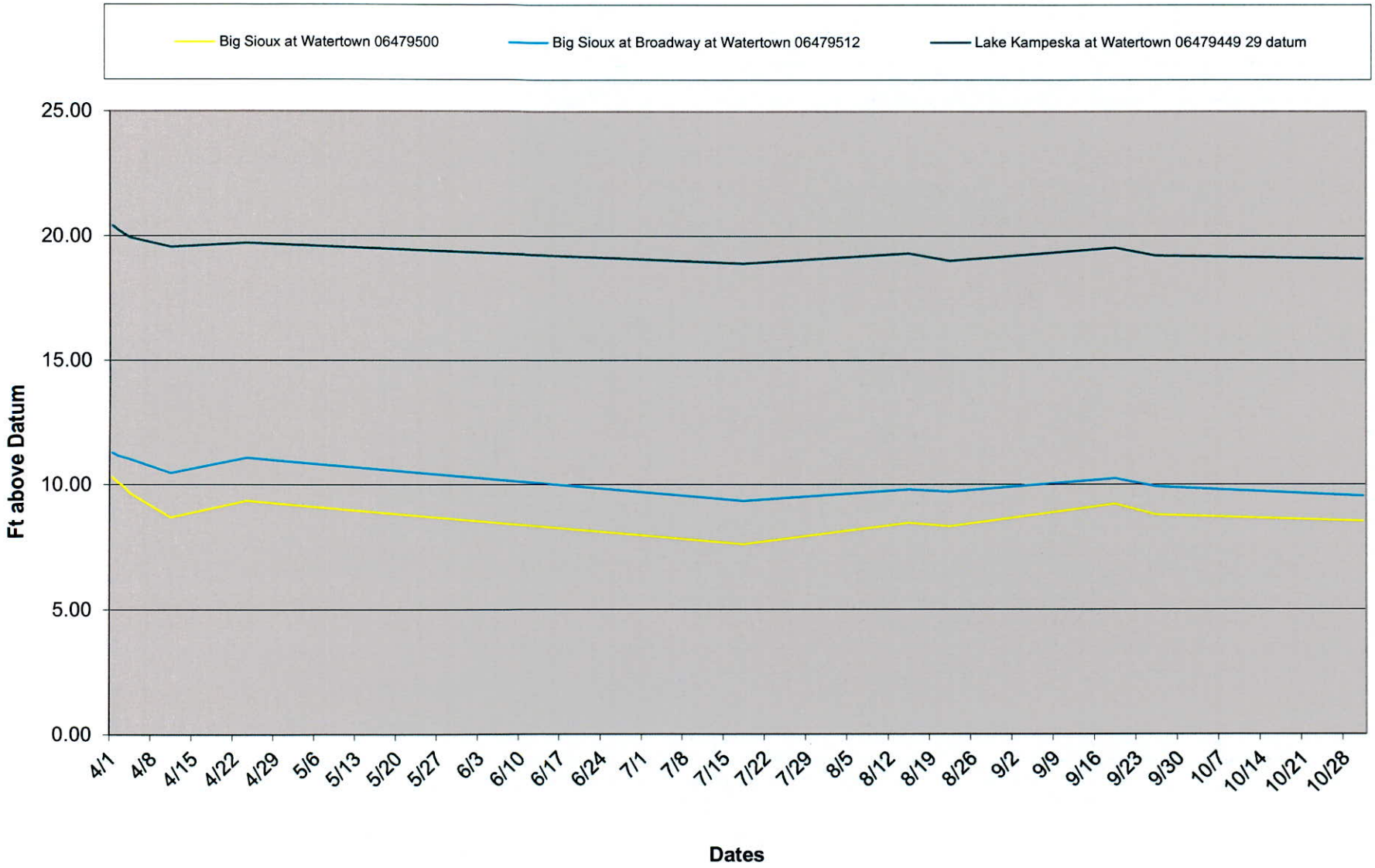
2019 Lake Pelican Weir Grab Samples

Date	Sample Collector	Location	Sample ID #	Conductivity Method SM 2510 B - 2011, 23rd Edition	Sample ID #	pH Method USGS I-1586-85-1989	Sample ID #	DO Method SM 4500-O G - 2011, 22nd Edition	Sample ID #	Temperature Method SM 2550 B - 2010, 23rd Edition
04/01/19	CM/RLL	Pelican weir		349 uS/cm		7.83 s.u.		10.41 mg/L		4.3 ° C
04/02/19	CM/RLL	Pelican weir		465 uS/cm		7.98 s.u.		9.68 mg/L		3.2 ° C
04/03/19	RLL	Pelican weir		490 uS/cm		8.04 s.u.		9.64 mg/L		4.7 ° C
04/04/19	RLL	Pelican weir		481 uS/cm		8.40 s.u.		9.41 mg/L		4.5 ° C
04/11/19	RLL/CM	Pelican weir		635 uS/cm		8.08 s.u.		11.76 mg/L		0.9 ° C
04/24/19	CM/RLL	Pelican weir		539 uS/cm		8.31 s.u.		10.23 mg/L		13.5 ° C
07/18/19	RLL	Pelican weir		679 uS/cm		8.20 s.u.		4.76 mg/L		25.4 ° C
08/15/19	RLL	Pelican weir		755 uS/cm		8.16 s.u.		2.21 mg/L		22.6 ° C
08/22/19	RLL	Pelican weir		800 uS/cm		7.66 s.u.		3.37 mg/L		24.2 ° C
09/19/19	RLL	Pelican weir		713 uS/cm		7.60 s.u.		1.70 mg/L		22.3 ° C
09/26/19	RLL/CM	Pelican weir		759 uS/cm		7.74 s.u.		3.22 mg/L		18.0 ° C
10/31/19	RLL	Pelican weir		789 uS/cm		8.07 s.u.		9.65 mg/L		3.4 ° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C
		Pelican weir		uS/cm		s.u.		mg/L		° C

2019 Pelican Field Observations

Date	Time	Sample Collector	Rain Fall	Wind		Air Temperature Degrees F	Cloud Cover	Water Odor	Water Color	Septic Conditions	Film or Sheen	Presence of				Comments
				Velocity mph	Direction							Excessive Turbidity	Wildlife	Domestic Animals	Dead Fish	
04/01/19		CM/RLL	N/A	9	N	30	Y	Normal	Normal	N	N	N	N	N	N	
04/02/19		CM/RLL	N/A	17	SW	30	N	Normal	Normal	N	N	N	N	N	N	
04/03/19		RLL	N/A	7	N	34	N	Normal	Normal	N	N	N	N	N	N	
04/04/19		RLL	N/A	9	E	35	Y	Normal	Normal	N	N	N	Y	N	N	Ducks
04/11/19		RLL/CM	Moderate	28	NE	24	Y	Normal	Normal	N	N	N	Y	N	N	Precipitation = Snow; Ducks
04/24/19		CM/RLL	N/A	Calm	N/A	63	N	Normal	Normal	N	N	N	Y	N	N	Ducks, Geese, Pelicans
07/18/19		RLL	N/A	3	S	73	N	Normal	Normal	N	N	N	N	N	N	
08/15/19		RLL	N/A	7	S	75	N	Normal	Normal	N	N	N	N	N	N	
08/22/19		RLL	N/A	10	SE	68	N	Normal	Normal	N	N	N	N	N	N	
09/19/19		RLL	N/A	Calm	N/A	73	N	Normal	Unusual	N	N	N	N	N	N	High amounts of solids in the water.
09/26/19		RLL/CM	N/A	16	SW	63	Y	Normal	Normal	N	N	N	N	N	N	
10/31/2019		RLL	N/A	10	SW	30	N	Normal	Normal	N	N	N	N	N	N	

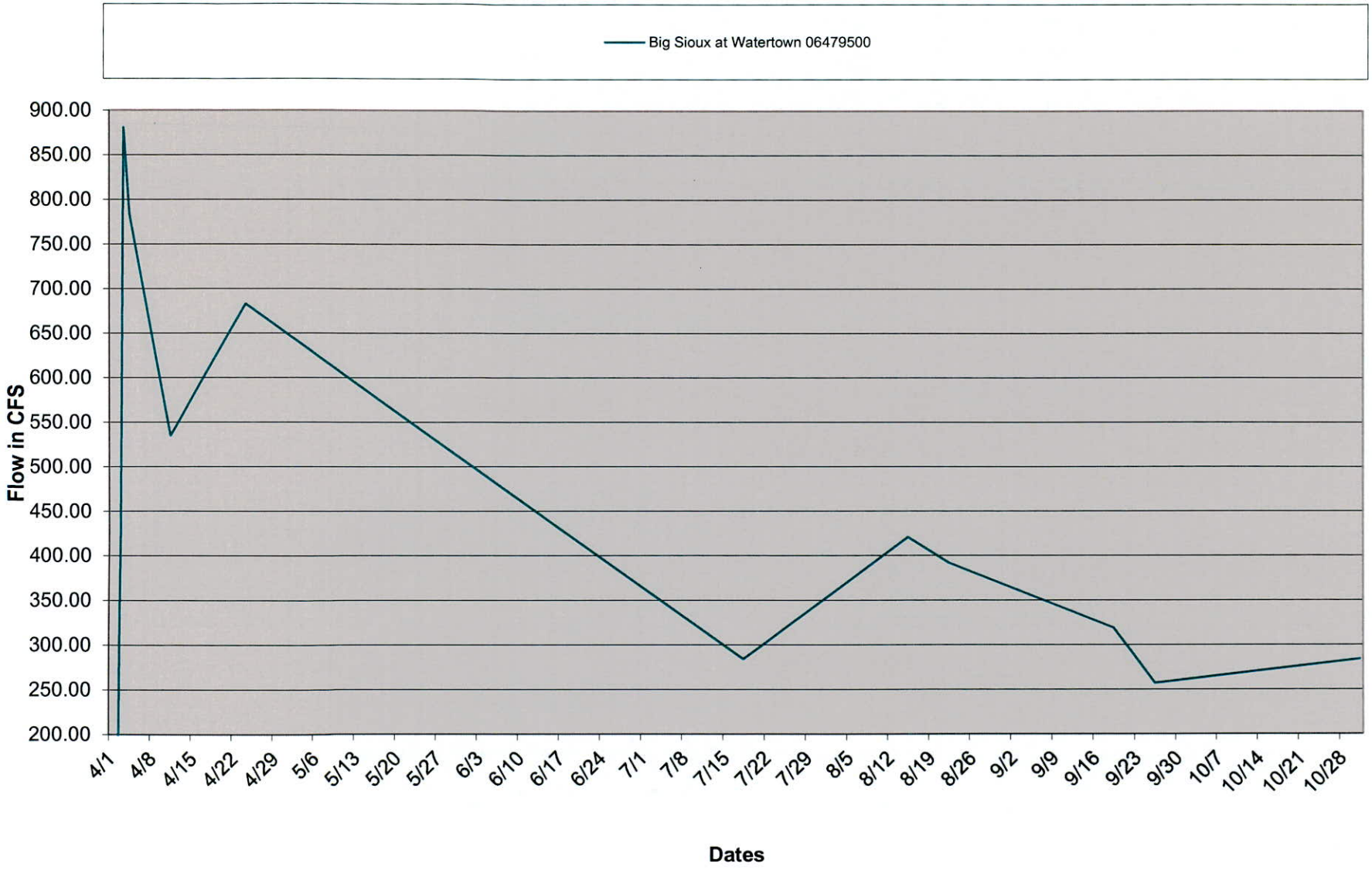
Stage Chart from Watertown's Enhanced Flood Forecasting System 2019



Pelican Stage from Watertown's Enhanced Flood Forecasting System 2019

Pelican Stage from Watertown's Enhanced Flood Forecasting System 2008	Sample Collector	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512	Lake Kampeska at Watertown 06479449 29 datum
04/01/19	CM/RLL	10.31	11.30	20.42
04/02/19	CM/RLL	10.09	11.17	20.24
04/03/19	RLL	9.92	11.10	20.08
04/04/19	RLL	9.67	11.04	19.94
04/11/19	RLL/CM	8.69	10.48	19.56
04/24/19	CM/RLL	9.36	11.09	19.72
07/18/19	RLL	7.62	9.36	18.90
08/15/19	RLL	8.47	9.82	19.31
08/22/19	RLL	8.33	9.73	19.01
09/19/19	RLL	9.23	10.26	19.53
09/26/19	RLL/CM	8.79	9.93	19.22
10/31/19	RLL	8.54	9.55	19.09

Flow Chart from Watertown's Enhanced Flood Forecasting System 2019



Pelican Stream Flow in cfs Summary 2019

Location And Site Number

Date	Sample Collector	Big Sioux at Watertown 06479500	Big Sioux at Broadway at Watertown 06479512
4/1/2019	CM/RLL	ICE	
4/2/2019	CM/RLL	ICE	
4/3/2019	RLL	881	
4/4/2019	RLL	784	
4/11/2019	RLL/CM	535	
4/24/2019	CM/RLL	683	
7/18/2019	RLL	284	
8/15/2019	RLL	421	
8/22/2019	RLL	392	
9/19/2019	RLL	319	
9/26/2019	RLL/CM	257	
10/31/2019	RLL	284	

FC29-3

Water Rights Program - DENR

File Documentation

County: *Codington*

Name of Person: *Jeff DeVille, Water Superintendent. City of Watertown* **File:** *FC29*
Address: *PO Box 910, Watertown SD 57201*
Date: *03/12/2020*

RE: *Revision to Lake Kampeska Diversion Weir Sampling Plan*

Comments: Jeff DeVille contacted the DENR Water Rights Program to inform us the precipitation measuring sites operated by the USGS that the City listed and were using in the Lake Kampeska Diversion Weir Sampling Plan had been discontinued. For replacement sites, I suggested the City use the precipitation sites operated in the Watertown area by the National Weather Service (NWS).

Mr. Deville indicated the City would be using these NWS precipitation sites.

Watertown 7.5 NNE	Rauville 2W	Watertown 7.6 ENE	Watertown 4.4 ENE	Watertown 1W	Watertown Reginal Airport

Mark D Rath
Natural Resources Engineer
SD DENR – Water Rights Program

WATERTOWN MUNICIPAL UTILITIES
901 • 4TH AVENUE SW • WATERTOWN, SD 57201-4107
PHONE: (605) 882-6233 • FAX: (605) 882-6238
WWW.WATERTOWNMU.COM

RECEIVED
JUN 25 2021
WATER RIGHTS PROGRAM

June 23, 2021

Eric Gronlund
Department of Agriculture and Natural Resources
Water Rights Program
523 East Capitol
Pierre, SD 57501-3182

Dear Eric,

I sadly announce to you that after thirty-three years of service with the Watertown Municipal Utilities, our dedicated and hard-working Water Superintendent, Jeff DeVille, will be retiring effective June 30, 2021. We greet Mr. DeVille's retirement with sorrow, but we are also happy Jeff can now enjoy his own time. Jeff has been a great asset to the Water Department here at the Watertown Municipal Utilities and will be greatly missed.

I would like to introduce our new Water Superintendent Wayne Lovelis. Wayne has been training under Jeff for the past two months and comes with much experience. He has over 25 years in the water/utility industry. He has spent the last six years with The City of Great Falls, Montana. He will take over the reins as Water Superintendent along with the duties of being the correspondent for the Water Rights and Diversion Structure under FC29. Feel free to contact Wayne at any time.

See below Wayne's contact information.

Watertown Municipal Utilities
Wayne Lovelis, Water Superintendent
901 4th Ave SW
Watertown, SD 57201
wlovelis@watertownmu.com
605-882-6233 phone
605-882-6239 fax

Best regards,

Steve Lehner, General Manager
Watertown Municipal Utilities

FC-29

Gronlund, Eric

From: Gronlund, Eric
Sent: Wednesday, May 25, 2022 11:49 AM
To: Bert Magstadt
Subject: RE: [EXT] Watertown - Lake Kampeska weir damage

Bert:

The Water Rights Program appreciates being apprised of the malfunction of one of the gates at the inlet/outlet channel between the Big Sioux River and Lake Kampeska. The weir and gate system are authorized by Flood Control Permit No. FC-29 held by the city of Watertown. This permit sets forth criteria for operation when the gates are to open and closed. DANR understands that one of the gates is shut until repairs are made. As long as the city actively pursues having repairs made, DANR does not anticipate taking any action on this matter at this time. Please keep us informed on when repairs can be made.

Thanks – Eric

Eric Gronlund
Water Rights Program, DANR
605 773-3352
eric.gronlund@state.sd.us

From: Bert Magstadt
Sent: Wednesday, May 25, 2022 11:11 AM
To: eric.gronlund@stste.sd.us
Cc: Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>
Subject: Watertown - Lake Kampeska weir damage

Hi Eric,

Thanks for taking my call about the issue we had with the weir on Lake Kampeska.

As I stated, around 4:30pm on Tuesday, May 24th as we were operating the gates per the operation agreement, the far west gate malfunctioned and slammed shut as we were trying to open. The other gate operated fine and is open per the operation agreement.

Our plan is to repair as soon as practical and we will keep you posted on our progress.

I included a few of our folks within our organization as follows.

- Wayne Lovelis – Water Supt
- Mark Ward – Water Treatment Plant Foreman
- Steve Lehner – General Manager

Normally this communication would come from Wayne Lovelis, but he is out of the office.

If at anytime you have any questions, please feel free to reach out to me.

Thanks again Eric.

Bert Magstadt, PE
Director of Operations
Watertown Municipal Utilities
901 4th Ave SW
Watertown, SD 57201
(605) 882-6233 (Office)
(605) 695-6723 (Cell)
(605) 882-6238 (Fax)
bmagstadt@watertownmu.com

FC 29-3

Gronlund, Eric

From: Gronlund, Eric
Sent: Tuesday, December 27, 2022 11:35 AM
To: Bert Magstadt
Cc: hvoneye@watertownsd.us; Justin Petersen; Wayne Lovelis; Mark Ward; Steve Lehner
Subject: RE: [EXT] Watertown - Lake Kampeska weir damage

Bert – thanks for the update. This email will be put in the administrative record for Flood Control Permit No. FC-29. Please notify us when the work has been completed and the gate is functional and that will be added to the file as well.

The functional gate shall be operated in accordance with qualification No. FC-29. See below.

2. That the construction, operation, maintenance and repair of the Lake Kampeska weir and gated control system is the responsibility of the city of Watertown. The operation of the gates shall be in accordance with the following criteria:

Open Gates
- During internal flooding or after a flood event on the river; and
- If lake level is above the stage in the river; and
- If lake level is above its normal level of 1717.8 fmsl; or
- During drought periods when the lake level falls 30 inches below normal elevation (1715.3 fmsl).

Closed Gates
- Normal operating conditions; or
- When lake level reaches its normal level during draining operation; or
- When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

Eric Gronlund
Water Rights Program, DANR

From: Bert Magstadt <bmagstadt@watertownmu.com>
Sent: Friday, December 23, 2022 3:36 PM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Cc: hvoneye@watertownsd.us; Justin Petersen <jpetersen@watertownsd.us>; Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>
Subject: FW: [EXT] Watertown - Lake Kampeska weir damage

Hi Eric,

I wanted to give you an update on the weir at Lake Kampeska.

Back on May 24th we experienced a gate operation failure when we were exercising the gate. The gearbox malfunctioned causing the gate to slam shut (see email below). Since then, we've had conversations with the manufacturer and they thought the gear box broke, dropping the gate. Per their advice, we ordered parts and rebuilt the gearbox, but it still won't open.

We then re-contacted the manufacturer, and they told us if that gate slammed shut hard enough, it's probably wedged and possibly did some structural damage. He stated not to force it open with a winch or you could cause more damage. We then notified the City of Watertown about the situation, and they have had follow-up conversations with the manufacturer.

What they are being told is to place a coffer dam around the gate so the water can be pumped out to further inspect, repair, and possibly replace the gate. The City of Watertown is investigating their options. Unfortunately, they are not sure when contracts and a contractor will be in place to perform the work. It could be this upcoming spring before that can be done, so this damaged gate will not be operational until then.

As I stated this damaged gate is currently closed. However, the second gate is functional and can be operated. Its currently closed in accordance with the Operating Manual.

If you have any questions, please reach out to me or the Justin Petersen – Asst City Engineer at the City of Watertown. He is on this email also.

Thank you for your understanding

Bert Magstadt, PE
Director of Operations
Watertown Municipal Utilities
901 4th Ave SW
Watertown, SD 57201
(605) 882-6233 (Office)
(605) 695-6723 (Cell)
(605) 882-6238 (Fax)
bmagstadt@watertownmu.com

From: Bert Magstadt
Sent: Wednesday, May 25, 2022 11:11 AM
To: eric.gronlund@stste.sd.us
Cc: Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>
Subject: Watertown - Lake Kampeska weir damage

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- Steve Lehner – General Manager

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If at anytime you have any questions, please feel free to reach out to me.

Thanks again Eric.

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Schlaak, Karen FC-29

To: Gronlund, Eric
Subject: RE: [EXT] Watertown - Lake Kampeska weir damage

From: Bert Magstadt <bmagstadt@watertownmu.com>
Sent: Tuesday, April 25, 2023 9:47 AM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Cc: hvoneye@watertownsd.us; Justin Petersen <jpetersen@watertownsd.us>; Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>; Wyatt Ewing <wewing@watertownsd.us>
Subject: RE: [EXT] Watertown - Lake Kampeska weir damage

GM Eric,

As of April 24th, 2023, we have the damaged gate operational for the time being. The City contracted with Midco Diving and Marine Services out of Rapid City to investigate the damage to the gate and they were able to jack up the gate and straighten it out to make it operational. We raised and lowered the gate a few times to make sure it would work well enough, but the divers found some parts that got bent and the City has them on order. We anticipate 2 - 4 weeks for these parts to arrive, which at that time the City will re-schedule with Midco to complete the repairs. We don't know when Midco will be able to return to complete the repairs, it will depend on their schedule at that time.

Right now, both gates are open in accordance with the Operating Manual. I'll let you know when final repairs are made to the weir.

Thank you for your understanding as we work through this.

Bert Magstadt, PE
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(605) 695-6723 (Cell)
(605) 882-6238 (Fax)
bmagstadt@watertownmu.com

From: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Sent: Tuesday, December 27, 2022 11:35 AM

FC29-3

Gronlund, Eric

From: Bert Magstadt <bmagstadt@watertownmu.com>
Sent: Thursday, June 1, 2023 1:47 PM
To: Gronlund, Eric
Cc: hvoneye@watertownsd.us; Justin Petersen; Wayne Lovelis; Mark Ward; Steve Lehner; Wyatt Ewing
Subject: RE: [EXT] Watertown - Lake Kampeska weir damage

Hello Eric,

I'm informing your office that the final repairs have been made on the Lake Kampeska weir as of yesterday, May 31st, 2023. Midco Diving and Marine Services of Rapid City returned and replaced all the questionable parts. We then operated the gate a few times to make sure everything was in order and currently the weir is open in accordance with the Operating Manual.

I must commend the City of Watertown for finding a great economical solution using divers instead of a installing a coffer dam to repair the gate.

Thank you Eric for your patience and understanding during the process and to everyone that worked on this project.

If you have any further questions, please feel free to reach out to me.

Bert Magstadt, PE
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(605) 695-6723 (Cell)
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bmagstadt@watertownmu.com

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Cc: hvoneye@watertownsd.us; Justin Petersen <jpetersen@watertownsd.us>; Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>; Wyatt Ewing <wewing@watertownsd.us>
Subject: RE: Watertown - Lake Kampeska weir damage

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Sent: Tuesday, December 27, 2022 11:35 AM
To: Bert Magstadt <bmagstadt@watertownmu.com>
Cc: hvoneye@watertownsd.us; Justin Petersen <jpetersen@watertownsd.us>; Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>
Subject: RE: Watertown - Lake Kampeska weir damage

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Bert – thanks for the update. This email will be put in the administrative record for Flood Control Permit No. FC-29. Please notify us when the work has been completed and the gate is functional and that will be added to the file as well.

The functional gate shall be operated in accordance with qualification No. FC-29. See below.

2. That the construction, operation, maintenance and repair of the Lake Kampeska weir and gated control system is the responsibility of the city of Watertown. The operation of the gates shall be in accordance with the following criteria:

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- During drought periods when the lake level falls 30 inches below normal elevation (1715.3 fmsl).

Closed Gates
- Normal operating conditions; or
- When lake level reaches its normal level during draining operation; or
- When filling during drought period close gates when the lake level is 24 inches below the normal lake elevation (1715.8 fmsl).

Eric Gronlund
Water Rights Program, DANR

From: Bert Magstadt <bmagstadt@watertownmu.com>
Sent: Friday, December 23, 2022 3:36 PM
To: Gronlund, Eric <Eric.Gronlund@state.sd.us>
Cc: hvoneye@watertownsd.us; Justin Petersen <jpetersen@watertownsd.us>; Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>
Subject: FW: [EXT] Watertown - Lake Kampeska weir damage

Hi Eric,

I wanted to give you an update on the weir at Lake Kampeska.

Back on May 24th we experienced a gate operation failure when we were exercising the gate. The gearbox malfunctioned causing the gate to slam shut (see email below). Since then, we've had conversations with the manufacturer and they thought the gear box broke, dropping the gate. Per their advice, we ordered parts and rebuilt the gearbox, but it still won't open.

We then re-contacted the manufacturer, and they told us if that gate slammed shut hard enough, it's probably wedged and possibly did some structural damage. He stated not to force it open with a winch or you could cause more damage. We then notified the City of Watertown about the situation, and they have had follow-up conversations with the manufacturer.

What they are being told is to place a coffer dam around the gate so the water can be pumped out to further inspect, repair, and possibly replace the gate. The City of Watertown is investigating their options. Unfortunately, they are not sure when contracts and a contractor will be in place to perform the work. It could be this upcoming spring before that can be done, so this damaged gate will not be operational until then.

As I stated this damaged gate is currently closed. However, the second gate is functional and can be operated. Its currently closed in accordance with the Operating Manual.

If you have any questions, please reach out to me or the Justin Petersen – Asst City Engineer at the City of Watertown. He is on this email also.

Thank you for your understanding

Bert Magstadt, PE
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From: Bert Magstadt
Sent: Wednesday, May 25, 2022 11:11 AM
To: eric.gronlund@stste.sd.us
Cc: Wayne Lovelis <wlovelis@watertownmu.com>; Mark Ward <mward@watertownmu.com>; Steve Lehner <slehner@watertownmu.com>
Subject: Watertown - Lake Kampeska weir damage

Hi Eric,

Thanks for taking my call about the issue we had with the weir on Lake Kampeska.

As I stated, around 4:30pm on Tuesday, May 24th as we were operating the gates per the operation agreement, the far west gate malfunctioned and slammed shut as we were trying to open. The other gate operated fine and is open per the operation agreement.

Our plan is to repair as soon as practical and we will keep you posted on our progress.

I included a few of our folks within our organization as follows.

- Wayne Lovelis – Water Supt
- Mark Ward – Water Treatment Plant Foreman
- Steve Lehner – General Manager

Normally this communication would come from Wayne Lovelis, but he is out of the office.

If at anytime you have any questions, please feel free to reach out to me.

Thanks again Eric.

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