

WATER PERMIT NO. 7285-3

Name of Applicant: **Boyd Bien**

Address: **43475 111th St, Lake City SD 57247**

Phone: **201-872-6770**

Amount of Water Claimed: **109 AF**

Total Acres:

Source of Water Supply: **runoff**

Water to be used for: **fish & wildlife propagation**

County: **Marshall**

Type of Waste Disposal System:

Location: **11 miles east of Britton**

PRIORITY

Date Received: **12-13-11**

Application/License Fee: **\$ 700**

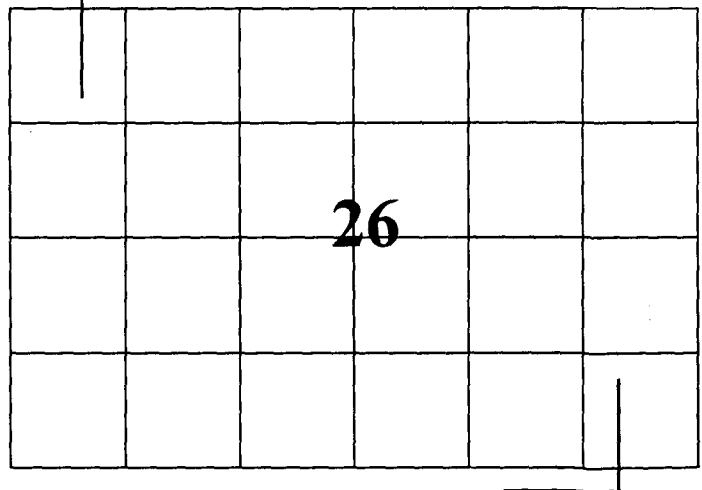
Corrected Application Received:

Period of Annual Use: **January 1 – December 31**

Remarks:

Diversion Point: **SW ¼ Sec 26-T127N-R56W**

Land to be Irrigated: **S ½ SW ¼, NE ¼ SW ¼, SW ¼ SE ¼ Sec 26-T127N-R56W**



Depth of Well: **NA**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by: **Thomas L Wickstrom, Waubay NWR**

Reviewed and the Number Assigned on: **12-13-11**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

FORM 2: Application for uses other than irrigation
(type or print)

Mail to:
PMB 2020
DENR - Water Rights
523 E Capitol Ave
Pierre, SD 57501-3182
ph. (605) 773-3352

(office use only)
No. 1285-3 Hydrologic Unit 10160010
Basin James River
Newspaper Britton Journal PO Box 69
605-448-2280 57430

RECEIVED

DEC 13 2011

WATER RIGHTS
PROGRAM

Application For Permit To Appropriate Water Within The State Of South Dakota

Check use(s) of water:

☐ Municipal ☐ Suburban Housing ☐ Recreational ☐ Institutional
☐ Rural Water System ☐ Commercial ☒ Fish & Wildlife ☐ Geothermal Heat
☐ Domestic (over 18 gpm) ☐ Industrial ☐ Other _____

Type of Application:

(check one)

☐ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
☐ Place to Beneficial Use Water Reserved by Future Use Permit No. _____
☐ Amendment/Correction to Permit No. _____

Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)

1. Name of Applicant Boyd Bien Phone 201-872-6770
(check one) ☒ Owner ☐ Tenant/lessee
Mailing Address 43475 111th ST Lake City SD 57247
(Address) (City) (State) (Zip Code)
2. Amount of water claimed _____ *CFS or _____ **GPM 181 ***AF
(*Cubic Feet per Second) (**Gallons per Minute) (***)Acre Feet - storage capacity of dam/dugout or annual use if applicable)
3. Source of water supply runoff from watershed
4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Marshall
Dike at SW1/4 Section 26, T. 127 N.R. 56 W. Water Impounded @ S1/2 SW1/4 NE1/4 SW1/4
SW1/4 SE1/4 Sec 26 T127N R56W
5. County or counties where water will be used Marshall
6. Annual period during which water is to be used spring & summer Jan 1 - Dec 31
7. Give a description of 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)

See Engineer's Sketch Plan.

See Tim Schoals 1/19/12 File Documentation

STATE OF SOUTH DAKOTA)

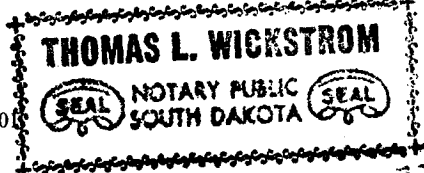
County of Day) SS

Attachments: Attach Form 2A if diversion is from a well or dugout, or if storage of water is proposed. Also, attach map and any other technical information. (see instructions)

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

Applicant's signature Boyd BienSubscribed and sworn to before me this 2nd day of November 20 11

2010-01



THOMAS L. WICKSTROM
Day County, South Dakota
My Commission Expires Dec. 23, 2011

[Signature]
Notary Public signature

**SOUTH DAKOTA
WATER PERMIT NO. 7285-3**

Date of first receipt of application December 13, 2011.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7285-3 to Boyd Bien, 43475 111th St, Lake City SD 57247 authorizing the construction of the two wetland structures and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 7285-3 authorizes impoundment of a total of 181 acre-feet of water from runoff by constructing two wetland structures located in the N 1/2 SW 1/4 Section 26 and the SE 1/4 SW 1/4 Section 26 with water impounded in the SW 1/4 Section 26; all in T127N-R56W. This permit authorizes impoundment of sufficient water to maintain water to the outlet elevation. The south wetland will hold shallow temporary water to flood irrigate a crop. A total of 46.6 acres located in the NE 1/4 SW 1/4, S 1/2 SW 1/4 and SW 1/4 SE 1/4 Section 26-T127N-R56W will be irrigated.
2. The water appropriated shall be used for the purpose of fish & wildlife propagation and irrigation and may not exceed the amount of water needed for beneficial use.
3. The water is to be used during the following described annual period: January 1 – December 31 (impoundment) April 1 – October 31 (irrigation).
4. The date of approval of Permit No. 7285-3 is February 27, 2012.
5. The date from which applicant may claim right is December 13, 2011.
6. One-fifth of the construction is to be completed on or before August 27, 2014.
7. All construction is to be completed on or before February 27, 2017.
8. Water is to be put to beneficial use on or before February 27, 2021.
9. Water rights obtained in compliance with the laws of the State of South Dakota may not be unlawfully impaired by this appropriation.

QUALIFICATIONS

1. Water Permit No. 7285-3 authorizes impoundment with a total storage capacity of 181 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

WATER MANAGEMENT BOARD

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

JUN 21 2012
date



Supplemental Information

(type or print in ink)

1. Well Information - Proposed Construction

- a) Drill Hole Diameter _____ Depth _____
- b) Casing Type _____ Diameter _____ Thickness _____
- c) Screen Type _____ Diameter _____ Thickness _____
- d) Gravel Pack _____ Length of Gravel Pack _____
- e) Depth to Top of Water Bearing Material _____
- f) Depth to Water (ground surface to water level) _____
- g) Distance to nearest existing domestic well:
- On applicant's property _____ On property owned by others _____

2. Wastewater Disposal System Information

- a) Type of System (i.e. septic tank, drain field)
- b) System Capacity (gallons) _____ Year Constructed _____
- c) Connected to the City of _____ Sanitary System

3. Dugout Information

- a) Surface Dimensions _____ Depth _____
- b) Depth to water (ground surface to water level) _____

4. Water Storage Dams

If the proposed water use system contains one or more storage dams, please furnish the information requested below for each dam. The locations of the dams need to be shown on the map submitted with the application.

- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:

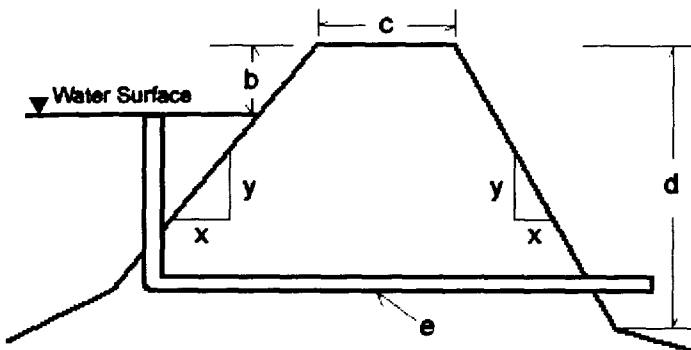
Konechne Engineering
104 Capitol Hill Drive
Pierre, SD 57501

- b) Freeboard 0.7 feet
- c) Crest Width 12 feet
Crest Length 1388 feet
- d) Height 5.9 feet
- e) Primary Outlet Capacity 50.4

If pipe, diameter 48" 1/2 round w/36" out

- f) Secondary Spillway Capacity 80 cfs
Spillway Width 20 feet
- g) X & Y Slope (e.g. 3 to 1 is a typical slope)
Upstream 3:1
Downstream 3:1

- h) Surface Area of Impoundment 46.6
- i) Storage 109.0 Acre Feet
- j) Drainage Area Above Dam 471.0 Acres





Boyd Bien Marshall County



0.5

0.25

0
Miles

0.5

Legend

 Wetland Restored

*Thomas L. Wickstrom
Fish & Wildlife Biologist
Waubesa NWR*
TWL

RECEIVED

DEC 13 2011

WATER RIGHTS
PROGRAM



DEC-13-2011 TUE 04:28 PM US FISH&WILDLIFE BRKS

FAX NO. 605 697 2505

P. 01/01

FROM SD DEPT OF NAT RES 605-776-4088

(TUE) DEC 13 2011 5:38/ST. 5:38/No. 0004545854 P 1

Dept of Environment & Natural Resources
Water Rights Program
523 E Capitol Ave
Pierre SD 57501

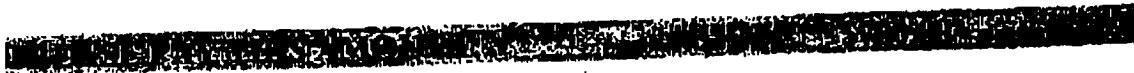
INVOICE

December 13, 2011
Invoice No. 121311Bien

U S Fish & Wildlife Service
44401 134A St
Waubay SD 57273

Water Permit Application for a Dam in Marshall County for Boyd Bien

\$700.00



DO NOT WRITE

ABOVE THIS LINE

SANDRA H. HUBBARD

XXXX XXXX XXXX 1309

EXPIRATION
☒ DATE
CHECKED
10/14

SIGN HERE

X

↑ PLEASE DO NOT WRITE ABOVE THIS LINE ↑			
I	INV. NO. 121311BIEN	700.00	
	WATER PERMIT APP.		
DATE 12/14/11	AUTHORIZATION 085063	SUB TOTAL	700.00
REFERENCE NO. 001	SERVER	TAX	
ID-FOLIO/CHECK NO./LIC. NO. STATE	REG./DEPT.	CLERK	TIP
		MISC.	
		TOTAL	700.00

SALES SLIP
ORIGINAL

The issuer of the card identified on this item is authorized to pay the amount shown as TOTAL upon proper presentation. I promise to pay such TOTAL (together with any other charges due thereon) subject to and in accordance with the agreement governing the use of such card.

Dept of Environment & Natural Resources
Water Rights Program
523 E Capitol Ave
Pierre SD 57501

* INVOICE *

February 7, 2012
Invoice No. Bbdam2-4

US Fish & Wildlife Service
44401 134A St
Waubay SD 57273

Additional Water Permit fee for Boyd Bien Dam in Marshall County

\$250.00

PLEASE PAY THIS AMOUNT: \$250.00

DO NOT WRITE

ABOVE THIS LINE

SANDRA J. HUBBARD

XXXX XXXX XXXX 1509

EXPIRATION

☒ DATE
CHECKED

10/14

SIGN HERE

X

The issuer of the card identified on this item is authorized to pay the amount shown as TOTAL upon proper presentation. I promise to pay such TOTAL (together with any other charges due thereon) subject to and in accordance with the agreement governing the use of such card.

↑ PLEASE DO NOT WRITE ABOVE THIS LINE ↑

1	INV. Bbdam2-4	250.00
DATE	02/07/12	AUTHORIZATION
REFERENCE NO.	001	SERVER
ID/FOLIO/CHECK NO./LIC. NO. STATE	REG./DEPT.	CLERK
TAX	TIP	MISC.
TOTAL	250.00	

SALES SLIP
ORIGINAL

Jacobson, Gail

From: Gronlund, Eric
Sent: Friday, February 03, 2012 8:22 AM
To: Jacobson, Gail
Subject: FW: Boyd Bien water permit application

From: Thomas_Wickstrom@fws.gov [mailto:Thomas_Wickstrom@fws.gov]
Sent: Friday, February 03, 2012 8:04 AM
To: Gronlund, Eric
Subject: Re: Boyd Bien water permit application

Eric,

Good Morning.! Sandy Hubbard is waiting for your fax. That is the correct Fax number.

Thanks you,

Tom



[<Eric.Gronlund@state.sd.us>](mailto:Eric.Gronlund@state.sd.us)

[<Eric.Gronlund@state.sd.us>](mailto:Eric.Gronlund@state.sd.us)

02/02/2012 09:06 AM

To [<Thomas_Wickstrom@fws.gov>](mailto:Thomas_Wickstrom@fws.gov)

cc [<Tim.Schaal@state.sd.us>](mailto:Tim.Schaal@state.sd.us)

Subject Boyd Bien water permit application

Tom

Tim Schaal has completed his review of the Mr. Bien's water permit application in Marshall County. As you will recall a change occurred in the amount of storage from 109 ac-ft to 181 ac-ft to account for the south wetland and irrigation of the hay crop. This additional impoundment results in an increase in the application filing fee of \$250. The previous filing for 109 ac-ft was \$500 plus the \$200 licensing fee for a total of \$700. USFWS paid this fee on behalf of Mr. Bien by credit card in mid December.

If it is acceptable, DENR's secretary will fax an invoice to USFWS for this additional fee and we can accept payment by credit card again. Please let me know if this is the correct process to follow. The fax number we have is 605 697-2505. Is this the number to use?

Once we receive payment, we will immediately proceed to send out for public notice.

Let me know if you have any questions.

Eric Gronlund
Water Rights Program, DENR
605 773-3352
eric.gronlund@state.sd.us

Water Rights Division -DENR
Conversation or File Documentation

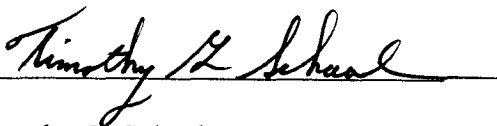
NAME OF PERSON OR FILE: Tom Wickstrom (USFWS)

ADDRESS: XXXXXXXXXXXXXXXX COUNTY: XXXXX

DATE: January 19, 2012 TELEPHONE: (605) 947-4521

RE: I talked to Tom Wickstrom from the USFWS today about Water Permit Application No. 7285-3 for Boyd Bien. We discussed the fact that this application was previously designed as a Ducks Unlimited project and authorized by Water Permit No. 5949-3, which was later cancelled for non-development. We also discussed that under the previous application the land inundated under the "south wetland" was listed as irrigated land, since they planned to drain and hay that ground; and the water stored by the "north wetland" was also included in the amount of total storage for the project.

Sometime after Water Permit No. 5949-3 was cancelled, the two dikes for the "north wetland" were constructed. I told Mr. Wickstrom that I thought we should address the additional storage in the "north wetland" in the new application, Water Permit Application No. 7285-2; and add irrigation for the land inundated by the "south wetland". Mr. Wickstrom agreed and said he would send the information he had on the "north wetland". This information indicated that there should be an additional 72 acre-feet of storage added to Water Permit Application No. 7285-3. Water Permit Application No. 7285-3 indicates that the irrigated land should be 46.6 acres located in the S ½ SW ¼, NE ¼ SW ¼, and SW ¼ SE ¼ of Section 26-T127N-R56W.



Timothy G. Schaal, P.E.
Natural Resources Engineering Specialist
Water Rights Program

North Wetland

STRUCTURE DATA

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPLWY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	50% AC.FT.	25-YR. C.F.S.	C.F.S.	FEET	ACRES	AC.FT.	AC.FT.
560	121	353	396	10	24	34	72.8

24 AC X 10 X 3 = 72

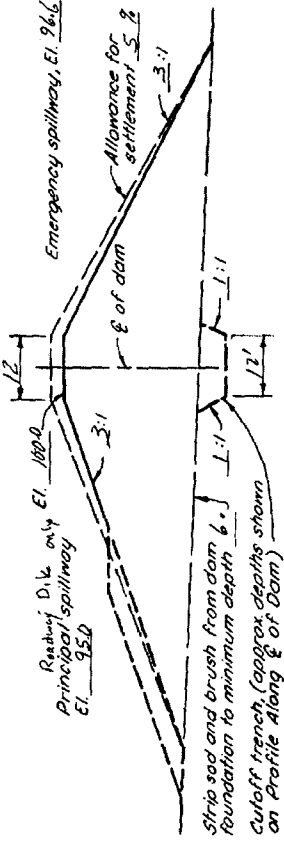
Runway	26
Corral	10
Water	10

Sec. 7, County

LOCATION

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
West Dike Embankment	cuyd	2107
5% settlement	cuyd	105
Core	cuyd	363
		3575
Corral Fill - Embankment	cuyd	2739
5% settlement	cuyd	137
Core trench	cuyd	265
		3641
Roadway - Dike Embankment	cuyd	562
5% settlement	cuyd	28
18" CP pipe	lin ft	58
1 cutoff collar	#	1
Project Total	cuyd	6806



TYPICAL CROSS SECTION OF DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

- 50-4 Stripping
- 50-7s Compaction - Wheel Traffic
- 50-10 Salvaging and Spreading Topsoil

EARTH DAM

OPERATOR: Eyd Bica
 CONSERVATION DISTRICT: Marshall
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 District: L.O.M. Date: 9-15-88
 Project: 5, N-29, 073, 1a(1)
 Sheet: 1 of 1

SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" =

REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0

PREPARED BY: N.E.R. 1977

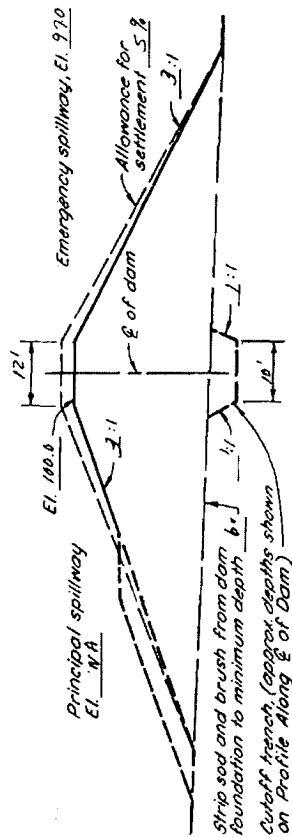
TABLE OF QUANTITIES

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	ENERG. SPPLY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC.FT.	25-YR.	C.F.S.	FEET	ACRES	AC.FT.	AC.FT.

[illegible]

Sec. 1 T. 1 R. 1
County

LOCATION



TYPICAL CROSS SECTION OF DAM

EARTH DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

OPERATOR: E. J. Bies - Cornell Fill
 CONSERVATION DISTRICT: Marshall

U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

DESIGNED L. O. Math 9/6/78
 APPROVED BY L. P. M. 9/6/78
 DISTRICT L. P. M. 9/6/78
 DISTRICT OFFICE Marshall

JOB PLAN NO. 1.0

REFERENCE: GUIDE PLAN NO. 1.0

ISSN 0022-2533/79/0000-0000\$01.00/0

(Rev. 4-73) 5, N-29, 073.10(1,

SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = _____

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPPLY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC.FT.	25-YR.	C.F.S.	FEET	ACRES	AC.FT.	AC.FT.

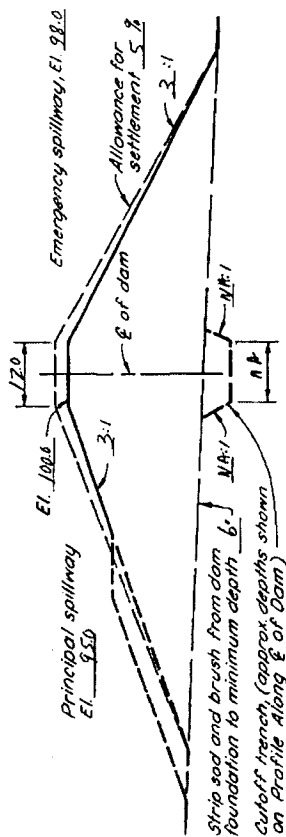
DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPPLY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC. FT.	25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.

ITEM	UNIT	QUANTITY
Roadway Fill	cuyds	562
5% Settlement	cuyds	28
Total	cuyds	590
18" corrugated Plastic Pipe	lin ft	60
1 cut off collar	#	1

ITEM	UNIT	QUANTITY
Roadway Fill	cuyds	562
5% Settlement	cuyds	28
Total	cuyds	590
18" corrugated Plastic Pipe	lin ft	60
1 cut off collar	#	1

Sec. 7 T. R.
County

LOCATION



TYPICAL CROSS SECTION OF DAM

S.S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

EARTH DAM

OPERATOR: Boyd Ben-Roadway Fill
CONSERVATION DISTRICT: Marshall

CONSERVATION DISTRICT: Marshall

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed	10. M. McTee	DATE	8-1-98	Approved by	L. Ann
Drawn	LPM		9-4-98	Title	District Tech
Traced		File		Sheet	Drawing No.
Checked		No.			

JOB PLAN NO. 1.0

REFERENCE: GUIDE PLAN NO. 1.0

150-505-1197018 HT 99 1973

(Rev. 4-73) 5, N-29, 073.10(1,

SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = _____

Roadway Fill with Pipe.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

EARTHWORK COMPUTATION SHEET
for Three Level Section

Section Roadway Fill

Plan or Job No.

Owner or Operator Boyd Blen

Calculations by Larry D. Mette

Checked by _____

Station (ft.)	2 $\frac{C}{2}$ (ft.)	3 $L_1 + L_2$ (ft.)	4 Product of Cols. 2 & 3 (sq. ft.)	5 $\frac{W}{4}$ (ft.)	6 $H_1 + H_2$ (ft.)	7 Product of Cols. 5 & 6 (sq. ft.)	8 End area Sum of Cols. 4 & 7 (sq. ft.)	9 Sum of End Areas (sq. ft.)	10 Distance Between Stations (ft.)	11 Product Cols. 9 (cu. ft.)
0+00	0.0	12.0	0.0	3.0	0.0	0.0	0.0	273.2	45	12,294.
0+45	3.9	58.2	227.0	3.0	15.4	46.2	273.2	390.5	30	12,298.1
0+75	2.1	41.7	87.6	3.0	9.9	29.7	117.3	154.5	38	5,871.1
1+13	1.05	24.0	25.2	3.0	4.0	12.0	37.2	37.2	12	446.4
1+25	0.0	12.0	0.0	3.0	0.0	0.0	0.0		30.72	30.72
									54	54
										562 yds
										XOS
										28

Divide total of Column #11 by 54 to get cu. yds.

Divide: Total of Column #11 by 54 to get cu. yds.

EARTHWORK COMPUTATION SHEET for Three Level Section

Owner or Operator Boyd B/cm

Plan or Job No. Corral Fill - Core

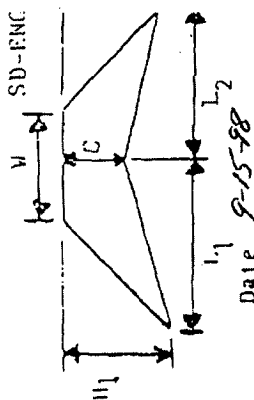
Calculations by Larry D. Mette Checked by Sam 12-16-98

Checked by SPM 12-16-98

Date: 9-15-98

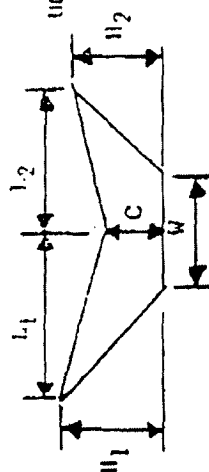
[illegible]

Divide: Total of Column #11 by 54 to get cu. yds.



UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

YEAR/WORK COMPUTATION SHEET
for Three Level Section



Owner or Operator Boyd Brien

Plan or Job No. West Dike Core

Date 9-15-98

Calculations by Larry D. McHc

Checked by 12-11-98 [Signature]

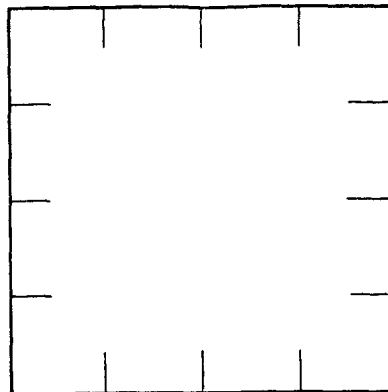
[illegible]

STRUCTURE DATA

DRAINAGE AREA	ANNUAL YIELD	PEAK RUNOFF	EMERG. SPLWY. CAPACITY	WATER DEPTH	SURFACE AREA	SEDIMENT STORAGE	TOTAL STORAGE
ACRES	AC. FT.	25-YR.	C.F.S.	FEET	ACRES	AC. FT.	AC. FT.
77	11	50	235	4	46.6		109

For of Am. 157

Water Control Structure "A"



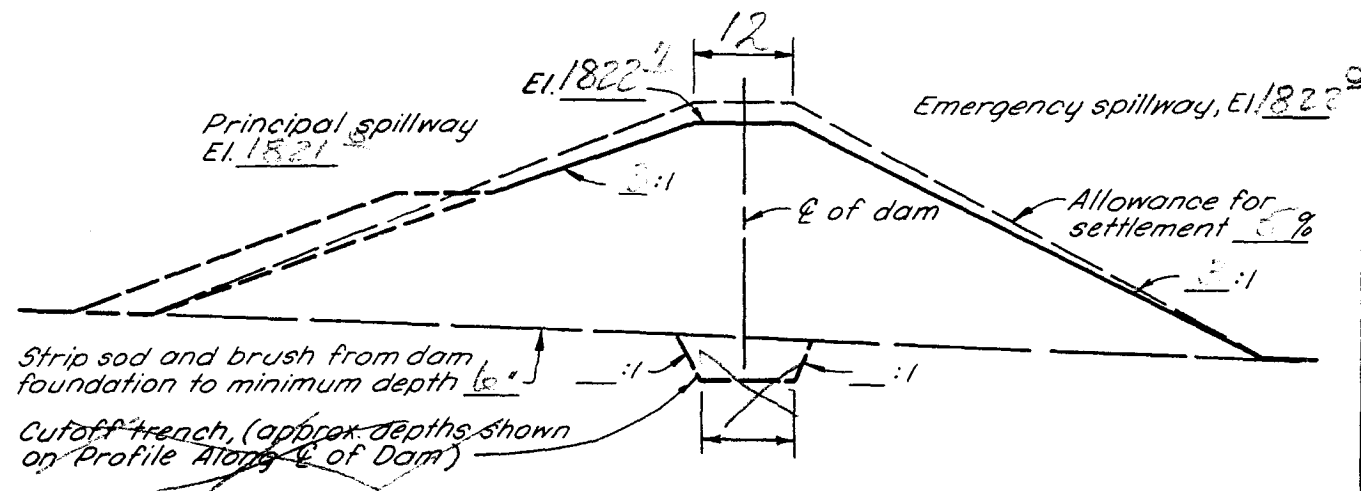
Sec 26 T. 127 N R. 56 W
Madison County

LOCATION

TABLE OF QUANTITIES

[illegible]

RECEIVED
DEC 13 2011
WATER RIGHTS
PROGRAM



TYPICAL CROSS SECTION OF DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

SD-2 Clearing
SD-7s Earth Fill
SD-12B Concrete
SD-15 CMP

EARTH DAM

OPERATOR: Boyd Bien

CONSERVATION DISTRICT: _____

Class "A" Hazard

Designed	Title	Drawing No.
Drawn	Title	
Traced	Sheet	
Checked	No	
	of	

SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = _____

REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0

USDA-SCS-LINCOLN, NEBR. 1973

(Rev. 4-73) 5, N-29, 073.1a(1,

Locate principal spillway pipe
at $\mathbb{C}$ of dam sta. + , at
an angle of ° to the $\mathbb{C}$ of
the dam.

~~Trash rack and baffle plate
not shown. See job plan
no. _____~~

Top of dam after
settlement El. 1822⁷

Note: Allowance for settlement 5 %

Emergency spillway El. 1822⁰

3 : slope normal
to $\odot$ of dam —

✓ 3:1 slope normal to ϕ of dam

Principal spillway El. 1821⁰

- 48" dia. riser, see
job plan no. 5.3

Antiseep collars

~~Berm, if required _____: slope normal to $\mathbb{Q}$ of dam _____~~

El. 1817

16 ft - 12" dia CMP

28' of 36" dia. pipe

CROSS SECTION OF DAM ALONG C OF PRINCIPAL SPILLWAY
(Not to scale)

SPECIFICATION NOTES

1. ELBOW, IF REQUIRED, MAY BE FABRICATED BY CONTINUOUS WELDING SEPERATE PIPE SECTIONS OR BY FABRICATING A CONTINUOUS WELDED JOINT ON THE UPSTREAM END OF LAST SECTION OF PIPE.
2. PIPE WALL THICKNESS SHALL BE _____ GAGE OR _____ INCHES.

All pipe to be spiral
CMP

TABLE OF QUANTITIES

[illegible]

APPLICABLE STANDARD S.C.S. SPECIFICATIONS

[illegible]

OUTLET DETAIL WITHOUT PIPE SUPPORT

OUTLET DETAIL WITH PIPE SUPPORT

Sec. _____, T. _____, R. _____
County _____

LOCATION

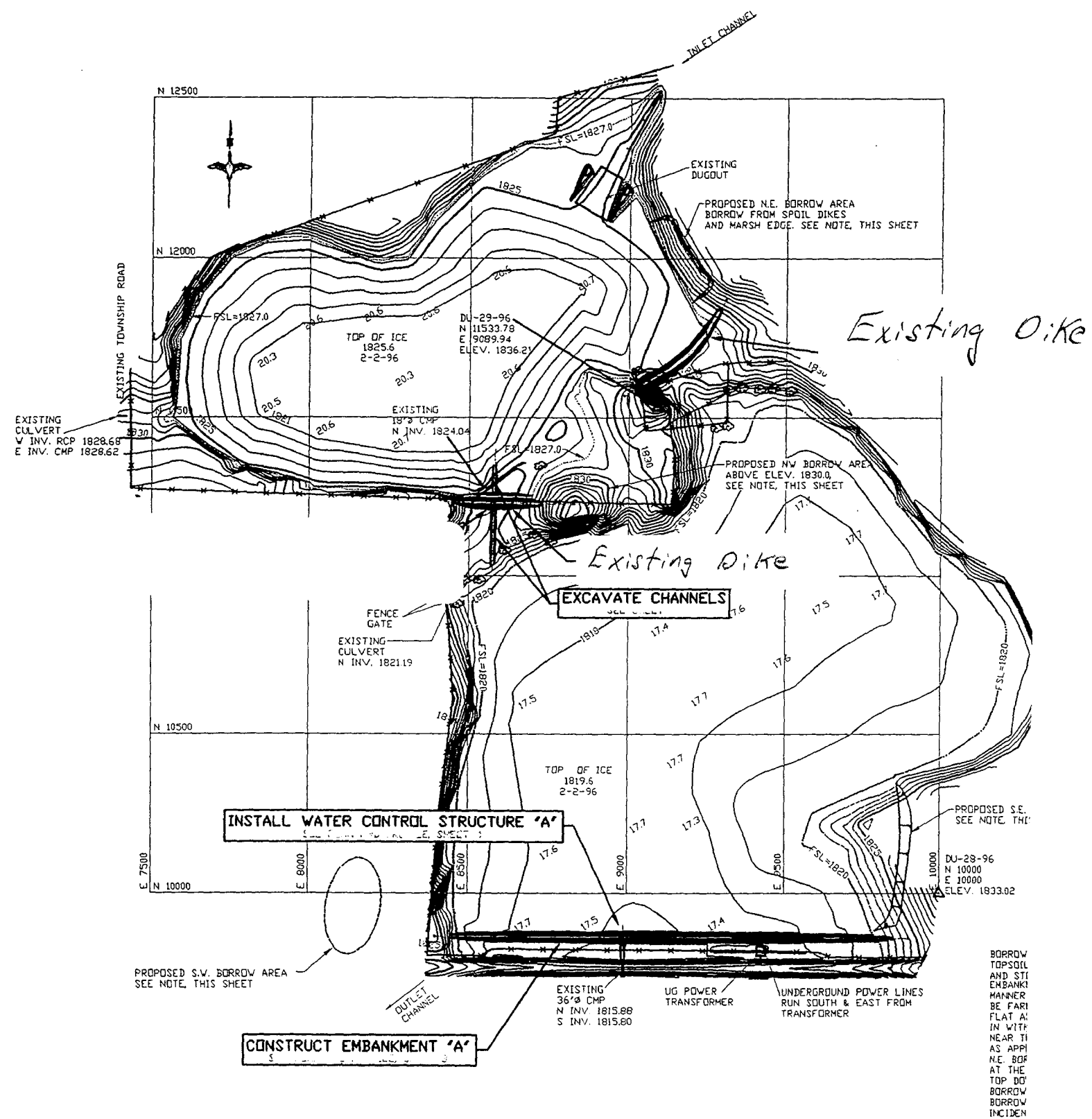
CORRUGATED METAL PIPE
DROP INLET PRINCIPAL SPILLWAY

OPERATOR Boyd Sien

CONSERVATION DISTRICT _____

Structure "A"

Designed	Title	
Drawn	Title	
Traced	Sheet	Drawing No.
Checked	No	



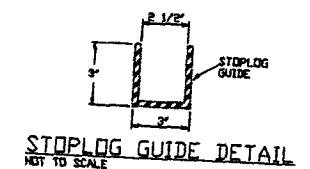
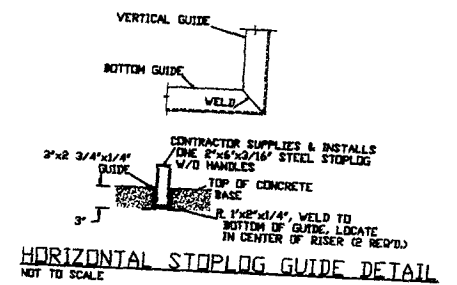
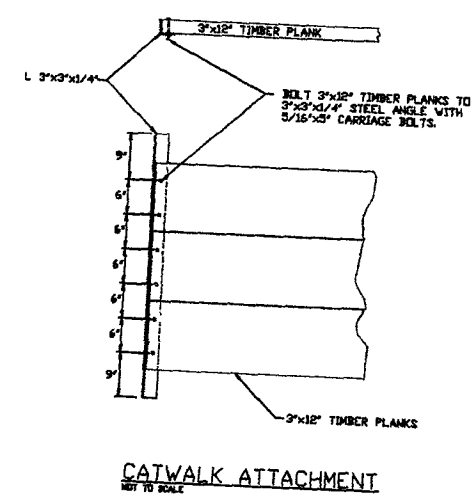
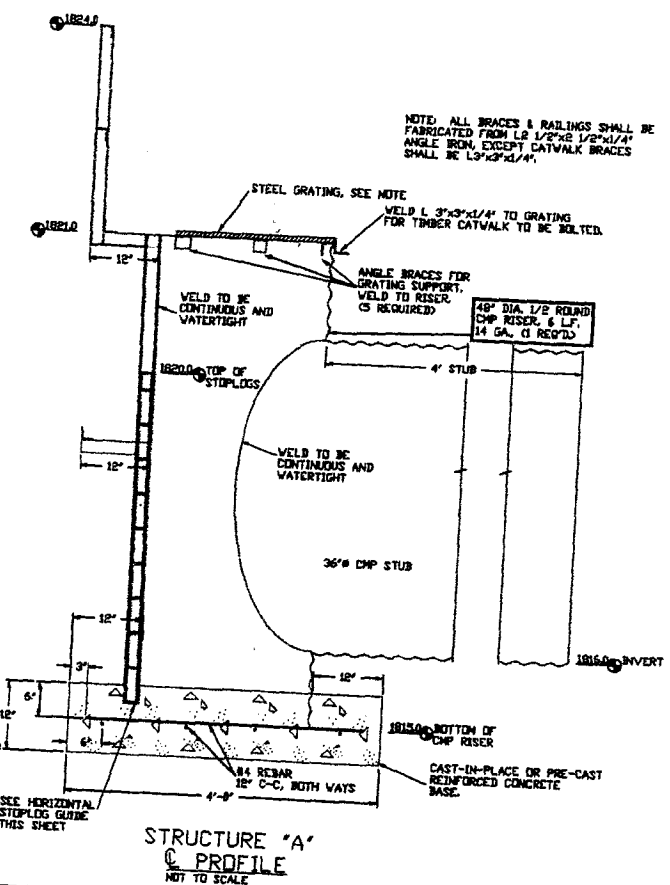
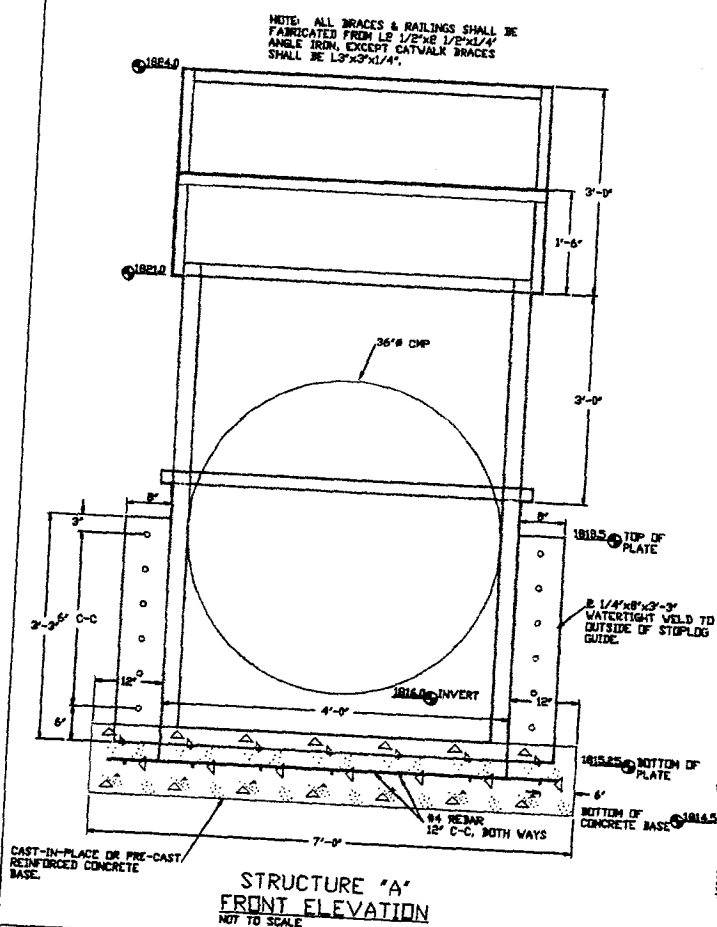
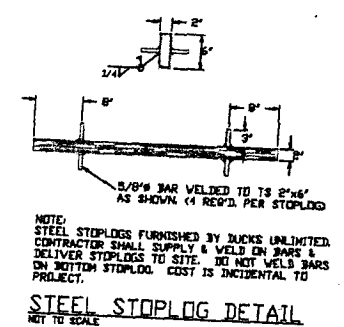
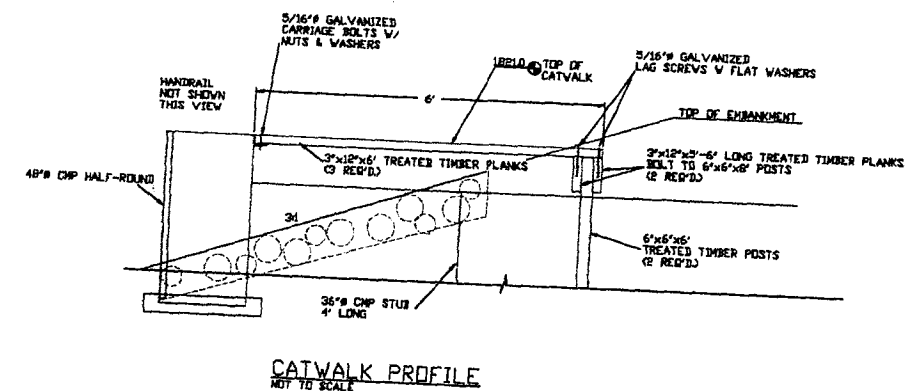
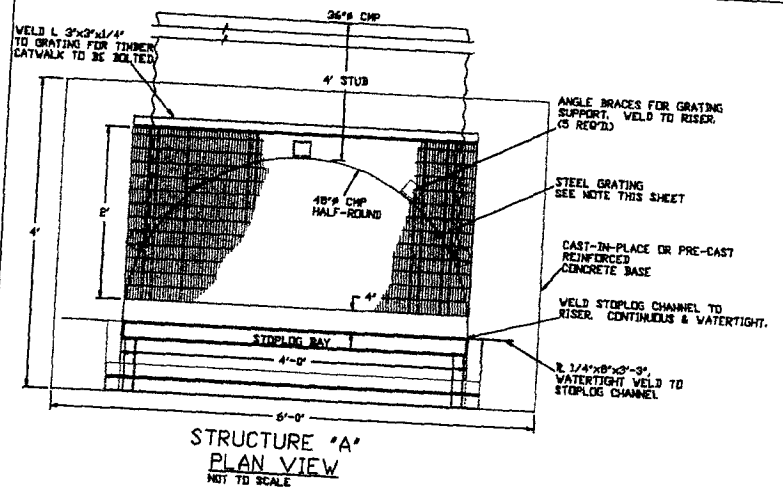
PROJECT TOPOGRAPHY AND CONSTRUCTION PLAN

SCALE: 1"=200'

LEGEND

- △ DU CONTROL POINT
#5 REBAR CAPPED & STAMPED
- ⊗ TREES/BRUSH
- FULL SERVICE LEVEL (FSL) CON
- BH-# SOIL BORING LOCATION (WHEN A)

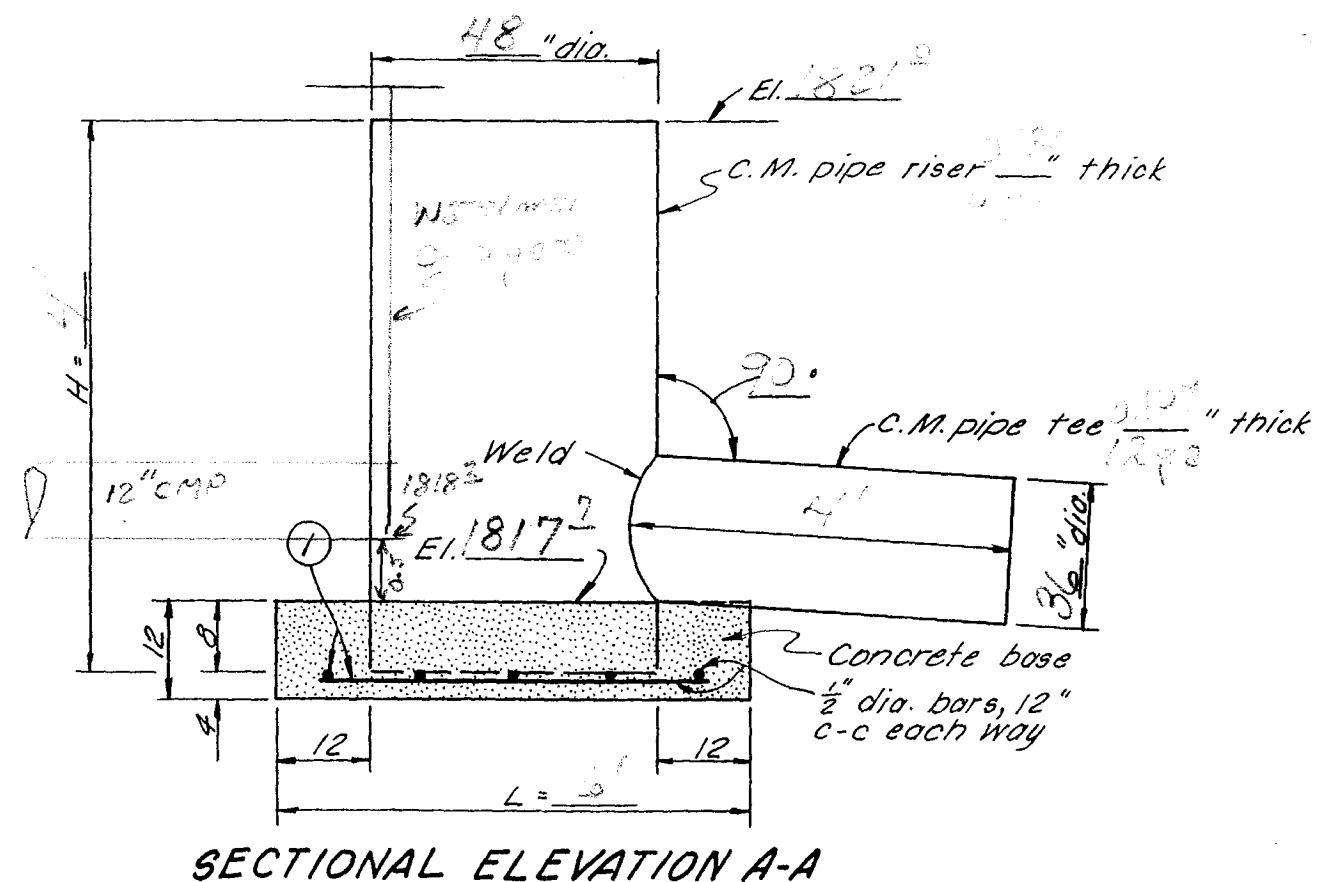
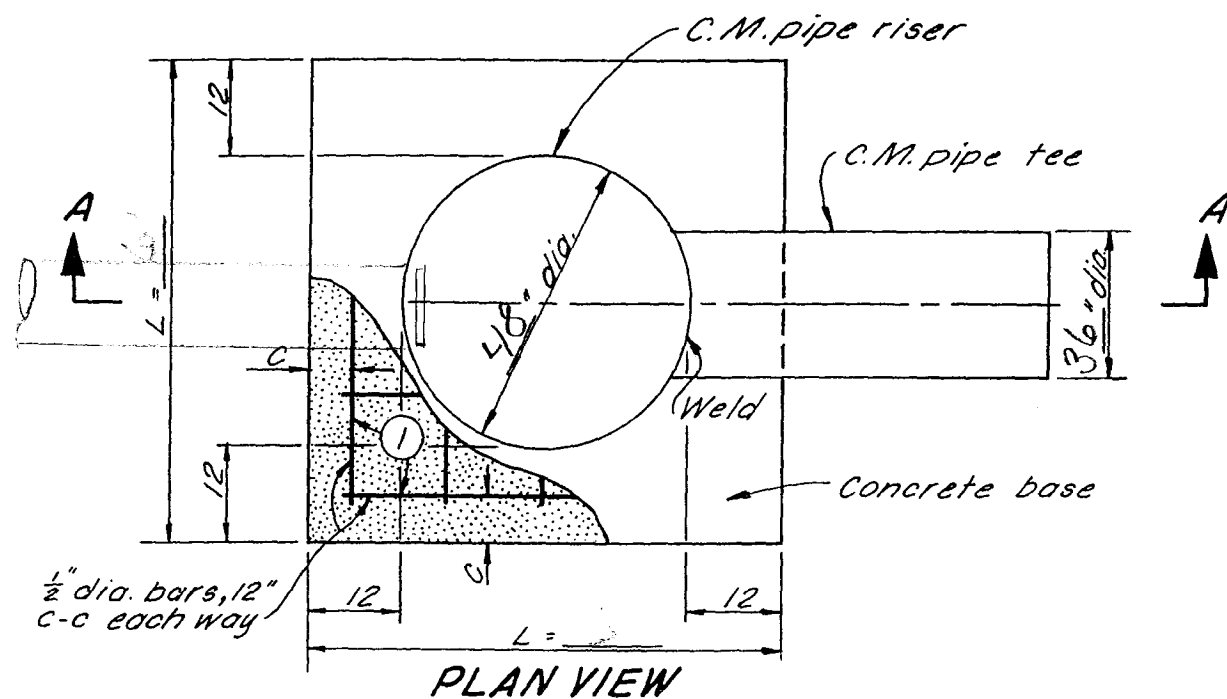
Boyd Bien



HALF-ROUND WATER CONTROL STRUCTURE FABRICATION NOTES:
 HANDRAIL MAY NEED TO BE FIELD WELDED TO STRUCTURE FOR TRANSPORTATION PURPOSES.
 ALL BRACES & RAILINGS SHALL BE FABRICATED FROM L2 1/2x8 1/2x1/4 ANGLE IRON, EXCEPT CATWALK ANGLE BRACES SHALL BE L3x3x1/4.
 GRATING TO BE GALVANIZED 1 PIECE ARMO PRESSURE GRATING TYPE AA (42 LB./SF.) OR ENGINEER APPROVE
 ALL WELDED SEAMS ON CHP SHALL BE CONTINUOUS & ALL WELDS TO BE 3/16\"/>

Boyd Bien
 Alternative Riser
 Sec 26, T127N, R56W





STEEL SCHEDULE

RISER DIA. IN.	BAR SIZE	MARK	TYPE	NO. REQ'D.	LENGTH FT.-IN.	TOTAL LENGTH FT.-IN.	TOTAL WT.LB.	C IN.	L FT.-IN.
48	4	1	STR.	12	5-6	60-0			5-0

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE	CU.YD.	3
REINFORCING STEEL	LB.	42

NOTE:

Structure "A"
C.M. PIPE RISER WITH
FABRICATED TEE

OPERATOR: David Allen

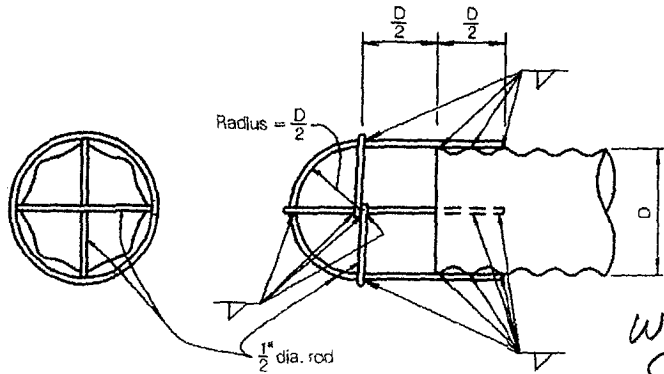
CONSERVATION DISTRICT: _____

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

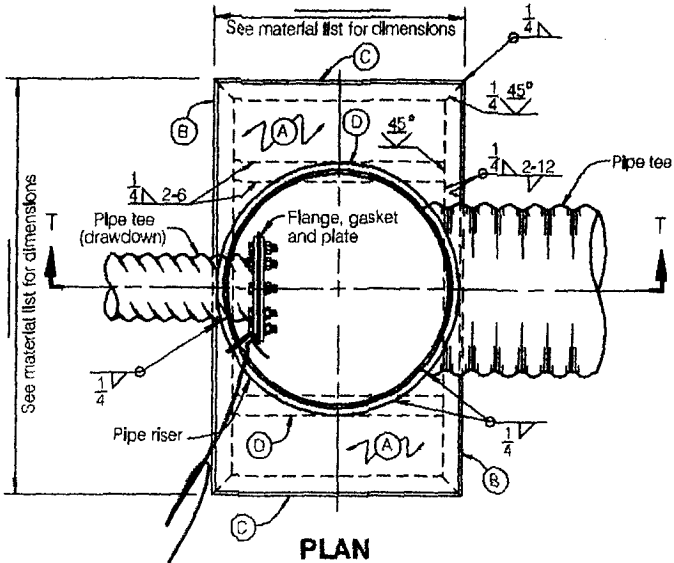
DRAWDOWN TRASH RACK ROD LENGTHS

PIPE DIA. INCHES	* ROD LENGTH INCHES	** CIRCULAR ROD LENGTH-INCHES
8	30	35
10	37	41
12	44	47
15	54	57

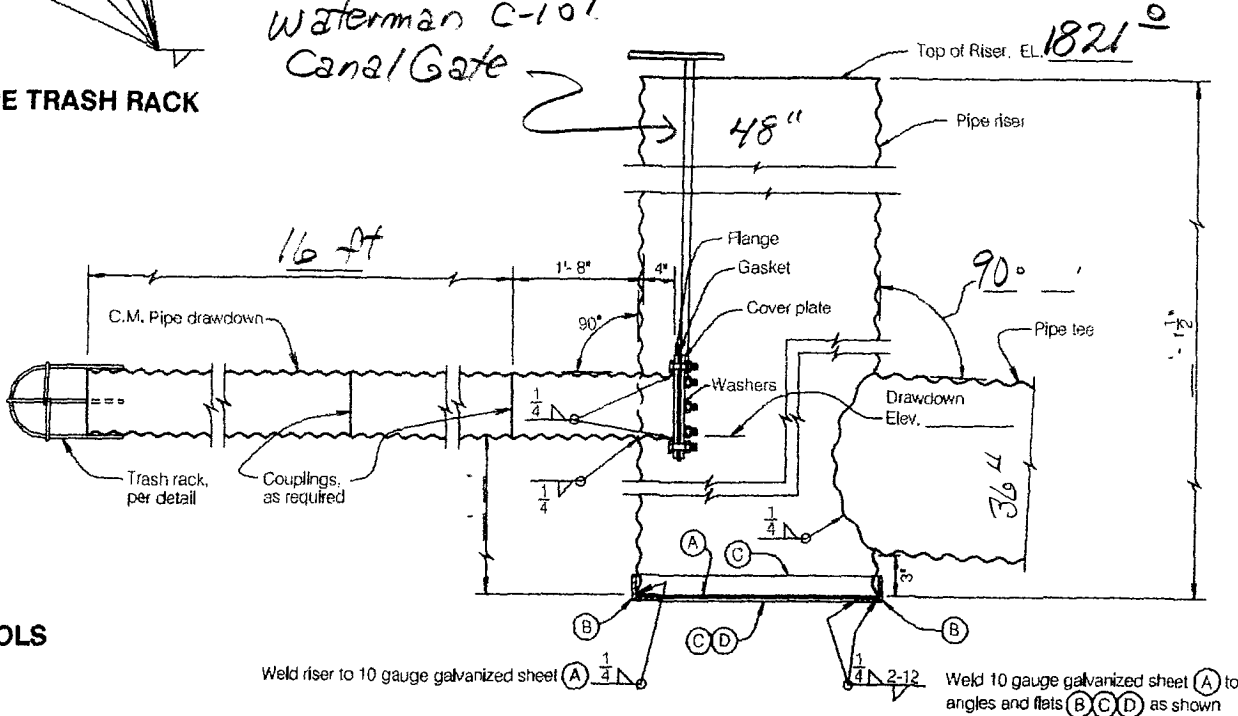
* 2 RODS REQUIRED.
** APPROXIMATE 2" LAP.
RODS TO BE ZINC COATED OR PAINTED
ACCORDING TO SPECIFICATIONS.
1/2" DIA. ROD = 0.668 LB./FT.



DRAWDOWN PIPE TRASH RACK

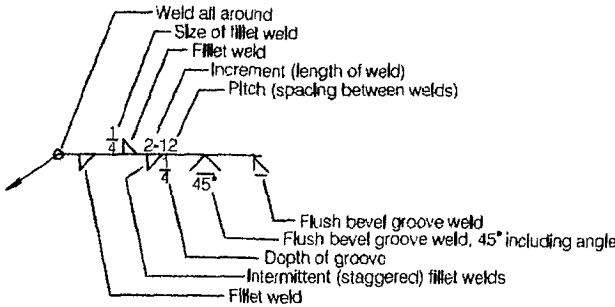


PLAN



SECTIONAL ELEVATION T-T
RISER DETAIL

WELD SYMBOLS



NOTE:
Weld symbol above line indicates weld is on opposite
side of joint to which arrow points.
Weld symbol below line indicates weld is on side of
joint to which arrow points.
2-12 indicates making a 2 inch weld every 12 inches.
If fillet weld size is omitted, use standard shop practice.

MATERIAL LIST AND TABLE OF QUANTITIES FOR RISER BASE

	MARK	ITEM	24" DIA. RISER	30" DIA. RISER	UNIT	QUANTITY
MATERIAL LIST	A	10 GAUGE GALVANIZED METAL SHEET	25' x 48'	31' x 54'	EACH	1
	B	ANGLES, 3" x 3" x 1/4"	4' - 1"	4' - 7"	EACH	2
	C	ANGLES, 3" x 3" x 1/4"	2' - 2"	2' - 8"	EACH	2
	D	STEEL FLATS, 3" x 1/4"	1' - 8"	2' - 2"	EACH	2
TABLE OF QUANTITIES		10 GAUGE GALVANIZED METAL SHEET (LBS.)	48.2	67.2		
		STRUCTURAL STEEL (LBS.)	69.7	82.1		
		TOTAL WEIGHT OF STEEL BASE (LBS.)	117.9	149.3		

REQUIREMENT TABLE

IN BOX INDICATES THE REQUIREMENTS THAT APPLY TO STRUCTURE INDICATES - NOT APPLICABLE			
CONCRETE: CLASS	3000	3000M	4000
REINFORCING STEEL:	LB.		CU.YD.
RISER: CORRUGATED METAL PIPE RISER, ZINC COATED STEEL, _____" DIA., _____ GA., _____ FT. NOMINAL LENGTH WITH A _____" DIA., _____ GA., PIPE TEE, _____ FT. NOMINAL LENGTH WELDED TO IT 3" FROM THE LOWER END, AND A _____" DIA., _____ GA., PIPE TEE 2'-0" NOMINAL LENGTH WELDED TO IT _____" FROM THE LOWER END AND PIPE FLANGE.			
DRAWDOWN: CORRUGATED METAL PIPE, ZINC COATED STEEL, _____" DIA., WITH COUPLING(S), AND TRASH RACK, PER DETAILS TOTAL LIN.FT. (EXCLUDING TEE) = _____			
PIPE CLASSIFICATION	RISER	PIPE TEE	DRAWDOWN
TYPE I FULL CIRCULAR CROSS-SECTION FABRICATED WITH:			
ANNUAL CORRUGATIONS			
CLOSE RIVETED OR STANDARD RIVETED			
HELICAL CORRUGATIONS			
CORRUGATION REQUIREMENTS			
NOMINAL SIZE (INCH)			
1 1/2 x 1/4 (AVAILABLE ONLY IN HELICALLY CORRUGATED PIPE)			
2 2/3 x 1/2			
COATINGS AND FABRICATION			
SEE COUPLING BAND AND METAL PIPE REQUIREMENTS SHEET			

NOTE:
THE FOLLOWING DESIGNATIONS FOR PIPE CLASSIFICATIONS, CORRUGATIONS
AND COATINGS WHEN REFERRED TO ON THE DRAWINGS ARE IN ACCORDANCE
WITH CURRENT ASTM'S:
A760 STANDARD SPECIFICATION FOR CORRUGATED STEEL
PIPE, METALLIC-COATED.
A761 STANDARD SPECIFICATION FOR STEEL, GALVANIZED
CORRUGATED STRUCTURAL PLATES AND FASTENERS.
A762 STANDARD SPECIFICATION FOR CORRUGATED STEEL
PIPE, POLYMER PRECOATED FOR SEWERS AND DRAINS.
A849 STANDARD SPECIFICATION FOR POST-COATED AND LINED
CORRUGATED STEEL SEWER AND DRAINAGE PIPE (BITUMINOUS
OR CONCRETE)
A885 STANDARD SPECIFICATION OF STEEL SHEET, ZINC AND
ARAMID FIBER COMPOSITE-COATED FOR CORRUGATED STEEL
SEWER, CULVERT AND UNDERDRAIN PIPE.

PIPE FLANGE NOTE:
USE 1/2" FLANGE ON _____" DIA. DRAWDOWN. FLANGE DIA., BOLT SIZE AND
PATTERN SHALL BE ACCORDING TO AWWA C-207, CLASS B. PROVIDE A 1/4" THICK
PLATE, SAME DIA. AS FLANGE WITH HOLES DRILLED TO MATCH HOLES IN FLANGE.
PROVIDE NEOPRENE GASKET TO FIT BETWEEN PLATE AND FLANGE. FASTEN PLATE
TO FLANGE WITH 8 - 1/2" DIA. x 2" GALVANIZED BOLTS AND WASHERS.

FABRICATION AND INSTALLATION NOTES:
FOR FABRICATION OF RISERS ON HELICAL PIPE A
FILLER STRIP MAY BE USED TO INSURE A WATERTIGHT
SEAL BETWEEN THE RISER AND TEE.

Boyd Bien
Sec 26, T127N, R56W
Job Plan 101

METAL BASE PIPE RISER AND
FLANGE DRAWDOWN FACILITY



N

Boyd Brier
Water Control

Sec 26, 127-56

Top Dike @ 1822/0 = 50.4
(red)

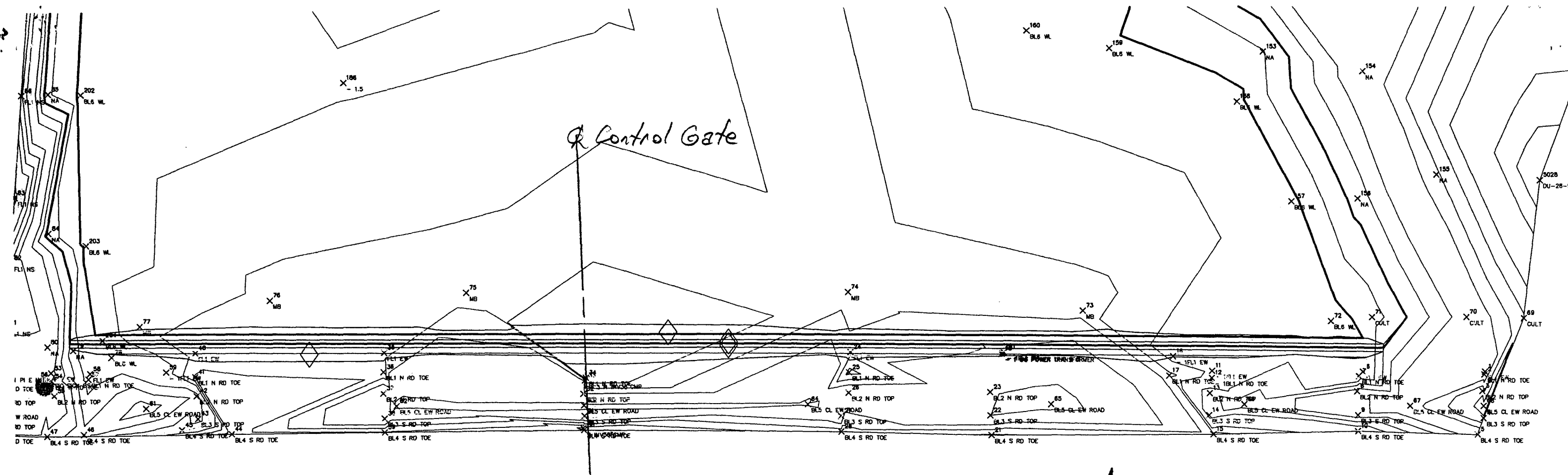
Elev. 1820 = 428 ac (blue)

Emb F11 = 4,000 yds³

725

Strip

1" = 250'



↑
N
Boyd Bien
Water Control
South Dike

RECEIVED

DEC 13 2011

WATER RIGHTS
PROGRAM

1*****
SITES XEQ 07/26/2011 WATER RESOURCE SITE ANALYSIS COMPUTER PROGRAM
VER 2005.1.04 (USER MANUAL - DATED DECEMBER 2005)
TIME 12:03:14

***** 80-80 LIST OF INPUT DATA *****

SITES 01/01/2005 Boyd Bien sec26,T127N,R56W 0.7359375 H5
SAVMOV 0 101
SAVMOV 101 1 1
STRUCTURE
1817 0
1820 42.8
1822 50.4
ENDTABLE
WSDATA 5A1 AC 67 471 5808 0.6
PDIRECT 2.3 4.20
POOLDATA ELEV 1821 1821 1816 1816 SC
PSINLET 1 12.56
PSDATA 1 34 36 .025 1816
ASDATA 41 30 20 2 .002 2
ASINSURF 41 .035
ASINLET 41 0.0 0.0 18 0.0 3
30 2
ENDTABLE
ASEXSURF 41 .035
.65 0
3
2 0
.02
ENDTABLE
ASEXIT 41 N 20
BTMWIDTH FEET 20
GRAPHICS I
GO,DESIGN HL TYPE2 24 TYPE2378 24
SAVMOV 2 101 1
ENDJOB

***** MESSAGE - ALTERNATE STRUCTURE ID (S 1) BEING USED
SINCE USER DID NOT INPUT AN ID.

***** MESSAGE - ALTERNATE SUBWATERSHED ID (A) BEING USED SINCE
USER DID NOT INPUT AN ID.

***** MESSAGE - DRAINAGE AREA FROM WSDATA CONTROL BEING CONVERTED FROM
ACRES TO SQUARE MILES FOR COMPUTATION PURPOSES.

1SITES -----
XEQ 07/26/2011 Boyd Bien sec26,T127N,R56W WSID=
VER 2005.1.04 SUBW= A
TIME 12:03:14 SITE = S 1 PASS= 1 PART= 1

***** BASIC DATA *****
CLIMATE AREA - NOT DEFINED DESIGN CLASS A1 = LT 3000.

STORM DISTRIBUTION-PSH 24 HOUR TYPE II RAINFALL DISTRIBUTION

STORM DISTRIBUTION AUX. -24 HOUR TYPE II RAINFALL DISTRIBUTION

PRECIP. - P-PS,1-DAY	P-PS,10-DAY	P-SD	P-FB	
2.30	0.00	0.00	4.20	
WSDATA - CN	DA-SM	TC/L	-/H	ORF
67.00	0.74	5808.00	0.60	0.00
SITEDATA- PERM POOL	CREST PS	FP SED	VALLEY FL	378?
1821.00	1821.00	0.00	1816.00	YES
BASEFLOW	INITIAL EL	EXTRA VOL	SITE TYPE	
0.00	0.00	0.00	DESIGN	
PSDATA - NO. COND	COND L	DIA/W	-/H	
1.00	34.00	36.00	0.00	
PS N	KE	WEIR L	TW EL	
0.025	1.00	12.56	1816.00	
2ND STG	ORF H	ORF L	START AUX.	
0.00	0.00	0.00	0.00	
ASCRESTS - AUX.1	AUX.2	AUX.3	AUX.4	AUX.5
0.00	0.00	0.00	0.00	0.00
AUX.DATA - REF.NO.	RETARD. Ci	TIE STATION	INLET LENGTH	
41	0.00	30.00	20	
AUX.DATA - INLET N	SIDE SLOPE	EXIT N	EXIT SLOPE	ACTUAL AUX?
0.035	2.00	0.035	0.002	NO
BTM WIDTH - BW1	BW2	BW3	BW4	BW5
ft 20.00	0.00	0.00	0.00	0.00

AUXILIARY SPILLWAY RATING DEVELOPED USING WSPVRT.

1SITES

XEQ 07/26/2011	Boyd Bien sec26,T127N,R56W	WSID=
VER 2005.1.04		SUBW= A
TIME 12:03:14	SITE = S 1	PASS= 1
		PART= 2

PERM POOL	1821.00 FT	108.9 ACFT	46.60 AC	0.0 CFS
CREST PS	1821.00 FT	108.9 ACFT	46.60 AC	0.0 CFS
SED ACCUM	1821.00 FT	108.9 ACFT	46.60 AC	0.0 CFS
START ELEV	1821.00 FT	108.9 ACFT	46.60 AC	0.0 CFS

>>>> MINIMUM DEPTH (1.00 FT) USED FOR NHCP378 RUN - CREST PS TO CREST AUX.

NRCS-PSH D= 24.00 HR P= 2.30 IN Q= 0.28 IN DA= 0.74 SM
TC= 4.04 HR CN= 67.00 VOL= 10.8 ACFT

PEAK = 17.8 CFS, AT 15.4 HRS.

ROUTED RESULT - HYD TYPE EMAX VOL-MAX AMAX QMAX
NRCS-PSH 1822.00 FT 157.4 ACFT 50.40 AC 38.9 CFS

PS STORAGE 48.5 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

DRAWDOWN (DDT) TEST 1821.00 FT 108.9 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

TIME LIMIT REACHED = 10.00 DAYS. FLOW WAS 0.04 CFS, ELEV = 1821.00

RATING TABLE DEVELOPED, SITE = S 1:
BY PROGRAM FOR PS AND AUX. SPILLWAYS
AUX. RATING USED WSPVRT METHOD.

RATING TABLE NUMBER 1

	ELEV. FEET	Q-TOTAL CFS	Q-PS CFS	Q-AUX. CFS	VOLUME AC-FT	AREA ACRE
1	1821.00	0.00	0.00	0.00	108.90	46.60
2	1821.11	1.44	1.44	0.00	114.10	47.02
3	1821.22	4.08	4.08	0.00	119.35	47.44
4	1821.33	7.49	7.49	0.00	124.64	47.87
5	1821.44	11.53	11.53	0.00	129.98	48.29
6	1821.56	16.12	16.12	0.00	135.37	48.71
7	1821.67	21.19	21.19	0.00	140.80	49.13
8	1821.78	26.70	26.70	0.00	146.28	49.55
9	1821.89	32.62	32.62	0.00	151.81	49.98
10	1822.00	38.92	38.92	0.00	157.39	50.40

FULL CONDUIT FLOW, ELEV = 1822.70 FT

1SITES -----

XEQ 07/26/2011	Boyd Bien sec26,T127N,R56W	WSID=
VER 2005.1.04		SUBW= A
TIME 12:03:14	SITE = S 1	PASS= 1 PART= 3

***** WARNING - INTERPOLATION ERROR - VALUES WERE THE SAME IN DENOMINATOR.
CHECK INPUT, THE VALUES USED WERE 0.00000 AND 0.00000.

AUX. CREST 1822.00 FT 157.4 ACFT 50.40 AC 0.0 CFS

PS STORAGE 48.5 ACFT, BETWEEN AUX. CREST AND SED. ACCUM ELEVATIONS.

START ELEV 1821.00 FT 109.1 ACFT 46.61 AC 0.0 CFS

EFFECTIVE HEIGHT(H)= 6.0 FEET, PRODUCT= 944. (H * STORAGE AT CREST AUX.).

INPUT DESIGN CLASS = A1 = LT 3000. PRODUCT.

NRCS-FBH D= 24.00 HR P= 4.20 IN Q= 1.27 IN DA= 0.74 SM
 TC= 4.04 HR CN= 67.00 VOL= 49.8 ACFT

PEAK = 103.6 CFS, AT 14.8 HRS.

***** WARNING - MAXIMUM HEAD ENTERED IS NEGLIGIBLE. NO BACKWATER COMPUTED.

***** WARNING - ELEVATION OF FULL PIPE FLOW (1822.70) EQUALS OR EXCEEDS
 MAXIMUM INPUT ELEVATION (1822.00), PASS STOPPED.

RATING TABLE DEVELOPED, SITE = S 1:
 BY PROGRAM FOR PS AND AUX. SPILLWAYS
 AUX. RATING USED WSPVRT METHOD.

RATING TABLE NUMBER 2

	ELEV.	Q-TOTAL	Q-PS	Q-AUX.	VOLUME	AREA
	FEET	CFS	CFS	CFS	AC-FT	ACRE
1	1821.00	0.00	0.00	0.00	108.90	46.60
2	1821.11	1.44	1.44	0.00	114.10	47.02
3	1821.22	4.08	4.08	0.00	119.35	47.44
4	1821.33	7.49	7.49	0.00	124.64	47.87
5	1821.44	11.53	11.53	0.00	129.98	48.29
6	1821.56	16.12	16.12	0.00	135.37	48.71
7	1821.67	21.19	21.19	0.00	140.80	49.13
8	1821.78	26.70	26.70	0.00	146.28	49.55
9	1821.89	32.62	32.62	0.00	151.81	49.98
10	1822.00	38.92	38.92	0.00	157.39	50.40
11	1822.00	38.94	38.92	0.01	157.40	50.40
12	1822.00	38.94	38.92	0.01	157.40	50.40
13	1822.00	38.94	38.92	0.01	157.40	50.40

FULL CONDUIT FLOW, ELEV = 1822.70 FT

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH	FROM STA (ft)	TO STA (ft)	SLOPE (%)	RETARDANCE CURVE INDEX@	VEGETAL COVER FACTOR	MAINT. CODE	ROOTING DEPTH (ft)	REACH LOCATION *
1	10.	12.	-16.7	0.035	**	**	**	INLET
2	12.	30.	0.0	0.035	**	**	**	CREST
3	30.	50.	0.2	0.035	0.65	3	2.0	EXIT !

@ The program interprets retardance curve index entries of less than 1 as Manning's n values.

* Upper case indicates a reach of constructed spillway channel.

** The program does not use vegetal cover factor, maintenance code, and rooting depth for inlet and crest reaches in computations.

! Reach 3 used in computing exit channel velocities.

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 1821.67 FT.

DRAWDOWN (DDT) TEST 1821.00 FT 108.9 ACFT 0.00 CFS
 CONTROL IS 0.000 DETENTION STORAGE

DRAWDOWN TIME = 8.86 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.-HP	VOL-AUX.
RESULTS	FT	FT	ACFT	AC	FT	ACFT
NRCS-FBH	20.0	1821.67	141.1	49.2	0.00	0.0

^^^^ NOTE -- ACTUAL Hp OF 0.00 RAISED TO MEET MIN. 378 CRITERIA.

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	21.5	0.0	21.5

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-Sc	25% OF Q Sc
	FT	FT/SEC	FT/FT	FT/FT
AUXILIARY SPILLWAY ---	0.00	0.00	0.000	0.000

***** MESSAGE - MAX. DISCHARGE OF 0. CFS IS BELOW CREST AUXILIARY
SPILLWAY. NO STABILITY STRESS COMPUTED.

AUXILIARY SPILLWAY DURATION FLOW =	0.0 HOURS
ATTACK, OE/B =	0.0 ACFT/FT

***** MESSAGE - NHCP378 CRITERIA USED BUT AUXILIARY SPILLWAY RATING NOT
BASED ON ASFILE RATINGS.

>>>> NHCP378 RUN - MINIMUM FLOW IN AUX. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT (204. CFS).

ROUTED	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.-HP	VOL-AUX.
RESULTS	FT	FT	ACFT	AC	FT	ACFT

***** WARNING - INTERPOLATION ERROR - VALUES WERE THE SAME IN DENOMINATOR.
CHECK INPUT, THE VALUES USED WERE 38.93600 AND 38.93600.

***** WARNING - INTERPOLATION ERROR - VALUES WERE THE SAME IN DENOMINATOR.
CHECK INPUT, THE VALUES USED WERE 38.93600 AND 38.93600.

***** WARNING - INTERPOLATION ERROR - VALUES WERE THE SAME IN DENOMINATOR.
CHECK INPUT, THE VALUES USED WERE 38.93600 AND 38.93600.

MIN. AUX.	20.0	1817.00	0.0	0.0	-5.00	-157.4
-----------	------	---------	-----	-----	-------	--------

^^^^ NOTE -- ACTUAL Hp OF -5.00 RAISED TO MEET MIN. 378 CRITERIA.

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	0.0	237.0	237.0

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-Sc	25% OF Q Sc
	FT	FT/SEC	FT/FT	FT/FT
AUXILIARY SPILLWAY ---	1.55	6.63	0.017	0.022

>>>> NHCP378 RUN - MINIMUM DEPTH, CREST AUX. TO TOP OF DAM IS 2.00 FT.
NEW TOP OF DAM ELEVATION = 1824.00.

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.HP FT	VOL-AUX. ACFT
----------------	-----------------	----------------	-----------------	----------------	--------------	------------------

***** WARNING - INTERPOLATION ERROR - VALUES WERE THE SAME IN DENOMINATOR.
CHECK INPUT, THE VALUES USED WERE 1822.00000 AND 1822.00000.

MINIMUM AUX.	20.0	1824.00	108.9	46.6	2.00	0.0
--------------	------	---------	-------	------	------	-----

^^^^ NOTE -- ACTUAL Hp OF 0.00 RAISED TO MEET MIN. 378 CRITERIA.

PEAK - CFS DISCHARGES =	Q-PS 0.0	Q-AUX. 0.0	Q-TOT. 0.0
----------------------------	-------------	---------------	---------------

	CRITICAL DEPTH FT	CRITICAL VELOCITY FT/SEC	CRITICAL SLOPE-Sc FT/FT	25% OF Q Sc FT/FT
AUXILIARY SPILLWAY ---	0.00	0.00	0.000	0.000

>>>>> NHCP378 RUN - MINIMUM DEPTH, DESIGN FLOW TO TOP OF DAM; 1.00 FT REQUIRED
FOR THIS PASS. NEW TOP OF DAM ELEVATION = 1822.67.

ROUTED RESULTS	BTM WIDTH FT	MAX ELEV FT	VOL-MAX ACFT	AREA-MAX AC	AUX.HP FT	VOL-AUX. ACFT
----------------	-----------------	----------------	-----------------	----------------	--------------	------------------

***** WARNING - INTERPOLATION ERROR - VALUES WERE THE SAME IN DENOMINATOR.
CHECK INPUT, THE VALUES USED WERE 1822.00000 AND 1822.00000.

MINIMUM AUX.	20.0	1822.67	108.9	46.6	2.00	0.0
--------------	------	---------	-------	------	------	-----

^^^^ NOTE -- ACTUAL Hp OF 0.00 RAISED TO MEET MIN. 378 CRITERIA.

PEAK - CFS DISCHARGES =	Q-PS 0.0	Q-AUX. 0.0	Q-TOT. 0.0
----------------------------	-------------	---------------	---------------

	CRITICAL DEPTH FT	CRITICAL VELOCITY FT/SEC	CRITICAL SLOPE-Sc FT/FT	25% OF Q Sc FT/FT
AUXILIARY SPILLWAY ---	0.00	0.00	0.000	0.000

Inflow Hyd 1 PSH-Peak = 3.02 CFS at 26.84 hrs., Location Point

Inflow Hyd 1 FBH-Peak = 21.46 CFS at 22.21 hrs., Location Point
HYDOUT 1

1SITES....JOB NO. 1 COMPLETE.

Boyd Bien sec26,T127N,R56W

0 SUBWATERSHED(S) ANALYZED.

1 STRUCTURE(S) ANALYZED.

2 HYDROGRAPHS ROUTED AT LOWEST SITE.

0 TRIALS TO OBTAIN BOTTOM WIDTH FOR SPECIFIED STRESS OR VELOCITY.

SITES.....COMPUTATIONS COMPLETE

>>>										<<<
	SITE ID	SUBWS ID	SUBWS DA (SQ MI)	CURVE NO.	TC (HRS)	TOTAL DA (SQ MI)	TYPE DESIGN	STRUC CLASS		
	S 1	A	0.74	67.	4.04	0.74	378NR	A1		

PASS NO.	DIA./ WIDTH (IN/FT)	AUX.CREST ELEV (FT)	BTM. WIDTH (FT)	MAX. HP (FT)	MAX. ELEV (FT)	EMB. VOL. (CY)	INTEGR.* DIST. (FT)	EXIT* VEL. (FT/SEC)	TYPE HYD
1	36.0	1822.0	20.0	0.7	1822.7	0.	0.	0.0	MIN. AUX.

* INTEGRITY DIST. AND EXIT VEL. ARE BASED ON THE ROUTED HYDROGRAPH
AND WILL NOT RELATE TO THE MAX. ELEV. (TOP OF DAM),
WHICH IS SET BY MINIMUM DESIGN CRITERIA.

SITES.....SUMMARY TABLE 1 COMPLETED.

NRCS SITES VERSION 2005.1.04 ,01/01/2005
FILES

INPUT = C:\BoydBiensec26\48-36.D2C
OUTPUT = C:\BoydBiensec26\48-36.OUT
DATED 07/26/2011 12:03:14

GRAPHICS FILES GENERATED

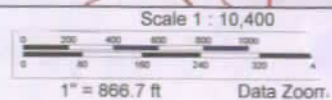
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OPTION "P" = C:\BoydBiensec26\48-36.DHY DATED 07/26/2011 12:03:14
OPTION "E" = C:\BoydBiensec26\48-36.DEM DATED 07/26/2011 12:03:14



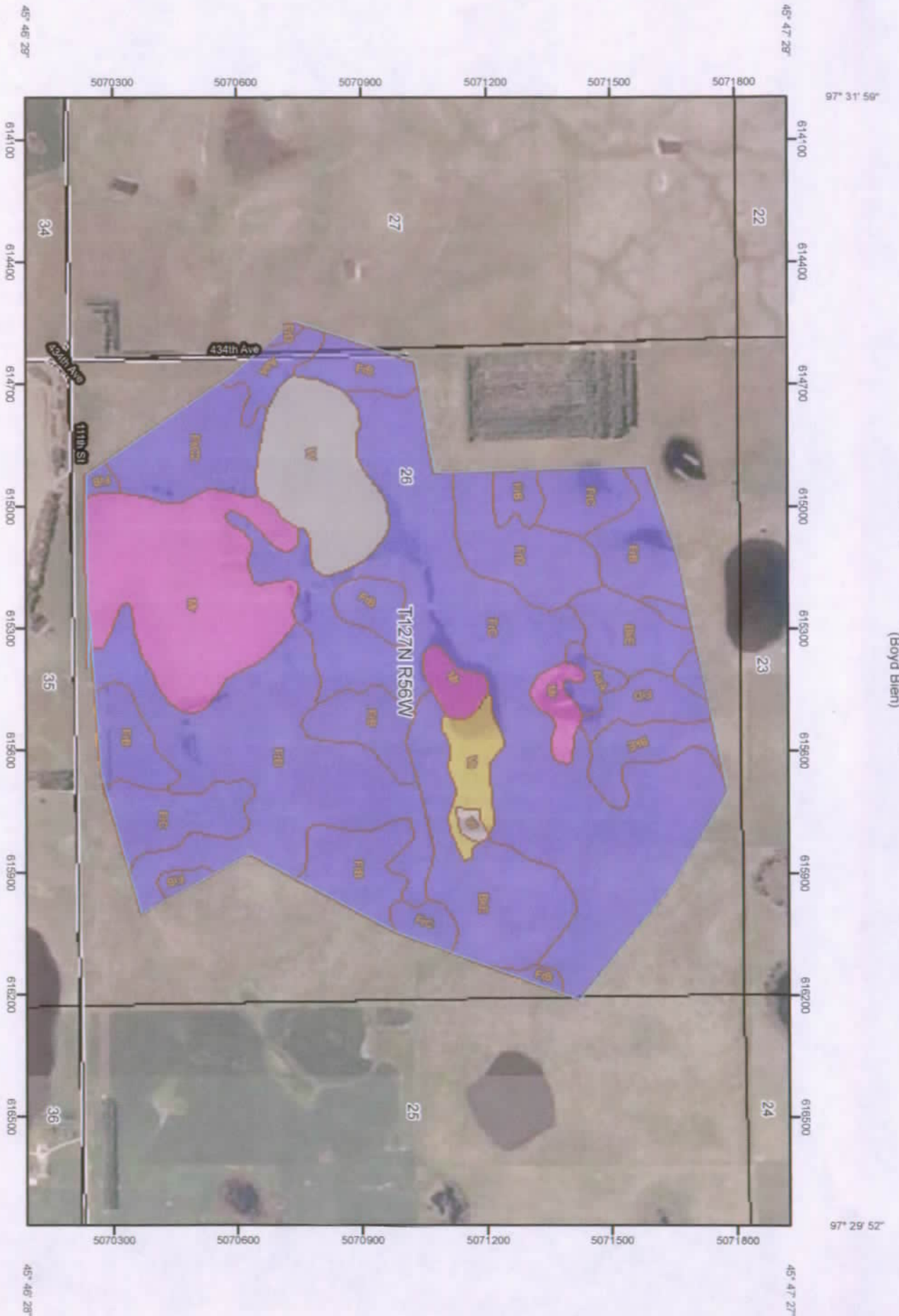
Data use subject to license.

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www.delorme.com



Hydrologic Soil Group—Marshall County, South Dakota (Boyd Blen)



MAP LEGEND

	Area of Interest (AOI)
	Area of Interest (AOI)
	Soils
	Soil Map Units
	Soil Ratings
	A
	A/D
	B
	B/D
	C
	C/D
	D
	Not rated or not available
	Political Features
	Cities
	PLSS Township and Range
	PLSS Section
	Water Features
	Oceans
	Streams and Canals
	Transportation
	Rails
	Interstate Highways
	US Routes
	Major Roads
	Local Roads

MAP INFORMATION

Map Scale: 1:13,100 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000. Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Marshall County, South Dakota
Survey Area Data: Version 12, Mar 25, 2011

Date(s) aerial images were photographed: 8/30/2004, 8/19/2004

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Marshall County, South Dakota				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AaA	Aastad loam, 0 to 2 percent slopes	B	8.7	2.0%
BkE	Buse-Forman loams, 9 to 21 percent slopes	B	45.5	10.4%
FrB	Forman-Aastad loams, 2 to 6 percent slopes	B	59.0	13.5%
FrC	Forman-Aastad loams, 6 to 9 percent slopes	B	135.4	30.9%
FrD	Forman-Aastad loams, 9 to 15 percent slopes	B	81.4	18.6%
FsC2	Forman-Buse loams, 6 to 9 percent slopes, eroded	B	17.7	4.0%
Mr	Southam silty clay loam	D	56.7	12.9%
Va	Vallers loam	C	7.7	1.8%
W	Water		26.1	6.0%
Totals for Area of Interest			438.2	100.0%

C-10 CANAL GATE

This gate is designed for use on canal and pipeline systems which operate at low "heads" and where a moderately priced gate is desired. Typical installations include: farm turnouts, control of industrial wastes, drainage and for tide control.

Construction is of grey iron with an all-bolted steel frame with $\frac{1}{4}$ " minimum thickness. The standard stem is of a special leaded steel which resists corrosion. The stem is operated at the structural frame top by a heavy cast-bronze lift nut and a cast iron wheel.

Adjustable cast iron wedge blocks, held securely in place by two machine bolts, assure a dependable seating closure with a practical degree of water tightness. The cast iron seats are machined or ground. A solid rim "easy-grip" handwheel is standard.

Optional materials include: bronze seats; stainless steel structural frame and bolts; stainless steel or brass stems; and special epoxy, coal tar or ASTM galvanized coatings.

When desired, design variation in stem diameter, pitch and thread rotation are available to match existing equipment. Extended stems, special lifts, oil seals, stem guides and limit nuts are a few of the optional items available for use with these gates.

Various sizes and options are available.

Special materials available include: "Ni-Resist" iron castings, stainless steel structural frame and assembly bolts; total galvanizing per ASTM A-123; coal tar, and epoxy coatings.

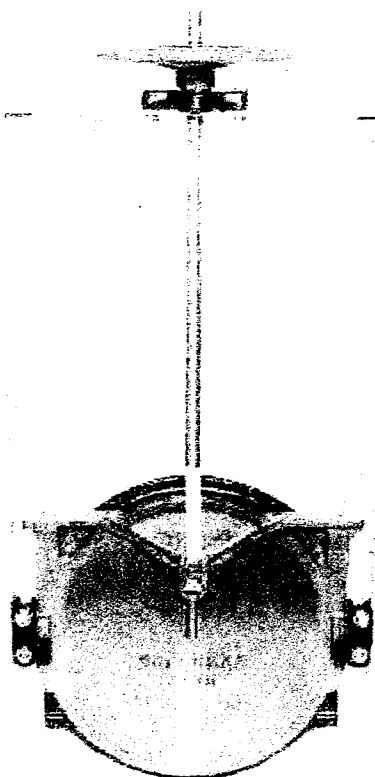
Recommended Maximum Seating Heads

6" - 24"	23 foot head
30" - 36"	11 foot head
42" - 48"	9 foot head
54" - 72"	6 foot head

Recommended Maximum Unseating Head - 0

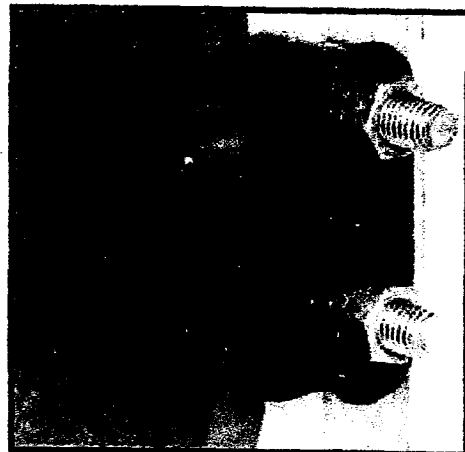
Frame Types for Various Installation Requirements

- F Flatback for headwall mounting
- SB Spigotback for annular or recor spiral corrugated pipe.
- CIP For solvent cement mounting over plastic pipe
- C With galvanized steel tapered setting collar for concrete or asbestos cement pipe.
- SA Spigotback for annular corrugated pipe.
- TYPE 4 For mounting in plastic pipe utilizing special two part epoxy.



Bronze lift nut furnished as standard on all Waterman Canal Gates.

Features $\frac{1}{4}$ " minimum thickness. Compare to competitor's gates.

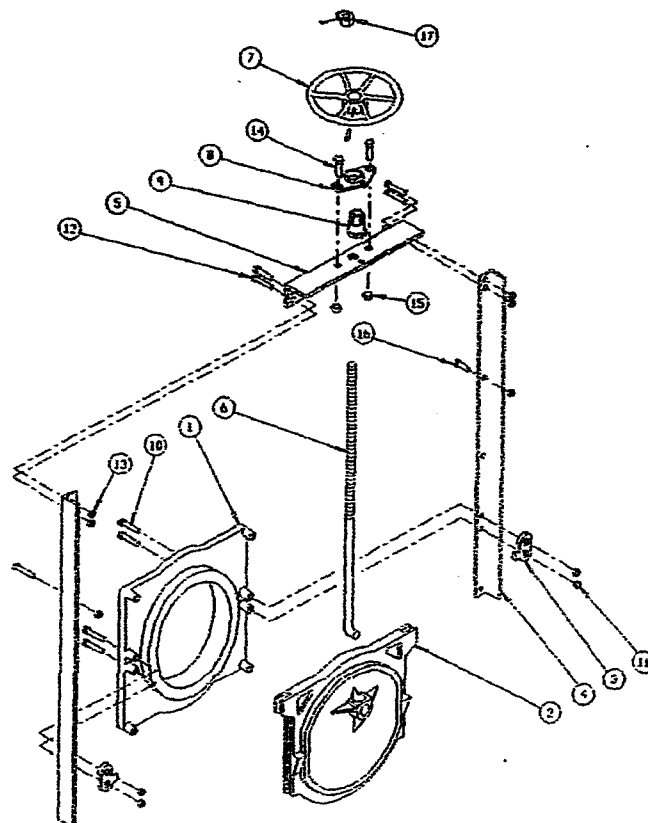


Waterman Model C-10 wedging system offers two point adjustment and larger wedging surfaces for a more positive contact.

C-10 CANAL GATE PARTS

PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (R&L)	2
4	Guide Rail (R&L)	2
5	Headrail	1
6	Stem	1
7	Handwheel	1
8	Thrust Collar	1
9	Lift Nut	1
10	Wedge Bolt	4
11	Wedge Nut	4
12	Frame Bolt	4
13	Frame Nut	4
14	Collar Bolt	2
15	Collar Nut	2
16	Stop Bolt & Nut	1
17	Limit Nut (optional) *	1

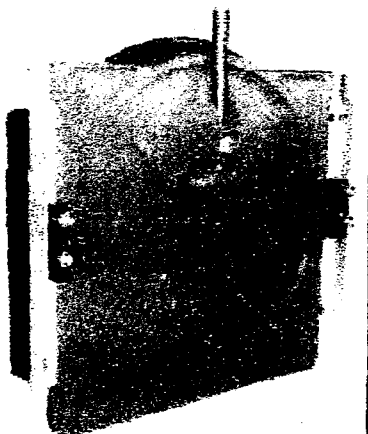
* With set screw



CL-10 CANAL GATE

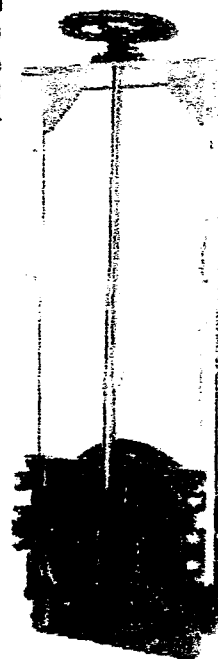
Waterman CL-10 Canal Gates are identical to our model C-10 Gates with the exception of the cast iron cover (slide) which is of a flat plate type construction with ribs reinforcing its face, to withstand the maximum heads as noted for our C-10 gates. This gate cover also features a square bottom design, which allows a more open "clog-free" flow at points of initial opening. The seat being only slightly raised above the cover plate surface helps prevent trash from collecting behind the cover which can cause difficulty in operation.

Available with threaded thrust nut for true NRS application. All parts are interchangeable with our Standard C-10 gate. Available in a variety of sizes.



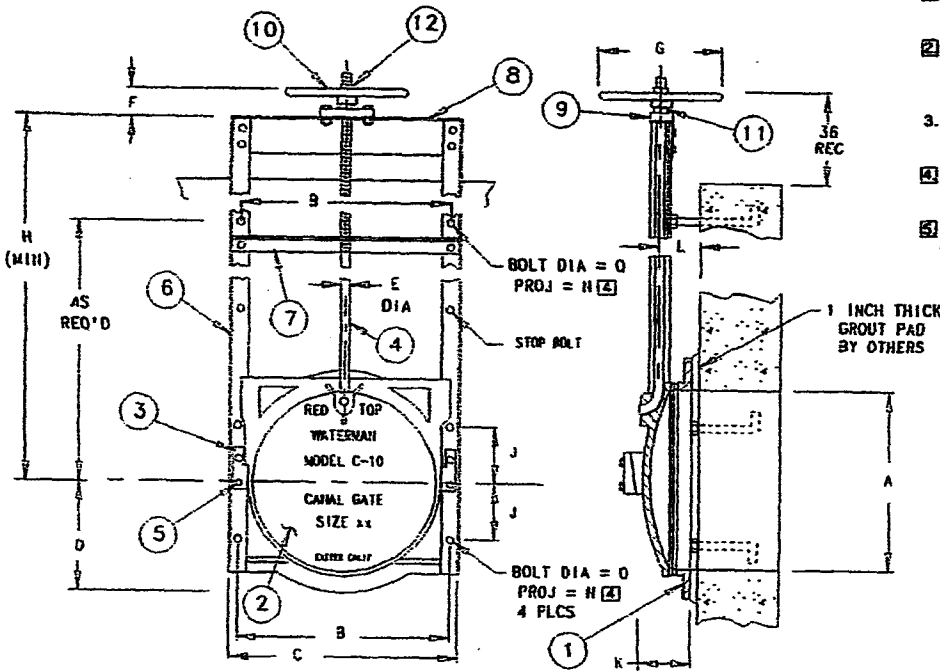
Shown with
optional
threaded thrust nut
for true non-rising
stem operation

CL-10



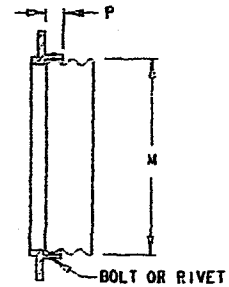
Flat Plate Type,
Square Bottom

C-10 CANAL GATE



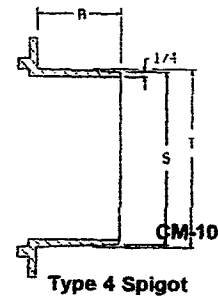
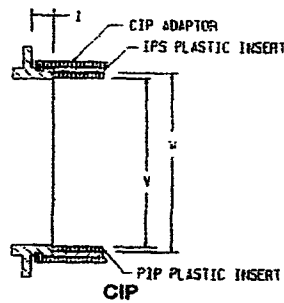
NOTES

- 1 TYPE 2 lubricated ball bearing lift used on 48" and larger gates.
- 2 Applies to spigotback gate only. Optional spigot, shown in separate detail.
- 3 All dimensions are also applicable for model CL-10 & CM-10 gates.
- 4 Add grout pad thickness to anchor bolt projection.
- 5 Type 3E 2:1 lift used, mounted to dual headrail.



Corrugated Pipe
Attached to Spigot
Back Frame

PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (Right & Left)	1 ea.
4	Stem	1
5	Wedge Bolts	4
6	Guide Rail	2
7	Stem Support	A/R
8	Head Rail	1
9	Lift Collar	1
10	Handwheel	1
11	Lift Nut	1
12	Limit Nut	1



Type 4 Spigot

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	V	W
6	8	9%	4	7%	2%	10	24	3	3%	2%	7	3%	2%	1/2	-	-	-	6.160	6.645
8	10	12	4%	7%	2%	10	24	3	3%	2%	9	3%	2%	1/2	4	7 7/8	8	8.180	8.645
10	12	13%	6	7%	2%	10	24	3 1/2	3%	2 1/2	11	3 1/2	2 1/2	1/2	3%	9%	10	10.220	10.770
12	14	15%	7	7%	2%	10	24	4	3%	3%	13	4	2%	1/2	4	14%	15	15.260	15.760
14	16	17%	8	7%	2%	10	27	4%	3%	3%	15	4	2%	1/2	-	-	-	-	-
15	17	18%	8%	7%	2%	10	30	5	4 1/2	3 1/2	16	4	2%	1/2	4	14%	15	-	-
16	18%	20%	9%	7%	2%	10	32	5 1/2	4 1/2	3 1/2	17	4 1/2	2%	1/2	-	-	-	-	-
18	21	22%	10 1/2	1	3 1/2	12	34	6	4 1/2	4%	19	4 1/2	2%	1/2	4	17 1/4	18	-	-
20	23 1/2	25%	11%	1	3 1/2	12	38	7	4%	4	21	4 1/2	2%	1/2	-	-	-	-	-
21	24	25%	12 1/2	1	3 1/2	12	40	7	4%	4	22	4 1/2	2%	1/2	-	-	-	-	-
24	27 1/2	29%	13%	1	3 1/2	12	44	8	5%	4%	25	4 1/2	2%	1/2	-	-	-	-	-
30	33%	36%	17%	1 1/4	4	15	54	10	6	4 1/2	31	6	2%	1/2	-	-	-	-	-
36	39%	42%	20%	1 1/4	4	15	62	12	6 1/4	5%	37	6	2%	1/2	-	-	-	-	-
42	45%	48%	23%	1 1/2	5	18	64	14	7	6	43	6	2%	1/2	-	-	-	-	-
48	51%	54%	26%	1 1/2	6	24	90	16	7%	6%	49%	6	2%	1/2	-	-	-	-	-
54	58 1/2	61 1/2	30	2	6	30	100	18	7%	6%	55%	7	3	1	-	-	-	-	-
60	65	68	34	2	6	30	102	20	8%	7%	61%	8	3 1/4	1	-	-	-	-	-
72	77 1/2	80%	41	2	13	5	121	25 1/2	10%	8%	73%	8	3%	1	-	-	-	-	-

GATE DIMENSIONS IN INCHES

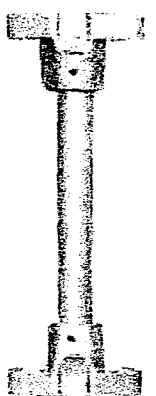
STEM EXTENSIONS

RISING STEM EXTENSIONS (RSE)

For C-10, CL-10, CL-11 AND C-20 MODELS

Waterman Rising-Stem Extensions are factory installed to the height ("H") required. They provide a rising stem and handwheel, keeping threads and lifts above the water level and allowing the amount of gate opening to be readily determined. Cast iron brackets, fastened to the top and bottom of standard galvanized steel pipe, are secured to the frame headrail and mount to the standard handwheel and stem hardware.

The stem extends through the entire length of pipe. With the addition of oil seals, these rising stem extension can be used where weather conditions require that the stem operate in oil to prevent freezing.



RSE EXTENSION

Complete units are available from the factory when desired.

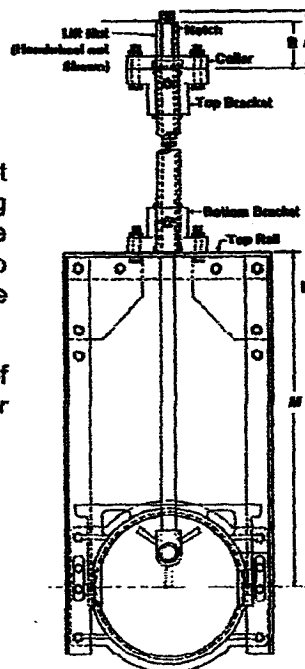
6" - 24" gates require 1 1/4" pipe
30" - 36" gates require 1 1/2" pipe
42" - 48" gates require 2" pipe

These extensions may also be adapted to C-20 gates.

Gate Size	A	B	M	H
6	3 3/4	2 3/4	24	
8	3 3/4	2 3/4	24	
10	3 3/4	2 3/4	24	
12	3 3/4	2 3/4	28	
14	3 3/4	2 3/4	27 1/2	
15	3 3/4	2 3/4	30	
16	3 3/4	2 3/4	32	
18	4 1/4	3 1/4	34	
20	4 1/4	3 1/4	36	
21	4 1/4	3 1/4	40	
24	4 1/4	3 1/4	44	
30	5	4	54	
36	5	4	62	
42	6	5	64	
48	7	6	90	
54	7	6	100	
60	7	6	102	
72	*	*	121	

All dimensions in inches and apply to C-10 Series gates.
* Special fabricated design for geared type lift.

Total Stem length = 44 1/2" USE 2' extension



RISING STEM EXTENSION



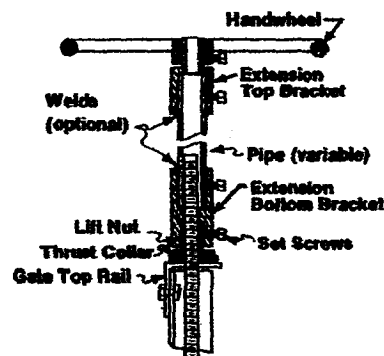
NRS EXTENSION

NON-RISING STEM EXTENSIONS

For C-10, CL-10, CL-11 AND C-20 MODELS

Waterman Non-Rising Stem Extensions are an accessory to Waterman stock gates. They are used to position the gate handwheel at convenient and non-changing operating elevations. This eliminates the problem of gate control hardware which might otherwise rise into traffic areas or walkways.

The use of Waterman Non-Rising Stem Extensions also eliminates the expense and inconvenience of ordering gates of special dimensions to meet different operating height conditions. The extensions are readily installed in the field. The upper and lower brackets are joined by a section of standard galvanized steel pipe (normally customer furnished) by means of threads, set screws, pins or welds. The length of pipe inserted determines the elevation of the handwheel. Waterman Stem Guide Models, such as Eye Bolt, NRS-K, SK-1, SK-2, K-1 and K-2 Series, are recommended to secure the handwheel location.



Normally Field Installed
NON-RISING STEM EXTENSION
Extends Handwheel Height
Without Disturbing Frame or Stem

Water Permit Application No. 7285-3 Boyd Bion

"South Wetland"

Cat. 3 - Low Hazard Dam

Top of Dam Elev. - 1822.7
2nd Spillway Elev. - 1822
P. Spillway Elev. - 1821
D/S Emb Toe Elev. - 1816.7

} HT = 6 ft

Normal Storage Capacity - 109 Ac.-ft.
Int. Storage Capacity - 133
Max. Storage Capacity - 157

Int. Cap x Eff Ht. = $133 \times 5 = 665 < 3000$ ∴ 25 year
Minimum Spillway Design

From USGS WRI 98-4055 "Tech for Est. Peak Flows in S.D." Region A
DA = 471 Ac = 0.74 mi² P_{II} = 0.9

$$Q_{100} = 218 CA^{.513} P_{II}^{.480}$$

$$= 218 (0.74)^{.513} (0.9)^{.480}$$

$$= 218 (.8569) (.6031)$$

$$= \underline{113 \text{ cfs}}$$

$$Q_{100} = 362 CA^{.521} P_{II}^{.447}$$

$$= 362 (0.74)^{.521} (0.9)^{.447}$$

$$= 362 (.8548) (.6244)$$

$$= \underline{193 \text{ cfs}}$$

Dave Konechna routed a Q_{100} peak of 104 cfs thru the "South Wetland" with a maximum flow of 50 cfs thru the primary spillway and 80 cfs thru the Secondary spillway.

Sec. 74:02:08:09

1. Topo Map - OK
2. Dam Axis Profile - OK
3. Dam Max X-sec - OK
4. Area Capacity - OK
5. Outlet Details - OK
6. Spillway Rating - OK
7. Spillway Details - OK
8. Specs - OK
9. EPP - N/A Cat. 3 - OK

NRCS Annual Yield

$$DA = 471 \text{ Ac} - CN = 67 \quad ISO = 242$$

$$80\% \text{ chance} = 0.08$$

$$0.08 \times 471/12 = \underline{3 \text{ Ac.-ft.}}$$

$$50\% \text{ chance} = 0.25$$

$$0.25 \times 471/12 = \underline{10 \text{ Ac.-ft.}}$$

$$10\% \text{ chance} = 1.4$$

$$1.4 \times 471/12 = \underline{55 \text{ Ac.-ft.}}$$



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 7285-3, Boyd Bien**

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 Water Permit Application No. 7285-3, Boyd Bien, 43475 111th Street, Lake City SD 57247.

The Chief Engineer is recommending APPROVAL of Application No. 7285-3 because 1) there is reasonable probability that there is unappropriated water available for the applicant's proposed use, 2) the proposed diversion can be developed without unlawful impairment of existing rights, 3) the proposed use is a beneficial use and 4) it is in the public interest with the following qualifications:

1. Water Permit No. 7285-3 authorizes impoundment with a total storage capacity of 181 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.

See report on application for additional information.

Garland Erbele, Chief Engineer
February 1, 2012

REPORT ON
WATER PERMIT APPLICATION NO. 7285-3
Boyd Bien
January 30, 2012

Water Permit Application No. 7285-3 has been filed by Boyd Bien to appropriate 181 acre-feet of water from runoff in two wetland structures located in the SW $\frac{1}{4}$ of Section 26-T127N-R56W, in Marshall County. The "north wetland" was constructed several years ago and impounds 72 acre-feet of water at the spillway elevation and the proposed "south wetland" will store 109 acre-feet of water at the outlet elevation. The "south wetland" will hold shallow temporary water in the spring to flood irrigate a hay crop. A total of 46.6 acres will be flood irrigated in the S $\frac{1}{2}$ SW $\frac{1}{4}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$ and SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 26-T127N-R56W. This application also requests impoundment of sufficient water to maintain water to the outlet elevations of both wetlands. The water will be used for fish and wildlife production and irrigation purposes.

Discussion:

The dam for the "south wetland" will be classified as a small size, Category 3, Low Hazard dam. The dam has been designed by Konechne Engineering. The plans and specifications have been reviewed and will be approved; however, construction of the dam can not begin until Water Permit Application No. 7285-3 is approved.

The dam will be 6 feet high with a normal storage capacity of 109 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 157 acre-feet with a reservoir level at the top of dam elevation. A dam of this size and hazard classification is required to have a minimum spillway design capable of passing a 25-year frequency event.

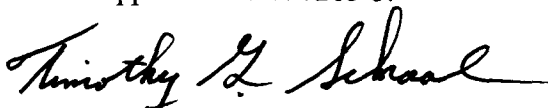
The dam has a drainage area of 471 acres or 0.74 square miles. The dam is designed to have a half-round 48 inch diameter CMP riser with a 36 inch diameter CMP barrel with 2.7 feet of freeboard as the primary spillway, and a 20 foot wide earthcut secondary spillway with 0.7 feet of freeboard. A 25 year frequency event produces a peak runoff of approximately 104 cfs. Konechne Engineering routs this event through the structure with a peak discharge of 50 cfs through the primary spillway and 80 cfs through the earthcut secondary spillway.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years is 3 acre-feet; and a 50 percent chance of occurrence, or 1 out of 2 years, is 10 acre-feet; and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 55 acre-feet.

The Boyd Bien wetland projects will be located in the SW $\frac{1}{4}$ of Section 26-T127N-R56W in the Prairie Coteau area of Marshall County. The wetlands will eventually drain into Crow Creek through several miles of drainage ditch. There are no other Water Rights/Permits located on Crow Creek in Marshall County. Any flood storage associated with Water Permit Application No. 7285-3 would benefit the flooding problems in the Crow Creek area.

Conclusions:

1. Water Permit Application No. 7285-3 should be approved since unappropriated water is available and approval should not have any adverse effect on existing Water Permits/Rights.
2. If approved, the low flow bypass requirement for domestic use should be a qualification on Water Permit Application No. 7285-3.



Timothy G. Schaal, P.E.
Natural Resources Engineering Specialist



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

February 2, 2012

Boyd Bien
43475 111th St.
Lake City, SD 57247

Dear Mr. Bien:

We have reviewed the plans and specifications for your dam project ("south wetland") located in the SW $\frac{1}{4}$ of Section 26-T127N-R56W, in Marshall County. The plans and specifications for the project are approved. Approval of the plans and specifications does not authorize construction of the dam. The construction of the dam may not begin until Water Permit No. 7285-3 is approved.

Our review was to determine compliance with the requirements of the Water Management Board Safety of Dams Rules, Chapter 74:02:08. Approval of these plans and specifications does not release you, as owner of the dam, from the responsibility for operating and maintaining the dam in good repair to ensure the safety of the dam.

The Bien "south wetland" Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 6 feet and a normal storage capacity of 109 acre-feet and a maximum storage capacity of 157 acre-feet.

If you have any questions, please feel free to contact us.

Sincerely,

Timothy G. Schaal, P.E.
Natural Resources Engineering Specialist
for Garland Erbele, Chief Engineer
Water Rights Program
(605) 773-3352

c: Dave Konechne, Pierre

FEB 16 2012

2T(Feb. 8-15)

**NOTICE OF APPLICATION
NO. 7285-3 to Appropriate
Water**

Notice is given that Boyd Bien, 43475 111th St, Lake City SD 57247 has filed an application for a water permit to impound a total of 181 acre-feet of water from runoff by constructing two wetland structures located in the N 1/2 SW 1/4 Section 26 and the SE 1/4 SW 1/4 Section 26 with water impounded in the SW 1/4 Section 26; all in T127N-R56W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The south wetland will hold shallow temporary water to flood irrigate a crop. A total of 46.6 acres located in the NE 1/4 SW 1/4, S 1/2 SW 1/4 and SW 1/4 SE 1/4 Section 26-T127N-R56W. The water is for fish and wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7285-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting 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 February 27, 2012.

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. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

County of Marshall.

WATER RIGHTS
PROGRAM

I county, being first duly sworn on oath says that he is publisher of the BRITTON JOURNAL, a weekly newspaper printed and published in the City of Britton, in the County of Marshall, and has full and personal knowledge of all the facts herein stated; that said newspaper is a legal newspaper and has a bona-fide circulation of at least two hundred copies weekly and has been published within said County for fifty-two successive weeks, next prior to the publication of the notice herein mentioned and is printed wholly or in part in an office at said place of publication;

that the Notice of Application No. 7285-3
To Appropriate Water - B. Bien SD DENR
a printed copy of which, taken from the paper in which the same was published, is attached to this sheet and is made a part of this affidavit, was published in said newspaper at least once each week for two successive weeks, on the day of each week on which said newspaper was regularly published, to wit:

Feb 8, 2012Feb 15, 2012

that the full amount of the fee charged for the publication of said notice inures to the benefit of publisher of said newspaper, that no agreement or understanding for the division thereof has been made with any person, and that no part thereof has been agreed to be paid to any other person whomsoever, and that the fee for the publication thereof

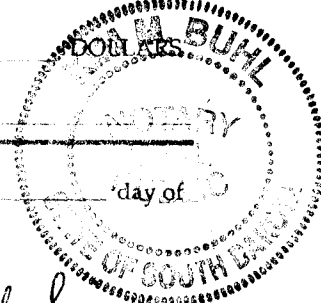
Forty-eight and $\frac{67}{100}$
By M. C. L.

Subscribed and sworn to before me this

15thFebruary A.D., 2012Kevin M. Buehl

Notary Public, Marshall County, S. D.

My Commission Expires March 12, 2016





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

February 4, 2012

The Britton Journal
PO Box 69
Britton SD 57430

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7285-3 to Appropriate Water to be published twice. Please publish the first notice on February 8, 2012 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Boyd Bien, 43475 111th St., Lake City SD 57247 (Ph # 605-872-6770).

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-----

No. 7285-3

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

Date _____

We are in receipt of your letter of February 2, 2012 enclosing Notice to Appropriate Water by Application No. 7285-3 which was first published in our issue of _____. **ENCLOSED IS A COPY OF THIS FIRST PUBLICATION.**

Name

Newspaper



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

NOTE: TO BE SURE OF PUBLICATION ON
THE CORRECT DATES, CONTACT
THE NEWSPAPER RIGHT AWAY.

February 4, 2012

Boyd Bien
43475 111th St
Lake City SD 57247

Dear Bien:

Water Permit Application No. 7285-3 for fish and wildlife propagation use has been examined and found to comply with the South Dakota Water Laws and applicable rules. A notice has been sent to the Publisher of the Britton Journal printed at Britton SD (Ph # 605-448-2281). You will need to contact the newspaper and authorize publication of this notice. For your information, a copy of the notice, the recommendations of the Chief Engineer and reports on the applications are enclosed. Please review the notice prior to publication and notify this office, if you have any corrections or questions.

Be sure to contact the above newspaper to authorize publication of your Notices and to arrange for payment. Early contact with the paper can eliminate delays. Upon receiving authorization, the publisher has been instructed to publish your notice once each week for two consecutive weeks. The newspaper has also been instructed to send us the Proof of Publication. We must receive Proof of Publication before action can be taken on the applications.

Sincerely,

Eric Gronlund
Natural Resources Engineer
(605) 773-3352

enclosures

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.

Instruction to Newspaper - Publish first Notice on February 8, 2012 with the second publication 7 days later. The applicant is responsible for payment. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352 or email: Karen.schlaak@state.sd.us.

NOTICE OF APPLICATION NO. 7285-3 to Appropriate Water

Notice is given that Boyd Bien, 43475 111th St, Lake City SD 57247 has filed an application for a water permit to impound a total of 181 acre-feet of water from runoff by constructing two wetland structures located in the N $\frac{1}{2}$ SW $\frac{1}{4}$ Section 26 and the SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 26 with water impounded in the SW $\frac{1}{4}$ Section 26; all in T127N-R56W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The south wetland will hold shallow temporary water to flood irrigate a crop. A total of 46.6 acres located in the NE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 26, T127N, R56W. The water is for fish and wildlife propagation.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7285-3 because 1) unappropriated water is available, 2) existing rights will not be unlawfully impaired, 3) it is a beneficial use of water, and 4) it is in the public interest. In accordance with SDCL 46-2A-23, the Chief Engineer will act on this application, as recommended, unless a petition is filed opposing the application or the applicant files a petition contesting the Chief Engineer's recommendation. If a petition opposing the application or contesting the recommendation is filed, then a hearing will be scheduled and the Water Management Board will consider this application. Notice of the hearing will be given to the applicant and any person filing a petition.

Any person interested in opposing or supporting this application or recommendation must file a written petition with BOTH the applicant and Chief Engineer. The applicant must file a petition if contesting 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 February 27, 2012.

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. Contact Eric Gronlund at the above Water Rights Program address to request copies of information pertaining to this application. Steven M. Pirner, Secretary, Department of Environment and Natural Resources.

Published twice at the total approximate cost of _____.



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
denr.sd.gov

JUN 21 2012

Boyd Bien
43475 111th St
Lake City SD 57247

Dear Mr. Bien:

Enclosed is Water Permit No. 7285-3 authorizing construction of your water diversion system and beneficial use of the water, not exceeding the limits as specified in the Water Permit.

Form 10, *Notice of Completion of Works and Application of Water to Beneficial Use*, is enclosed. Please return this completed form after you have finished the system and have put the water to beneficial use. An investigation can then be scheduled so the water license may be issued, thus completing the acquisition of a water right.

An informational sheet *Common Water Right Questions?* is also enclosed. This sheet is intended to answer some of the questions associated with obtaining and keeping a water right.

Sincerely,

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

enclosures

Report of Examination of Works and/or Application of Water to Beneficial Use For Permit No. 7285-3

I have this day, October 20, 2023, made a thorough examination of the water use system constructed by Boyd Bien, 43475 111th St, Lake City, SD 57247 of Permit No. 7285-3, bearing the priority of December 13, 2011 authorizing the storage of 181 acre-feet of the waters of runoff for fish & wildlife propagation and irrigation purposes, in Marshall County.

BD. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by Y
- 2) Exceptions to compliance are: None

E. Condition and Location:

1. The works are capable of storing 109 acre-feet of water which is to be used for fish & wildlife propagation. and the license should be issued for 109 acre-feet of storage.
2. All structures, wells and lands on map Y
3. Water Impounded in SW ¼, structures in NE ¼ SW ¼; all in Section 26-T127N-R56W

F. Comments or other permit(s) associated with the project:

The impoundment was created by the construction of two (2) low head dams as shown on the map. The south dam has a height of about 10 feet while the north dam height is closer to 6 feet. The dams were constructed as proposed in the permit application materials. Grazing cows have access to the dams which is shown on the accompanying photos, but the grass is sufficient to prevent dam slope erosion. The principle (overflow) spillway is a concrete slab on the surface of the soil which showed no erosion issues.

Mailing address in the permit materials is current but a current cell number is 605/237-0385.

He has not used the stored water for irrigation.

I talked to Boyd Bien on the phone during the field inspection visit.

*** Amanda Dewell called and spoke w/ Boyd 11/8/2023. Boyd confirmed that no irrigation had ever taken place from the dam and that there was no intention to do so in the future. The decision was made to license 7285-3 for the sole purpose of fish & wildlife propagation.



Looking SW across the small dam. Good vegetative cover but is grazed. No noticeable downside dam erosion. Some water-side dam erosion.

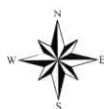


Photo showing the NE view across the big dam. Again, good vegetative cover but is heavily grazed. Note some water-side erosion also which could be a problem in the future.

A handwritten signature in black ink, reading "Darrell W DeBoer". The signature is stylized and cursive.

Darrell W DeBoer
Water Rights Inspector
DANR, Water Rights Program

Date report completed: **October 25, 2023**



0 0.075 0.15 0.3 0.45 0.6 Miles



Darrell DeBoer
Water Right Inspector
DANR-Water Rights Program

**STATE OF SOUTH DAKOTA
WATER LICENSE NO. 7285-3**

(1) Boyd Bien; 43475 111th St, Lake City SD 57247, made Application No. 7285-3, December 13, 2011, for a water permit to impound 181 acre feet of water from runoff, Marshall County, South Dakota for fish & wildlife propagation and irrigation purposes. Permit No. 7285-3, with a priority date of December 13, 2011, was approved February 27, 2012, and issued to the applicant for impoundment of water with construction of the described wetland structures to be completed on or before February 27, 2017, and for the application to beneficial use of water on or before February 27, 2021.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the wetland structures and is entitled to impound 109 acre feet of water for beneficial use.

The wetland structures (large dam, small dam, and overflow spillway) are all located in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 26, T127N, R56W. The impounded water is held in the N $\frac{1}{2}$ SW $\frac{1}{4}$ Section 26, T127N, R56W.

(3) The water is to be used during the following described annual period: January 1 – December 31.

(4) The permit holder has complied with the provisions of South Dakota State Law relating to the application of water to beneficial use.

(5) Pursuant to South Dakota Water Law 46-5-30.1 Boyd Bien, the holder and/or owner of Water Right No. 7285-3 is issued a license to appropriate water, the right to use 109 acre feet of water from runoff, with a priority date of December 13, 2011, at the location specified in (2) of this license for fish & wildlife propagation purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7285-3 and subject to the following qualifications:

1. Water Right No. 7285-3 authorizes the impoundment with a total storage capacity of 181 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation. *(Total storage capacity lowered to 109 acre feet based on the structure as developed.)*
2. Low flows as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.


Eric Gronlund, Chief Engineer
Water Rights Program
Department of Agriculture and Natural Resources

NOV 09 2023
date





**DEPARTMENT of AGRICULTURE
and NATURAL RESOURCES**

JOE FOSS BUILDING
523 E. CAPITOL AVE
PIERRE SD 57501-3182
danr.sd.gov

NOV 09 2022

7285-3

Boyd Bien
43475 111th St
Lake City SD 57247

Dear Mr. Boyd:

Enclosed is Water License No. 7285-3. This is the final water right document completing your process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

So long as you use the water beneficially, as stated in the Water License, State Water Laws provide that you have a continuing right to use the water.

Sincerely,

Eric Gronlund, Chief Engineer
Water Rights Program
(605) 773-3352

enclosures