

WATER PERMIT NO. 1897-1

Name of Applicant: **SD School & Public Lands**

Address: **500 E Capitol, Pierre SD**

Phone: **605 773-3303**

Amount of Water Claimed: **86.0 AF**

Total Acres: **NA**

Source of Water Supply: **runoff**

Water to be used for: **fish & wildlife propagation and livestock water**

County: **Butte**

Type of Waste Disposal System:

Location: **35 miles north of Belle Fourche**

PRIORITY

Date Received: **7-29-08**

Application/License Fee: **SNA**

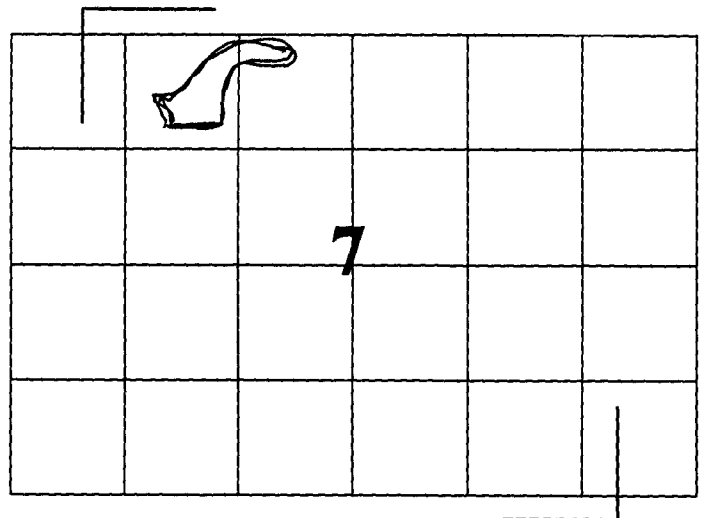
Corrected Application Received:

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

Remarks: **Repair and increase the storage capacity of existing dam**

Diversion Point: **NW ¼ NW ¼ Sec 7-T14N-R4E**

Water Impounded: **N ½ NW ¼ Sec 7-T14N-R4^E**



Depth of Well: **NA**

Well Driller:

Remarks:

Type of Map: **aerial**

Prepared by: **Mike Cornelison, SD SPL**

Reviewed and the Number Assigned on: **7-29-08**

By: **Karen Schlaak**

Notice of Hearing - date to intervene: _____

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

Mail to: Water Rights Program Joe Foss Building 523 E. Capitol Pierre, SD 57501-3181 (605) 773-3352	No. <u>1897-1</u>	(office use only) Hydrologic Unit <u>10130304</u>
	Basin <u>Moreau River</u>	
	Newspaper <u>Belle Fourche Post</u>	<u>P.O. Box 400</u>
	<u>605-892-2528 (Wed.)</u>	<u>52217</u>

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JUL 29 2008
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 <u>livestock</u>	

Type of Application: ☒ New ☐ Vested Right (Use predates Mar 2, 1955) ☐ Future Use Reservation
(check one) ☐ 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 Office of School and Public Lands Phone 605-773-3303
(check one) ☒ Owner ☐ Tenant/lessee
Mailing Address 500 East Capitol, Pierre State SD 57501
(Street, RR, or Box and City) (Zip Code)

2. Amount of water claimed _____ *CFS or **GPM 86.0 ***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 surface

4. Location of point of diversion (example - 3 wells in SW1/4 NE1/4 section 12-T104N-R53W) One dam in NW1/4 NW1/4 section 7-T14N-R4E

County Butte

5. County or counties where water will be used Butte

6. Annual period during which water is to be used January 1-December 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)

An existing dam with a dry draw Location Notice for the storage of 17.2 ac/ft is being repaired. Water has breached the dam and eroded a gully in the dam face. The repaired pond will serve as a source of livestock water and provide habitat for wildlife. See attached engineering specifications for dam.

STATE OF SOUTH DAKOTA)
County of Hughes SS

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

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

Applicant's signature Mike Cornelison

Subscribed and sworn to before me this 29 day of July 20 08

BRENDA ANDERSON, Notary Public
My Commission Expires
October 26, 2010

Brenda Anderson
Notary Public signature

**SOUTH DAKOTA
WATER PERMIT NO. 1897-1**

Date of first receipt of application July 29, 2008.

The Chief Engineer, on behalf of the Water Management Board, issues Water Permit No. 1897-1 to South Dakota Office of School and Public Lands, 500 E Capitol, Pierre SD 57501 authorizing the construction of the dam and the placing of water to beneficial use subject to the following limitations, conditions and qualifications:

1. Water Permit No. 1897-1 authorizes impoundment of 86 acre-feet of water from runoff by reconstructing a dam located in the NW 1/4 NW 1/4 Section 7 with water impounded in the N 1/2 NW 1/4 Section 7; all in T14N-R4E.
2. The water appropriated shall be used for the purpose of fish and wildlife propagation and livestock water purposes 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. 1897-1 is September 15, 2008.
5. The date from which applicant may claim right is July 29, 2008.
6. One-fifth of the construction is to be completed on or before March 15, 2011.
7. All construction is to be completed on or before September 15, 2013.
8. Water is to be put to beneficial use on or before September 15, 2017.
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. 1897-1 authorizes a dam with a storage capacity of 86.0 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.

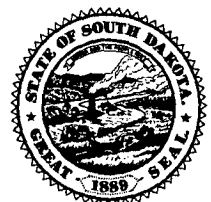
WATER MANAGEMENT BOARD

By: Garland Erbele

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

SEP 17 2008

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 applicants 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.

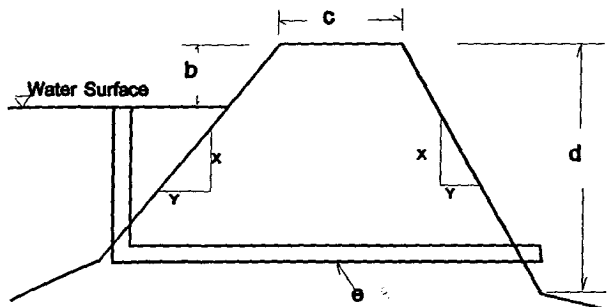
- a) If a private engineering firm or government agency was involved in the design of this dam, please give their name and address:

Tom Verhelst
USDA Natural Resource Conservation
Service
1837 5th Ave.
Belle Fourche, SD 57717

- b) Freeboard 4.6 ft
- c) Crest Width 14 ft
Crest Length 700 ft
- d) Height 17 ft

- e) Primary Outlet Capacity 40.6 cfs
If pipe, diameter 21 inches
- f) Secondary Spillway Capacity 388 cfs
Spillway Width 80 ft
- g) X & Y Slope _____
Upstream 3:1
Downstream 3:1

- h) Surface Area of Impoundment 18 acres
- i) Storage 86 Acre Feet
- j) Drainage Area Above Dam 652 Acres



School and Public Lands Dam Repair
NW1/4, NW1/4 of Sec. 7, T14N, R4W
Butte County, SD

10/31/07
Kimble



Legend

- Section Boundaries
- Dam Repair Location



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WATER RIGHTS
PROGRAM

Theresa L. Hays
7-29-2008

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CONSTRUCTION SPECIFICATIONS

for

DAM REPAIR - 378 Class a
JOHNNY JOHNSON
SEC 7, T14N-R4E

Prepared by:

USDA-NATURAL RESOURCES CONSERVATION SERVICE

Assisting:

BUTTE Conservation District

PARTICIPANT RESPONSIBILITIES

PARTICIPANT <i>Johnny Johnson</i>	County <i>Butte</i>		
PRACTICE <i>Dam Repair</i>			
LEGAL DESCRIPTION	Sec. <i>7</i>	T <i>14N</i>	R <i>4E</i>
GPS			

GENERAL: Policies and regulations of USDA assistance programs place responsibility on the participant for obtaining adequate real property rights and interests, applicable water rights, and necessary approvals, easements, licenses and permits. The participant must also meet requirements for installation, inspection, and operation and maintenance.

For copies of South Dakota Laws, see Internet at: <http://www.state.sd.us/state/legis/lrc/statutes/lrcmenu.htm>.

1. CULTURAL/HISTORICAL RESOURCES

An NRCS approved cultural/historical evaluation **must** be made of the contracted and/or technically assisted (earth disturbing) practices **prior** to construction. If construction activities expose cultural/historical resources, human remains (bones), or similar objects, the participant and/or contractor **must** immediately stop construction and notify NRCS. Any further construction without clearance **could jeopardize assistance** (cost-share/technical) and may be a **violation of state or federal law**.

2. WATER RIGHTS, CONSTRUCTION PERMIT, AND LOCATION NOTICE

South Dakota Codified Law 46-5 requires securing a permit from the **South Dakota Chief Engineer** before construction work begins for any development involving storage or use of water. Small user exceptions are explained on the Internet. Forms and information is available on the Internet at: <http://www.state.sd.us/denr/DES/WaterRights/waterprg.htm>.

Compliance with all requirements of South Dakota water laws is necessary to avoid possible penalties and/or loss of your rights. Forms, signed map, fees and other pertinent information for filing a **South Dakota Water Right** application should be submitted to: **DENR Water Rights Program, Joe Foss Building, 523 East Capitol, Pierre SD 57501-3181 (Phone 605 773 3352)**.

South Dakota Codified Law 46-4 requires the filing of a **Location Notice** for small nonnavigable stream and dry draw dams. **South Dakota Codified Law 46A-10A** regulates **drainage**, in South Dakota, generally through **County Drainage Commissions**.

Administrative Rules (Dam Safety, etc..) - see Internet at:

http://www.state.sd.us/denr/DES/WaterRights/WR_laws.htm.

Other Laws may also apply. The participant is responsible for obtaining all necessary rights and permits, including but not limited to easements, rights-of-way, zoning approval, permits to construct, etc. required by any applicable level of government.

3. PROPERTY RIGHTS (INCLUDING WETLAND EASEMENTS)

The participant is responsible, financially and otherwise, for any costs incurred by the failure to obtain adequate and necessary real property rights and interests, easements, subordination agreements, permits, and/or licenses required for the installation. Participants are cautioned to be sure the area to be affected is either not covered by a **wetland easement** or a written agreement is reached with the easement owner. Property rights documents should be recorded for your future protection.

4. CLEAN WATER ACT

Clean Water Act Section 10 or 404 permits from the **US Army Corps of Engineers** are required where proposed construction will involve dredging or filling a wetland, or stream. Information may be obtained by contacting : **US Army Corps of Engineers, South Dakota Regulatory Office, 28563 Powerhouse Road, Room 120, Pierre SD 57501, (Phone 605 224 8531)**. Forms are available on the internet at: <http://www.usace.army.mil/inet/usace-docs/forms/formlib-all/e4345.pdf>.

National Pollutant Discharge Elimination System (NPDES) permits or approval from the **South Dakota Department of Environment and Natural Resources (DENR)** may be needed where discharge of polluted water or wastewater (ag waste etc.) to waters of the state (including wetlands) may occur or have occurred. In addition, a **Storm Water Permit** is needed for any **construction** disturbance of over one acre. Information is available by telephone at **605 773 3351** or on the Internet at: <http://www.state.sd.us/denr/DES/Surfacewater/surface.htm>

SEEDING (SD-28) CONSTRUCTION SPECIFICATION

1. Scope

The work shall consist of furnishing all labor, equipment, and materials needed for seeding the areas shown on the drawings.

2. General

Seeding and related operations shall be performed in the following time period.

Dates:

As soon as construction is completed

3. Fertilizer

Fertilizer shall be uniformly applied commercial liquid or dry fertilizer conforming to South Dakota laws and regulations. Fertilizer shall be supplied and applied as follows.

Types and rates:

N/A

4. Seed

Seed requirements and seeding rates are listed below. Documentation must be provided showing the seed meets current South Dakota laws and regulations. The seed must be planted within one year of its latest germination test.

Intermediate Wheatgrass - 10 # PLS/Ac

Western Wheatgrass - 12.5 # PLS/Ac

5. Seedbed Preparation

The area to be seeded shall be made reasonably smooth and firm. Ditches shall be filled to conform to design lines and grades before seedbed preparation is begun. Prior to seeding, required fertilizer shall be applied and mixed with the soil surface to a depth of three inches. The contractor shall suspend operations when the soil is too wet.

6. Cover and/or Nurse Crops

When specified, cover and/or nurse crops shall be seeded as follows:

NA

7. Sowing Seed

Except as otherwise specified, seeding shall be performed immediately after seedbed preparation. Seeding shall be drilled or broadcast and incorporated in a manner that will achieve uniform distribution of seed placed at appropriate soil depth.

When seeding waterways or similar water flow areas, machinery operations must be performed in a direction that is not parallel to water flow (use figure 8, serpentine, etc.).

8. Mulching

Except as otherwise specified, required mulching must be performed as soon as possible after seeding. Mulch shall be applied uniformly as follows.

NA



TL - 6750'

641-4314 J. Johnson

Stage	EL.	PA	Storage
6.0		0	
5.0		9.2	(.4) 18.4 ac-ft
12.0		16.5 ac	(.4) 79.2 ac-ft
15.0			(.4)
20.0		67.0 ac	(.3) 402.0 ac-ft

Client: Johnny Johnson
 County: BUTTE
 Practice: Dam
 Calculated By: TVH
 Checked By: _____

State: SD

Date: 11/13/2006

Date: _____

Drainage Area: 652 Acres (provided from RCN Calculator)
 Curve Number: 80 (provided from RCN Calculator)
 Watershed Length: 6750 Feet
 Watershed Slope: 3.5 Percent
 Time of Concentration: 1.30 Hours (calculated value)
 Rainfall Type: II

Storm Number	1	2	3	4	5	6	7
Frequency (yrs)	1	2	5	10	25	50	100
24-Hr rainfall (in)	1.50	1.60	2.20	2.50	3.10	3.40	3.80
Ia/P Ratio	0.33	0.31	0.23	0.20	0.16	0.15	0.13
Used	0.33	0.31	0.23	0.20	0.16	0.15	0.13
Runoff (in)	0.29	0.34	0.69	0.89	1.33	1.56	1.88
(ac-ft)	15.76	18.47	37.49	48.36	72.26	84.76	102.15
Unit Peak Discharge (cfs/acre/in)	0.360	0.376	0.417	0.429	0.445	0.452	0.458
Peak Discharge (cfs)	67	82	187	248	385	459	561

$$\begin{array}{r} 93.5 \\ 82.2 \\ \hline 11.3' \end{array}$$

$$\begin{array}{r} 100 \\ 82.2 \\ \hline 17.8' \end{array}$$

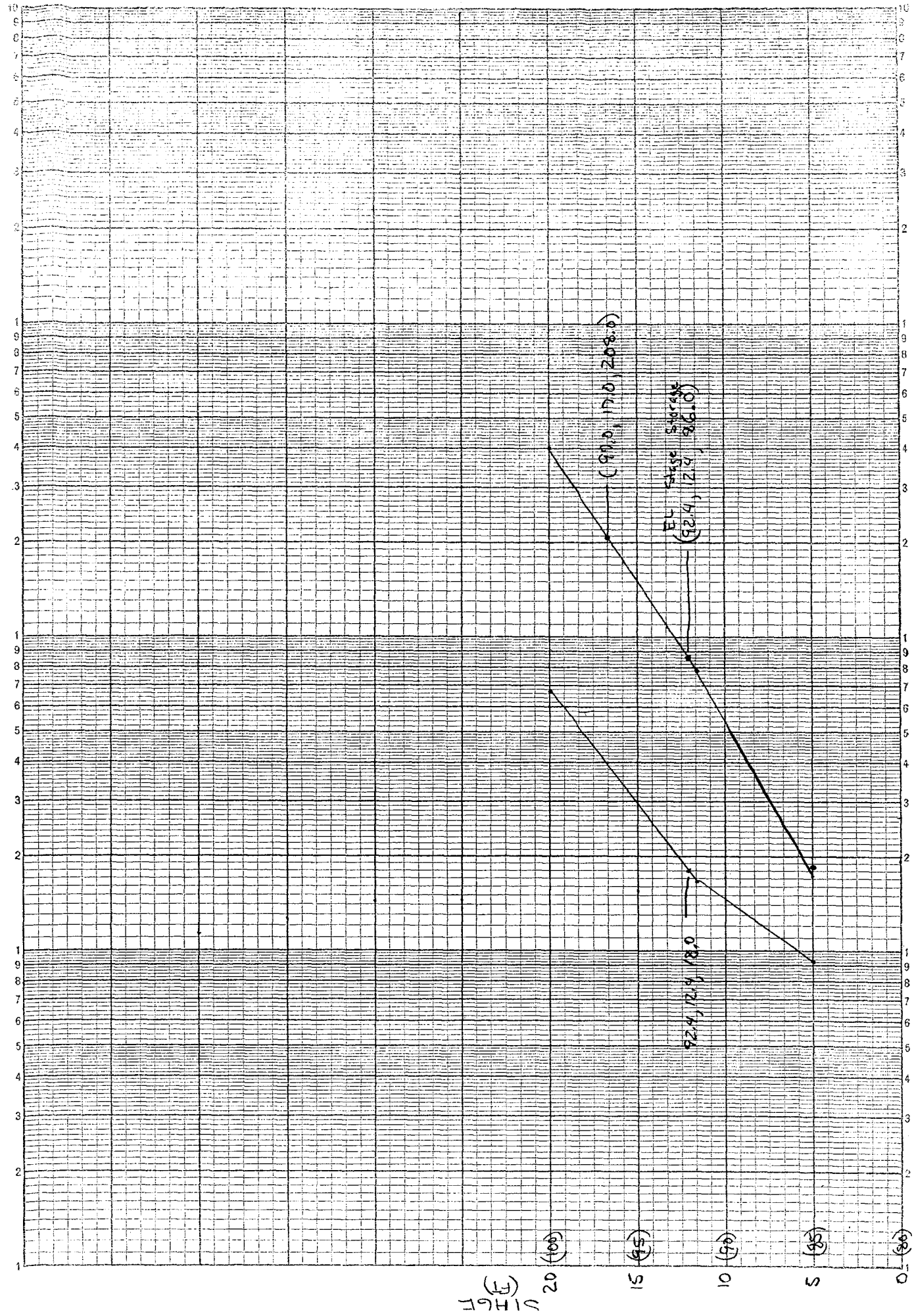
$$Q = a \sqrt{\frac{2gh}{1 + K_n + K_p L}}$$

$$Q_{(11.3)} = (2.982) \sqrt{\frac{64.4 (11.3)}{1 + 1 + (0.0616) 80}} = 50.95 \text{ cfs} \quad Q_{(17.8)} = 63.9$$

Curve number Computation

Client: Johnny Johnson
County: BUTTE State: SD
Practice: Dam
Calculated By: TVH Date: 11/13/2006
Checked By: _____ Date: _____

COVER DESCRIPTION	Acres (CN)			
	Hydrologic Soil Group			
	A	B	C	D
OTHER AGRICULTURAL LANDS Pasture, grassland or range good	-	-	-	652(80)
Total Area (by Hydrologic Soil Group)				652
TOTAL DRAINAGE AREA: 652 Acres		WEIGHTED CURVE NUMBER: 80		



STORAGE (Ac-Ft)

VOLUME (Ft³)

EARTHWORK COMPUTATION SHEET
(For Tables 4 & 5, Engineering Handbook, Appendix 1)

Plan/Job No.

Date _____

Calculations by _____ Checked by _____ Notes _____

Checked by

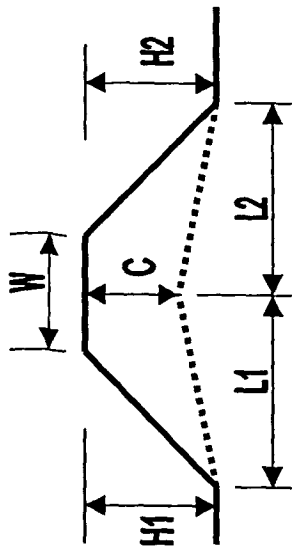
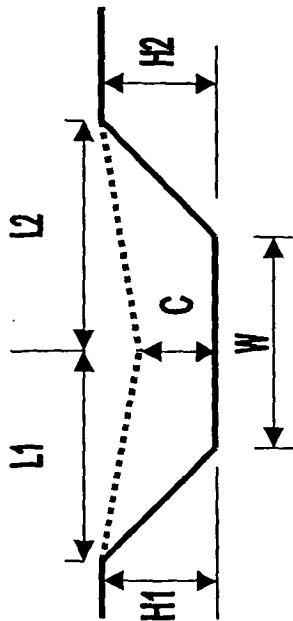
Notes

[illegible]

Divide total of Column 8 by 54 to obtain cubic yards =

Column 8 total =

FILL - CLASS EARTHWORK COMPUTATION SHEET (for Three Level Section)



Owner/Operator _____

Plan/Job _____

Comps by _____

Date _____

Checker _____

Date _____

1 Sta., feet	2 C/2 feet	3 L1 + L2 feet	4 Product of Columns (2)(3) =	5 W/4 feet	6 H1 + H2 feet	7 Product of Columns (5)(6) =	8 End Area Col. Sum (4)+(7) =	9 Sum of End Areas +	10 Distance Between Stations X	11 Product of Columns (9)(10) =
0+90	✓						0			
2+00	✓						122.23	122.23	110	12,223
3+00	✓						193.6	315.83	100	31,583
3+90	0						208.38	401.98	100	40,198
4+00	0						763	971.38	34	33,026.9
4+24	0						709.47	1472.77	10	14,727.7
4+34	✓						207.4	916.87	51	46,760.37
4+85	✓						72.0	279.4	92	25,704.8
5+39	✓						62.31	134.31	94	12,625.14
6+33	✓						63.93	126.24	100	12,624
7+33	✓						63.93	127.86	48	6,137.28
7+81	✓						63.93			
Cu. Yd. = Col 11 Total / 54 =								184,231.43		

7+92

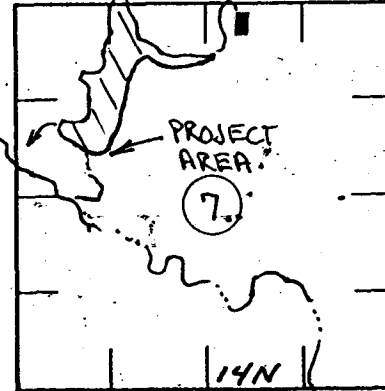
0

25560.19
÷ 54
4363.1
1.05
775013 CV

3.44 H. 51 yd³
x 1.05
3.58002 yd³

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.
652	16.3	385	388	12.4	18.0	10.8	86.0

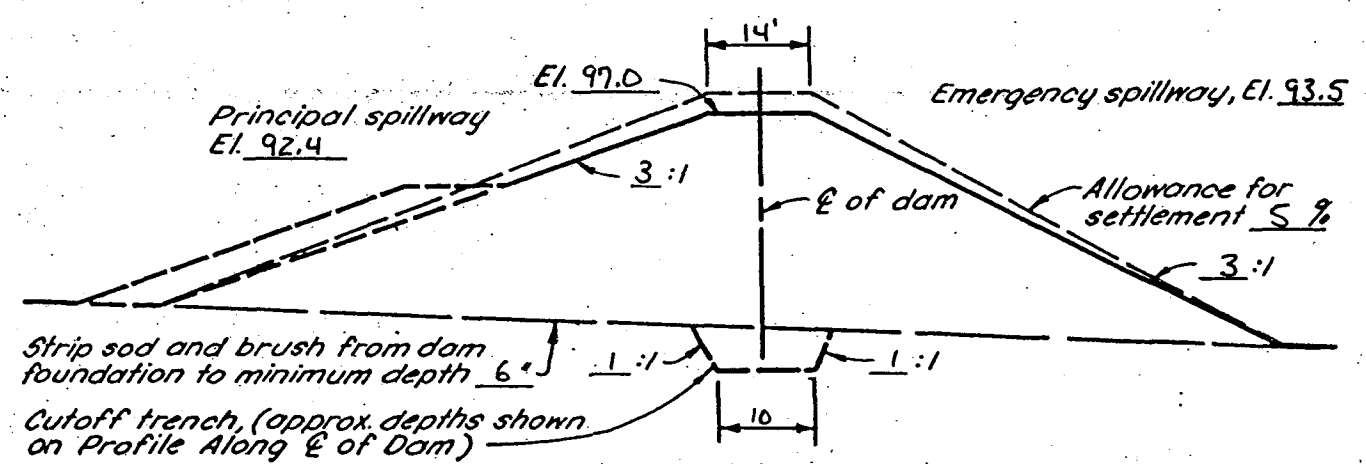
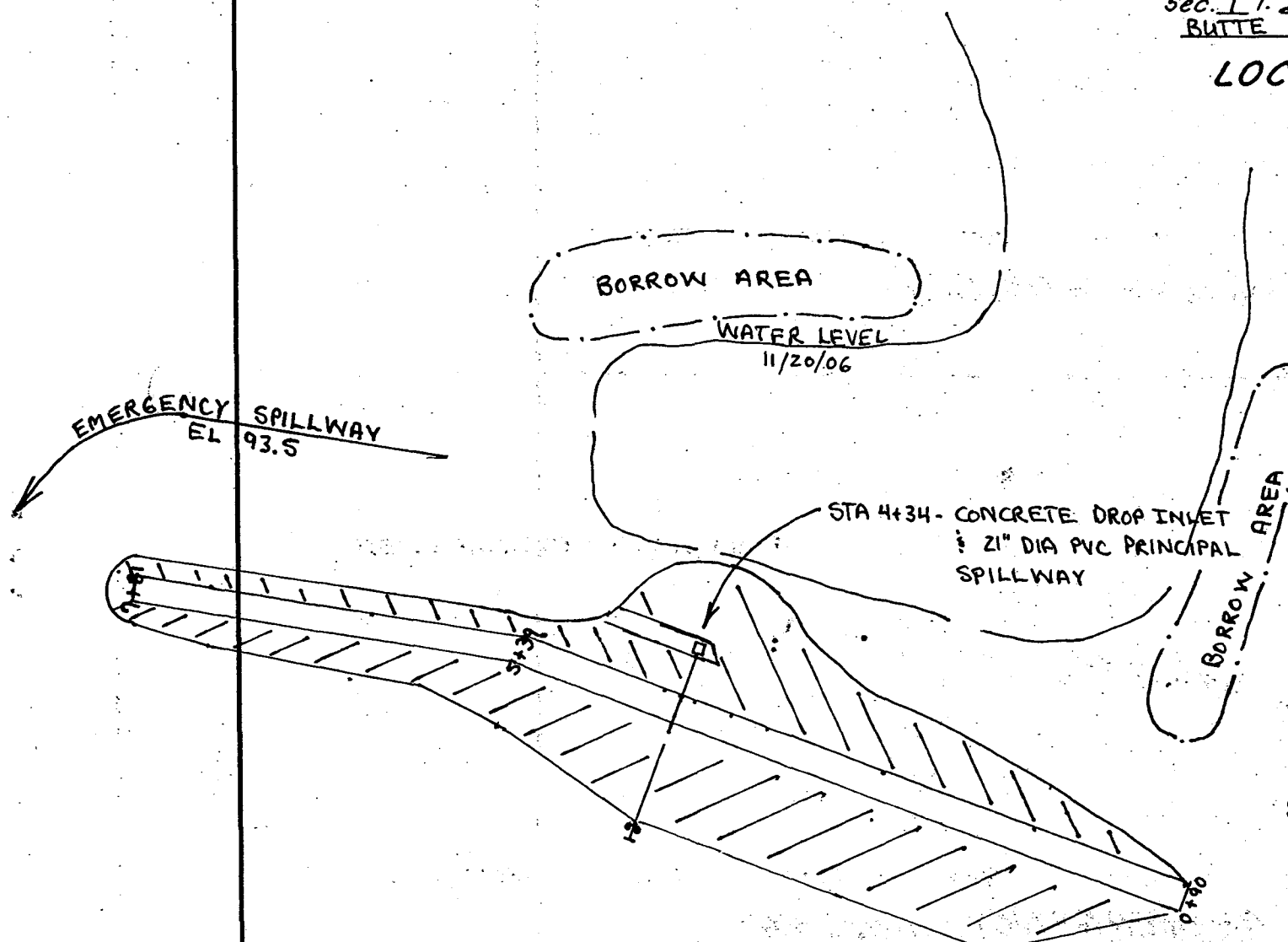


Sec. 7 T. 14N R. 4E
BUTTE County

LOCATION

TABLE OF QUANTITIES

ITEM	UNIT	QUANTITY
EARTH FILL - CLASS S	CY	4581
EARTH FILL - CLASS A	CY	50
STRIPPING	CY	363
TOPSOIL	CY	750
SEEDING	AC	2.0
CONCRETE DROP INLET - 2.5CY - (PER DETAIL)	EA	1
TRASH RACK - (PER DETAIL)	EA	1
SAND ANTISEEP COLLAR - (PER DETAIL)	EA	1
TIMBER PIPE SUPPORT - (PER DETAIL)	EA	1
21" DIA - 160 PSI PVC PIPE	LF	85



TYPICAL CROSS SECTION OF DAM

S.D. CONSTRUCTION AND MATERIAL SPECIFICATIONS:

- CONCRETE (CLASS 3500) SD-12A
- EARTH FILL - CLASS A SD-7A
- EARTH FILL - CLASS S SD-7S
- STEEL REINFORCEMENT SD-13
- STRIPPING SD-4
- SALVAGING & SPREADING TOPSOIL SD-10

EARTH DAM

OPERATOR: JOHNNY JOHNSON
CONSERVATION DISTRICT: BUTTE

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

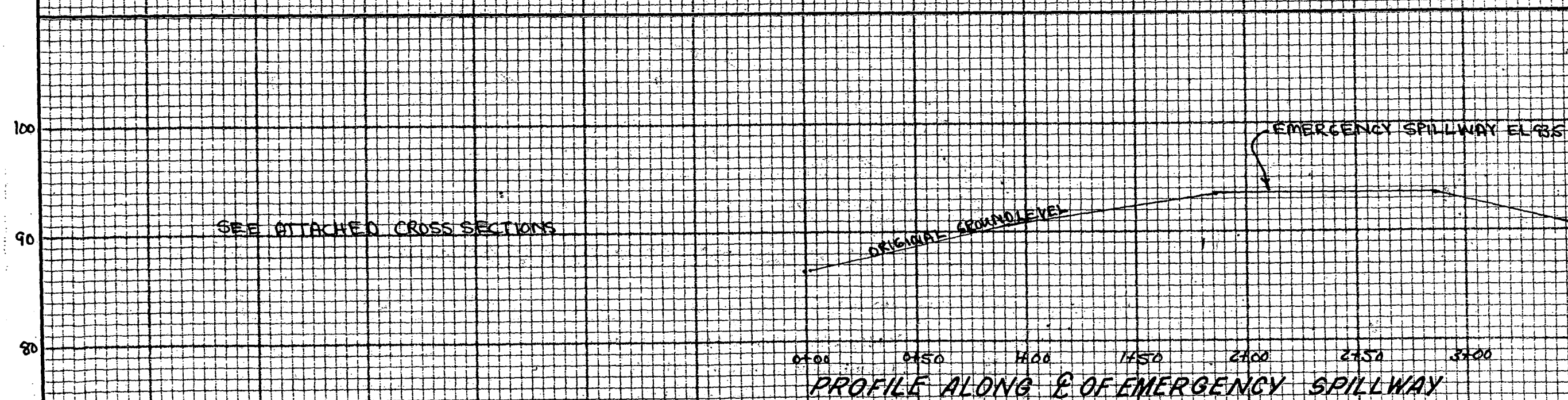
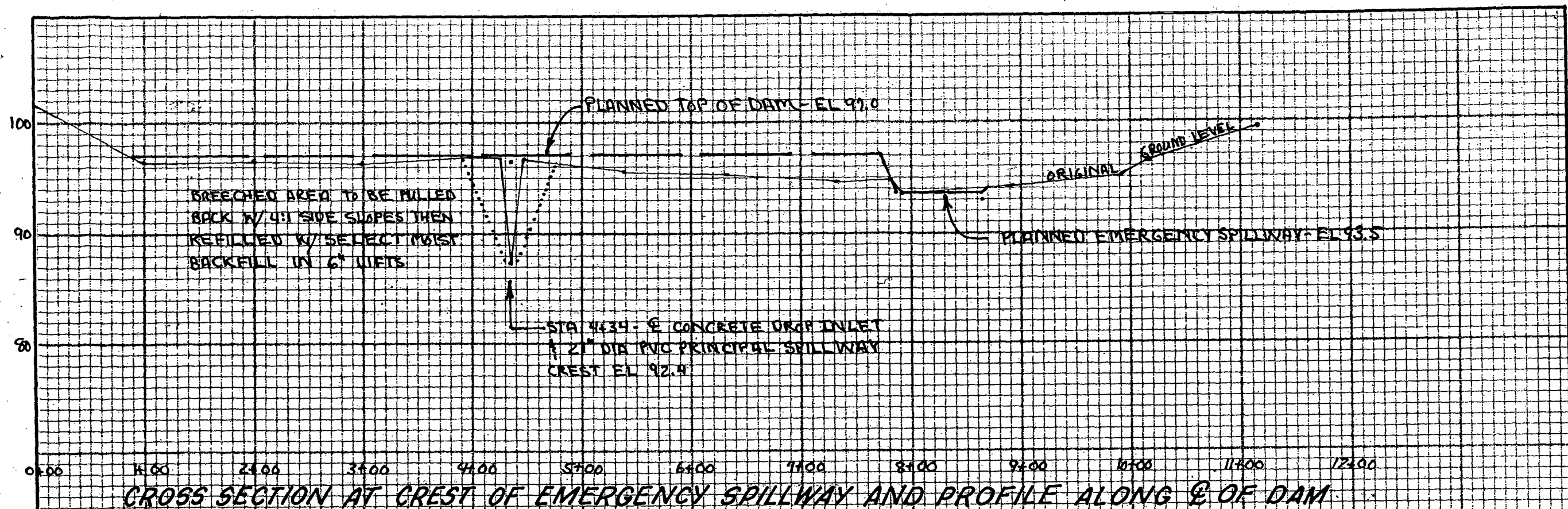
Designed: Tom Ver Helst Date: 6/07
Drawn: Tom Ver Helst Date: 6/07
Traced: _____
Checked: _____
Approved by: Thomas D. Helst
Title: Ag. Engineer
Sheet: _____ of _____
Drawing No. _____

SKETCH PLAN OF DAM AND RESERVOIR AREA

Approximate scale 1" = 100'

REFERENCE: GUIDE PLAN NO. 1.0

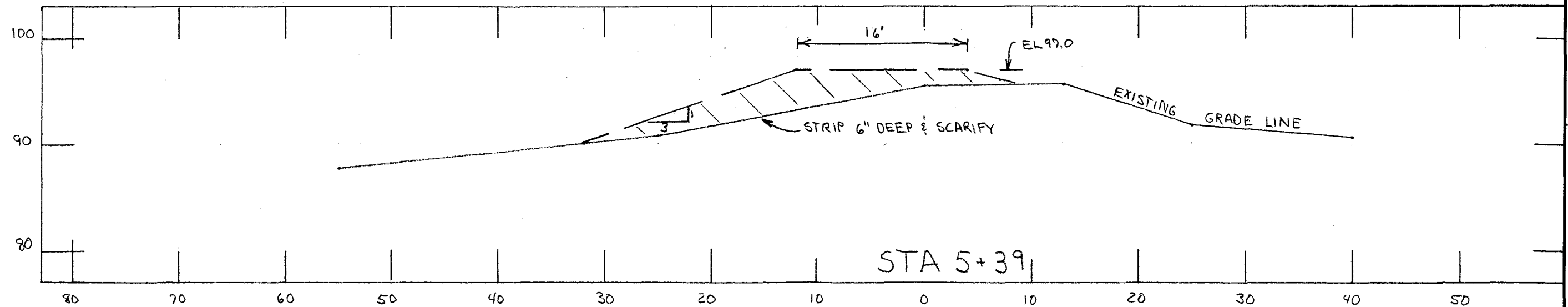
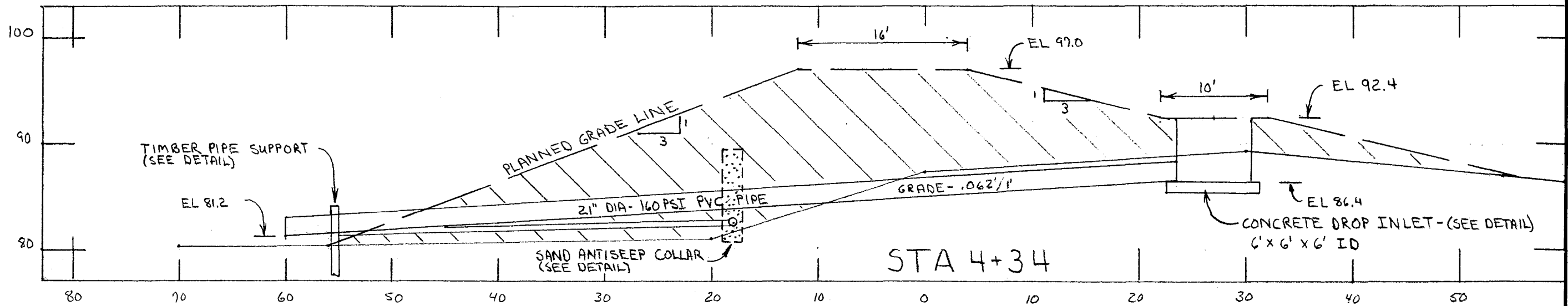
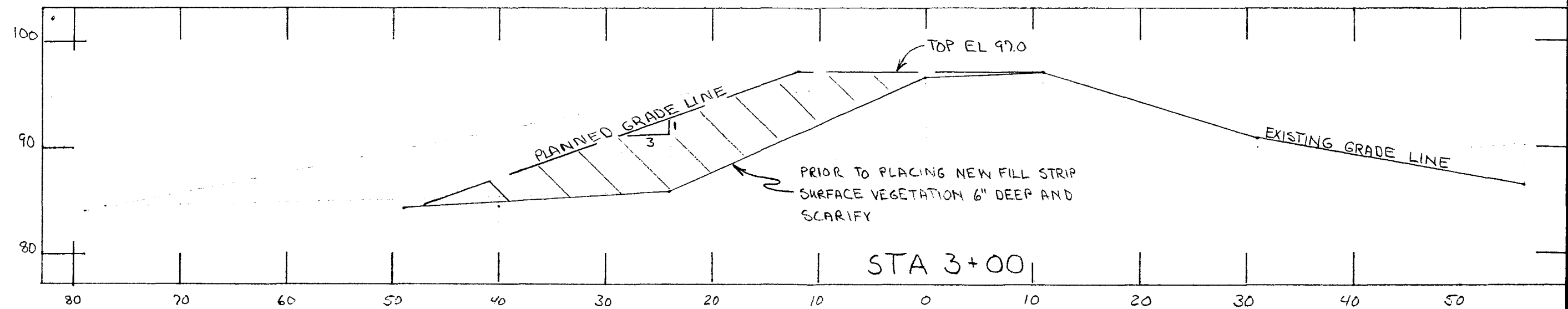
JOB PLAN NO. 1.0



MAXIMUM CROSS SECTION OF DAM

SEDIMENT YIELD

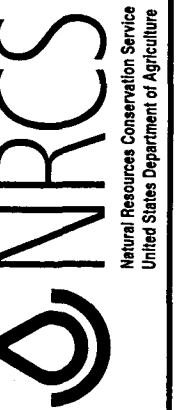
ERODIBILITY AREA ACRES	GROSS RATE A.F./AC./YR.	DRAINAGE AREA ACRES	DELIVERY RATE %	DESIGN PERIOD YEARS	REQ'D. SEDIMENT VOLUME AC.FT.
652	.003	652	22	25	10.8



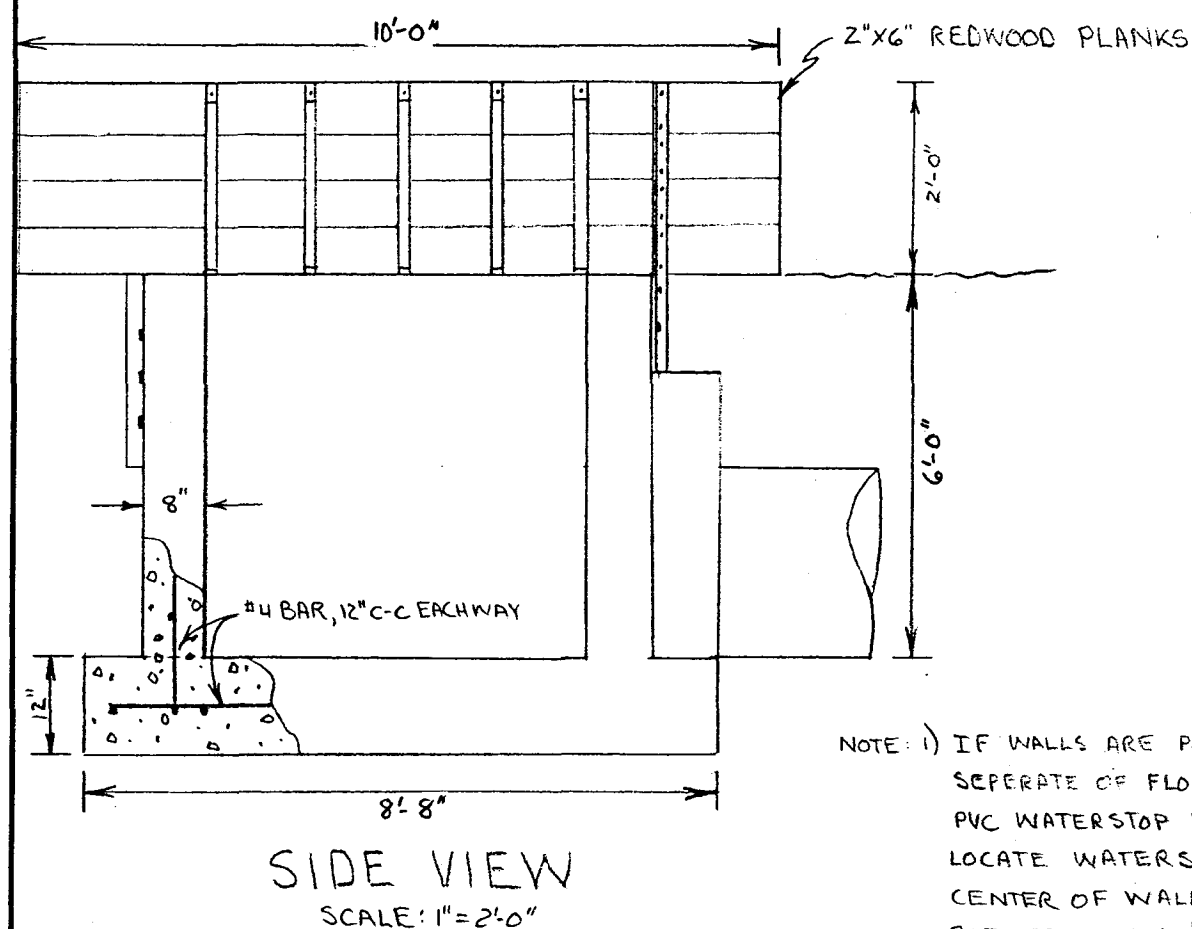
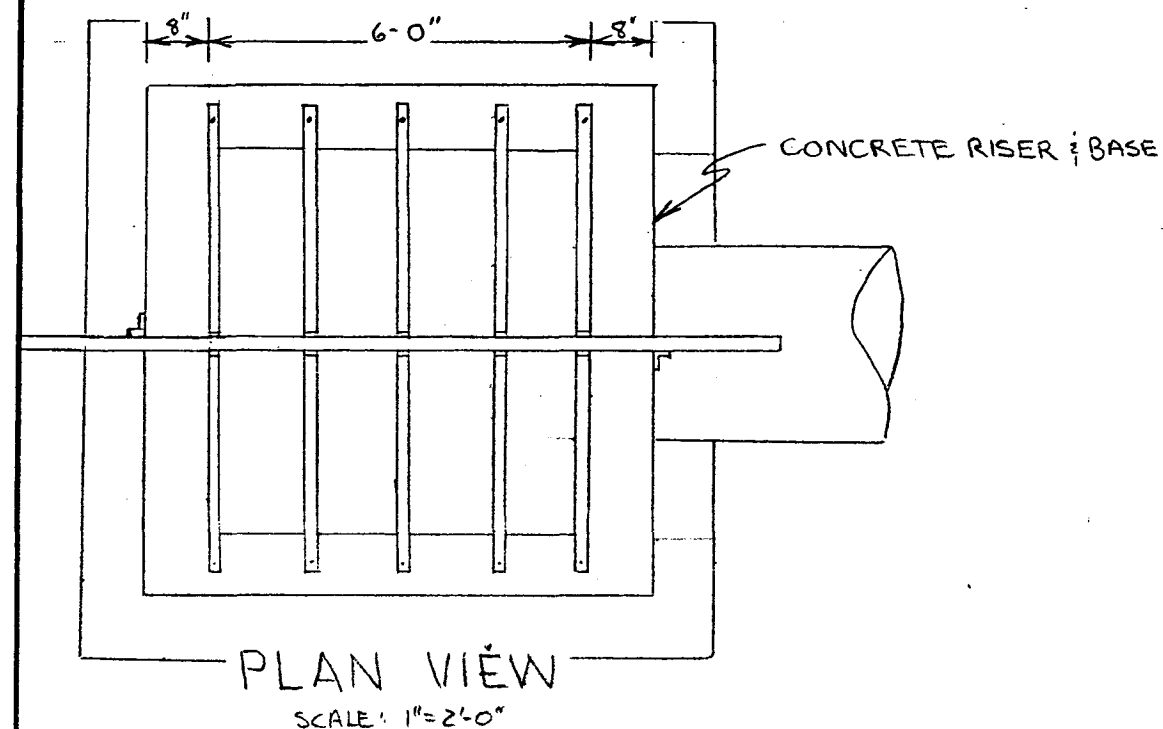
TYPICAL CROSS-SECTIONS

Date 6/07
 Designed T. Ver Helst
 Drawn T. Ver Helst
 Checked
 Approved

DAM REPAIR
 JOHNNY JOHNSON
 SEC 2, TIAN-BHE ROUTE CO.



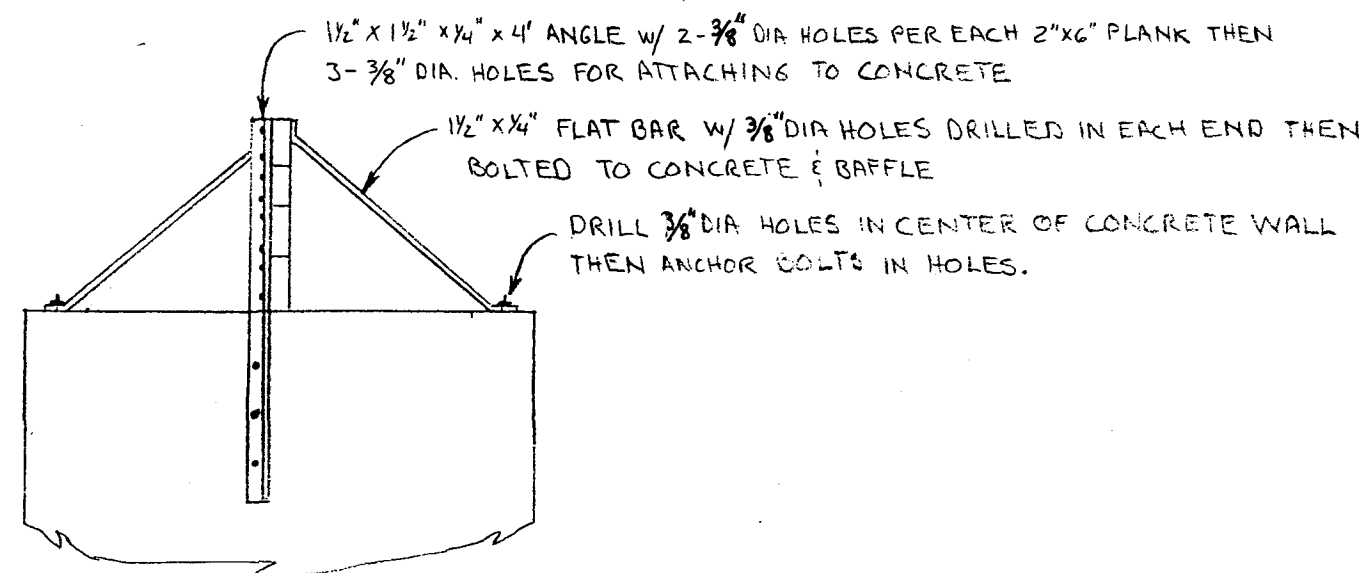
File Name
 Drawing Name
 Sheet of



NOTE: 1) IF WALLS ARE POURED SEPARATE OF FLOOR, A 6" WIDE PVC WATERSTOP IS REQUIRED. LOCATE WATERSTOP IN THE CENTER OF WALL AT JOINT BETWEEN WALL & FLOOR.

TABLE OF QUANTITIES

ITEM No	ITEM	UNIT	QUANTITY
1	CONCRETE - REINFORCED	CY	2.5
2	2" x 6" REDWOOD PLANK	LF	40
3	1 1/2" x 1 1/2" x 1/4" ANGLE	LF	8
4	1 1/2" x 1/4" FLAT BAR	LF	48
5	3/8" x 3" BOLT	EA	6
6	1/4" x 3" BOLT	EA	10
7	1/4" x 2 1/2" BOLT	EA	21

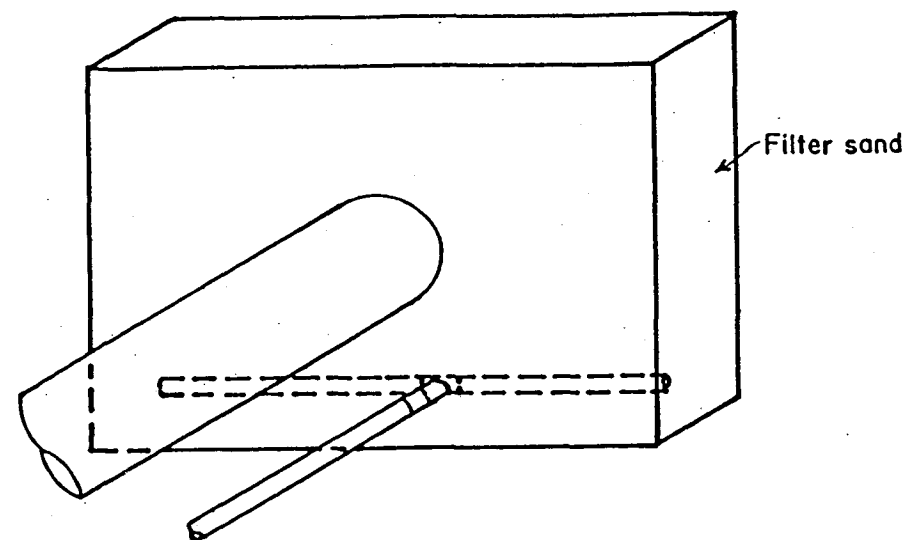


SOUTH DAKOTA CONSTRUCTION
& MATERIAL SPECIFICATIONS
SD-12B CONCRETE FOR MINOR STRUCTURE
SD-13 STEEL REINFORCEMENT

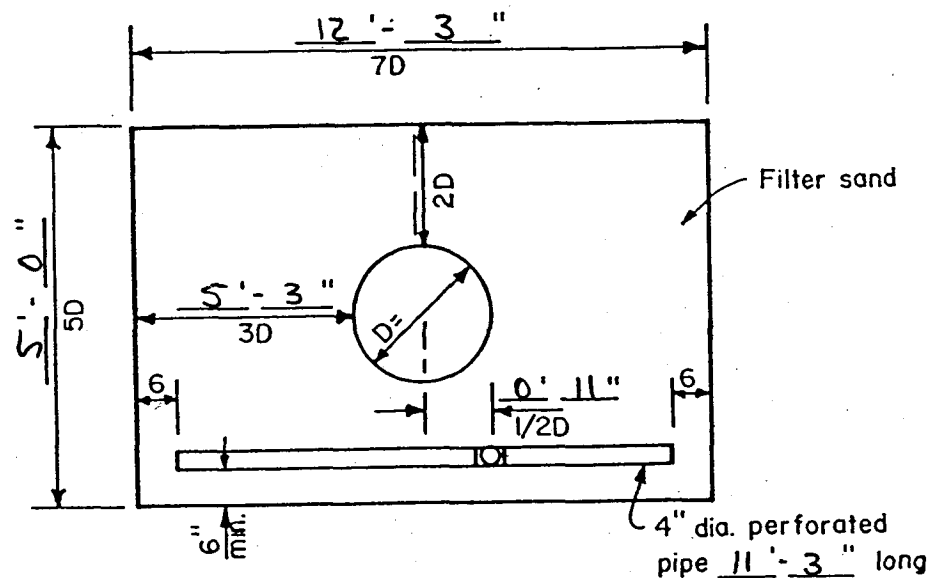
DROP INLET DETAIL

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed J. Ver Helst Date 6/67 Approved by David D. Ver Helst
Title Ag Engineer
Drawn _____
Traced _____
Checked _____
Sheet _____
No _____
of _____
Drawing No. _____



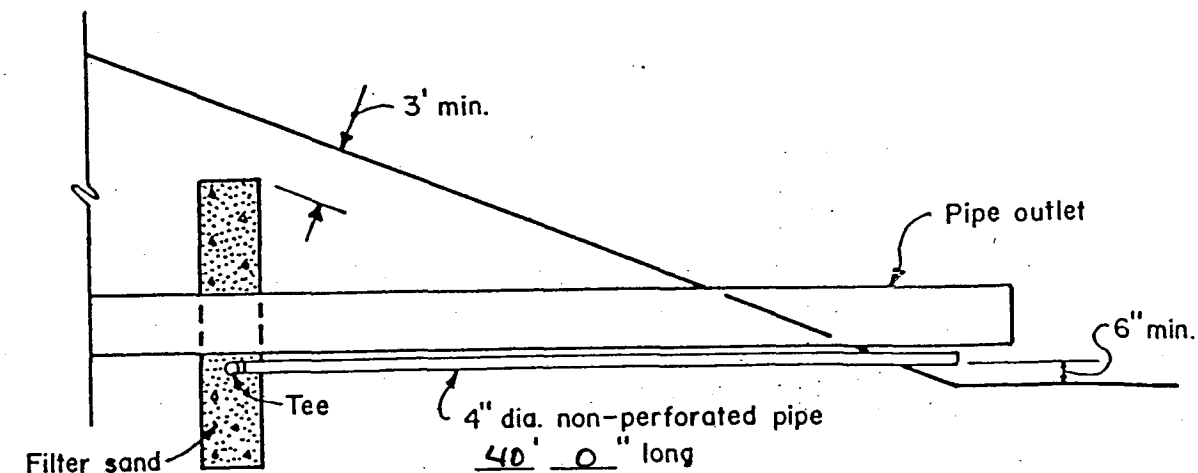
ISOMETRIC VIEW



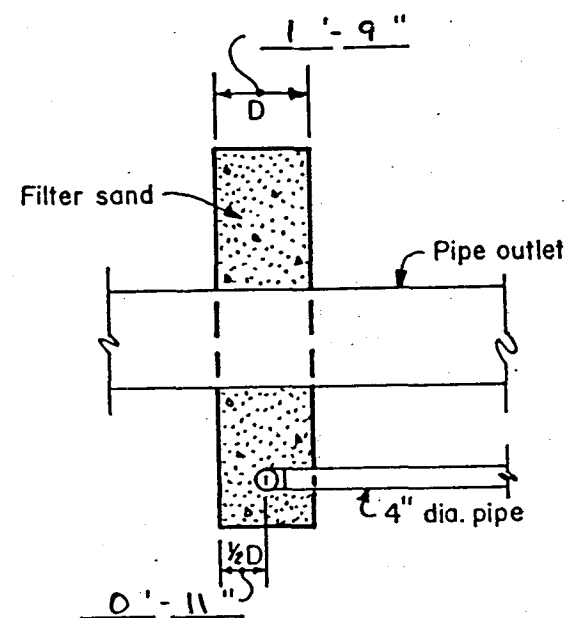
UPSTREAM VIEW

NOTE:

1. THE 4" DIA. PIPE SHALL BE ASTM D1785, SCHEDULE 40, PVC.
2. PROVIDE AN ANIMAL GUARD ON DRAIN OUTLET PIPE. DRILL 2, 1/2" DIA. HOLES, ON $\frac{1}{2}$ 6" FROM END OF PIPE AND PLACE A 3/8" DIA., 5 1/2" LONG GALVANIZED STEEL BOLT THRU THEM AND SECURE WITH A NUT (PLACE BOLT HORIZONTAL).



OUTLET DETAIL



SIDE VIEW

FILTER GRADATION

SIEVE SIZE	PERCENT PASSING
3/8"	100
4	95-100
8	80-100
16	50-85
30	25-60
50	10-30
100	2-10

Sec. 7, T. 14N, R. 4E

BUTTE County
LOCATION

SAND ANTISEEP COLLAR

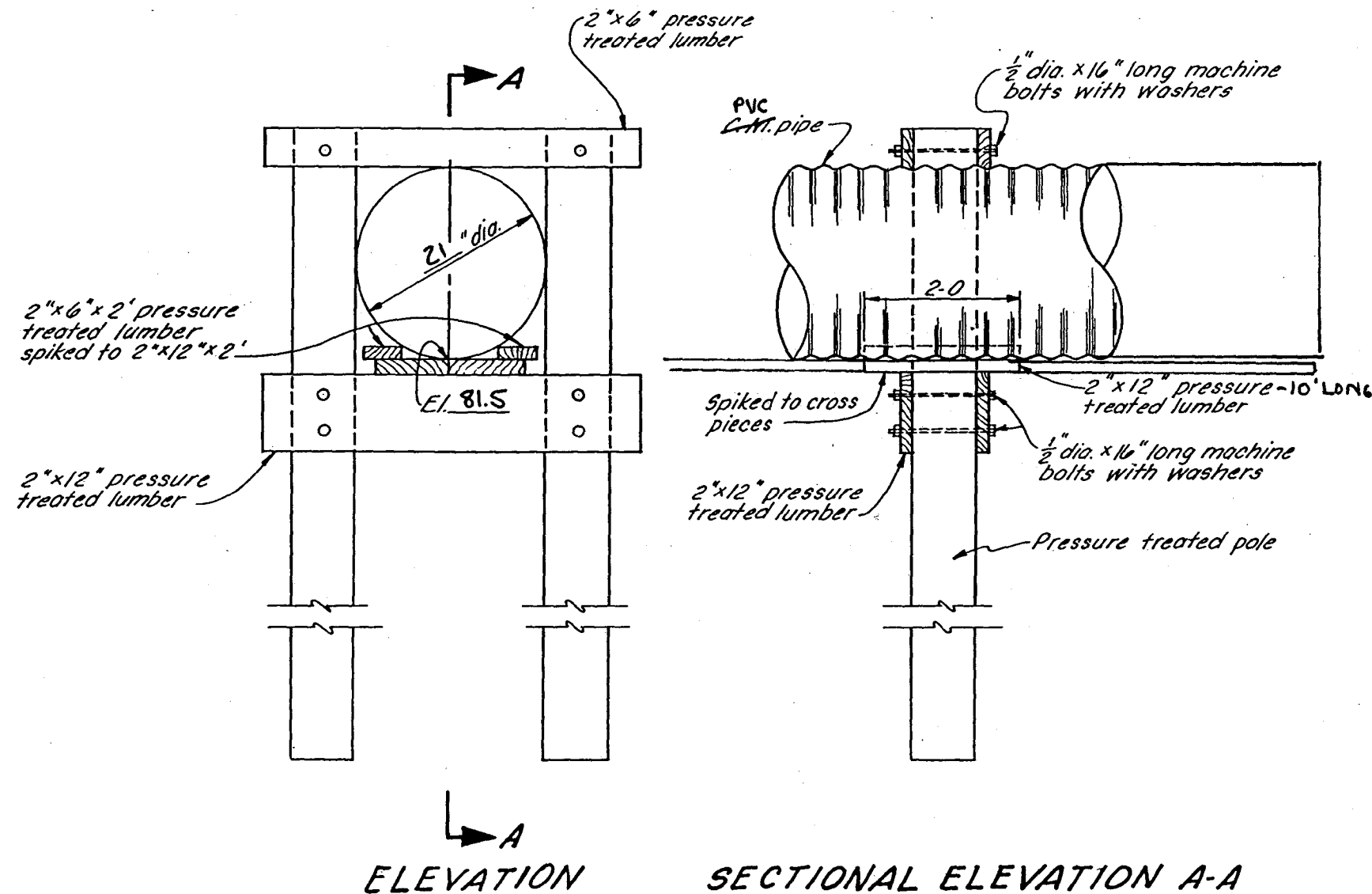
OPERATOR JOHNNY JOHNSON

CONSERVATION DISTRICT _____

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed T. Ver Helst Date 6/67 Approved by _____
Title _____
Drawn _____ Title _____
Traced _____ Sheet _____ Drawing No. _____
Checked _____ of _____

JOB PLAN NO. 3.8



NOTES:

1. HAND OR MACHINE TAMP BACKFILL THOROUGHLY AROUND FOOTINGS AND COLUMNS.

TABLE OF QUANTITIES

ITEM	LENGTH FOR 21" DIA. PVC C.M. PIPE	UNIT	QUANTITY
PRESSURE TREATED POLE 10" DIA.	10'-0"	EACH	2
2" X 12" PRESSURE TREATED LUMBER	4'-0"	EACH	2
2" X 6" PRESSURE TREATED LUMBER	4'-0"	EACH	2
2" X 12" PRESSURE TREATED LUMBER	10'-0"	EACH	2
2" X 6" PRESSURE TREATED LUMBER	2'-0"	EACH	2
1/2" DIA. MACHINE BOLTS WITH NUTS	1'-4"	EACH	6
1/2" DIA. WASHERS		EACH	20

REFERENCE: GUIDE PLAN NO. 4.0

JOB PLAN NO. 4.0

TIMBER PIPE SUPPORT

OPERATOR: JOHNNY JOHNSON

CONSERVATION DISTRICT: BUTTE

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed <u>T. Ver Helst</u>	Date <u>6/67</u>	Approved by _____
Drawn _____		Title _____
Traced _____		Title _____
Checked _____		Sheet No. _____
		Drawing No. _____

5, N-29,073.4a

1*****

 SITES XEQ 06/12/2007 WATER RESOURCE SITE ANALYSIS COMPUTER PROGRAM
 VER 2005.1.00 (USER MANUAL - DATED DECEMBER 2005)
 TIME 10:05:47

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

SITES	01/01/20051	Johnny Johnson	1.01875	
H5				
SAVMOV	0 101			
SAVMOV	101 1			1
*	Principal spillway routed with a 5yr 24hr storm			
*	Auxillary spillway routed with a 25yr 24hr storm			
STRUCTURE	Johnny Johnson			
	80		0	
	85		18.4	
	92		79.2	
	92.4		86.0	
	93.5		120.0	
	100		402	
ENDTABLE				
WSDATA	5A11 AC 80	652	6750	3.5
BASEFLOW	0			
PDIRECT	2.2		3.10	
POOLDATA	ELEV 92.4	92.4	81	80.2
SC				
PSINLET	1	24		
PSDATA	1 80	21	.009	82.0
ASDATA	41 300 186	3		.06 2
ASINSURF	41	.03		
ASINLET	41 0.0	0.0	100	0.0 3
	194	2.8	286	7.1
ENDTABLE				
ASEXSURF	41	.03		
		.65	0	
		3		
		2	0	
		.02		
ENDTABLE				
ASEXIT	41 N			300
BTMWIDTH	FEET 80			
GRAPHICS	I			
GO,DESIGN	HL TYPE2 24	TYPE2378	24	
SAVMOV	2 101 1			
ENDJOB				

RECEIVED
JUL 29 2008

***** WATER RIGHTS PROGRAM *****

1SITES XEQ 06/12/2007 ----- COMMENT PAGE

 VER 2005.1.00 Johnny Johnson WSID
 = 1

Principal spillway routed with a 5yr 24hr storm

Auxillary spillway routed with a 25yr 24hr storm

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WATER RIGHTS
PROGRAM

***** MESSAGE - ALTERNATE STRUCTURE ID (S 1) 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 06/12/2007 Johnny Johnson WSID=
1
VER 2005.1.00 Johnny Johnson
SUBW= 1
TIME 10:05:47 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
2.20	0.00	0.00	3.10
WSDATA - CN	DA-SM	TC/L	-/H
QRF			
80.00	1.02	6750.00	3.50
0.00			
SITEDATA- PERM POOL	CREST PS	FP SED	VALLEY FL
378?			
92.40	92.40	0.00	80.20
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	80.00	21.00	0.00
PS N	KE	WEIR L	TW EL
0.009	1.00	24.00	82.00
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
AUX.DATA - REF.NO.	RETARD. Ci	TIE STATION	INLET LENGTH
41	0.00	300.00	186

AUX.DATA - INLET N SIDE SLOPE EXIT N EXIT SLOPE
ACTUAL AUX? 0.030 3.00 0.030 0.060
NO

BTM WIDTH - BW1 BW2 BW3 BW4
BW5
ft 80.00 0.00 0.00 0.00
0.00

AUXILIARY SPILLWAY RATING DEVELOPED USING WSPVRT.

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PROGRAM

1SITES

-
XEQ 06/12/2007 Johnny Johnson WSID=
1
VER 2005.1.00 Johnny Johnson
SUBW= 1
TIME 10:05:47 SITE = S 1 PASS= 1 PART=
2

PERM POOL	92.40 FT	86.0 ACFT	0.00 AC	0.0 CFS
CREST PS	92.40 FT	86.0 ACFT	0.00 AC	0.0 CFS
SED ACCUM	92.40 FT	86.0 ACFT	0.00 AC	0.0 CFS
START ELEV	92.40 FT	86.0 ACFT	0.00 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= 2.20 IN Q= 0.69 IN DA=
1.02 SM
TC= 1.30 HR CN= 80.00 VOL= 37.4 ACFT
PEAK = 186.3 CFS, AT 12.9 HRS.

ROUTED RESULT - HYD TYPE EMAX VOL-MAX AMAX
QMAX NRCS-PSH 93.40 FT 116.9 ACFT 0.00 AC
40.5 CFS

PS STORAGE 30.9 ACFT, BETWEEN AUX. CREST AND SED. ACCUM
ELEVATIONS.

DRAWDOWN (DDT) TEST 92.40 FT 86.0 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

DRAWDOWN TIME = 5.41 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

RATING TABLE DEVELOPED, SITE = S 1:

BY PROGRAM FOR PS AND AUX. SPILLWAYS
AUX. RATING USED WSPVRT METHOD.

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PROGRAM

RATING TABLE NUMBER 1

	ELEV. FEET	Q-TOTAL CFS	Q-PS CFS	Q-AUX. CFS	VOLUME AC-FT	AREA ACRE
1	92.40	0.00	0.00	0.00	86.00	0.00
2	92.57	5.00	5.00	0.00	91.11	0.00
3	92.73	14.14	14.14	0.00	96.22	0.00
4	92.90	25.97	25.97	0.00	101.32	0.00
FULL CONDUIT FLOW, ELEV =						
93.06 FT						
5	93.06	39.98	39.98	0.00	106.43	0.00
6	93.93	41.57	41.57	0.00	138.58	0.00
7	94.80	43.06	43.06	0.00	176.22	0.00
8	95.66	44.49	44.49	0.00	213.85	0.00
9	96.53	45.88	45.88	0.00	251.48	0.00
10	97.40	47.23	47.23	0.00	289.11	0.00
11	98.27	48.54	48.54	0.00	326.74	0.00
12	99.13	49.82	49.82	0.00	364.37	0.00
13	100.00	51.07	51.07	0.00	402.00	0.00

1SITES

-
XEQ 06/12/2007 Johnny Johnson WSID=
1
VER 2005.1.00 Johnny Johnson
SUBW= 1
TIME 10:05:47 SITE = S 1 PASS= 1 PART=
3

AUX. CREST 93.40 FT 116.9 ACFT 0.00 AC 40.5 CFS

PS STORAGE 30.9 ACFT, BETWEEN AUX. CREST AND SED. ACCUM
ELEVATIONS.

START ELEV 92.40 FT 86.0 ACFT 0.00 AC 0.0 CFS

EFFECTIVE HEIGHT(H)= 12.4 FEET, PRODUCT= 1450. (H * STORAGE AT
CREST AUX.).

INPUT DESIGN CLASS = A1 = LT 3000. PRODUCT.

NRCS-FBH D= 24.00 HR P= 3.10 IN Q= 1.33 IN DA=
1.02 SM

TC= 1.30 HR CN= 80.00 VOL= 72.0 ACFT

PEAK = 384.0 CFS, AT 12.8 HRS.

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

RECEIVED
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PROGRAM

RATING TABLE NUMBER 2

	ELEV. FEET	Q-TOTAL CFS	Q-PS CFS	Q-AUX. CFS	VOLUME AC-FT	AREA ACRE
1	92.40	0.00	0.00	0.00	86.00	0.00
2	92.57	5.00	5.00	0.00	91.11	0.00
3	92.73	14.14	14.14	0.00	96.22	0.00
4	92.90	25.97	25.97	0.00	101.32	0.00

FULL CONDUIT FLOW, ELEV =

93.06 FT

5	93.06	39.98	39.98	0.00	106.43	0.00
6	93.10	40.11	40.11	0.00	107.74	0.00
7	93.15	40.19	40.19	0.00	109.05	0.00
8	93.19	40.26	40.26	0.00	110.36	0.00
9	93.23	40.34	40.34	0.00	111.67	0.00
10	93.27	40.41	40.41	0.00	112.98	0.00
11	93.32	40.49	40.49	0.00	114.29	0.00
12	93.36	40.57	40.57	0.00	115.60	0.00
13	93.40	40.64	40.64	0.00	116.91	0.00
14	93.73	60.02	41.23	18.80	129.98	0.00
15	94.06	105.42	41.80	63.62	144.30	0.00
16	94.65	260.97	42.82	218.15	170.07	0.00
17	95.38	543.61	44.03	499.58	201.56	0.00
18	96.70	1324.40	46.15	1278.25	258.83	0.00
19	98.35	2616.23	48.67	2567.56	330.42	0.00
20	100.00	4275.62	51.07	4224.55	402.00	0.00

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH LOCATION	FROM STA	TO STA	SLOPE (%)	RETARDANCE CURVE	VEGETAL COVER	MAINT. CODE	ROOTING DEPTH	REACH
	(ft)	(ft)		INDEX@	FACTOR		(ft)	*
1	114.	200.	-3.0	0.030	**	**	**	INLET
2	200.	300.	0.0	0.030	**	**	**	CREST
3	300.	600.	6.0	0.030	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
93.40 FT.

DRAWDOWN (DDT) TEST 92.40 FT 86.0 ACFT 0.00 CFS
CONTROL IS 0.000 DETENTION STORAGE

DRAWDOWN TIME = 3.96 DAYS, TO 0.0 CFS (LIMIT = 10.00 DAYS)

ROUTED AUX.	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.-HP	VOL-
RESULTS	FT	FT	ACFT	AC	FT	ACFT
NRCS-FBH	80.0	93.64	125.9	0.0	0.24	
9.0						

^^^^ NOTE -- ACTUAL Hp OF 0.24 RAISED TO MEET MIN. 378 CRITERIA.

PEAK - CFS	Q-PS	Q-AUX.	Q-TOT.
DISCHARGE =	41.1	13.0	54.0

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-Sc	25% OF Q Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.09	1.73	0.029	0.039

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EROSIONALLY EFFECTIVE STRESS FOR STABILITY ANALYSIS OF AUX.
EXIT CHANNEL
(Refer to Ag. Handbook 667, Chapt. 3, for allowable stresses.)
Aux. Spillway Discharge = 13. cfs; Bottom Width =
80. ft

EFFECTIVE STRESS	REACH NO.	FROM STA	TO STA	SLOPE %	MANNING'S n	VELOCITY ft/s	TOTAL
							STRESS
							lb/ft^2
1b/ft^2	3	300.	600.	6.00	0.030	2.15	0.28
0.171							

AUXILIARY SPILLWAY DURATION FLOW =	8.3 HOURS
ATTACK, OE/B =	0.1 ACFT/FT

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

EXIT CHANNEL FLOW SUPERCRITICAL: MAX VELOCITY=	2.2 FT/SEC
EXIT SLOPE =	0.060 FT/FT
FLOW DEPTH =	0.1 FT

>>>> NHCP378 RUN - MINIMUM FLOW IN AUX. SPILLWAY FROM TR60
USING FORMULA WITHOUT 200 CFS MINIMUM LIMIT (239.
CFS).

ROUTED AUX.	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.-HP	VOL-
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MIN. AUX.	80.0	94.71	172.4	0.0	1.31	
55.5						

^^^^ NOTE -- ACTUAL Hp OF 1.31 RAISED TO MEET MIN. 378 CRITERIA.

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PEAK - CFS Q-PS Q-AUX. Q-TOT.
DISCHARGE = 42.9 239.2 282.1

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-Sc	25% OF Q Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	0.65	4.51	0.015	0.021

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

NEW TOP OF DAM ELEVATION = 95.40.

ROUTED AUX.	BTM WIDTH	MAX ELEV	VOL-MAX	AREA-MAX	AUX.HP	VOL-
RESULTS	FT	FT	ACFT	AC	FT	ACFT
MINIMUM AUX.	80.0	95.40	202.4	0.0	2.00	
85.5						

PEAK - CFS Q-PS Q-AUX. Q-TOT.
DISCHARGES = 44.1 511.4 555.4

	CRITICAL DEPTH	CRITICAL VELOCITY	CRITICAL SLOPE-Sc	25% OF Q Sc
AUXILIARY	FT	FT/SEC	FT/FT	FT/FT
SPILLWAY ---	1.07	5.75	0.013	0.018

Inflow Hyd 1 PSH-Peak = 34.95 CFS at 15.15 hrs., Location
Point

Inflow Hyd 1 FBH-Peak = 54.02 CFS at 15.51 hrs., Location
Point
HYDOUT 1

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

1 Johnny Johnson

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

RECEIVED

JUL 29 2008

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PROGRAM

1
2005.1.00

SUMMARY TABLE 1

SITES VERSION

01/01/2005

DATED

WATERSHED ID
RUN TIME

RUN DATE

1
10:05:47

06/12/2007

>>>		SITE	SUBWS	SUBWS DA	CURVE	TC	TOTAL DA	TYPE	STRUC
<<<		ID	ID	(SQ MI)	NO.	(HRS)	(SQ MI)	DESIGN	CLASS
S	1	1	1.02	80.	1.30	1.02	378CR	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	21.0	93.4	80.0	2.0	95.4	0.	0.	2.2	

* 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 2005.1.00 ,01/01/2005
1 FILES

INPUT = H:\Sites\JJohnson1\Johnson21ps80es.D2C
OUTPUT = H:\Sites\JJohnson1\Johnson21ps80es.OUT
DATED 06/12/2007 10:05:47

GRAPHICS FILES GENERATED

OPTION "L" = H:\Sites\JJohnson1\Johnson21ps80es.DRG DATED 06/12/2007
10:05:47

OPTION "P" = H:\Sites\JJohnson1\Johnson21ps80es.DHY DATED 06/12/2007
10:05:47

OPTION "E" = H:\Sites\JJohnson1\Johnson21ps80es.DEM DATED 06/12/2007
10:05:47

Water Permit Application No. 1897-1
SD School & Public Lands

Top of Dam Elev. - 97
2nd Spillway Elev. - 93.5
P. Spillway Elev. - 92.4
D/S Emb Toe Elev. - 80

Cat. 3 - Low Hazard Dam

- Ht. = 17 ft.

Normal Storage Capacity - 86 A.-ft
Int. Storage Capacity - 120
Max. Storage Capacity - 208

Int. Capacity x Eff. Ht. = $120 \times 12.4 = 1488 < 3000 \therefore 25 \text{ yr}$
Minimum Spillway Design

From USGS WRI 98-4055 "Tech. for Est. Flows ... in SD"
Region C $DA = 652 A_c = 1.02 \text{ mi}^2$

$$Q_{25} = 207 C A^{.573}$$

$$= 207 (1.02)^{.573}$$

$$= 207 (1.0114)$$

$$= \underline{210 \text{ cfs}}$$

$$Q_{100} = 379 C A^{.566}$$

$$= 379 (1.02)^{.566}$$

$$= 379 (1.0113)$$

$$= \underline{383 \text{ cfs}}$$

Secondary Spillway Flow

$$Q = CLH^{3/2}$$

$C = 2.6$
 $L = 80$
 $H = 3.5$

$$= 2.6 (80) (3.5)^{1.5}$$

$$= \underline{1362 \text{ cfs}}$$

Section 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 Routing - OK
7. Spillway Details - OK
8. Spec. Stk. NRCS - OK
9. EPP - N/A Cat. 3 - OK

NRCS Annual Yield

$ISO = 1 \quad CN = 80 \quad DA = 652$

80% chance = 0.11
 $0.11 \times 654^{1/2} = \underline{6 \text{ A.-ft}}$

50% chance = 0.30
 $0.30 \times 654^{1/2} = \underline{16 \text{ A.-ft}}$

10% chance = 1.5
 $1.5 \times 654^{1/2} = \underline{82 \text{ A.-ft}}$



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 19, 2008

Mike Cornelison
SD Office of School & Public Lands
500 E. Capitol
Pierre, SD 57501

Dear Mr. Cornelison:

We have reviewed the plans and specifications for your dam repair project located in the NW ¼ NW ¼ of Sec. 7-T14N-R4E, in Butte County. The plans and specifications for your project are 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 Johnny Johnson Dam will be classified as a small size Category 3, Low Hazard dam with a dam height of 17 feet and a normal storage capacity of 86 acre-feet and a maximum storage capacity of 208 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: Tom Ver Helst, NRCS, Belle Fourche
David Kimble, GF&P, Rapid City



**DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES**

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

**RECOMMENDATION OF CHIEF ENGINEER FOR WATER PERMIT
APPLICATION NO. 1897-1, SD Office of School & Public Lands**

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. 1897-1, SD Office of School & Public Lands, c/o Mike Cornelison, 500 E. Capitol Avenue, Pierre SD 57501.

The Chief Engineer is recommending APPROVAL of Application No. 1897-1 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. 1897-1 authorizes a dam with a storage capacity of 86.0 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
August 18, 2008

REPORT ON
WATER PERMIT APPLICATION NO. 1897-1
SD Office of School & Public Lands
August 4, 2008

Water Permit Application No. 1897-1 has been filed by the SD Office of School & Public Lands to impound 86 acre-feet of water from runoff by reconstructing an existing dam located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 7-T14N-R4E, in Butte County. The application also requests impoundment of sufficient water to maintain water to the outlet elevation. The water will be used for fish and wildlife production and livestock water purposes. In 1966, Location Notice No. 37284 was filed for the dam with a storage capacity of 17.2 acre-feet.

Discussion:

The dam will be classified as a small size, Category 3, Low Hazard dam. The dam has been designed by the Natural Resources Conservation Service. The plans and specifications have been reviewed and will be approved; however, reconstruction of the dam can not begin until Water Permit Application No. 1897-1 is approved.

The reconstructed dam will be 17 feet high with a normal storage capacity of 86 acre-feet with a reservoir level at the primary spillway elevation, and a maximum storage capacity of 208 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 652 acres or 1.02 square miles. The dam is designed to have a 6 ft square concrete riser with a 21 inch diameter PVC barrel with 4.6 feet of freeboard as the primary spillway, and an 80 foot wide earthcut secondary spillway with 3.5 feet of freeboard. A 25 year frequency event produces a peak runoff of approximately 210 cfs and a 100 year frequency event produces a peak runoff of approximately 383 cfs. The earthcut spillway will have a capacity of approximately 1360 cfs.

The annual yield for this drainage area with an 80 percent chance of occurrence, or 8 out of 10 years, is expected to be 6.0 acre-feet. The annual yield with a 50 percent chance of occurrence, or 1 out of 2 years, is expected to be 16.0 acre-feet and the annual yield with a 10 percent chance, or 1 out of 10 years, is expected to be 82 acre-feet.

The Johnny Johnson Dam will be located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ of Section 7-T14N-R4E on an unnamed tributary to the South Fork of the Moreau River, about 500 feet upstream of the confluence of the unnamed tributary and the South Fork Moreau River. There are no existing Water Permits/Rights filed on the unnamed tributary between the proposed dam and the South Fork Moreau River.

Conclusions:

1. Water Permit Application No. 1897-1 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. 1897-1.



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

AFFIDAVIT OF PUBLICATION

RECEIVED

STATE OF SOUTH DAKOTA
COUNTY OF BUTTE

SEP 10 2008

WATER RIGHTS
PROGRAM

Pam Capp, being duly sworn, says: That the *Belle Fourche Post* or *Belle Fourche Bee* is, and during all times hereafter mentioned, was a legal newspaper as defined in SDCL 17-2-2, as amended, published at Belle Fourche, Butte County, South Dakota, by Lee Enterprises; that affidavit is and, during all of said times, was employed as an Office Manager by the publisher of such newspaper and has personal knowledge of the facts stated in the affidavit; that the notice, order or advertisement, a printed copy of which is attached, was published in said newspaper for successive issues, bearing the following dates:

<u>August 27</u>	<u>200 8</u>	<u>200</u>
<u>September 3</u>	<u>200 8</u>	<u>200</u>
<u>200</u>	<u>200</u>	<u>200</u>
<u>200</u>	<u>200</u>	<u>200</u>
<u>200</u>	<u>200</u>	<u>200</u>

that the full amount of the fee charged for publishing the same, to-wit, the sum of \$ - 0 -, insures solely to the benefit of the publisher of said newspaper: that no agreement or understanding for the division of the fee has been made with any person, and that no part of the fee has been agreed to be paid to any other person.

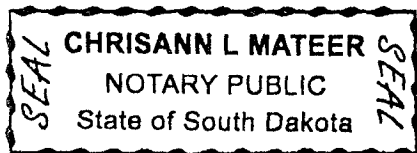
Pam Capp
Office Manager

Subscribed and sworn to before me this

5th day of September, 2008

Chrisann L. Mateer

Notary Public, South Dakota



Account No. 60001557

Total Amount - 0 -

MY COMMISSION EXPIRES NOV. 28, 2013

Public Notices

NOTICE OF APPLICATION NO. 1897-1 to Appropriate Water

Notice is given that the SD Office of School and Public Lands, c/o Mike Cornelison, 500 E Capitol, Pierre SD 57501 has filed an application for a water permit to impound 86 acre-feet of water from runoff by reconstructing a dam located in the NW 1/4 NW 1/4 Section 7 with water impounded in the N 1/2 NW 1/4 Section 7; all in T14N-R4E. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1897-1 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 September 15, 2008.

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.

**Publ. August 27,
September 3, 2008
Belle Fourche Post**



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

August 19, 2008

Belle Fourche Post
PO Box 400
Belle Fourche SD 57717

ATTENTION: Legal Public Notice

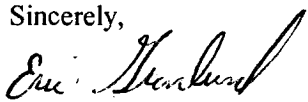
Enclosed is a Notice on Application No. 1897-1 to Appropriate Water to be published twice. Please publish the first notice on August 27, 2008 with the second publication 7 days later. The text of the notice can be e-mailed to your paper by contacting Karen Schlaak at (605) 773-3352.

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 Office of School & Public Lands, c/o Mike Cornelison, 500 E Capitol Ave., Pierre SD 57501 (Ph # 605-773-3303).

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. 1897-1

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

Date _____

We are in receipt of your letter of August 19, 2008 enclosing Notice to Appropriate Water by Application No. 1897-1 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
www.state.sd.us/denr

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

August 19, 2008

Office of School & Public Lands
Mike Cornelison
500 E Capitol Ave
Pierre SD 57501

Dear Mr. Cornelison:

Water Permit Application No. 1897-1 for fish & wildlife propagation and livestock 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 Belle Fourche Post printed at Belle Fourche SD (Ph # 605-892-2528). 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 application.

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 August 27, 2008 with the second publication 7 days later. The applicant is responsible for payment.

NOTICE OF APPLICATION NO. 1897-1 to Appropriate Water

Notice is given that the SD Office of School and Public Lands, c/o Mike Cornelison, 500 E Capitol, Pierre SD 57501 has filed an application for a water permit to impound 86 acre-feet of water from runoff by reconstructing a dam located in the NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 7 with water impounded in the N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 7; all in T14N-R4E. This application requests impoundment of sufficient water to maintain water to the outlet elevation. The water is for fish and wildlife propagation and livestock water purposes.

Pursuant to SDCL 46-2A-2, the Chief Engineer recommends APPROVAL of Application No. 1897-1 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 September 15, 2008.

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.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

PMB 2020
JOE FOSS BUILDING
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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

SEP 17 2000

SD Office of School and Public Lands
Mike Cornelison
500 E Capitol Ave
Pierre SD 57501

Dear Mr. Cornelison:

Enclosed is Water Permit No. 1897-1 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. 1897-1

I have this day, July 21, 2017, made a thorough examination of the water use system constructed by School and Public Lands, 500 E. Capitol, Pierre, So. Dak. 57501 of Permit No. 1897-1, bearing the priority of 7/29/2008 authorizing the diversion and storage of 86 acre-feet of water of a dry draw tributary of the South Fork of the Moreau River for fish, wildlife and domestic purposes, in Butte County.

Inspection contact & relationship to permit holder, if applicable:

Mike Cornelison, Land Agent
605-773-3303

A. Dam Information:

- 1) Height to crest 16.8 feet from downstream toe
- 2) Height to primary spillway 12.2 feet from downstream toe
- 3) Height to secondary spillway 13.3 feet from downstream toe
- 4) Crest width 16 feet
- 5) Crest length 670 feet
- 6) Primary Spillway diameter 21 inches
- 7) Secondary Spillway width 80 feet
- 8) Approx. storage to primary spillway 86.0 ac-ft
- 9) Approx. storage to crest 275 ac-ft

Date constructed: 2008

B. Works used to put water to beneficial use:

This is an earth fill embankment utilizing a PVC pipe principal spillway and a vegetated earth emergency spillway. The water impounded in the reservoir is put to beneficial use in-place.

C. Compliance with Permit Requirements:

- 1) Permit qualifications being abided by: Yes

Low flows as needed for downstream domestic use including livestock and prior water rights must be by-passed. A permanent by-pass structure was not installed. Any by-pass of flows if needed will use temporary means.

Irrigation Questionnaires checked to determine if permit owner started irrigation by the end of construction period. N/A

List any extended period of nonuse: **none**

- 2) Exceptions to compliance are: none

D. Condition and Location:

1. The system is in good condition with the point of diversion located as follows:
640' E and 1,190' S of the NW corner Section 7 T14N R4E (45.195377, -103.688514)

The works are capable of diverting to the place of use and storing 86.0 acre-feet of water which is to be used for **fish, wildlife and domestic use**. Water has been put to beneficial use to the maximum extent and the license should be issued for **86.0 acre-feet** storage.

2. All structures, wells and lands on map Yes

E. Comments or other permit(s) associated with the project: none



Steven Quissell
Water Rights Inspector
DENR, Water Rights Program

Date report completed: 7/21/2017



Pool and embankment

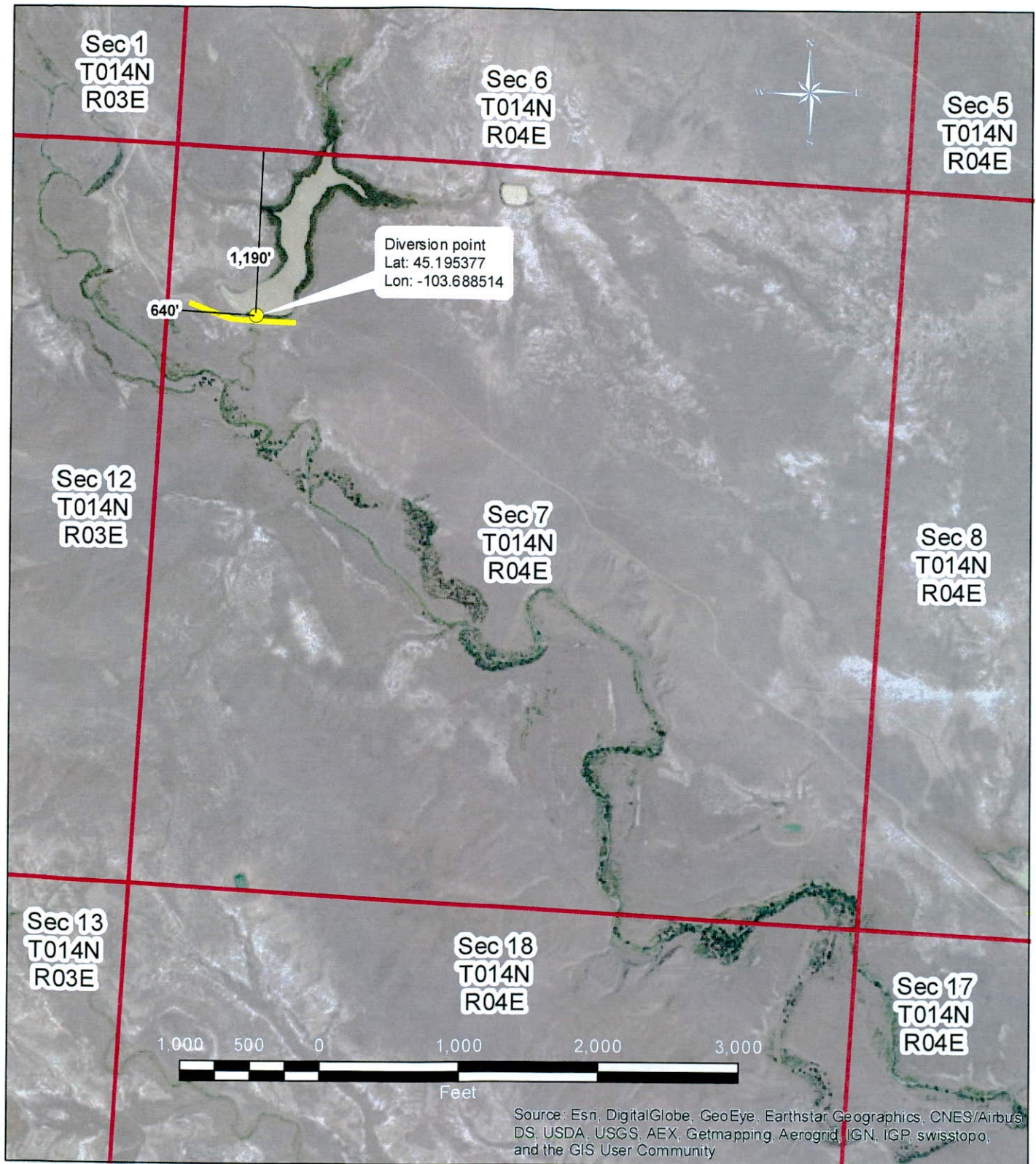


Riser with trash rack and pool



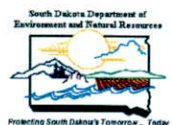
Principal Spillway outlet

Water Right # 1897-1
School and Public Lands
7/21/2017



Steven Quissell

Steven Quissell
Water Rights Inspector
DENR Water Rights Program





DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

MAR 09 2020

1897-1

Ryan Brunner, Commissioner
SD School & Public Lands
500 E Capitol Ave
Pierre SD 57501

Dear Commissioner Brunner:

Enclosed is Water License No. 1897-1. This is the final water right document completing the process of obtaining a Water Right. Included with your license is a map prepared by the staff engineer who conducted the field investigation.

As 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

STATE OF SOUTH DAKOTA

WATER LICENSE NO. 1897-1

(1) South Dakota School & Public Lands, 500 E Capitol Ave., Pierre SD 57501 made Application No. 1897-1, July 29, 2008 for a water permit to authorize impoundment of 86.0 acre feet of runoff water by reconstructing a dam located in Butte County, South Dakota for fish and wildlife propagation and domestic livestock watering purposes. Permit No. 1897-1, with a priority date of July 29, 2008 was approved September 15, 2008 and issued to the applicant for impoundment of water with construction of the described water supply system to be completed on or before September 15, 2013 and the application to beneficial use of water on or before September 15, 2017.

(2) The water supply system has been completed and water applied to beneficial use in accordance with South Dakota State Law. Pursuant to South Dakota Codified Law 46-5-30.1, South Dakota School & Public Lands, the holder and/or owner of Water Right No. 1897-1 is issued a license, bearing a priority date of July 29, 2008 to impound 86.0 acre feet of water from runoff for fish and wildlife propagation and domestic livestock watering purposes.

The location of the storage dam (spillway) is as follows:

- 640' E and 1,190' S of the NW corner of Section 7, T14N, R4E (NW ¼ NW ¼)
Latitude 45.195377, Longitude -103.688514

(3) This license is subject to South Dakota Water Law, any limitations or conditions listed in Water Permit No. 1897-1, including the following qualifications:

- Water Right No. 1897-1 authorizes a dam with a storage capacity of 86.0 acre feet of water and sufficient water annually to maintain the water level to the outlet elevation.
- Low flows as needed for downstream domestic use including livestock water and prior water rights must be bypassed.


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

MAR 09 2020

date

