

Clelland, Steve

From: Clelland, Steve
Sent: Friday, October 15, 2010 10:48 AM
To: 'Charles E. Brockway'
Cc: Fritschle, Carter; Clelland, Steve; Spencer, Nick
Subject: FW: Trail Creek Dam - IDWR
Attachments: Brockway Fig2.pdf; Brockway Fig1.pdf; Photo1.pdf; Photo2.pdf; Photo3.pdf

Hi Chuck,

I sent your earlier email w/ data & photos to our dam safety staff to review and compare with IDWR records. Here is the response from John Falk of Dam Safety. I hope that with all this information we can establish the correct elements for the right 37-12111. Mr. Falk will be available next week if necessary. I am sure he would be glad to discuss this issue with you beforehand also.

You mentioned you didn't follow the calculations of volume I made in a draft settlement/SF5. I used the dam safety volume of 81 ac-ft (as was previously given in their records) and added the standard IDWR consumptive use value of 2.5 AF/acre. There are other methods to calculate this number (I am sure you know more than I) that IDWR uses to account for cooler temps and precipitation, but for now we are using the standard value. The pond has surface area of about 6 acres, therefore 15 ac-ft in consumptive losses: $81 \text{ AF} + 15 \text{ AF} = 96 \text{ AF}$ recommendation. Based on this new data, the revised volume would be: $66.5 \text{ AF} + 15 \text{ AF} = 81.5 \text{ AF}$ storage.

I have discussed the addition of a multiple fill remark with other IDWR staff and we agree this seems to be a reasonable condition to add. Our only concern at this time is to see no injury occurs to senior downstream users in the Big Wood system. But that too can be addressed as part of the refill remark. I am waiting on comments from our attorney staff regarding this point.

Let me know if you have any questions or comments.
Steve

Steve Clelland
steve.clelland@idwr.idaho.gov
(208) 287-4913

From: Falk, John
Sent: Thursday, October 14, 2010 6:03 PM
To: Clelland, Steve
Cc: Skinner, Corey; Galloway, Chuck; Hornbaker, Sonny
Subject: Trail Creek Dam

Steve,
I reviewed the materials CE Brockway submitted for the referenced project, as requested.

Of primary interest is the table (Figure 2) containing values for Staff Gage, NAVD88 Elevation, and Volume. Considering previous data (Figure 1), I have expanded Mr. Brockway's table to include the original 1937 design data that is coincident with the recent information. This correlation demands that the top of the Staff Gage has been set equal to the crest of the Upper Weir, and both features were surveyed to elevation 5890.73'.

1937 Elevation	1937 Capacity	Description	2010 Elevation	2010 Capacity	Gage Height
----------------	---------------	-------------	----------------	---------------	-------------

(feet)	(acre-feet)		(feet)	(acre-feet)	(a)
57.1	92.2	Upper Weir Crest (300' Length)	5890.73	91.69	25

(a) Note that the graduations on the staff gage are NOT equivalent to 1-foot increments of elevation; instead, they more closely equal one-half foot interval.

As you can see based on this comparison, the calculated volume (ac-ft) that Mr. Brockway submitted is consistent with the previous (1937) value.

However, it is important to note that the dam is not operated with the pool at the crest of the Upper Weir...or even the Lower Weir for that matter. Instead, the pool level is held to an even lower elevation by means of adjusting the flashboards to maintain adequate freeboard. Photo No's 2 & 3 provide visual evidence that the normal operating reservoir surface has not exceeded Gage 19.5. Using photographs and Mr. Brockway's capacity table, the "historic normal" storage capacity of the reservoir evidently is 66.5 acre-feet, more or less; corresponding approximately to NAVD88 elevation 5887.9 feet (rounded to tenths).

In summary, I recommend:

- Authorization for a storage right equal to 66.5 acre-feet, plus an amount for evaporation/seepage.
- For dam safety reasons, static freeboard not less than 2.0 feet should be maintained between the crest of the Lower Weir and the normal operating pool level given the type of dam construction, its hazard classification, age, and the size of contributing watershed.
- From this point forward, all elevations should be reported using the most recent survey data; i.e. NAVD88.

Let me know if you have any questions. Thanks --jf--

IDWR Dam Safety
322 East Front Street
PO Box 83720
Boise, ID 83720
(208) 287-4927
FAX: 287-6700

Clelland, Steve

From: Falk, John
Sent: Thursday, October 14, 2010 6:03 PM
To: Clelland, Steve
Cc: Skinner, Corey; Galloway, Chuck; Hornbaker, Sonny
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- From this point forward, all elevations should be reported using the most recent survey data; i.e. NAVD88.

Let me know if you have any questions. Thanks --jf--

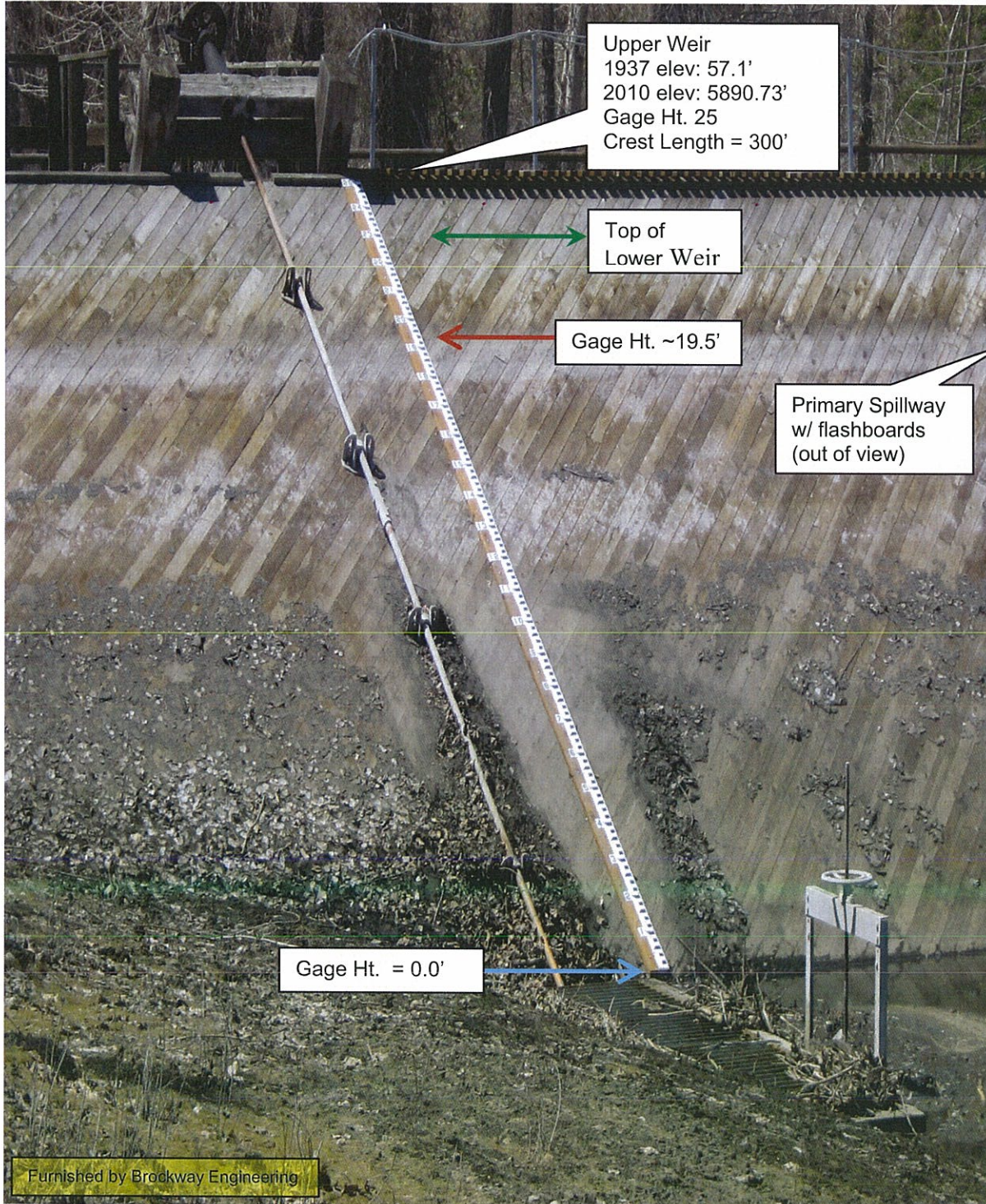


Photo 3 (5/17/2010) - Upstream face of Trail Creek Dam showing the staff gage relative to the low level outlet operating stem. The top of the gage is level with the top of the 300-foot long Upper Weir. Note the heavy stain on the diagonal planks and the corresponding gage reading at the top of the stain. The stain represents the maximum normal operating level of the reservoir. The flashboards in the primary spillway are seasonally adjusted, thus providing the structure adequate freeboard to help prevent the Lower Weir from being overtopped due to thunderstorms, snowmelt, and rain on snow events. The whole number division on the staff gage does not equal 1-foot increments of elevation!

TRAIL CREEK DAM

IDWR FILE 37-12111

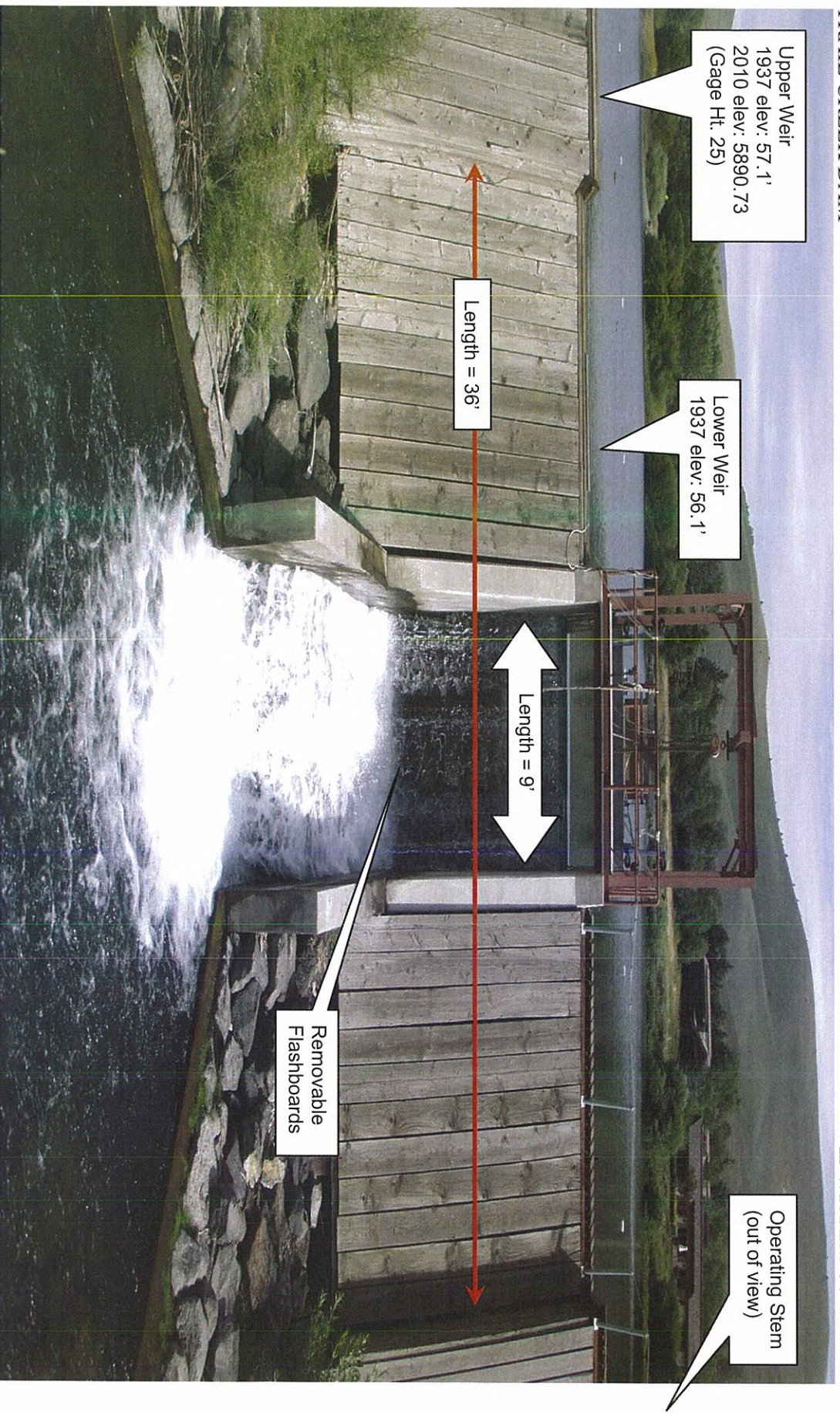


Photo 2 (8/19/2009) – View looking upstream at Trail Creek Dam illustrating the nested weirs and the primary spillway w/ removable flashboards. Compare to Photo 3 that shows the location of the staff gage on the upstream side of the dam. The elevations are referenced to the original design drawings (1937) and the 2010 survey (NAVD88 datum). The flashboard structure was not included in the original design. It is important to note that 81.3 acre-feet storage capacity as referenced in the 1981 Phase I Inspection Report (Figure 1) corresponds to the crest of the Lower Weir, design elevation 56.1 feet.



Photo 1 (8/19/2009) - View from the right abutment illustrating the multiple-crest, timber truss dam. Elevations and dimensions are those as presented on the original design drawings circa 1937 and the 2010 survey. Note the locations (front-to-back) of the upper weir (300' length), the lower weir (36' length), the mechanical hoist for installing/removing flashboards in the primary spillway (9' length), and the operating stem for the low level outlet conduit. The staff gage is located on the upstream side of the dam between the hoist and the operating stem (see Photo 3).

Clelland, Steve

From: Charles E. Brockway [charles.e.brockway@brockwayeng.com]
Sent: Thursday, October 14, 2010 1:24 PM
To: Clelland, Steve; Scott Campbell; john.falk@idwr.idaho.com
Cc: whuffman@sunvalley.com
Subject: Sun Valley Company Trail Creek Reservoir and Dam
Attachments: Trail Creek Reservoir Dam Uncontrolled Spill Locations 10-13-10.jpg

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Red Category

Steve: The following is some additional information relative to the capacity and volume determinations for the Sun Valley Company Trail Creek Reservoir 37-12111.

The SRBA recommendation includes a condition which limits the seasonal total diversion volume to 96 acre feet. It also indicates that the capacity of the reservoir is 81 acre feet. I do not know how the 81 af or the 96 af number was determined. I am not sure how to interpret these numbers but, if read literally, it could mean that the reservoir could be filled once in the spring to 81 acre feet and, drained partially, and then refilled using a maximum of 15 acre feet (96-81). Brockway Engineering evaluation of the volume of the reservoir using Benchmark's LIDAR topographic data is 91.69 acre feet at the top of the new staff gage with a reading of 25.0 feet which is essentially at the top of the dam. There is an outlet in the center of the dam in which boards can be placed to control the water level in the reservoir (see attached photo). Currently (Oct. 13, 2010) the staff gage reading of 19.1ft is maintained by boards in the outlet structure, but additional boards can be inserted to close off the center outlet structure. This reading of 19.1 corresponds to a reservoir volume of 64.8 acre feet based on the Brockway Engineering area/capacity curve. The center part of the dam also has an uncontrolled overflow at a staff gage reading of 23.05 ft which would limit the storage to 82.3 acre feet(see attached photo). From an operational standpoint, I don't think this volume of the reservoir makes much difference, however, there should be a condition that allows filling and draining and re-filling any number of times during the season to accommodate both normal operation and emergency operations.

It seems reasonable that the recommendation show 1) **A storage volume of 82.3 acre feet for Wildlife Storage, Recreations Storage, and Aesthetic Storage from 1/1 to 12/31** and 2) **The reservoir may be refilled multiple times in a single year.**

The Department could determine whether the reservoir had exceeded the annual allowed volume utilizing the new staff gage and area/capacity curve which we supplied. It appears that the reservoir has been normally operated with a staff gage reading of between 19.1 and 19.5 which corresponds to a volume of about 64.8 to 66.5 acre feet.

The Trail Creek reservoir is an on-stream reservoir for recreation, wildlife and aesthetics and as such has no diversion to storage or diversion from storage as an irrigation reservoir would have. There should be little concern by the any downstream water users relative to impact of the operation of the reservoir. The initial fill in the spring has historically been performed and is allowed under the recommendation so no new diversion volume is being requested. Normal operation is to maintain water levels in the reservoir at about 19.5 feet or less based on water level marks on the dam.

I suspect this operating level is dictated by water levels at the boat dock or recreation areas around the reservoir.

At our scheduled meeting Thursday October 21, I would like to resolve all of these issues if possible.

Call if you need further information

Chuck

Charles E. Brockway P.E. PhD.
Brockway Engineering
2016 Washington Street North
Twin Falls, ID 83301
208 736 8543

Clelland, Steve

From: Charles E. Brockway [charles.e.brockway@brockwayeng.com]
Sent: Friday, October 08, 2010 4:40 PM
To: Clelland, Steve
Subject: FW:
Attachments: TRAIL CREEK RESERVOIR VOL CALC 8-30-10.pdf; IMG_4864.JPG; IMG_4486.JPG; TRAIL CREEK RESERVOIR VOLUME CURVE AND TABLE FOR S.CAMBELL 8-30-10.pdf

From: Charles E. Brockway
Sent: Friday, October 08, 2010 3:54 PM
To: 'Clelland, Steve'
Subject: FW:

From: Charles E. Brockway
Sent: Friday, October 08, 2010 3:48 PM
To: 'Clelland, Steve'
Subject:

Steve:

In response to your [request for Brockway Engineering to provide data on the reservoir volume and new staff gage documentation](#), I am attaching the following documents:

1. Photos (2) of the new 25 ft staff gage on the dam to measure water levels(Photo dates: August 26, 2010 and July 29, 2010)
2. LiDAR topographic data for the reservoir for November 2006 provided by Bench Mark Engineering
3. An area/capacity table and curve prepared by Brockway Engineering using the LiDAR data.

The staff gage zero is essentially at the outlet elevation and there is approximately nine (9) af of dead storage below the staff gage zero. Note that the staff gage reading on August 26th, 2010 was 17.2 feet on the staff gage, which corresponds to a reservoir volume of 56.72 AF. Photo no 3 indicates that historically the operating water level may have been as high as 19.5 feet on the staff gage. In fact, the staff gage reading on July 29th, 2010 was 19.15 ft. A staff gage reading of 19.5 feet corresponds to a reservoir volume of 66.49 AF. The estimated reservoir volume at a staff gage reading of 25 feet (maximum on the staff gage) is 91.69 AF.

The current SRBA recommendation for storage under water right 37-12111 is 96 AF which corresponds to a staff gage reading of over 25 ft.

Note that Sun Valley Company dredges that reservoir periodically to remove sediment which changes the total volume. I do not know the date when the last time the reservoir was dredged or when or how the recommended diversion volume of 96af was determined.

Condition 2 on the current [SRBA](#) recommendation indicates that the capacity of the reservoir is 81 AF and that the reservoir may be filled multiple times up to the total diversion volume (96af) in a single year. A strict interpretation of this condition would indicate that the reservoir could be filled once up to 81 AF and then again in the same year to store another 15 af (96-81). [This condition, if my interpretation is correct, would be contrary to any historical operation.](#) Please let me know if additional information is required.

Charles E. Brockway P.E. PhD.
Brockway Engineering

Sun Valley Company Trail Creek Reservoir Capacity Table

Staff Gage

Reading ft	Elev ft	VOLUME Acre ft
0	5877.98	8.97
1	5878.49	10.71
2	5879	12.57
3	5879.51	14.57
4	5880.02	16.71
5	5880.53	18.97
6	5881.04	21.36
7	5881.55	23.88
8	5882.06	26.54
9	5882.57	29.33
10	5883.08	32.24
11	5883.59	35.29
12	5884.1	38.47
13	5884.61	41.78
14	5885.12	45.22
15	5885.63	48.79
16	5886.14	52.49
17	5886.65	56.32
18	5887.16	60.28
19	5887.67	64.38
20	5888.18	68.60
21	5888.69	72.96
22	5889.2	77.45
23	5889.71	82.07
24	5890.22	86.81
25	5890.73	91.69

19.5' = 5889.7' = 66.5 Vol AF

Staff Gage is 25 ft enamenled gage on upstream face of dam near left abutment and outlet gate.

Elevation is water surface elevation based on NAVD88 Datum: (Benchmark Engineering).

Prepared by Brockway Engineering PLLC- August 4, 2010.



**TOP OF DAM
STAFF GAUGE HEIGHT = 23.0 FT**

**TOP OF BOARD
SLOT**

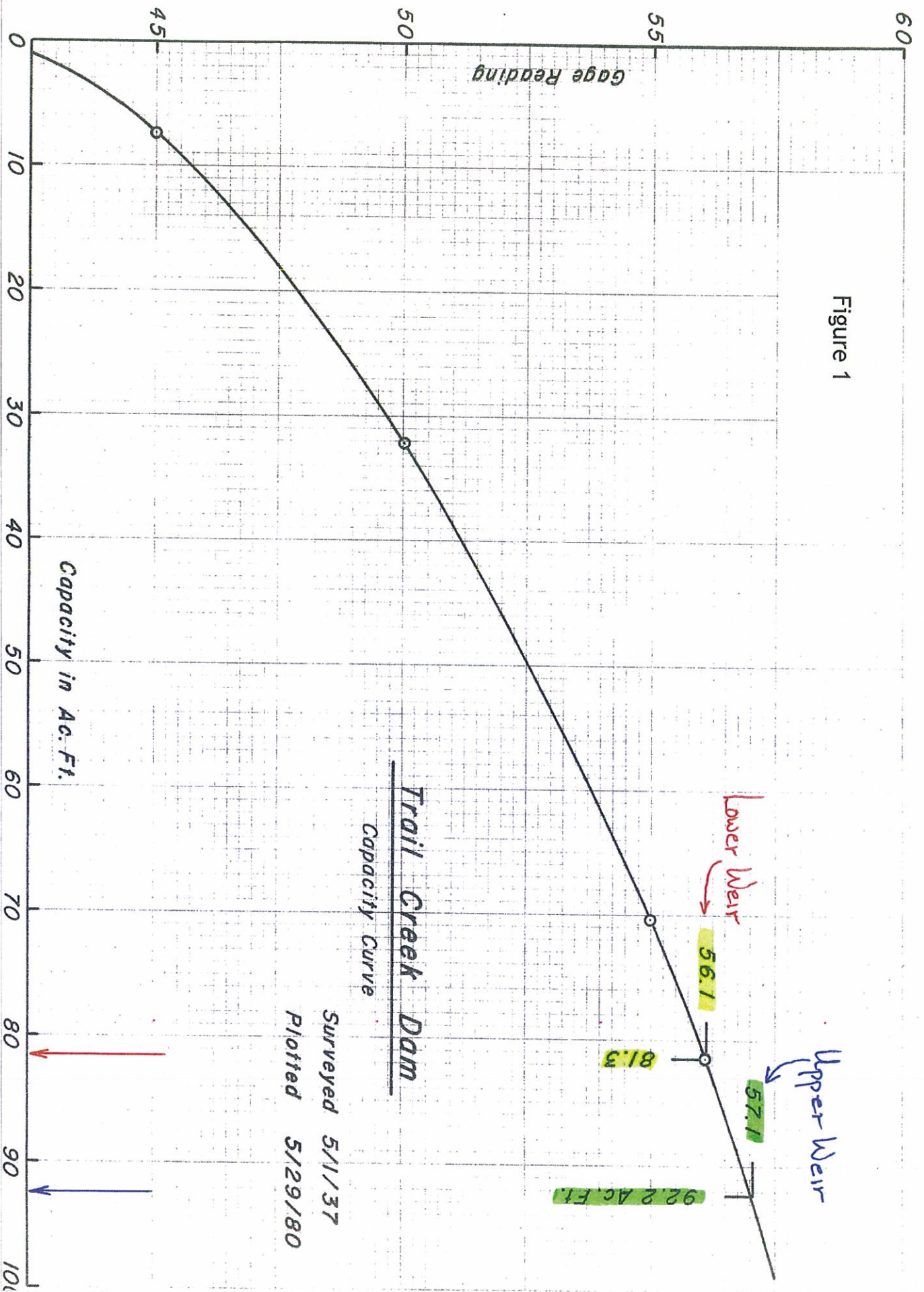
**UNCONTROLLED SPILL
ELEVATION/LOCATION
STAFF GAUGE HEIGHT = 23.05 FT**

**TOP OF BOARD
SLOT**

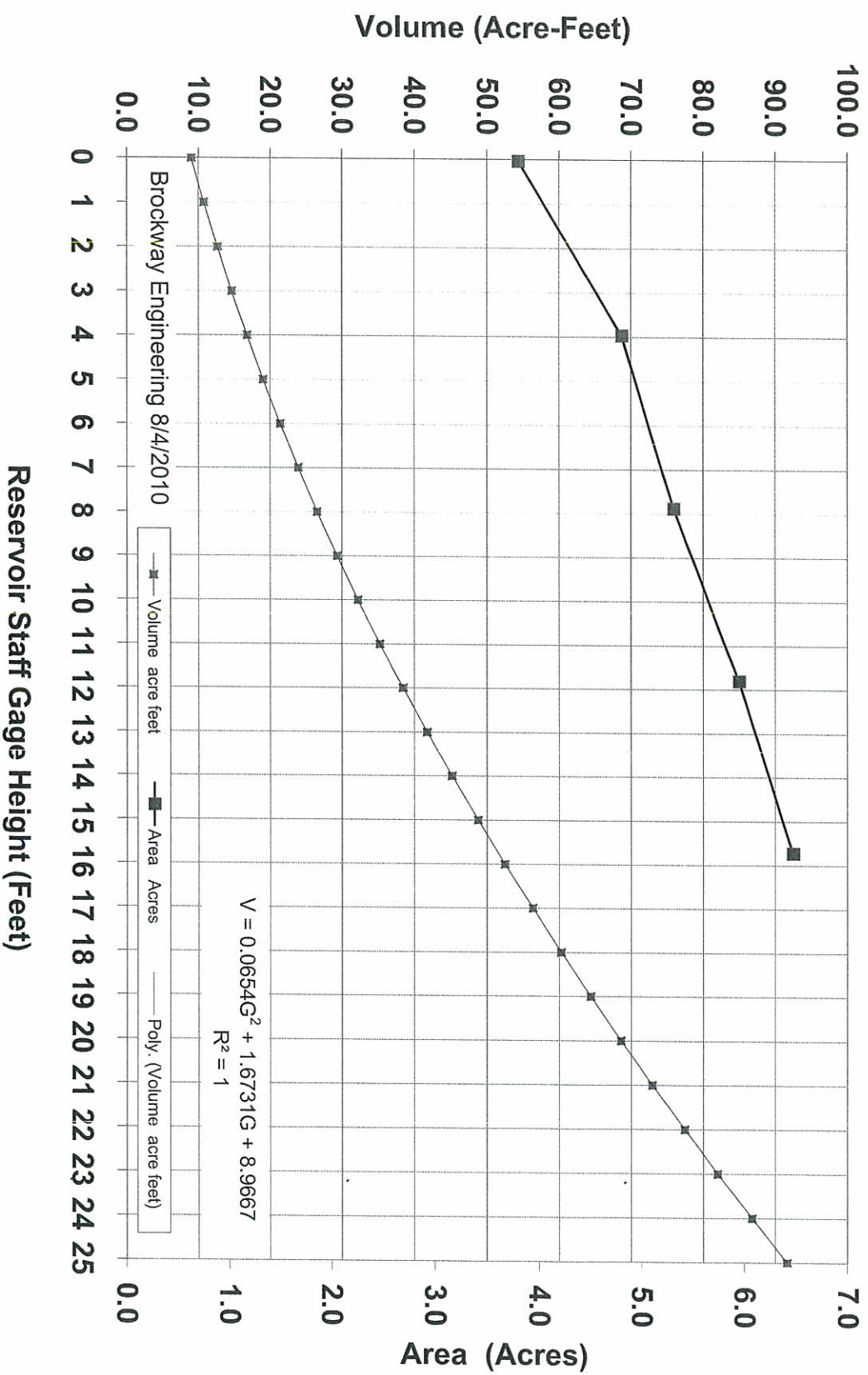
**UNCONTROLLED SPILL
ELEVATION/LOCATION
STAFF GAUGE HEIGHT = 23.05 FT**

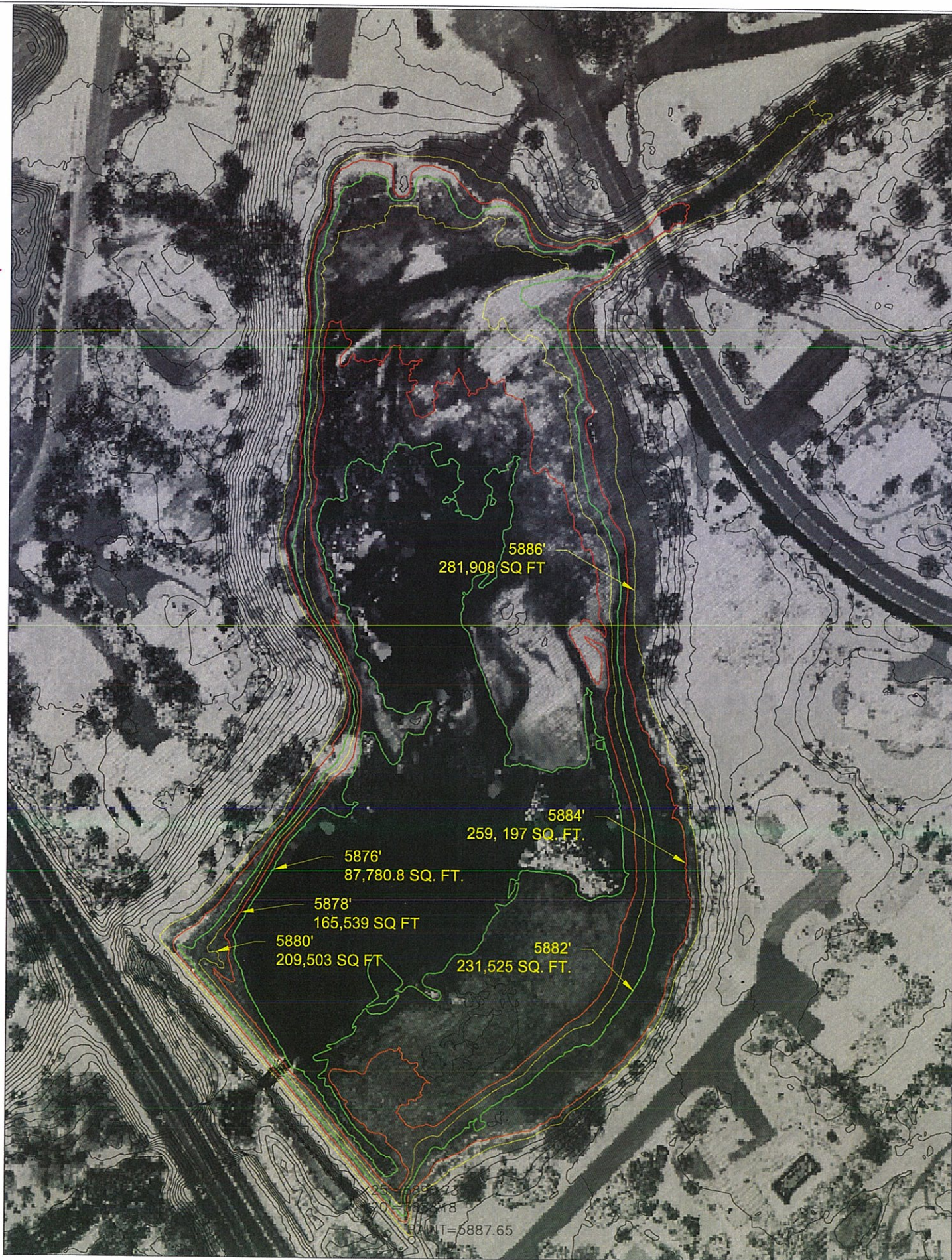
**TRAIL CREEK RESERVOIR DAM
PICTURE TAKEN 10/13/10
BROCKWAY ENGINEERING PLLC**

Figure 1



Sun Valley Company Trail Creek Reservoir Area Capacity



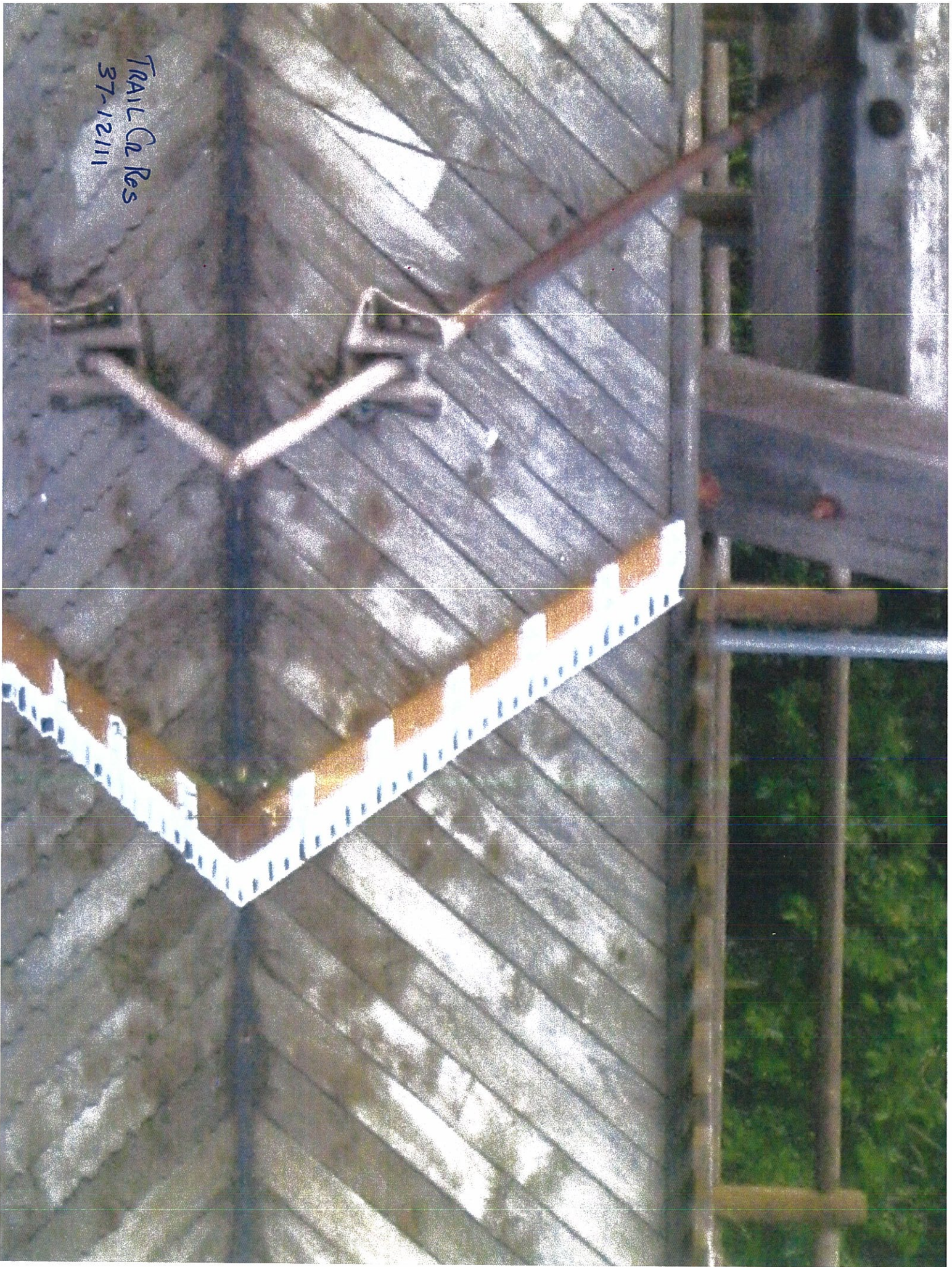


SUN VALLEY COMPANY
TRAIL CREEK RESERVOIR

Trail CR Res
37-12111



TRAIL Co Res
37-12111



Idaho Department of Water Resources

Dam Safety Data Sheet

Dam Name: TRAIL CREEK

Region: S

Other Dam Name:

NID ID: ID00037

State ID Number: 37-0415

Last Modified: 5/20/2010

General Information

Status: ACTIVE

Hazard: HIGH

Purpose: MULTIPLE USE

Size Category: 3

Location

County: BLAINE

Latitude: 43.6919105224

River or Stream: TRAIL CREEK BIG WOOD RIVER

Longitude: -114.351135491

Township: 04N

IDTM X: 2471702.75

Range: 18E

IDTM Y: 1387938.62

Section: 7

Location Method: NAIP-2006

Quad Name: SUN VALLEY

Quad Number: X24

Dam Owner

Name: SUNVALLEY COMPANY INC

Phone:

Address 1: C/O JERRY BUGGE
MAINT DEPT

(208) 622-2118

City: SUN VALLEY

Email:

State: ID

Zip Code: 83353

DAVE ZEIGLER - MAINTENANCE DIRECTOR, PHONE 622-2117. MR BUGGE'S CELL NO IS (208) 309-8589.

Embankment Physical Characteristics

Dam Type: TIMBER

Hydraulic Height: 18 Feet

Dam Height: 22.9 Feet

Year Completed: 1937

Dam Length: 385 Feet

Condition: SATISFACTORY

Regulatory Data

Inspection Date: 8/18/2009

Emergency Action Plan: No

Storage Authorization: 12/3/2009

Next Dam Inspection: 11/1/2011

Certificate Issue: 8/4/2004

Inspection Frequency: 2 Years

Survey Date:

Joint Inspection:

Idaho Department of Water Resources

Dam Safety Data Sheet

Dam Name: TRAIL CREEK

Region: S

Other Dam Name:

NID ID: ID00037

State ID Number: 37-0415

Last Modified: 5/20/2010

Reservoir

Drainage Area: 62.8 Sq Miles

Normal Storage: 81 Acre feet

Surface Area: 10 Acres

Maximuml Storage: Acre feet

Spillway

Spillway Depth: 4.9 Feet

Spillway Type: CONTROLLED

Spillway Channel Type: TIMBER

Spillway Gates:

Spillway Width: 36 Feet

Max Discharge: 1060 CFS

Inflow Design Flood (IDF): Q100

Outlet

Outlet Conduit Type: CMP

Outlet Gate:

Outlet Size: 30 Inches

Outlet Last Inspected:

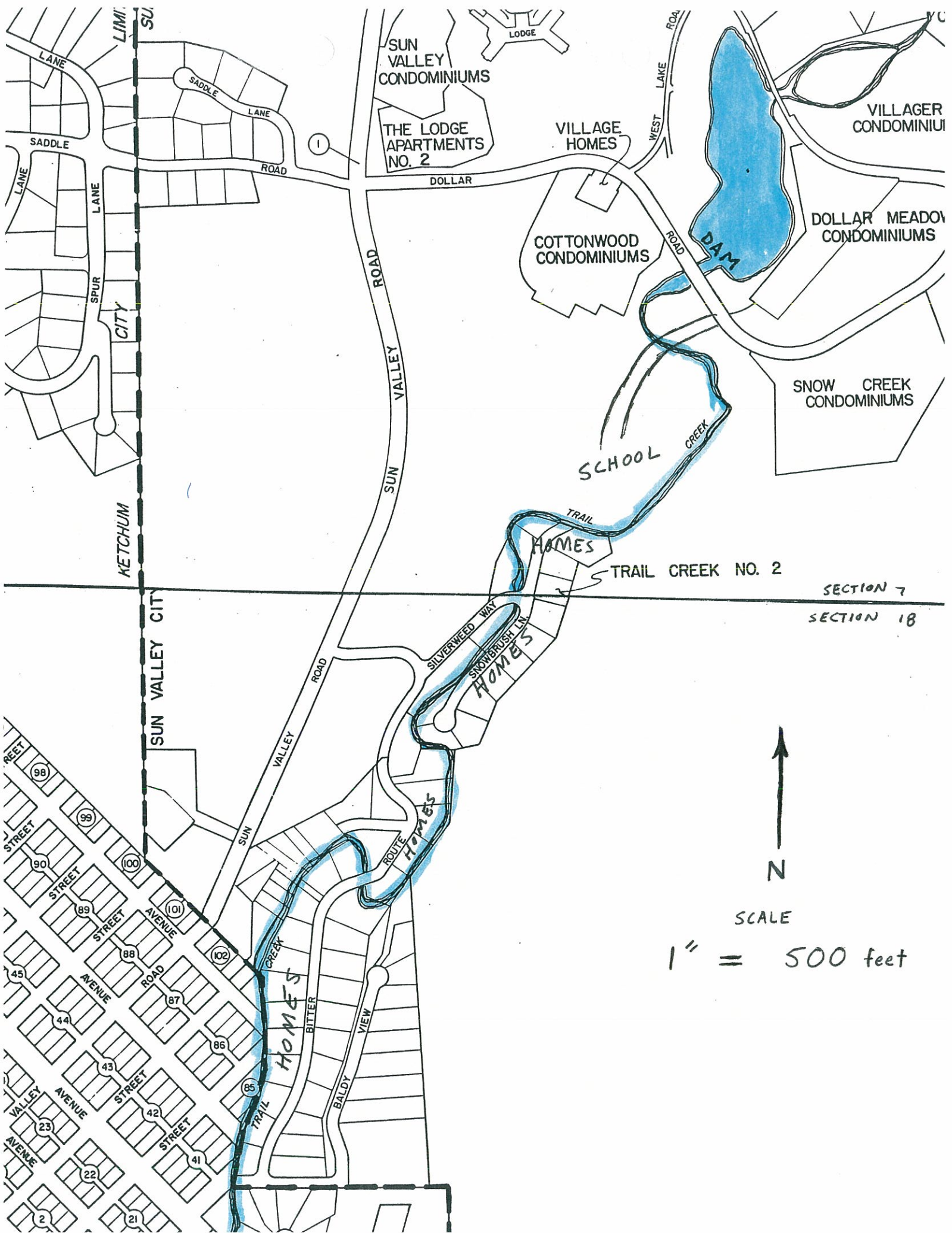
Outlet Capacity: 90 CFS

Outlet Video:

Deficiency:

IDWR Restriction: FLASHBOARDS SHALL NOT BE PLACED IN THE TOP TWO (2) FEET OF THE SPILLWAY SECTION, UNTIL AFTER SPRING RUNOFF EACH YEAR.

Comments: - DAM IS A TIMBER TRUSS, SEE PLANS IN FILE.
- DAM REHABILITATED IN 1996-97.
- SPILLWAY & REL CAP ARE WITH 3.0' FB. HYDRAULIC HEIGHT = 19 FEET.



SUN VALLEY CONDOMINIUMS
THE LODGE APARTMENTS NO. 2

VILLAGE HOMES

COTTONWOOD CONDOMINIUMS

VILLAGER CONDOMINIUM

DOLLAR MEADOW CONDOMINIUMS

SNOW CREEK CONDOMINIUMS

DAM

SCHOOL CREEK

TRAIL HOMES

TRAIL CREEK NO. 2

SECTION 7

SECTION 18



SCALE

1" = 500 feet



US Army Corps
of Engineers
Walla Walla District

File

FILE COPY

SNAKE RIVER BASIN

TRAIL CREEK DAM

BLAINE COUNTY, IDAHO

FEDERAL NUMBER ID 37

STATE NUMBER D 37-0415

PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

Prepared by:

STATE OF IDAHO, DEPARTMENT OF WATER RESOURCES

JULY 1981

MICROFILMED

SEP 02 1988

TRAIL CREEK DAM
Summary Table

<u>TYPE</u>	Timber truss
<u>HEIGHT</u>	
Structural	22 ft.
Hydraulic	18 ft.
<u>LENGTH</u>	385 ft.
<u>SLOPES</u>	
Upstream	1.7:1
Downstream	0.6:1
<u>RESERVOIR</u> (at spillway crest, gage 56.1)	
Surface area	10.0 acres
Storage	81.3 ac-ft.
<u>OUTLET WORKS</u>	
Conduit size	30-inch cmp
Gate	30-inch slide gate
Discharge	90 cfs
<u>DRAINAGE AREA</u>	62.8 sq. mi.
<u>EMERGENCY SPILLWAY</u>	Overflow crest
Width	300 ft.
Depth	3.9 ft.
Discharge capacity to top of dam, gage 61.0	8300 cfs
<u>FLOOD ROUTING</u>	
100-Year frequency:	
Peak inflow rate	975 cfs.
Maximum reservoir gage	58.0 ft.
Thunderstorm PMF:	
Peak Inflow rate	12,000 cfs
Maximum reservoir gage	62.0 ft.
<u>FREEBOARD - 100-YEAR FLOOD</u>	
Available	3.0 ft.
Required (IDWR)	2.7 ft.

Clelland, Steve

From: Skinner, Corey
Sent: Wednesday, May 26, 2010 3:44 PM
To: Clelland, Steve
Cc: Hornbaker, Sonny
Subject: RE: Questions on Trail Creek Dam

Last year's inspection report indicates that the reservoir is about six acres in size (based off of area shown on quad map and aerial photos). I have attached a copy of last year's report for your reference &/or files.



37-0415-insp1-09.d
oc

From: Clelland, Steve
Sent: Wednesday, May 26, 2010 3:26 PM
To: Skinner, Corey; Hornbaker, Sonny
Cc: Clelland, Steve
Subject: Questions on Trail Creek Dam

Hi guys,

Sorry to bug you about this I know all the details are in the file here; which I read through. I have a question on the Surface Area of the reservoir: the files all say 10 acres but using GIS mapping of the USGS topo it only shows about 6.1 acres in size. Has anyone in the inspection of this dam ever re-evaluated this figure? I am making a claim recommendation for the claim 37-12111 for storage. The calculation of evaporation loss is tied to the size of the pond. I am okay with the volume as given of 81 ac-ft, since the bottom can vary greatly, I can justify that whether it's a 6.1 or 10 acre pond.

Any comments? Advice? Go away and mind my own business?

Thanks,
Steve

COPY

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
RECORD OF INSPECTION OF DAM

Name of Dam: Trail Creek
Name of Owner: Sun Valley Company

Stream: Trail Creek ☐ Offstream
Location: SE ¼ Section 07 (T04N, R18E)

Individuals Accompanying Inspector: Jana Reeder (IDWR) I made an inspection appointment with Jerry Bugge (Sun Valley Co.) but he could not make it. I spoke with Mr. Bugge on the telephone the day after the inspection

Reservoir Characteristics: Dam Height: 18 feet Surface Area: 6 acres Storage Capacity: 81 acre-feet

Hazard Classification: High (no change) Photographs: Attached

CONDITION OF EMBANKMENT OR STRUCTURE: ☐ - Poor ☐ - Fair ☒ - Good ☐ - Excellent

TYPE: ☐ - Earth ☐ - Rockfill ☐ - Conc. Arch ☐ - Conc. Gravity ☐ - Timber Crib ☒ - Other Timber Truss

	UPSTREAM SLOPE	CREST	DOWNSTREAM SLOPE	TOE AREA
SURFACE COVER MATERIAL	Wood	Wood	Wood	Earth and Rock
GROWTH	None	None	None	Grass, weeds, and willows
SETTLEMENT Or CRACKS	None	None	None	None
SURFACE EROSION	None	None	None	Two holes near outlet section
DEBRIS	None	None	None	Minor driftwood
ANIMAL BURROWS	None	None	None	None
CREST WIDTH AND SLOPE MEASUREMENTS	12 : 7	Less than one foot	7 : 12	

CONDITION OF OUTLET WORKS: ☐ - Poor ☐ - Fair ☒ - Good ☐ - Excellent

Location: ☒ - Left Side ☐ - Center ☐ - Right Side ☐ - Other _____

Description and Condition;
30 inch diameter cmp pipe

Gate Hoist: ☒ - Manual ☐ - Electric ☐ - Other _____
Stem: ☒ - Inclined from entrance to crest ☐ - Vertical on tower at entrance
☐ - Vertical through dam crest ☐ - Downstream valve

Entrance: Submerged

Outlet: Clear

CONDITION of SPILLWAY: ☐ - Poor ☐ - Fair ☒ - Good ☐ - Excellent

Location: ☐ - Left abutment ☐ - Right abutment ☐ - Away from dam ☒ - Other Near center
Base width: 8 feet Freeboard at crest: 16 feet Sideslope: Vertical Channel slope: Low
Over flow channel: ☒ - Well defined ☐ - Flow directed away from toe ☒ - Flow could reach toe
Erosion control present: Concrete and large rip rap Erosion present: None noted
Maintenance condition: Debris Minor Growth None

SEEPAGE:

File No. 37-0415-insp1-09

Reservoir level during inspection: Nearly full, see photos

	TOE AREA	DOWNSTREAM SLOPE	ABUTMENTS	OTHER
Piping of material Evident (Est. G.P.M.)	None	None	None	
Flowing water (Est. G.P.M.)	As noted in previous inspections when reservoir is full and spillway flows are high. Due to leakage through dam and high tail water level	None	None	Inside the dam, as noted in previous inspections. Due to leakage through the dam and high tail water level
Marshy or Standing water		None	None	
Damp		None	None	
Evident from Growth present		None	None	

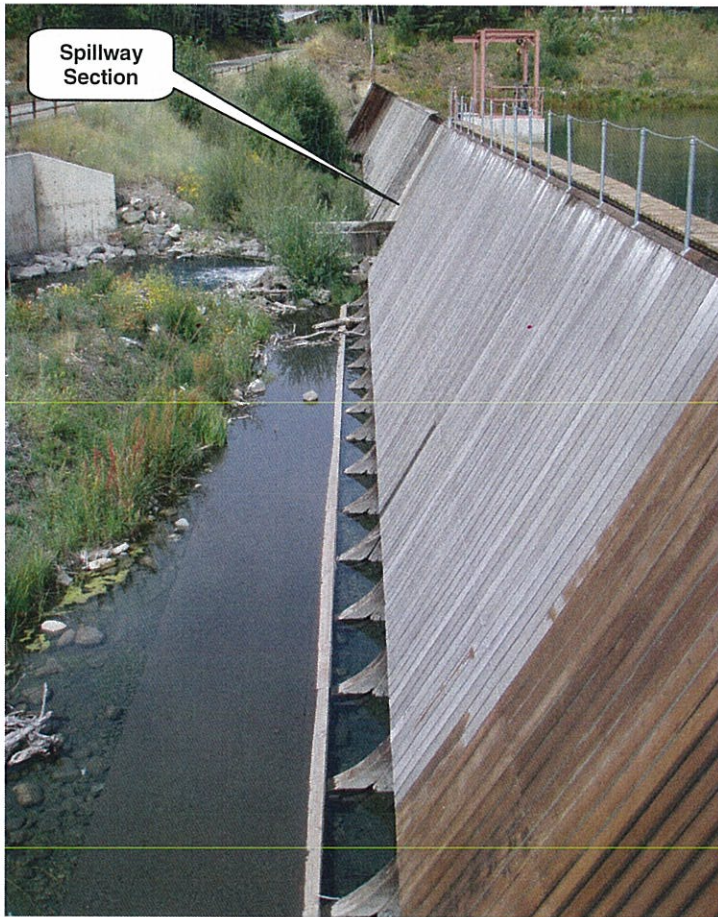
GENERAL CONDITION AND DESCRIPTION OF DAM:

Overall dam and appurtenant works appear to be in good condition with only minor maintenance items recommended. Relatively high tail water elevation prevented access to the inside of the dam. The reservoir surface area on the previous page of this inspection report is based off reservoir surface area shown on USGS quad map. Aerial photography shows similar reservoir size (approximately six acres). The spillway information on the previous page of this inspection report was obtained from the 1996 construction plans for the spillway rehabilitation project. SRBA recommendation 37-12111 appears to cover the storage at this facility with a recommended total volume of 110 acre-feet.

INSTRUMENT READINGS (Piezometer, Seepage measurements, Alignment, Elevation, etc.)None**RECOMMENDATIONS:**Authorize storage with routine maintenance items recommended.

- Remove woody vegetation (willows and trees) along toe of dam.
- Investigate and repair eroded areas as needed.
- Make efforts to reduce ponding of water along toe and inside dam.

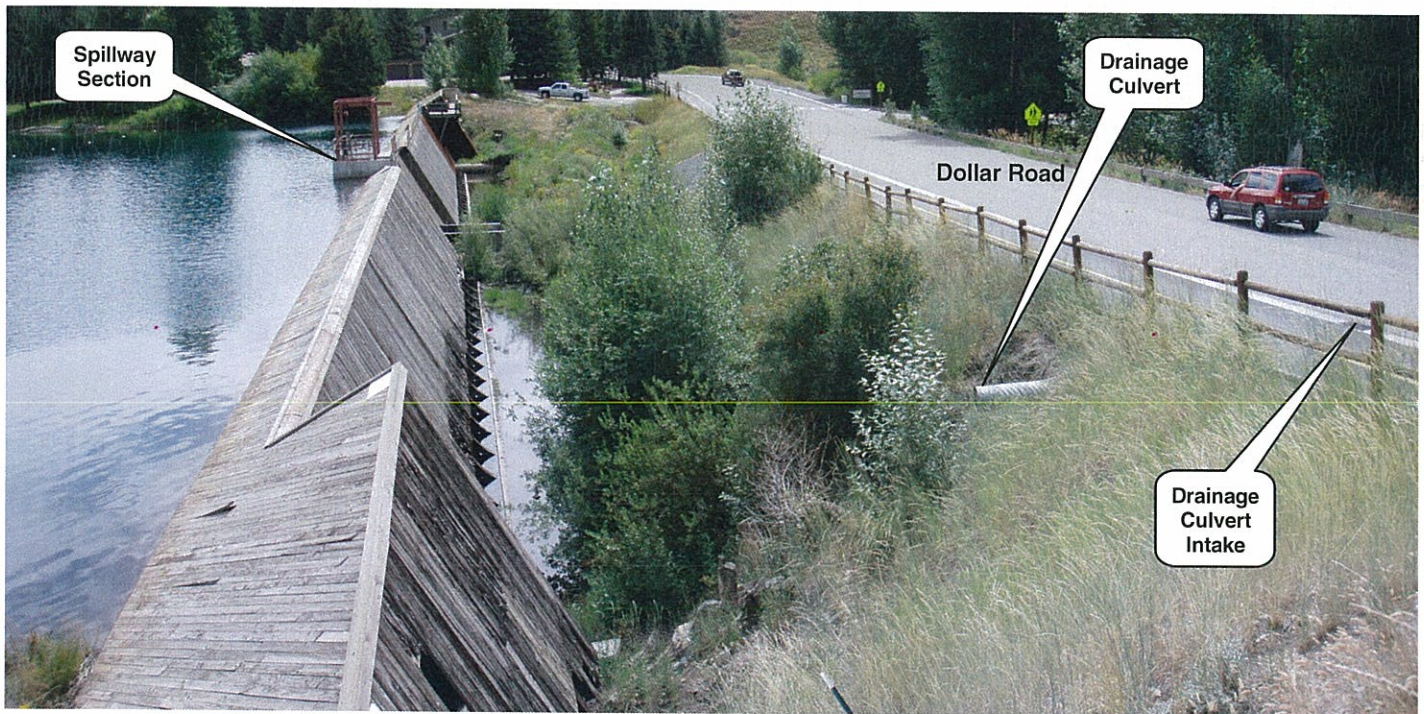
DATE: Inspected August 18, 2009INSPECTED BY: Corey Skinner



LEFT: View looking along the downstream face of the dam and the toe area from near the left (southeast) end of the dam. Note the standing water along the toe of the dam preventing access to the inside of the dam. Also note the vegetation growth (including willows) along the toe of the dam near the spillway section.

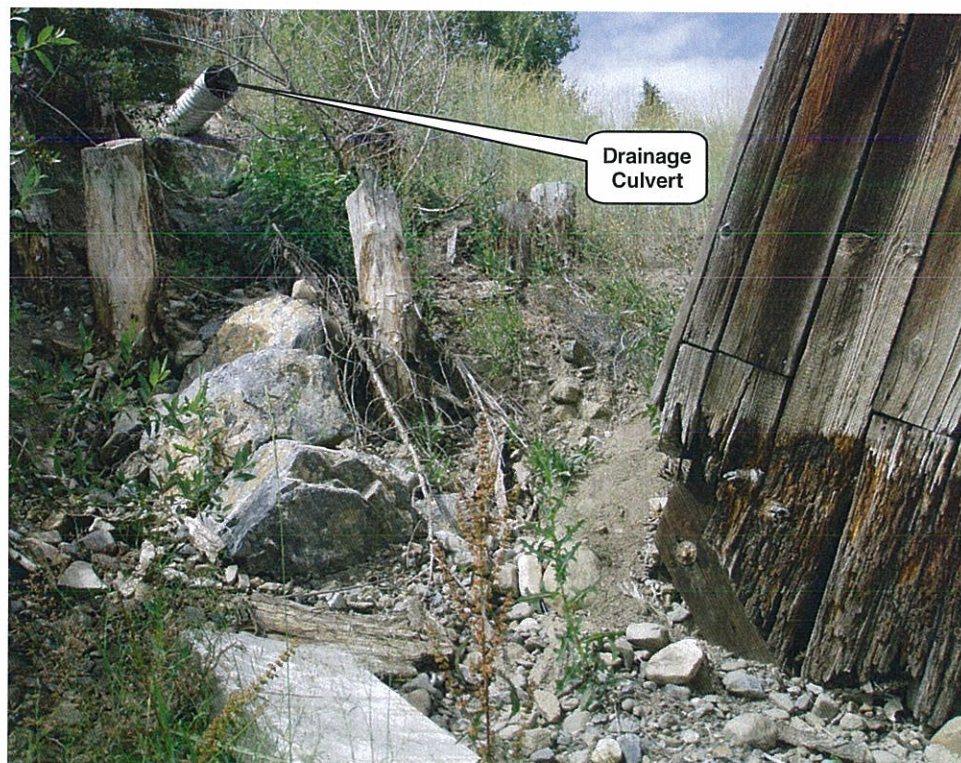
BELOW: View inside the dam near the right (northwest) end of the dam. Note the steel truss member connections in the foreground of this view. The steel truss member connections inside the dam were sandblasted and coated in 2004.





ABOVE: View from the right (northwest) abutment area showing the dam and the area directly downstream. Note the vegetation and standing water along the toe of the dam. Also note the drainage culvert from the paved roadway (Dollar Road) that discharges directly downstream of the dam.

BELOW: View from the toe of the dam looking downstream towards the drainage culvert noted in view above. Note the eroded material, below the culvert, in the foreground of this view.





LEFT: View from directly below the dam looking back at the spillway section of the dam showing the flow over the spillway stop logs and the relative reservoir level at the time of the inspection. Note the high tail water elevation and the willow growth along the spillway wing walls and toe of the dam. Erosion has been noted under the spillway wing walls during previous inspections.

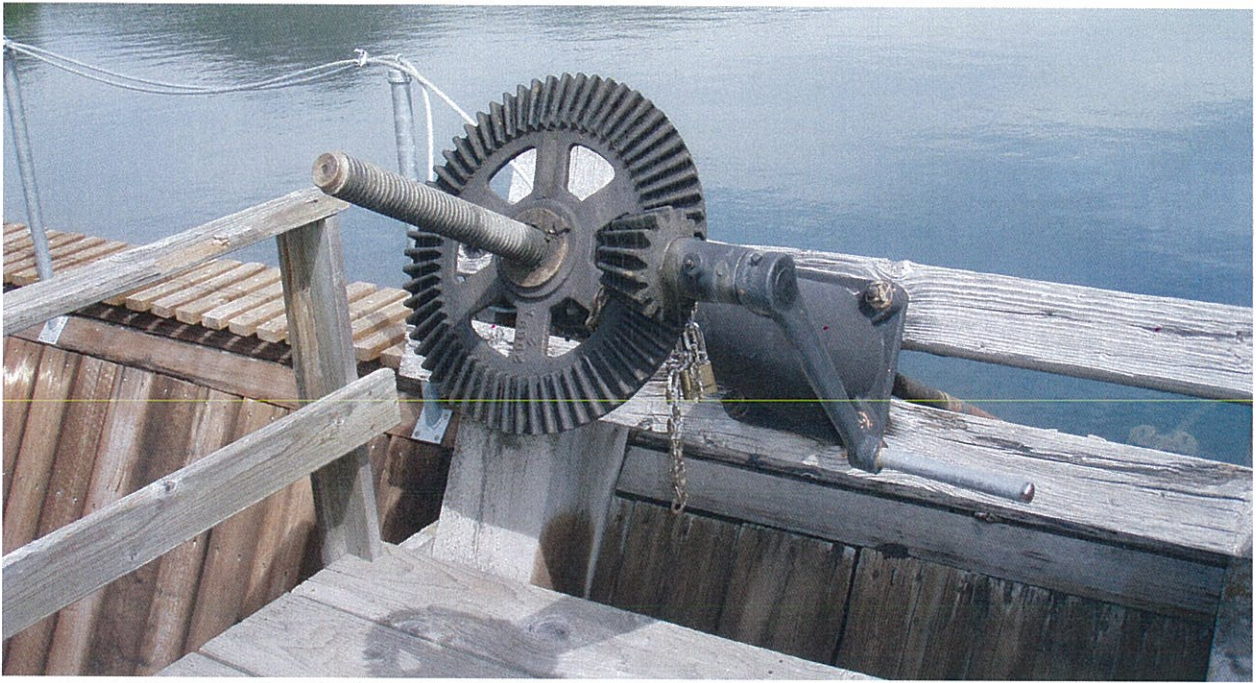
BELOW: View of stop log and lift mechanism at the top of the spillway structure.





ABOVE: View from the dam crest looking towards the low level outlet section near the left (southeast) end of the dam. Note the location of the hole shown in view to the left.

LEFT: View from atop low level outlet walk way looking down at two holes located along the toe of the dam to the left (southeast) of the low level outlet. The larger of these two holes is the hole that is visible in the view above. The exact cause of these two holes is unknown, but it is possible that they may be related to water inside the dam. The presence of these holes is not a structural threat to the dam, but their presence is unusual. The holes should be backfilled with granular material and the area monitored in the future.



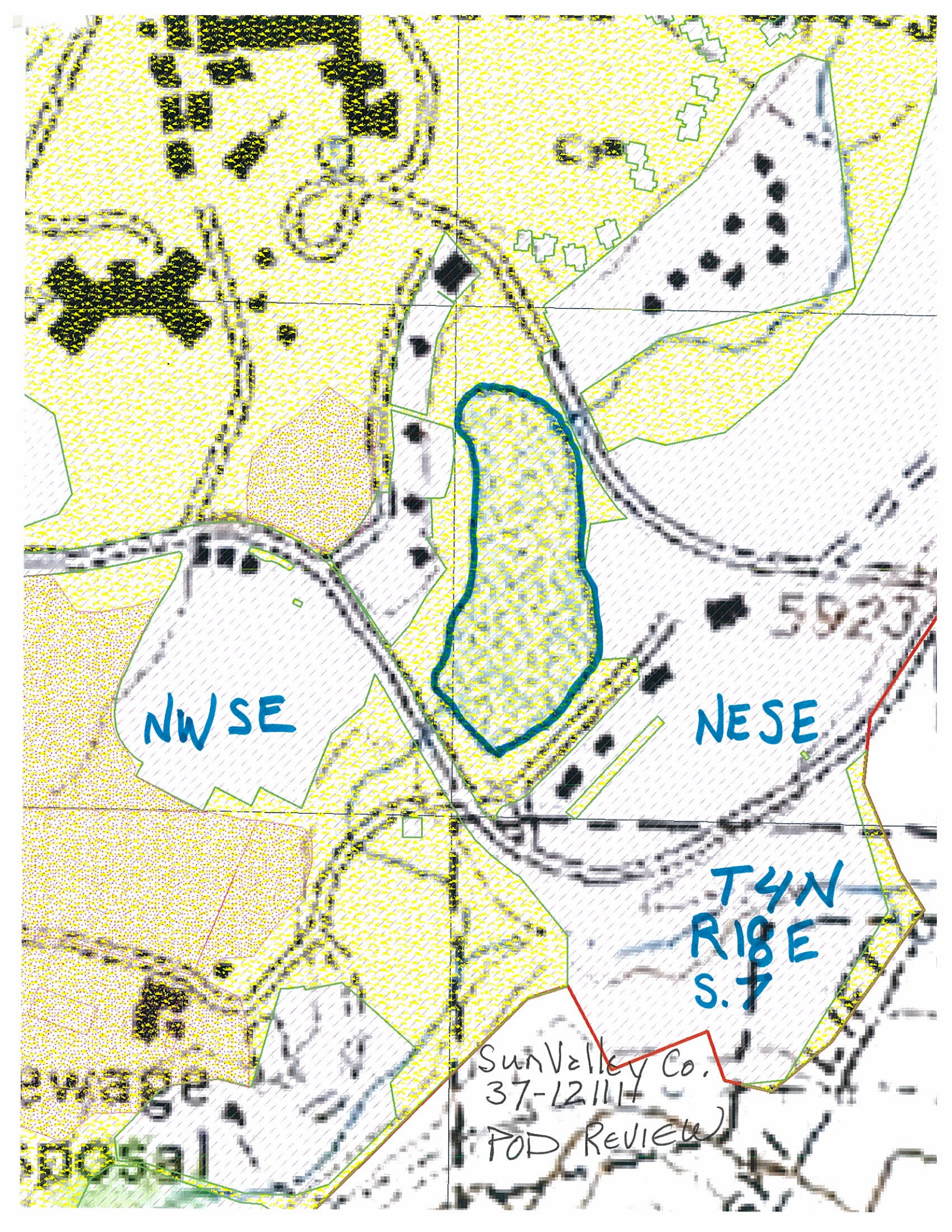
ABOVE: View of outlet control works on top of the dam.

BELOW: View of the downstream end of the low level outlet below Dollar Road.





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