

**WATER PERMIT NO. 7353-3**

Name of Applicant: **Boyd Bien**

Address: **43475 111<sup>th</sup> St, Lake City SD 57247** Phone: **605 872-6770**

Amount of Water Claimed: **54 AF** Total Acres: **NA**

Source of Water Supply: **runoff**

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

Type of Waste Disposal System:

Location: **5 miles northwest of Lake City**

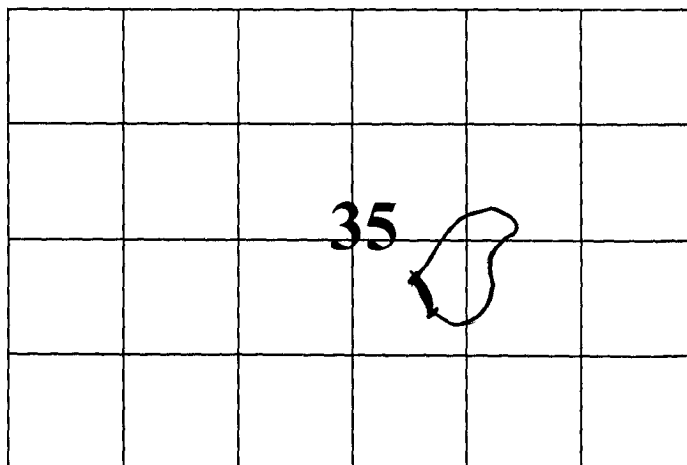
**PRIORITY** Date Received: **4-24-12** Application/License Fee: **\$ 700**

Corrected Application Received: Period of Annual Use: **Jan 1 – Dec 31**

Remarks:

Diversion Point: **NW ¼ SE ¼ Sec 35-T127N-R56W**

Water Impounded: **N ½ SE ¼, S ½ NE ¼ Sec 35-T127N-R56W**



Depth of Well: **NA**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by: **David Konechne, PE**

Reviewed and the Number Assigned on: **XX**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: \_\_\_\_\_

|                                                                                                                 |                                                                   |                                 |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------|
| Mail to:<br>PMB 2020<br>DENR - Water Rights<br>523 E Capitol Ave<br>Pierre, SD 57501-3182<br>ph. (605) 773-3352 | (office use only)                                                 |                                 |
|                                                                                                                 | No. <u>7353-3</u>                                                 | Hydrologic Unit <u>10160010</u> |
|                                                                                                                 | Basin <u>James River</u>                                          |                                 |
|                                                                                                                 | Newspaper <u>Bretton Journal PO Box 69</u><br><u>605-448-2281</u> | <u>57430</u>                    |

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PROGRAM

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

### Check use(s) of water:

|                                                 |                                           |                                                     |                                          |
|-------------------------------------------------|-------------------------------------------|-----------------------------------------------------|------------------------------------------|
| <input type="checkbox"/> Municipal              | <input type="checkbox"/> Suburban Housing | <input type="checkbox"/> Recreational               | <input type="checkbox"/> Institutional   |
| <input type="checkbox"/> Rural Water System     | <input type="checkbox"/> Commercial       | <input checked="" type="checkbox"/> Fish & Wildlife | <input type="checkbox"/> Geothermal Heat |
| <input type="checkbox"/> Domestic (over 18 gpm) | <input type="checkbox"/> Industrial       | <input type="checkbox"/> Other                      |                                          |

### Type of Application: (check one)

|                                                                                                |                                                                  |                                                 |
|------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|
| <input type="checkbox"/> New                                                                   | <input type="checkbox"/> Vested Right (Use predates Mar 2, 1955) | <input type="checkbox"/> Future Use Reservation |
| <input type="checkbox"/> Place to Beneficial Use Water Reserved by Future Use Permit No. _____ |                                                                  |                                                 |
| <input type="checkbox"/> Amendment/Correction to Permit No. _____                              |                                                                  |                                                 |

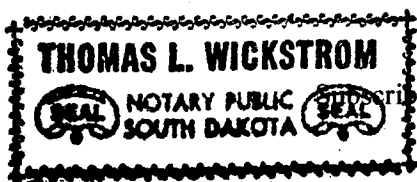
Description of amendment/correction: (i.e. change diversion point(s), add diversion point(s), change use, etc.)

- 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)
- Amount of water claimed \_\_\_\_\_ \*CFS or \_\_\_\_\_ \*\*GPM \_\_\_\_\_ \*\*\*AF  
(\*Cubic Feet per Second) (\*\*Gallons per Minute) (\*\*\*)Acre Feet - storage capacity of dam/dugout or annual use if applicable
- Source of water supply runoff from watershed
- Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) County Marshall  
Dike at ☒ Section 35, T. 127 N.R. 56 W. Water impounded: N1/2 SE1/4 S42 NE 1/4  
NW1/4 SE1/4 Sec 35 T127N R56W
- County or counties where water will be used Marshall
- Annual period during which water is to be used Jan 1 - Dec 31
- 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.

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 X Boyd Bien  
Subscribed and sworn to before me this 19th day of April 20 12

THOMAS L. WICKSTROM  
Day County, South Dakota  
My Commission Expires Dec. 23, 2017

[Signature]  
Notary Public signature

**SOUTH DAKOTA**  
**WATER PERMIT NO. 7353-3**

---

Date of first receipt of application April 24, 2012.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 7353-3 to Boyd Bien, 43475 111<sup>th</sup> St, Lake City SD 57247 authorizing the construction of the storage dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 7353-3 authorizes impoundment of 54 acre-feet of water from runoff by constructing a dam located in the NW 1/4 SE 1/4 Section 35 with water impounded in the N 1/2 SE 1/4 and S 1/2 NE 1/4 Section 35; all in T127N-R56W.
2. The water appropriated shall be used for the purpose of fish and wildlife propagation 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.
4. The date of approval of Permit No. 7353-3 is June 18, 2012.
5. The date from which applicant may claim right is April 24, 2012.
6. One-fifth of the construction is to be completed on or before December 18, 2014.
7. All construction is to be completed on or before June 18, 2017.
8. Water is to be put to beneficial use on or before June 18, 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. 7353-3 authorizes an impoundment with a storage capacity of 54 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

JUL 16 2012  
date



**Supplemental Information**

(Complete applicable portions only)

(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 2 feet

c) Crest Width 12 feet

Crest Length 476 feet

d) Height 7.4 feet

e) Primary Outlet Capacity 71.34

If pipe, diameter 36" 1/2 round w/24" out

f) Secondary Spillway Capacity 80 cfs

Spillway Width 20 feet

g) X & Y Slope (e.g. 3 to 1 is a typical slope)

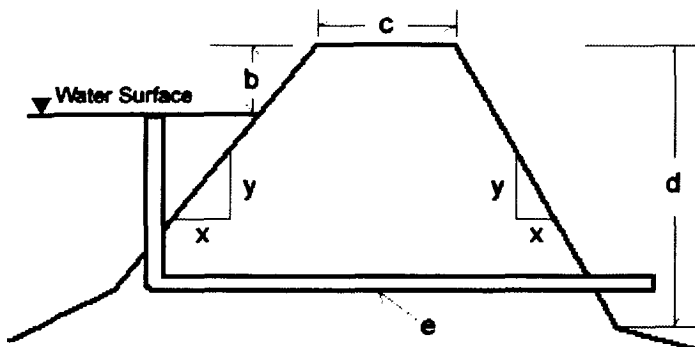
Upstream 3:1

Downstream 3:1

h) Surface Area of Impoundment 17

i) Storage 54.0 Acre Feet

j) Drainage Area Above Dam 70.0 Acres





# Boyd Bien Marshall County



## Legend

 Wetland Restored

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

\*\*\*\*\*  
\* INVOICE \*  
\*\*\*\*\*

April 24, 2012  
Invoice No. 424bienapp

US Fish & Wildlife  
Attn: Sandy  
Brookings SD

Water Permit Application for Boyd Bien – Marshall County wetland restoration

Permit ---- \$500.00  
Licensing --- \$200.00

\$700.00

PLEASE PAY THIS AMOUNT \$700.00

|                                         |                     |                                                                                                                                                                                                                                                                                   |        |
|-----------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| DO NOT WRITE                            |                     | ABOVE THIS LINE                                                                                                                                                                                                                                                                   |        |
| SANDDRA J. HUBBARD                      |                     | EXPIRATION<br><input checked="" type="checkbox"/> DATE<br>CHECKED                                                                                                                                                                                                                 |        |
| XXXX XXXX XXXX 1309                     |                     | 10/14                                                                                                                                                                                                                                                                             |        |
| SIGN HERE<br><b>X</b>                   |                     | 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. NO. 424BIENAPP | 700.00                                                                                                                                                                                                                                                                            |        |
|                                         | WATER PERMIT APP.   |                                                                                                                                                                                                                                                                                   |        |
| DATE                                    | AUTHORIZATION       | SUB                                                                                                                                                                                                                                                                               |        |
| 04/25/12                                | 006871              | TOTAL                                                                                                                                                                                                                                                                             | 700.00 |
| REFERENCE NO.                           | SERVER              | TAX                                                                                                                                                                                                                                                                               |        |
| 001                                     |                     |                                                                                                                                                                                                                                                                                   |        |
| ID-FOUO/CHECK NO./LIC. NO. STATE        | REG./DEPT.          | CLERK                                                                                                                                                                                                                                                                             | TIP    |
|                                         |                     |                                                                                                                                                                                                                                                                                   | MISC.  |
| VISA                                    |                     | MasterCard                                                                                                                                                                                                                                                                        |        |
| 5462595                                 |                     | TOTAL                                                                                                                                                                                                                                                                             | 700.00 |

SALES SLIP ORIGINAL



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Waubay National Wildlife Refuge  
44401 134A St.

Waubay, SD 57273-5301  
Ph: 605-947-4521; Fax: 605-947-4524  
E-mail: thomas\_wickstrom@fws.gov

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**APR 24 2012**

**WATER RIGHTS  
PROGRAM**

April 23, 2012

Tim Schaal  
Water Rights Division  
DENR, Foss Bldg.  
Pierre, SD 57501

Dear Mr. Schaal:

Enclosed are Applications for Water Rights for the Boyd Bien wetland restoration project in Marshall County, Section 35, T.127N., R.56W. Please contact the Brookings Wildlife Habitat Office for the payment process at (605)697-2500.

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

Sincerely,

Thomas L. Wickstrom  
Fish and Wildlife Biologist

**TAKE PRIDE<sup>®</sup>  
IN AMERICA**

Boyal Bien

## 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.

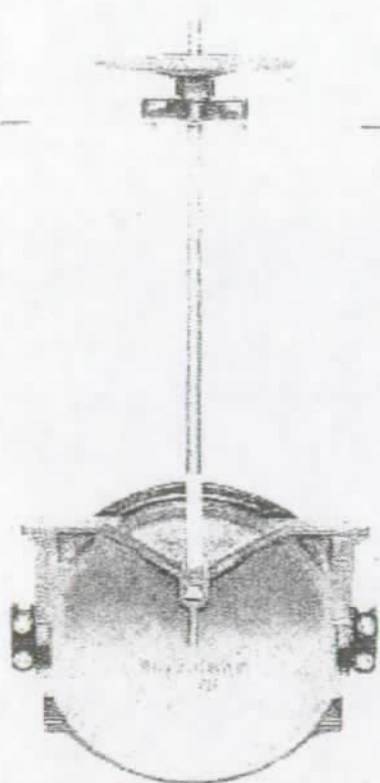
Various sizes and options are available.

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

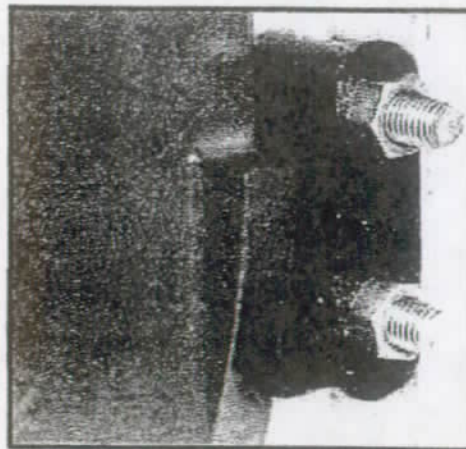


Bronze lift nut furnished as standard on all Waterman Canal Gates.

### 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.

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

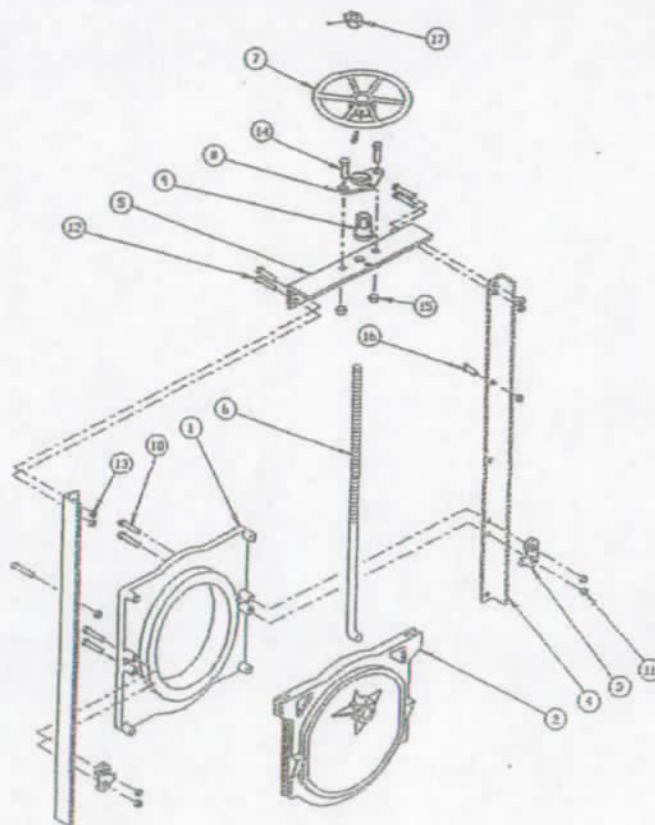


Waterman Model C-10 wedging system offers two point adjustment and larger wedging surfaces for a more positive contact.

## 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          | Limit 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    |

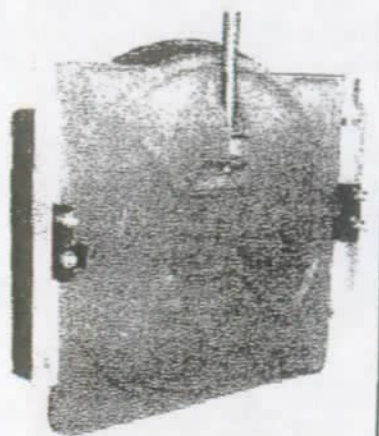
\* With set screw



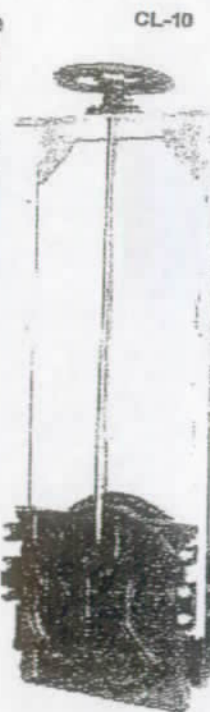
## CL-10 CANAL GATE

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



Flat Plate Type, Square Bottom

# 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

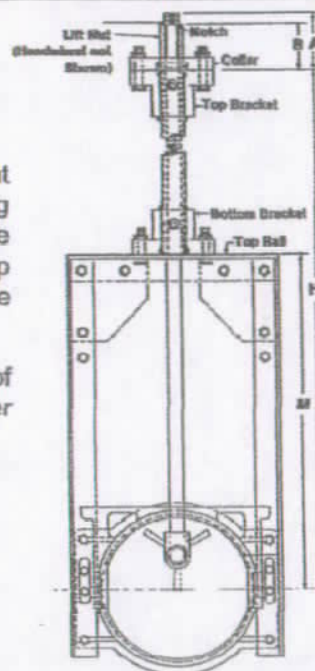
Complete units are available from the factory when desired.

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 1/4 | 24     | <i>Total stem H = 4 ft</i><br><i>need 2 ft extension</i><br>VARIABLE AS REQUIRED |
| 8         | 3 3/4 | 2 1/4 | 24     |                                                                                  |
| 10        | 3 3/4 | 2 1/4 | 24     |                                                                                  |
| 12        | 3 3/4 | 2 1/4 | 24     |                                                                                  |
| 14        | 3 3/4 | 2 1/4 | 27 1/2 |                                                                                  |
| 15        | 3 3/4 | 2 1/4 | 30     |                                                                                  |
| 16        | 3 3/4 | 2 1/4 | 32     |                                                                                  |
| 18        | 4 1/4 | 3 1/4 | 34     |                                                                                  |
| 20        | 4 1/4 | 3 1/4 | 38     |                                                                                  |
| 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     | 84     |                                                                                  |
| 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 RL.



RISING STEM EXTENSION



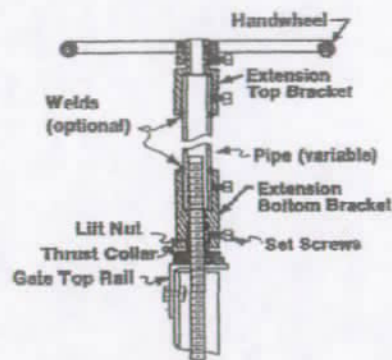
NRS EXTENSION

## 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

1\*\*\*\*\*  
 SITES XEQ 07/28/2011 WATER RESOURCE SITE ANALYSIS COMPUTER PROGRAM  
 VER 2005.1.04 (USER MANUAL - DATED DECEMBER 2005)  
 TIME 15:30:10

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

SITES 01/01/2005 Boyd Bien sec35,T127N,R56W 0.109375 H5  
 SAVMOV 0 101  
 SAVMOV 101 1 1  
 STRUCTURE

91 0  
 93 10.7  
 94 13.6  
 95 15.4  
 96 17  
 99 19.5

ENDTABLE  
 WSDATA 5A1 AC 69 70 2000 1  
 PDIRECT 2.3 4.20  
 POOLDATA ELEV 96 91 SC  
 PSINLET 1 9.42  
 PSDATA 1 48 24 .025 91  
 ASDATA 41 30 20 2 .02 2  
 ASINSURF 41 .035  
 ASINLET 41 0.0 0.0 20 0.0 3  
 80 2

ENDTABLE  
 ASEXSURF 41 .035  
 .65 0  
 3  
 2 0  
 .02

ENDTABLE  
 ASEXIT 41 N 40  
 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 07/28/2011 Boyd Bien sec35,T127N,R56W WSID=  
 VER 2005.1.04 SUBW= A  
 TIME 15:30:10 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          | QRF         |
| 69.00                | 0.11        | 2000.00     | 1.00         | 0.00        |
| SITEDATA- PERM POOL  | CREST PS    | FP SED      | VALLEY FL    | 378?        |
| 96.00                | 96.00       | 0.00        | 91.00        | 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                 | 48.00       | 24.00       | 0.00         |             |
| PS N                 | KE          | WEIR L      | TW EL        |             |
| 0.025                | 1.00        | 9.42        | 91.00        |             |
| 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       | 0.020        | 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 07/28/2011 Boyd Bien sec35,T127N,R56W WSID=  
 VER 2005.1.04 SUBW= A  
 TIME 15:30:10 SITE = S 1 PASS= 1 PART= 2

|            |          |           |          |         |
|------------|----------|-----------|----------|---------|
| PERM POOL  | 96.00 FT | 53.5 ACFT | 17.00 AC | 0.0 CFS |
| CREST PS   | 96.00 FT | 53.5 ACFT | 17.00 AC | 0.0 CFS |
| SED ACCUM  | 96.00 FT | 53.5 ACFT | 17.00 AC | 0.0 CFS |
| START ELEV | 96.00 FT | 53.5 ACFT | 17.00 AC | 0.0 CFS |



START ELEV            96.00 FT            53.6 ACFT            17.00 AC            0.0 CFS  
 EFFECTIVE HEIGHT(H)= 6.1 FEET,    PRODUCT=            439. (H \* STORAGE AT CREST AUX.).  
 INPUT DESIGN CLASS = A1 = LT 3000.    PRODUCT.  
 NRCS-FBH            D= 24.00 HR            P= 4.20 IN            Q= 1.40 IN            DA= 0.11 SM  
                      TC= 1.26 HR            CN= 69.00            VOL=            8.1 ACFT  
                      PEAK =            42.1 CFS, AT    12.8 HRS.

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

RATING TABLE NUMBER 2

|                                    | ELEV.<br>FEET | Q-TOTAL<br>CFS | Q-PS<br>CFS | Q-AUX.<br>CFS | VOLUME<br>AC-FT | AREA<br>ACRE |
|------------------------------------|---------------|----------------|-------------|---------------|-----------------|--------------|
| 1                                  | 96.00         | 0.00           | 0.00        | 0.00          | 53.55           | 17.00        |
| 2                                  | 96.26         | 3.77           | 3.77        | 0.00          | 57.92           | 17.21        |
| 3                                  | 96.51         | 10.65          | 10.65       | 0.00          | 62.34           | 17.43        |
| 4                                  | 96.77         | 19.57          | 19.57       | 0.00          | 66.81           | 17.64        |
| FULL CONDUIT FLOW, ELEV = 97.02 FT |               |                |             |               |                 |              |
| 5                                  | 97.02         | 30.13          | 30.13       | 0.00          | 71.34           | 17.85        |
| 6                                  | 97.03         | 30.18          | 30.18       | 0.00          | 71.45           | 17.86        |
| 7                                  | 97.03         | 30.19          | 30.19       | 0.00          | 71.56           | 17.86        |
| 8                                  | 97.04         | 30.21          | 30.21       | 0.00          | 71.68           | 17.87        |
| 9                                  | 97.05         | 30.22          | 30.22       | 0.00          | 71.79           | 17.87        |
| 10                                 | 97.05         | 30.24          | 30.24       | 0.00          | 71.90           | 17.88        |
| 11                                 | 97.06         | 30.25          | 30.25       | 0.00          | 72.01           | 17.88        |
| 12                                 | 97.06         | 30.27          | 30.27       | 0.00          | 72.12           | 17.89        |
| 13                                 | 97.07         | 30.28          | 30.28       | 0.00          | 72.23           | 17.89        |
| 14                                 | 97.17         | 32.03          | 30.52       | 1.50          | 73.96           | 17.97        |
| 15                                 | 97.26         | 33.77          | 30.76       | 3.01          | 75.70           | 18.05        |
| 16                                 | 97.44         | 39.03          | 31.19       | 7.84          | 78.85           | 18.20        |
| 17                                 | 97.65         | 50.13          | 31.69       | 18.44         | 82.73           | 18.37        |
| 18                                 | 98.04         | 81.65          | 32.60       | 49.05         | 89.88           | 18.70        |
| 19                                 | 98.52         | 131.79         | 33.70       | 98.09         | 98.99           | 19.10        |
| 20                                 | 99.00         | 196.20         | 34.76       | 161.43        | 108.30          | 19.50        |

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

| REACH | FROM<br>STA<br>(ft) | TO<br>STA<br>(ft) | SLOPE<br>(%) | RETARDANCE<br>CURVE<br>INDEX@ | VEGETAL<br>COVER<br>FACTOR | MAINT.<br>CODE | ROOTING<br>DEPTH<br>(ft) | REACH<br>LOCATION<br>* |
|-------|---------------------|-------------------|--------------|-------------------------------|----------------------------|----------------|--------------------------|------------------------|
| 1     | 10.                 | 30.               | 0.0          | 0.035                         | **                         | **             | **                       | CREST                  |
| 2     | 30.                 | 70.               | 2.0          | 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 2 used in computing exit channel velocities.  
 \*\*\*\*\*

DRAWDOWN USING FREEBOARD STORM FOLLOWS, STARTING AT ELEVATION 96.29 FT.

DRAWDOWN (DDT) TEST 96.00 FT 53.5 ACFT 0.00 CFS  
 CONTROL IS 0.000 DETENTION STORAGE

DRAWDOWN TIME = 2.95 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

| ROUTED RESULTS | BTM WIDTH FT | MAX ELEV FT | VOL-MAX ACFT | AREA-MAX AC | AUX.-HP FT | VOL-AUX. ACFT |
|----------------|--------------|-------------|--------------|-------------|------------|---------------|
| NRCS-FBH       | 20.0         | 96.29       | 58.4         | 17.2        | 0.00       | 0.0           |

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

| PEAK - CFS DISCHARGE = | Q-PS | Q-AUX. | Q-TOT. |
|------------------------|------|--------|--------|
|                        | 4.6  | 0.0    | 4.6    |

|                        | 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             |

\*\*\*\*\* 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 ( 80. CFS).

| ROUTED RESULTS | BTM WIDTH FT | MAX ELEV FT | VOL-MAX ACFT | AREA-MAX AC | AUX.-HP FT | VOL-AUX. ACFT |
|----------------|--------------|-------------|--------------|-------------|------------|---------------|
| MIN. AUX.      | 20.0         | 98.34       | 95.6         | 18.9        | 1.27       | 23.3          |

^^^^ NOTE -- ACTUAL Hp OF 1.27 RAISED TO MEET MIN. 378 CRITERIA.

| PEAK - CFS DISCHARGE = | Q-PS | Q-AUX. | Q-TOT. |
|------------------------|------|--------|--------|
|                        | 33.3 | 79.6   | 112.9  |

|                        | CRITICAL DEPTH FT | CRITICAL VELOCITY FT/SEC | CRITICAL SLOPE-Sc FT/FT | 25% OF Q Sc FT/FT |
|------------------------|-------------------|--------------------------|-------------------------|-------------------|
| AUXILIARY SPILLWAY --- | 0.77              | 4.81                     | 0.020                   | 0.027             |

>>>> NHCP378 RUN - MINIMUM DEPTH, CREST AUX. TO TOP OF DAM IS 2.00 FT.  
 NEW TOP OF DAM ELEVATION = 99.07.

| ROUTED | BTM WIDTH | MAX ELEV | VOL-MAX | AREA-MAX | AUX.HP | VOL-AUX. |
|--------|-----------|----------|---------|----------|--------|----------|
|--------|-----------|----------|---------|----------|--------|----------|

|              |      |       |       |      |      |      |
|--------------|------|-------|-------|------|------|------|
| RESULTS      | FT   | FT    | ACFT  | AC   | FT   | ACFT |
| MINIMUM AUX. | 20.0 | 99.07 | 109.7 | 19.6 | 2.00 | 37.4 |

^^^^ NOTE -- ACTUAL Hp OF 2.00 RAISED TO MEET MIN. 378 CRITERIA.

|              |      |        |        |
|--------------|------|--------|--------|
| PEAK - CFS   | Q-PS | Q-AUX. | Q-TOT. |
| DISCHARGES = | 34.9 | 170.8  | 205.7  |

|              |          |          |          |          |
|--------------|----------|----------|----------|----------|
|              | CRITICAL | CRITICAL | CRITICAL | 25% OF Q |
|              | DEPTH    | VELOCITY | SLOPE-Sc | Sc       |
| AUXILIARY    | FT       | FT/SEC   | FT/FT    | FT/FT    |
| SPILLWAY --- | 1.26     | 6.03     | 0.018    | 0.023    |

\*\*\*\*\* WARNING - SOLUTION EXCEEDED MAX. INPUT ELEVATION ( 99.00) BY 0.07 FT.

Inflow Hyd 1 PSH-Peak = 0.96 CFS at 20.31 hrs., Location Point

Inflow Hyd 1 FBH-Peak = 4.57 CFS at 16.92 hrs., Location Point  
HYDOUT 1

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

Boyd Bien sec35,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.

\*\*\*\*\*

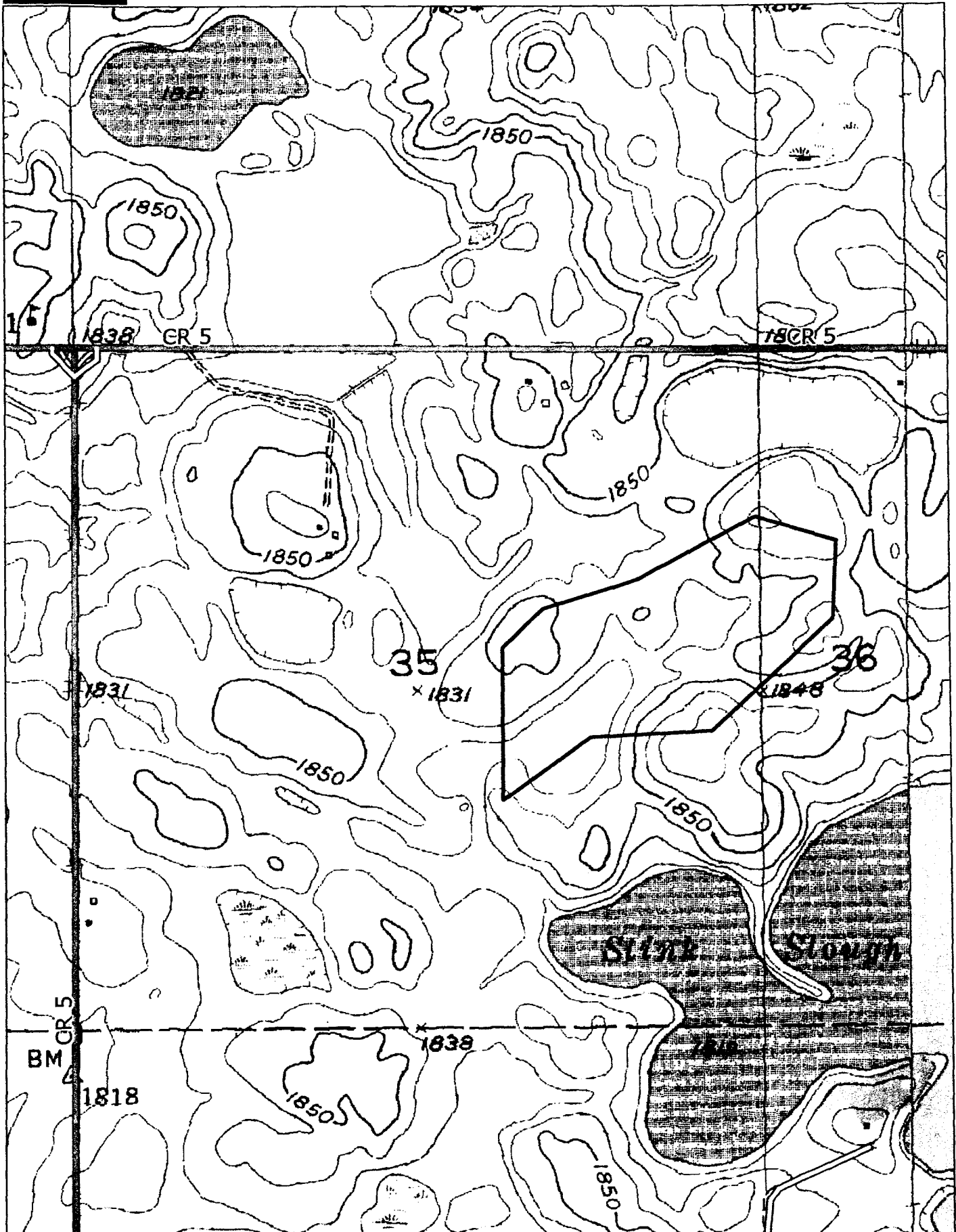
SITES.....COMPUTATIONS COMPLETE

|     |      |       |          |       |       |          |        |       |     |
|-----|------|-------|----------|-------|-------|----------|--------|-------|-----|
| >>> | SITE | SUBWS | SUBWS DA | CURVE | TC    | TOTAL DA | TYPE   | STRUC | <<< |
|     | ID   | ID    | (SQ MI)  | NO.   | (HRS) | (SQ MI)  | DESIGN | CLASS |     |
|     | S 1  | A     | 0.11     | 69.   | 1.26  | 0.11     | 378NR  | A1    |     |

|      |         |           |       |      |      |      |          |          |           |
|------|---------|-----------|-------|------|------|------|----------|----------|-----------|
| PASS | DIA./   | AUX.CREST | BTM.  | MAX. | MAX. | EMB. | INTEGR.* | EXIT*    | TYPE      |
| NO.  | WIDTH   | ELEV      | WIDTH | HP   | ELEV | VOL. | DIST.    | VEL.     | HYD       |
|      | (IN/FT) | (FT)      | (FT)  | (FT) | (FT) | (CY) | (FT)     | (FT/SEC) |           |
| 1    | 24.0    | 97.1      | 20.0  | 2.0  | 99.1 | 0.   | 0.       | 0.0      | MIN. AUX. |

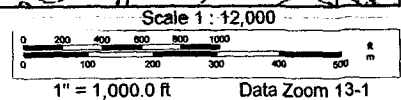
\* INTEGRITY DIST. AND EXIT VEL. ARE BASED ON THE ROUTED HYDROGRAPH AND WILL NOT RELATE TO THE MAX. ELEV. (TOP OF DAM),



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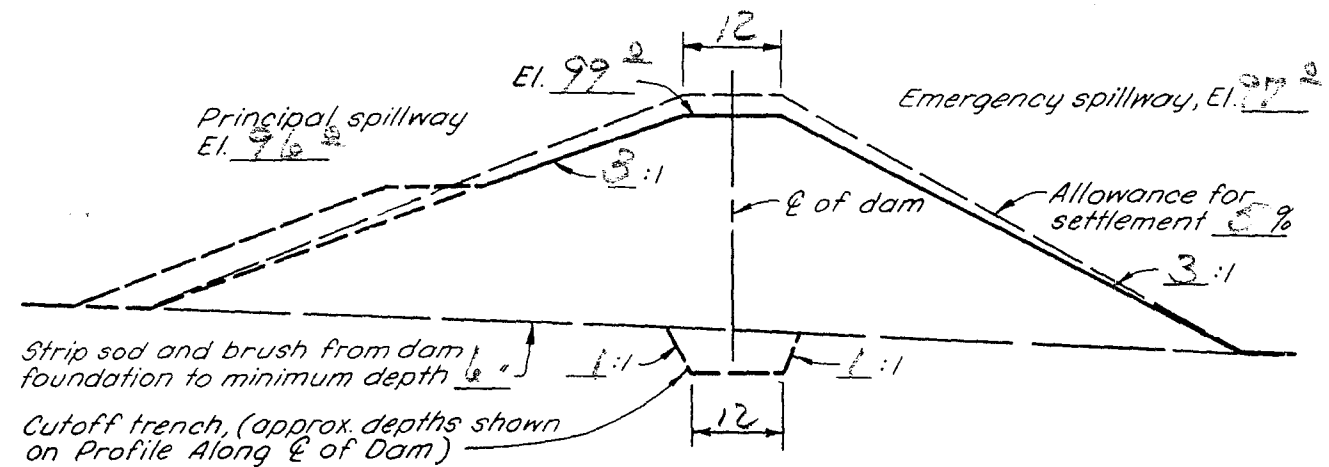
| DRAINAGE<br>AREA | ANNUAL<br>YIELD | PEAK<br>RUNOFF | EMERG.<br>SPLWY.<br>CAPACITY | WATER<br>DEPTH | SURFACE<br>AREA | SEDIMENT<br>STORAGE | TOTAL<br>STORAGE |
|------------------|-----------------|----------------|------------------------------|----------------|-----------------|---------------------|------------------|
| ACRES            | AC. FT.         | 25-YR.         | C.F.S.                       | FEET           | ACRES           | AC. FT.             | AC. FT.          |
| 20               | 1.9             | 8.1            | 80                           | 5              | 17              | -                   | 54               |

|  |  |  |  |   |
|--|--|--|--|---|
|  |  |  |  |   |
|  |  |  |  |   |
|  |  |  |  |   |
|  |  |  |  |   |
|  |  |  |  | D |

LOCATION

[illegible]

**WATER RIGHTS  
PROGRAM**



S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

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

OPERATOR: Boyd Brien

CONSERVATION DISTRICT: \_\_\_\_\_

Class "A" Hazard

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

Approximate scale 1" = \_\_\_\_\_

REFERENCE: GUIDE PLAN NO. 1.0

JOB PLAN NO. 1.0

Locate principal spillway pipe  
at C of dam sta.      +     , at  
an angle of     ° to the C of  
the dam.

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

Top of dam after  
settlement El. 99<sup>0</sup>

Note: Allowance for settlement 5 %

Emergency spillway El. 97<sup>0</sup>

3:1 slope normal  
to C of dam —

✓ 3: slope normal to  $\phi$  of dam

Principal spillway El. 96<sup>0</sup>

36 " dia. riser, see  
job plan no. 5.3

### Antiseep collars

Berm, if required \_\_\_\_\_:1  
slope normal to  $\odot$  of  
dam \_\_\_\_\_

El. 917

18 ft - 12" dia CMP

48' of 24" dia. pipe

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

Diagram illustrating a prefabricated elbow. The elbow is shown with a horizontal section labeled "%gr." (percentage grade) and a vertical section. The elbow is labeled "Prefabricated elbow \_\_\_\_°". The elbow is shown with dimensions: a horizontal distance of 10' and a vertical distance of 10'. The elbow is shown with a 91° angle. The elbow is shown with a 91° angle. The elbow is shown with a 91° angle.

### OUTLET DETAIL WITHOUT PIPE SUPPORT

Prefabricated elbow \_\_\_\_\_°

Pipe support, see job plan no. \_\_\_\_\_

El. \_\_\_\_\_

El. \_\_\_\_\_

% gr.

OUTLET DETAIL WITH  
PIPE SUPPORT

Sec. \_\_\_\_\_, T. \_\_\_\_\_, R. \_\_\_\_\_  
County \_\_\_\_\_

**LOCATION**

CORRUGATED METAL PIPE  
DROP INLET PRINCIPAL SPILLWAY

OPERATOR Boyd Bien

CONSERVATION DISTRICT \_\_\_\_\_

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

|          |      |             |            |
|----------|------|-------------|------------|
|          | Date | Approved by |            |
| Designed |      | Title       |            |
| Drawn    |      | Title       |            |
| Traced   |      | Sheet No    | Drawing No |
| Checked  |      | of          |            |

### 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 CMP to be spiral

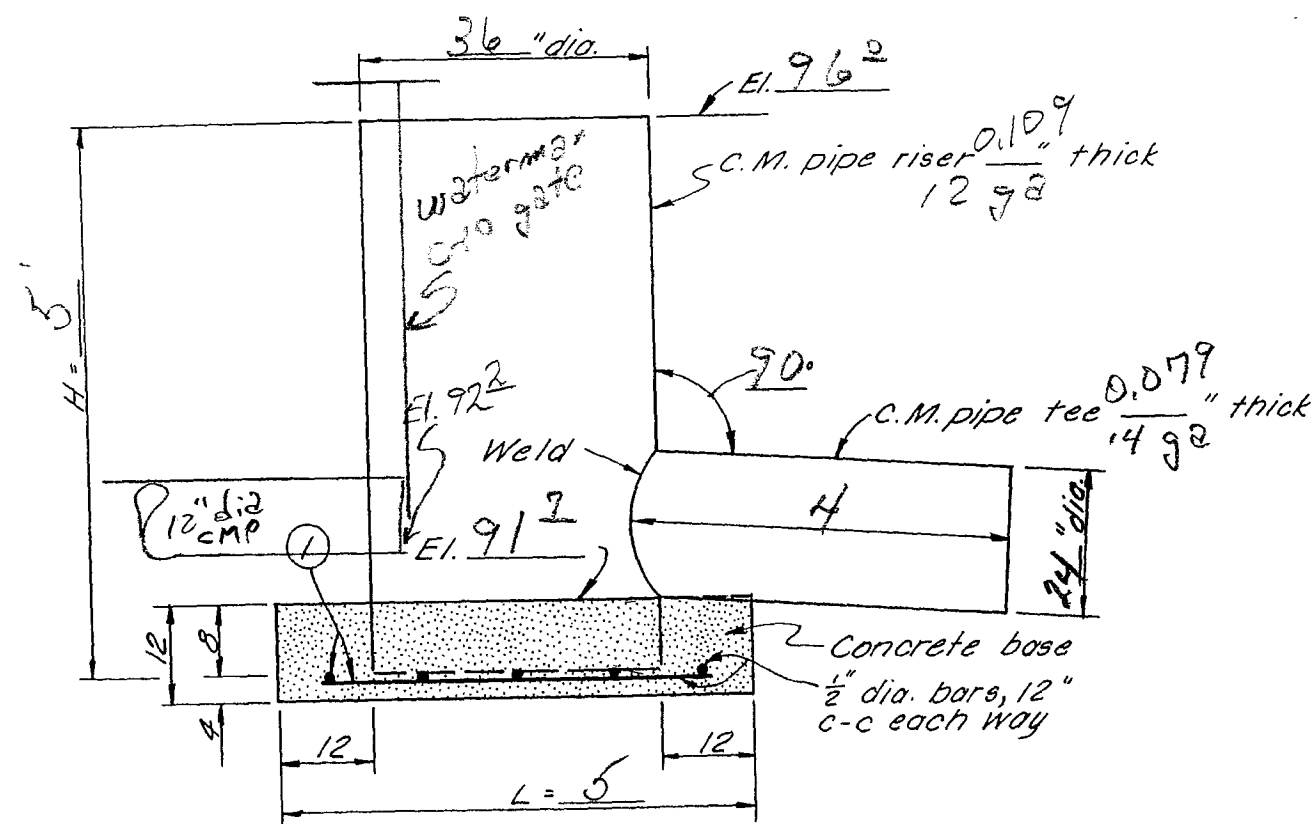
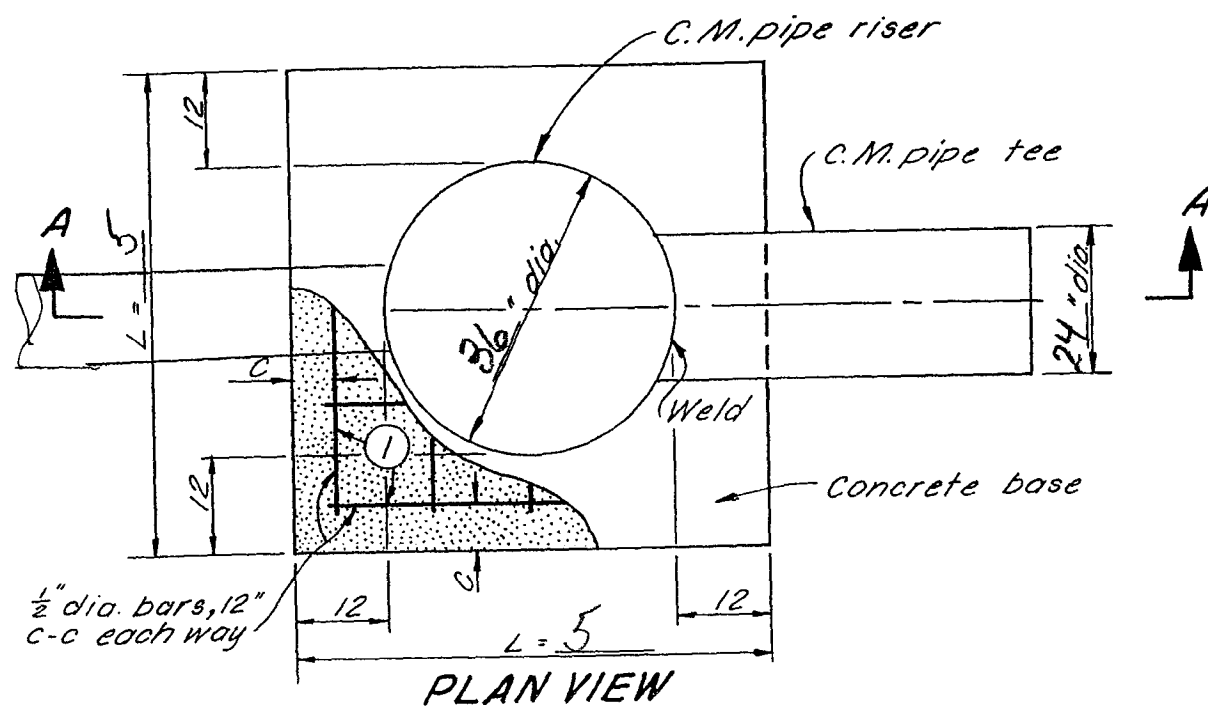
## TABLE OF QUANTITIES

[illegible]

APPLICABLE STANDARD S.C.S. SPECIFICATIONS

Rev. 8/80  
JOB PLAN NO. 2.0

REFERENCE: GUIDE PLAN NO. 2.0



### 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. |
|----------------|----------|------|------|------------|----------------|----------------------|---------------|-------|-----------|
| 36             | 4        | 1    | STR. | 10         | 4-0            | 40                   | 27            | 6     | 5-0       |

### TABLE OF QUANTITIES

| ITEM              | UNIT    | QUANTITY |
|-------------------|---------|----------|
| CONCRETE          | CU. YD. | 0.9      |
| REINFORCING STEEL | LB.     | 27       |

NOTE:

### C.M. PIPE RISER WITH FABRICATED TEE

OPERATOR: Boyd Bien

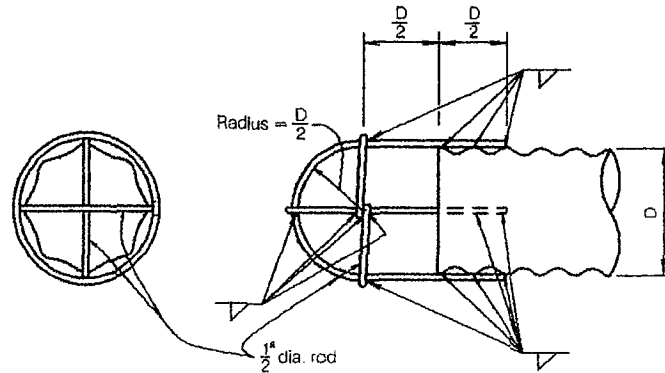
CONSERVATION DISTRICT: \_\_\_\_\_

|                |            |                   |
|----------------|------------|-------------------|
| Designed _____ | Date _____ | Approved by _____ |
| Drawn _____    |            | Title _____       |
| Traced _____   |            | Title _____       |
| Checked _____  |            | Sheet _____       |
|                |            | Drawing No _____  |

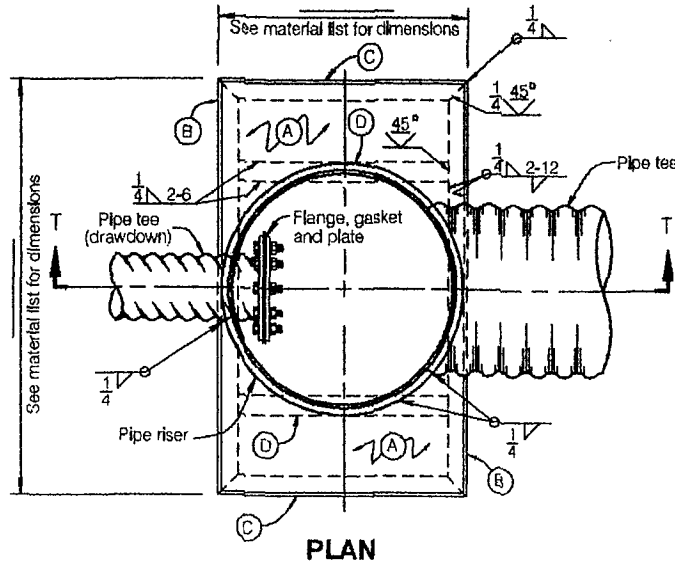
# DRAWDOWN TRASH RACK ROD LENGTHS

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

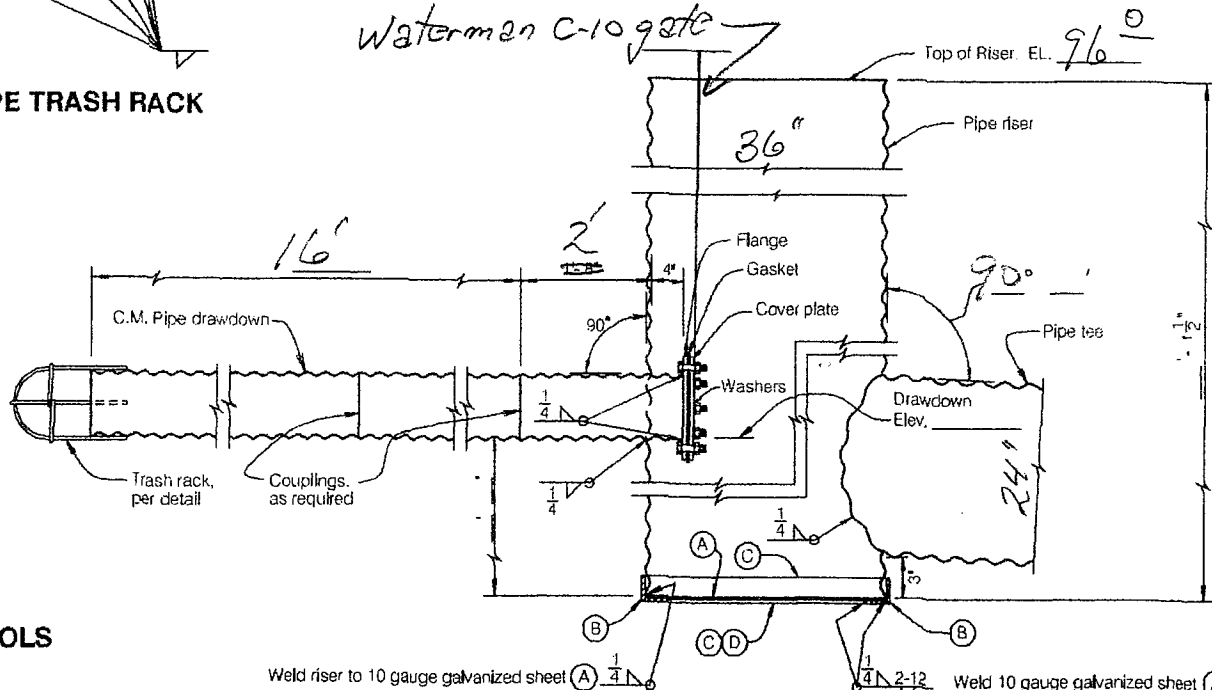
\* 2 RODS REQUIRED.  
 \*\* APPROXIMATE 2" LAP.  
 RODS TO BE ZINC COATED OR PAINTED  
 ACCORDING TO SPECIFICATIONS.  
 1/2" DIA. ROD = 0.668 LB./FT.



DRAWDOWN PIPE TRASH RACK

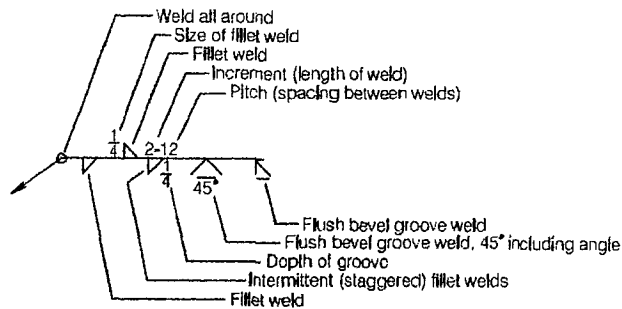


PLAN



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 |
|---------------------|----------------------------------------|----------------|----------------|------|----------|
| 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     | CU.YD.                     |
| REINFORCING STEEL:                                                                                                                                                                                                                                                                                                         | LB.   |          |          |                            |
| 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:                                                                                                                                                                                                                                                                        |       |          |          |                            |
| ANNULAR 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

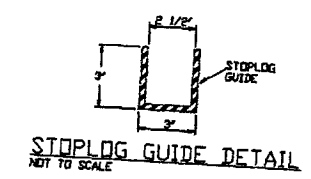
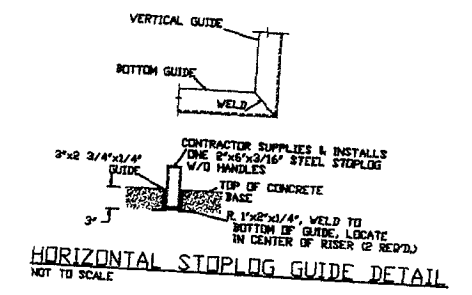
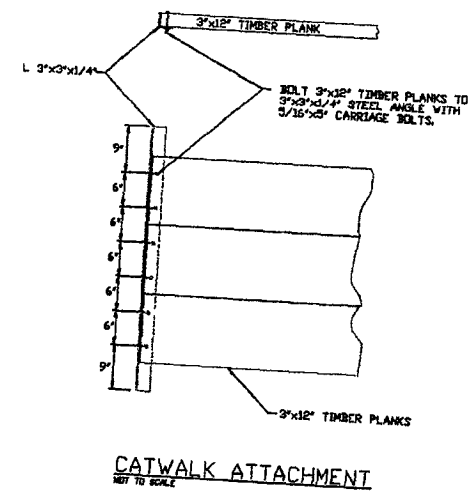
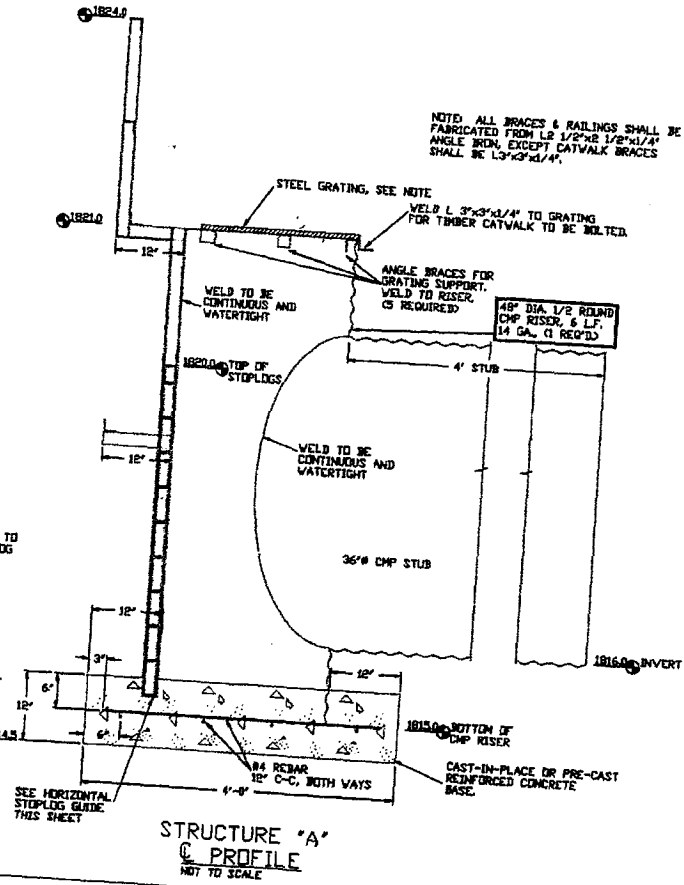
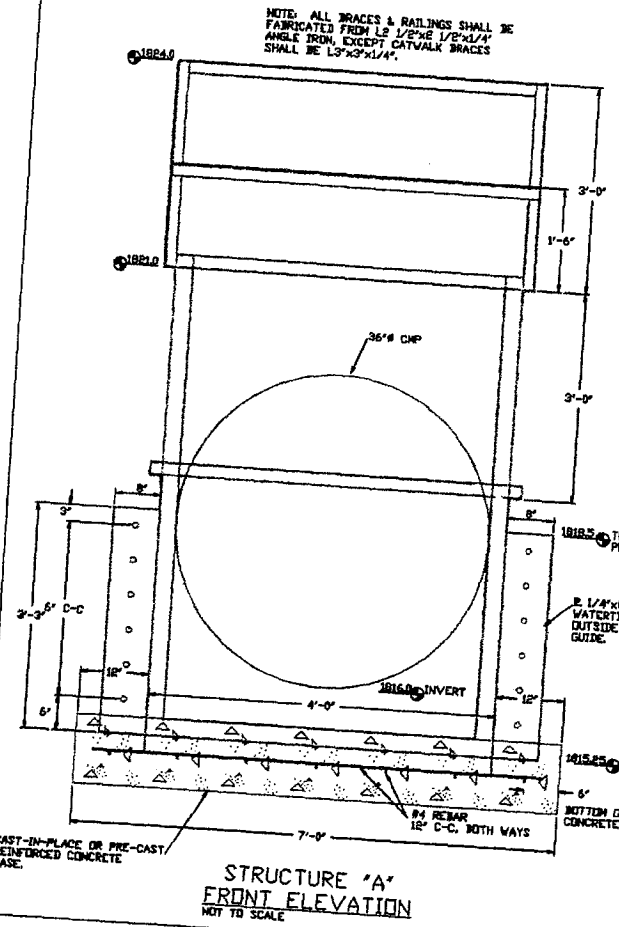
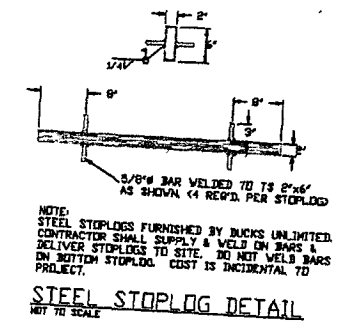
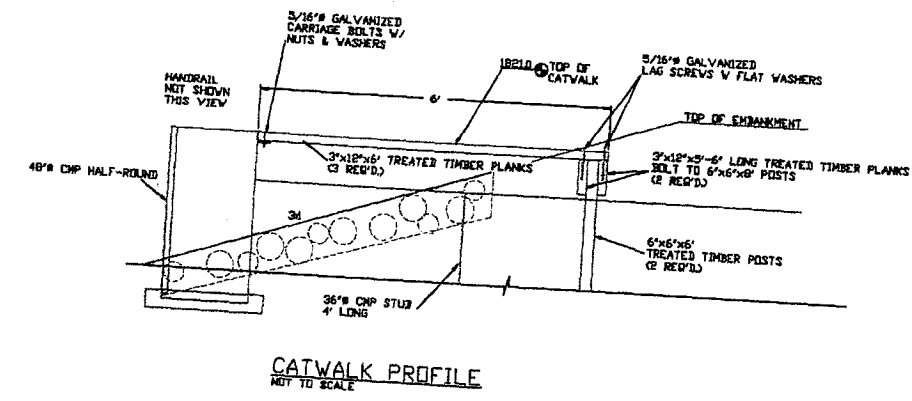
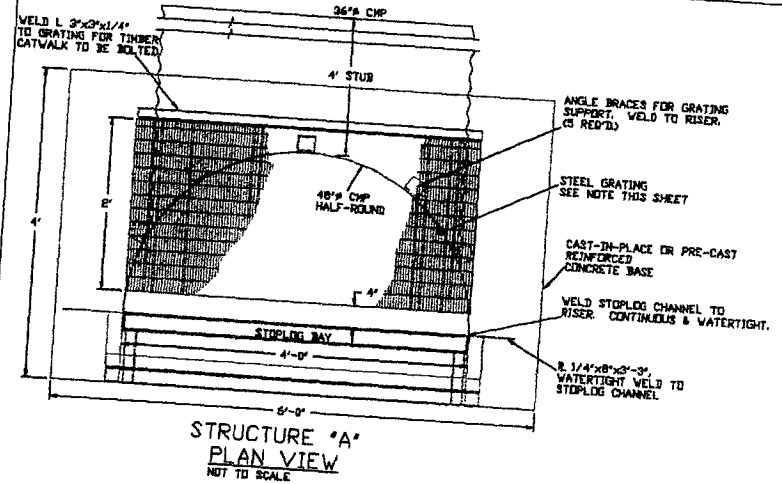
Job Plan 101

METAL BASE PIPE RISER AND  
FLANGE DRAWDOWN FACILITY

CAD Dwg.  
NE100-10-007.d

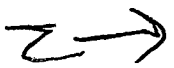
Design Class:

Sheet of



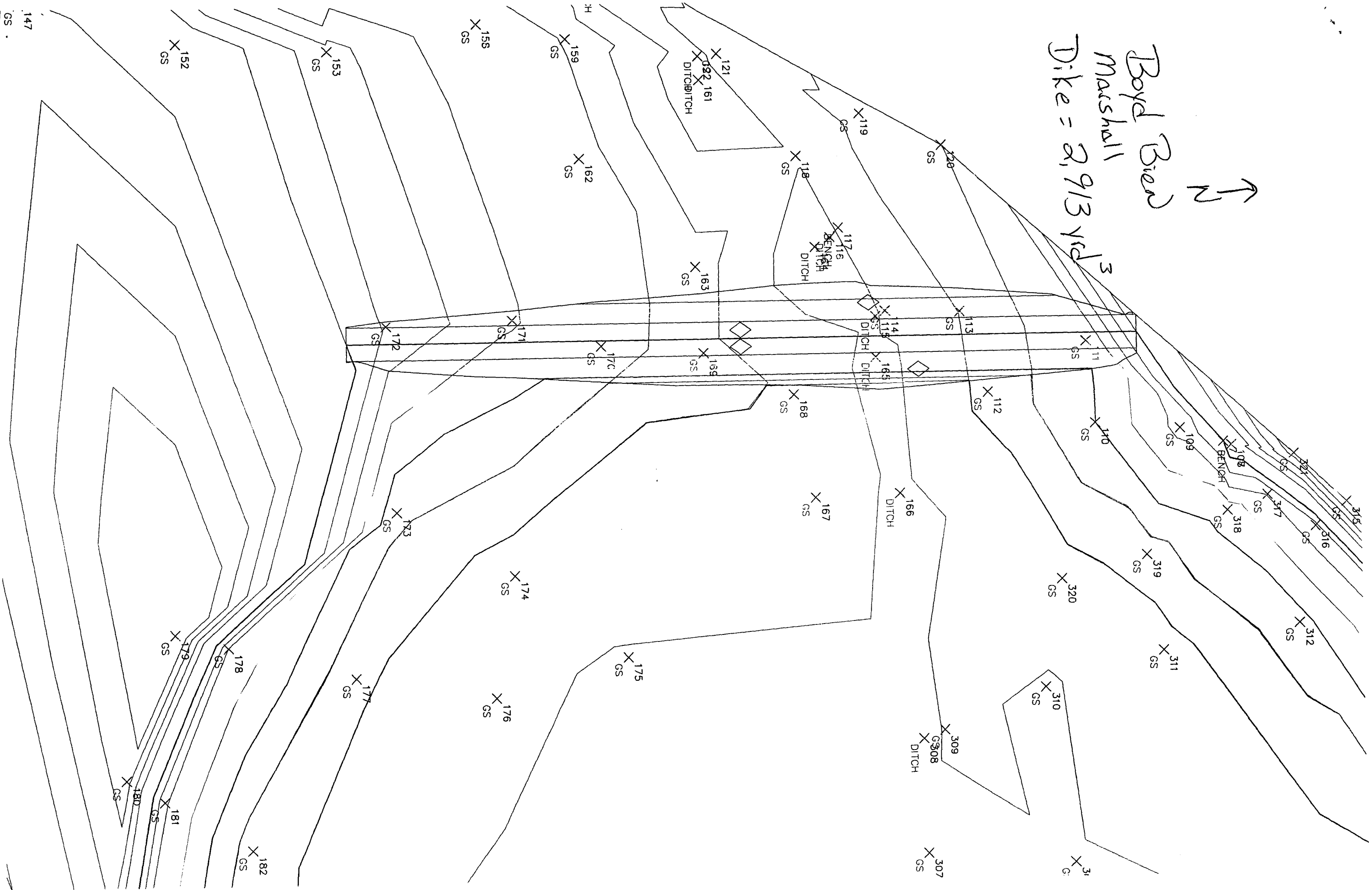
HALF-ROUND WATER CONTROL STRUCTURE  
FABRICATION NOTES:  
HANDRAIL MAY NEED TO BE FIELD WELDED TO STRUCTURE  
FOR TRANSPORTATION PURPOSES.  
ALL BRACES & RAILINGS SHALL BE FABRICATED FROM  
L 2 1/2\"/>

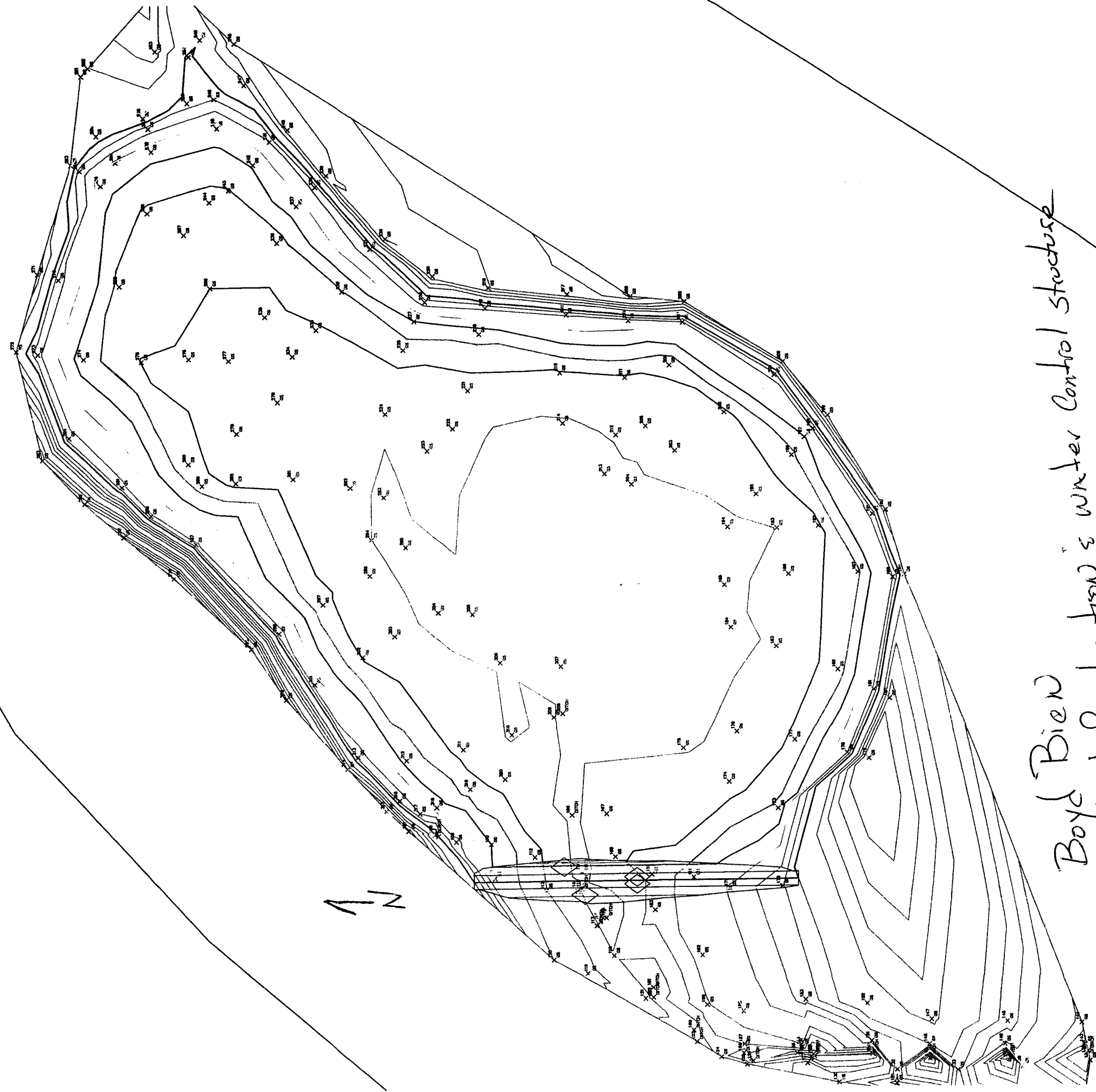
Boyd Bion  
Alternative Riser  
Sec 35, T127N, R56W



Boyd Bear  
Marshall

Dike = 2,913 yd<sup>3</sup>





Boyd Bien  
Wetland Restoration & Water Control Structure

SE 1/4 Sec 35-127-56

Top Dam @ 99.0 = 19.5 ac  
Elev 96.0 = 17.0 ac (yellow)  
Elev 95.0 = 15.4 ac (red)  
Elev 94.0 = 13.6 ac (green)  
Elev 93.0 = 10.7 ac (blue)

1" = 150'

Water Permit Application No. 7353-2  
Boyd Bien

Top of Dam Elev. - 99  
2nd Spillway Elev. - 97  
P. Spillway Elev. - 96  
Dis Emb. Top Elev. - 91.6

Cat. 3 - Low Hazard Dam

Ht. = 7.4 ft

Normal Storage Capacity = 54 Ac-Ft  
Int. Storage Capacity = 71  
Max. Storage Capacity = 108

Int. Capacity x Eff Ht =  $71 \times 6.1 = 433 < 3000 \therefore 25 \text{ year}$   
Minimum Spillway Design

From USGS WRI 98-4055 "Tech for Est. Peak Flows... in SO"  
Region A DA = 70 Ac = 0.11 mi.  $P_{II} = 0.8$

$$\begin{aligned} Q_{25} &= 218 CA^{.513} P_{II}^{4.80} \\ &= 218 (0.11)^{.513} (0.8)^{4.80} \\ &= 218 (.3223) (.3426) \\ &= \underline{25 \text{ cfs}} \end{aligned}$$

$$\begin{aligned} Q_{100} &= 362 CA^{.521} P_{II}^{4.47} \\ &= 362 (0.11)^{.521} (0.8)^{4.47} \\ &= 362 (.3166) (.3688) \\ &= \underline{42 \text{ cfs}} \end{aligned}$$

Secondary Spillway Flow

$$\begin{aligned} Q &= CLH^{3/2} \quad C = 2.6 \\ &= 2.6 (20)^{1.5} H = 2 \\ &= \underline{150 \text{ cfs}} \end{aligned}$$

NRCS Annual Yield

Section 74:02:08:09

DA = 70 Ac CN = 69 ISO = 2 1/2

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. Spec. - Std NRCS - OK
9. EPP - Cat. 3 - OK

$$\begin{aligned} 80\% &= 0.09 \\ 0.09 \times 79/12 &= \underline{0.52 \text{ Ac-Ft}} \end{aligned}$$

$$\begin{aligned} 50\% &= .28 \\ .28 \times 79/12 &= \underline{1.6 \text{ Ac-Ft}} \end{aligned}$$

$$\begin{aligned} 10\% &= 1.6 \\ 1.6 \times 79/12 &= \underline{9.3 \text{ Ac-Ft}} \end{aligned}$$



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

PMB 2020  
JOE FOSS BUILDING  
523 EAST CAPITOL  
PIERRE, SOUTH DAKOTA 57501-3182  
[denr.sd.gov](http://denr.sd.gov)

May 18, 2012

Boyd Bien  
43475 111<sup>th</sup> St.  
Lake City, SD 57247

Dear Mr. Bien:

We have reviewed the plans and specifications for your dam project located in the NW  $\frac{1}{4}$  SE  $\frac{1}{4}$  of Section 35-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. 7353-3 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 Dam No. 2 will be classified as a small size Category 3, Low Hazard dam with a dam height of 7.4 feet and a normal storage capacity of 54 acre-feet and a maximum storage capacity of 108 acre-feet.

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

Sincerely,

A handwritten signature in black ink, which appears to read "Timothy G. Schaal".

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

c: Dave Konechne, Pierre



**DEPARTMENT of ENVIRONMENT  
and NATURAL RESOURCES**

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

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT  
APPLICATION NO. 7353-3, 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. 7353-3, Boyd Bien, 43475 111<sup>th</sup> Street, Lake City SD 57247.

The Chief Engineer is recommending APPROVAL of Application No. 7353-3 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. 7353-3 authorizes an impoundment with a storage capacity of 54 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  
May 15, 2012

REPORT ON  
WATER PERMIT APPLICATION NO. 7353-3  
Boyd Bien  
May 4, 2012

Water Permit Application No. 7353-3 has been filed by Boyd Bien to appropriate 54 acre-feet of water from runoff by constructing a dam (ditch plug) located in the NW ¼ SE ¼ of Section 35-T127N-R56W, in Marshall County. This application also requests impoundment of sufficient water to maintain water to the outlet elevation. The water will be used for fish and wildlife propagation purposes.

Discussion:

The dam 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. 7353-3 is approved.

The dam will be 7.4 feet high with a normal storage capacity of 54 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 108 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 70 acres or 0.11 square miles. The dam is designed to have a 36 inch diameter CMP riser with a 24 inch diameter CMP barrel with 3.0 feet of freeboard as the primary spillway, and a 20 foot wide earthcut secondary spillway with 2.0 feet of freeboard. A 25 year frequency event produces a peak runoff of approximately 25 cfs and a 100 year frequency event produces a peak runoff of approximately 42 cfs. The 20 foot wide earthcut secondary spillway will have a capacity of approximately 150 cfs.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years is 0.5 acre-feet; and a 50 percent chance of occurrence, or 1 out of 2 years, is 1.6 acre-feet; and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 9.3 acre-feet.

The Bien Dam No. 2 (ditch plug) project will be located in the SE ¼ of Section 35-T127N-R56W in the Prairie Coteau area of Marshall County. It will restore a drained wetland located about one-quarter mile upstream of Stink Slough. The restored wetland should have little to no adverse effect on Stink Slough.

Conclusions:

1. Water Permit Application No. 7353-3 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. 7353-3.



Timothy G. Schaal, P.E.  
Natural Resources Engineer IV

**AFFIDAVIT OF PUBLICATION**

**RECEIVED**

**JUN - 7 2012**

**WATER RIGHTS PROGRAM**

**2T(May 30-June6)  
NOTICE OF APPLICATION  
NO. 7353-3 to Appropriate  
Water**

Notice is given that Boyd Bien, 43475 111<sup>th</sup> St, Lake City SD 57247 has filed an application for a water permit to impound 54 acre-feet of water from runoff by constructing a dam located in the NW 1/4 SE 1/4 Section 35 with water impounded in the N 1/2 SE 1/4 and S 1/2 NE 1/4 Section 35; all in T127N-R56W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7353-3 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 June 18, 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 \$45.15.

TA, County of Marshall.

said 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. 7353-3  
to Appropriate Water - B. Bien

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:

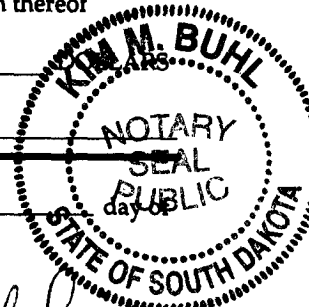
May 30, 2012  
June 6, 2012

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-five dollars  
John M. C.

Subscribed and sworn to before me this 6<sup>th</sup>

June A. D. 2012  
Kim M. Buhl



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

May 18, 2012

Britton Journal  
PO Box 69  
Britton SD 57430

ATTENTION: Legal Public Notice

Enclosed is a Notice on Application No. 7353-3 to Appropriate Water to be published twice. Please publish the first notice on May 30, 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 111<sup>th</sup> St., Lake City SD 57247 (Ph # 201-872-6770).

**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. 7353-3

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

Date \_\_\_\_\_

We are in receipt of your letter of May 18, 2012 enclosing Notice to Appropriate Water by Application No. 7353-3 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](http://denr.sd.gov)

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

May 18, 2012

Boyd Bien  
43475 111<sup>th</sup> St  
Lake City SD 57247

Dear Mr. Bien:

Water Permit Application No. 7353-3 for fish & 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 recommendation of the Chief Engineer and report on the application 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 Notice 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

cc: Thomas Wickstrom, USFWS, 44401 134A St., Waubay SD 57273-5301

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 May 30, 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. 7353-3 to Appropriate Water

Notice is given that Boyd Bien, 43475 111<sup>th</sup> St, Lake City SD 57247 has filed an application for a water permit to impound 54 acre-feet of water from runoff by constructing a dam located in the NW  $\frac{1}{4}$  SE  $\frac{1}{4}$  Section 35 with water impounded in the N  $\frac{1}{2}$  SE  $\frac{1}{4}$  and S  $\frac{1}{2}$  NE  $\frac{1}{4}$  Section 35; all in T127N-R56W. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 7353-3 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 June 18, 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

**JUL 16 2012**

Boyd Bien  
43475 111<sup>th</sup> St  
Lake City SD 57247

Dear Mr. Bien:

Enclosed is Water Permit No. 7353-3 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. 7353-3

I have this day, October 14, 2024, made a thorough examination of the water use system constructed by Boyd Bien, 43475 111st St, Lake City, SD 57247 of Permit No. 7353-3, bearing the priority of April 24, 2012 authorizing the storage of 54 acre-feet of the waters of runoff for fish and wildlife propagation purposes, in Day County.

### D. Compliance with Permit Requirements:

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

### E. Condition and Location:

1. The system is in good condition with the point(s) of diversion located as follows: OUTLET LOCATION From the NW corner Sec 35 T127N R56W, 3150 ft S & 3330 ft E, Lat 45.76726 Long -97.51252 (NW ¼ SE ¼).
2. The works are capable of storing 44 acre-feet of water which is to be used for fish and wildlife propagation.  
The license should be issued for 44 acre-feet of storage.
3. All structures, wells and lands on map N  
If no, describe: The exact location of the very low head outlet dam was difficult to find in the cattails.

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

FSA maps and the ArcGIS program were used to construct the attached map and the estimated wetland area of 22 acres.

It seems reasonable to assume that an average water depth of about 2.0 feet for stored water would result in a total water storage of 44 ac-ft behind a low head 2.0-foot dam.

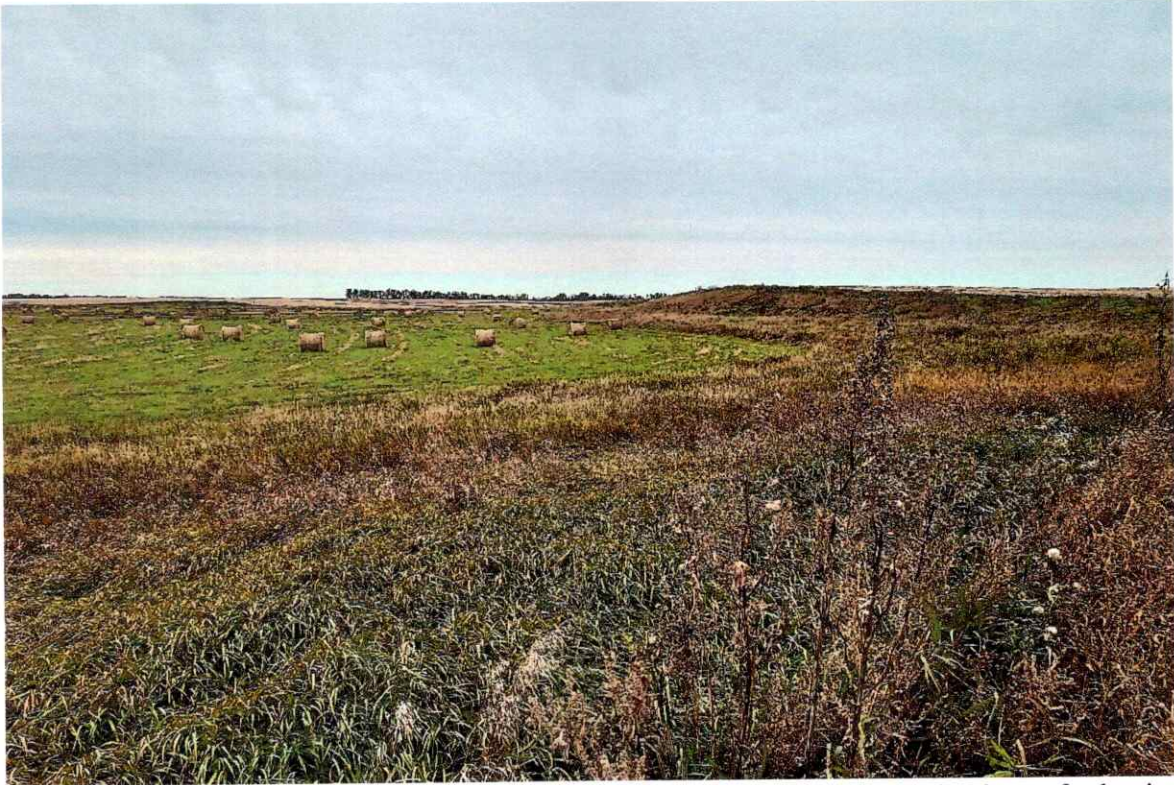
The address in the permit materials is current but the new phone number is 605/237-0385.

I talked to Mr. Boyd Bien during the field visit.



Darrell DeBoer  
Water Rights Inspector  
DENR, Water Rights Program

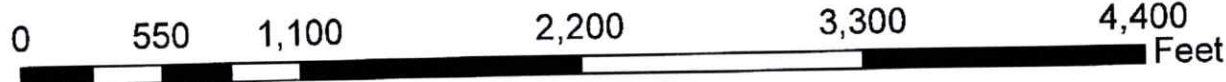
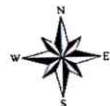
Date report completed: October 15, 2024



Looking southwest from the northeastern part of the wetland. Note, the use of the wetland area for haying purposes.



Looking southwest toward the outlet which is located near the two big round bales on the right side of the photo.





**DEPARTMENT of AGRICULTURE  
and NATURAL RESOURCES**

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

**APR 07 2025**

Boyd Bien  
43475 111<sup>th</sup> St  
Lake City, SD 57247

No. 7353-3

Dear Mr. Bien:

Enclosed is Water License No. 7353-3. 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,

Mark Mayer, PE  
Director of Office of Water  
(605) 773-3352

*enclosures*

**STATE OF SOUTH DAKOTA**  
**WATER LICENSE NO. 7353-3**

---

(1) Boyd Bien, 43475 111<sup>th</sup> St, Lake City, SD 57247, made Application No. 7353-3, April 24, 2012, for a water permit to impound 54 acre-feet of water from runoff in a dam, Marshall County, South Dakota for fish and wildlife propagation purposes. Permit No. 7353-3, with a priority date of April 24, 2012, was approved June 18, 2012, and issued to the applicant for diversion of water with construction of the described water supply system to be completed on or before June 18, 2017, and for the application to beneficial use of water on or before June 18, 2021.

(2) It is certified that the permit holder has complied with the provisions of South Dakota State Law relating to completion of the construction of the water supply system and is entitled to impound 44 acre-feet of water for beneficial use. The location of the dam is:

- 3,150 feet S and 3,330 feet E from the NW corner Section 35, T127N, R56W (NW ¼ SE ¼)  
(Latitude 45.76726 and Longitude -97.51252)

(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.

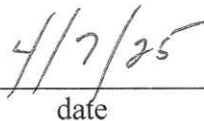
(5) Pursuant to South Dakota Water Law 46-5-30.1 Boyd Bien, the holder and/or owner of Water Right No. 7353-3 is issued a license to appropriate water, the right to impound 44 acre-feet of water from runoff, with a priority date of April 24, 2012, from the location specified in (2) of this license for commercial purposes.

This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Right No. 7353-3 and subject to the following qualifications:

1. Water Permit No. 7353-3 authorizes an impoundment with a storage capacity of 54 acre-feet of water and sufficient water annually to maintain the water level to the outlet elevation. *(The licensed impoundment of water has been reduced to 44 acre-feet based on the system as developed.)*
2. Low floss as needed for downstream domestic use, including livestock water and prior water rights must be by-passed.



Mark Mayer, PE  
Director of Office of Water

  
date