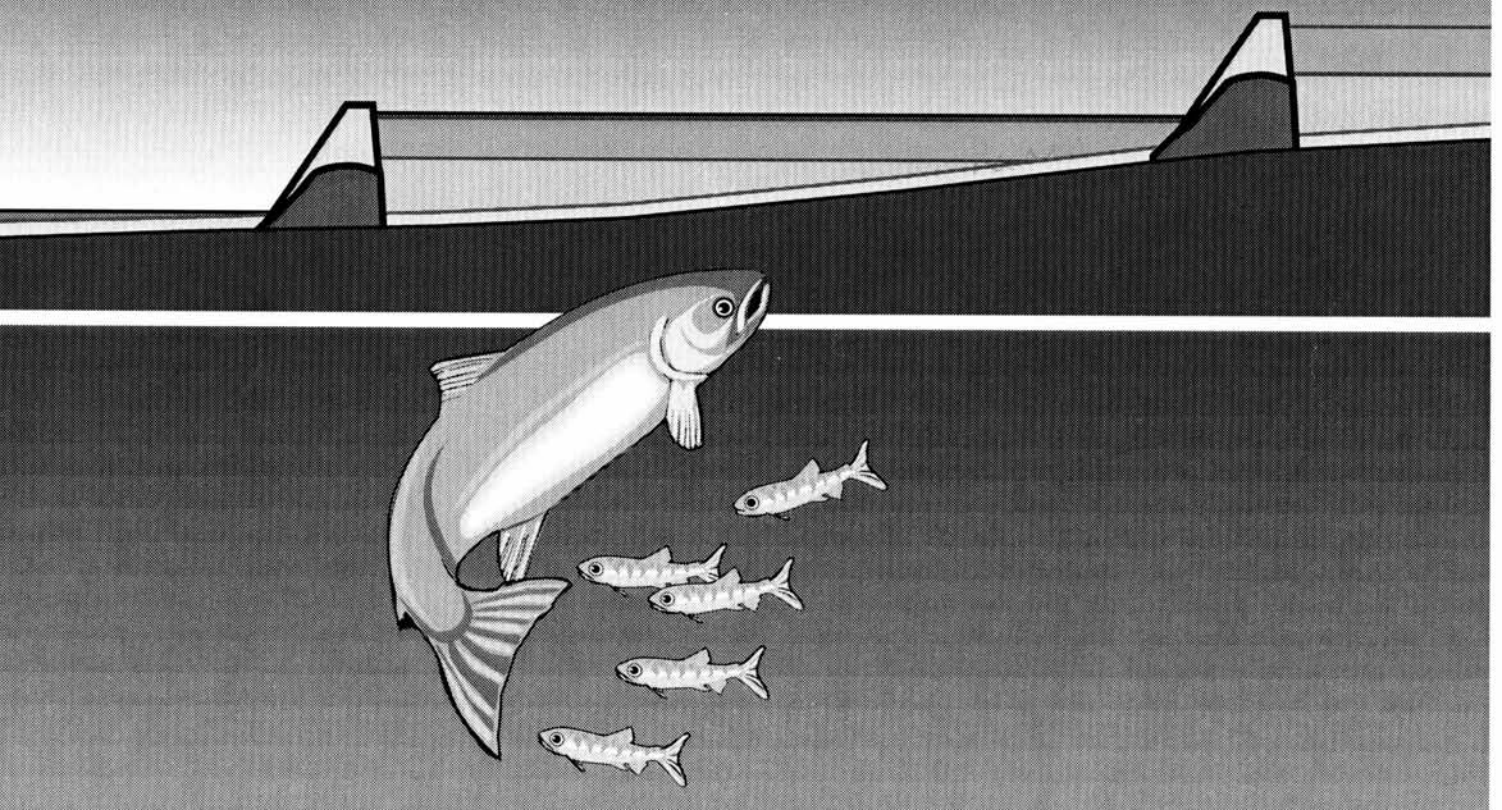
US Army Corps
of Engineers
Walla Walla District

1992 Reservoir Drawdown Test

Lower Granite and Little Goose Dams

Appendix F

Existing Structures and Facilities Surveillance



December 1993

APPENDIX F

EXISTING STRUCTURES AND FACILITIES SURVEILLANCE

1992 Reservoir Drawdown Test

Lower Granite and Little Goose Dams

Russ Akers
Clayton Garland
Walla Walla District
U.S. Army Corps of Engineers

APPENDIX F

TEST DRAWDOWN 1992 OF
LITTLE GOOSE AND LOWER GRANITE DAMS
EXISTING STRUCTURES AND FACILITIES SURVEILLANCE

1. INTRODUCTION.

In accordance with recommendations contained in the Record of Decision for the 1992 Options Analysis Document/Environmental Impact Statement for the Columbia River Salmon Flow Measures, a test drawdown of Little Goose and Lower Granite Reservoirs was conducted during the period of 1 to 31 March 1992. The drawdown test enabled the Corps of Engineers to evaluate the effects and feasibility of conducting reduced reservoir water levels on a regular basis. The lowering of water levels within the reservoirs theoretically would increase instream velocities that would potentially move the salmon smolts downstream at a faster rate, which would theoretically increase their survival.

Coordination meetings and site inspections between railroad, State Departments of Transportations, Port Authorities, City, County, and State officials, and other parties involved to establish damage potential, and to assess damage, to existing facilities and structures due to drawdown operations were performed prior to, during, and after the drawdown period.

Various telephone conversations, meetings, site visits, and correspondence transmitting as-built information were conducted between Corps representatives and the following parties:

Washington State Department of Transportation:

Mr. Tom Lyon, Operations and Maintenance Engineer
Washington State Department of Transportation
District 5
P.O. Box 12560
Yakima, Washington 98909-2560
(509) 575-2564

Washington State Parks and Recreation Commission:

Washington State Parks and Recreation Commission
7150 Cleanwater Lane KY-11
P.O. Bpx 42650
Olympia, Washington 98504-2650
(206) 753-5755

Potlatch Corporation:

Mr. Paul Woelfel
Senior Project Engineer
Idaho Division
Potlatch Corporation
P.O. Box 1016
Lewiston, Idaho 83501-1016
(208) 799-1286

City of Clarkston:

Mr. John Sims
City Engineer
City of Clarkston
830 5th
Clarkston, Washington 99403
(509) 758-5597

Camas Prairie Railroad Company:

Mr. Verne Hoes
Manager
Camas Prairie Railroad Company
P.O. Box 1166
Lewiston, Idaho 83501
(208) 743-2940

Whitman County:

Mr. Brandon Cole
County Engineer
Whitman County
(509) 397-6206

City of Lewiston:

Mr. Ervin Wessels
Wastewater Treatment Plant
City of Lewiston
900 7th Ave. N.
Lewiston, Idaho 83501
(208) 743-8302

Port of Clarkston:

Mr. Rick Davis
Terminal Operations Director
849 Port Way
Clarkston, Washington 99403
(509) 758-5272

Port of Lewiston:

Mr. Ron McMurray
Manager
Port of Lewiston
1626 6th Ave. N.
Lewiston, Idaho 83501
(208) 743-5531

Port of Whitman County:
(509) 758-1052

Port of Garfield:

Red Wolf Marina:

Bob Gilcrest
Red Wolf Marina
1550 Port Dr.
Clarkston, Washington 99403
(509) 758-6563

Beamer's Landing:

Beamer's Landing
P.O. Box 1223
Lewiston, Idaho 83501
(208) 743-4800

Idaho Department of Parks and Recreation

Idaho Department of Parks and Recreation
State House Mail
7800 Fairview Ave.
Boise, Idaho 83720-8000
(208) 327-7444

As-built information and meeting minutes are attached in Appendix F1.

2. FIELD EVALUATIONS.

Prior to, during maximum drawdown, and after the drawdown period, field evaluations of existing facilities were made by representatives of the Structural Design Section of the Engineering Division, and the Real Estate Division. A summary of findings by the Real Estate and Structural Design representatives is attached in Appendix F2. Videos taken during the field evaluations can be found in the Real Estate Division.

Prior to the drawdown period, retired engineer and former Chief of Soils and Civil Design Section, Mr. Larry McDevitt

completed a report outlining potential problem areas for both reservoirs. A copy of this report can be found in Appendix F3. Field investigations made by the Soils and Civil Design Section were reported daily during the drawdown period. Evaluations of existing structures were made through contacts with the various parties mentioned previously. Daily inspection reports were made by the geotechnical surveillance team and can be found in Appendix F4.

3. CONCLUSIONS.

Aside from minor damage to docks and landing facilities, and tilting piles, most facilities that took preventive measures suffered little damage to their facilities. Unpredictable situations, such as submerged logs, and channel cutting beneath walkway ramps, caused the most damage.

In an area of heavy siltation, mud flows moved piles and the piles had to be replaced. In areas that appeared to be natural slopes with light armoring, some settlement was experienced and seen as surface cracks, surface depressions, and stress of sheet pile pier walls.

Four months after the drawdown, surface stress is still being seen through settlement as cracking asphalt, spalling concrete, and other surface depressions.

Some lease-holders took advantage of the lower water levels to replace handling docks, add extra launch lanes, and remove siltation from the marina areas.

APPENDIX F-1

AS-BUILT INFORMATION AND MEETING MINUTES

CENPW-EN-GB-SC (1110-2-1150a) Mr. Leech/6528/dm 8 Oct 91

CB:CENPW-EN-GB-SC

MEMORANDUM THRU

Chief, Soils & Civil Design Section

Chief, Geotechnical Branch

Chief, Engineering Division

FOR Engineering Files

SUBJECT: Coordination Meetings for Drawdown of Lower Granite Reservoir and Dredging of Port of Lewiston

1. Date of Meetings.

1 October 1991

2. Locations.

a. Camas Prairie R.R., Lewiston, ID

b. Port of Lewiston, ID

3. Purposes.

a. To discuss potential impacts of drawdown of Lower Granite Reservoir with Camas Prairie Railroad people.

b. To discuss disposal area for disposal of dredged material near the Port of Lewiston.

4. Attendance.

a. Camas Prairie, R.R. Lewiston:

Dick Weller	CENPW-EN-GB-SC
Joe Murar	CENPW-EN
J. Scott Leech	CENPW-EN-GB-SC
Vern Hoes, Manager	Camas Prairie, R.R.
Jim Morefield	Camas Prairie, R.R.
Ray Leiterman	Camas Prairie, R.R.

b. Port of Lewiston:

Dick Weller	CENPW-EN-GB-SC
Joe Murar	CENPW-EN
J. Scott Leech	CENPW-EN-GB-SC
Ron McMurray, Gen. Manager	Port of Lewiston

5. Background. One of the recommendations of the draft for the Columbia River Salmon Flow Measures (EIS), was to lower the reservoir level behind Lower Granite Dam. A test drawdown is tentatively scheduled in the February to March time-frame of next year. The proposals suggested in the EIS calls for the reservoir to be drawn down to elevation 710. This not only would have significant economic impacts to the region because it stops navigation during the periods of drawdown, but has also generated concerns from a geotechnical standpoint as to the stability of railroad and road fills located beneath the present operating water levels. Below current water levels many of the aforementioned embankments are not protected by riprap. There is therefore a concern as to whether there will be an erosion problem during the time when the reservoir is operating at the elevation 710 level.

6. Discussions.

a. Camas Prairie: Discussions centered around railroad line embankments that may be adversely impacted by the lowering of the reservoir. According to the Camas Prairie Railroad Manager, Mr. Hoes, the stability of the railroad embankment will not present a problem immediately after the reservoir is dropped to el. 710. He is, however, going to be prepared with stockpiled riprap material in case a problem should arise. Before he can stockpile any material a riprap source will have to be made available. Currently he has no known source. He said that the railroad would not shut down its operation during the drawdown period. Mr. Hoes and his staff did agree that a slow drawdown of no more than 2 feet per day was prudent. The railmen did not have a plan on how the riprap material would be placed on the lower parts of the embankment fill other than end dumping from rail cars and pushing the rock down the slope. In anticipation of the navigation interruption during drawdown, the railroad is preparing to meet demands for shipping of materials which are normally barged downstream in the event drawdown does take place, however, some improvements to the port facilities would be needed to handle the 25 cars or so expected. Mr. Hoes feels that the ports do not believe the drawdown is going to be a reality as little is being done to prepare for it on their part. Mr. Hoes stated that an embankment inspection by Corps staff would be beneficial sometime in the near future. He intends to have his engineers conduct an evaluation of the embankments to determine if there is a potential for concern as to the integrity of the fills during drawdown.

b. Port of Lewiston: Discussions concerned mainly the location of the disposal area for upcoming dredging contract. The most economic dredging scheme would be to dispose of the dredged

material in the deep inwater disposal site located downstream of the Port of Lewiston. Mr. Murar informed Mr. McMurray of the presence of dioxin contamination found in the river. It is therefore uncertain whether the contaminated dredged material could be placed in the deep inwater disposal site. Mr. McMurray is aware of the contamination problem and suggested that an open area owned by the Port of Lewiston, situated adjacent to the river, be excavated and backfilled with dredge material. The excavated material would be transported to another open area owned by the port further away from the river. This, of course, would be a costlier alternative to using the inwater disposal site. Mr. McMurray is also heavily involved in political discussions regarding the drawdown situation of Lower Granite Dam.

7. Observations. While in the area Messrs. Weller, Murar and Leech observed the Lower Granite levee systems, the proposed Port of Lewiston disposal area and encapsulated hazardous waste disposal area also located at the Port of Lewiston.

J SCOTT LEECH, P.E.
Civil Engineer

LEECH/EN-GB-SC/dm

EN

Water Quality & Treatment / Wastewater Treatment, Studies, Design, Operation / Industrial Wastewater Management

ESVELT ENVIRONMENTAL ENGINEERING

November 2, 1991

Mr. Scott Leech
U.S. Army Corps of Engineers
Geotechnical Branch, Attn: CENPW-GB-SC
Bldg. 602, City County Airport
Walla Walla, WA 99362-9265

Re: Clarkston, Washington wastewater treatment plant outfall.

Dear Mr. Leech:

Enclosed please find a copy of the design print for construction of the wastewater treatment plant outfall from the City of Clarkston. Please note that the print does not indicated that it is "As Constructed" and that we do not know for sure that it represents the actual installation. However we have no reason to believe that the facility was not constructed as shown. Also note that the second outfall that appears to be shown but is marked out does not exist. A second outfall does exist as described below.

As I indicated in our telephone conversation, the City of Clarkston has authorized Anderson·Perry Associates of Walla Walla to prepare an Engineering Study of the outfall for potential modification or replacement. I will be assisting Anderson·Perry Associates in this study. The outfall as shown is inadequate for design wastewater flows through the wastewater treatment plant as it is currently being upgraded and modified.

Also as I indicated in our telephone conversation and above, a second outfall exists for which there are no plans. It consists of an overflow from the outfall as shown, located in a manhole constructed approximately at water edge. The outfall shown has a hole knocked in the top inside of the manhole. A pipe which appears to be about 12" diameter extends from this manhole approximately 20' into the river.

If you have any further questions, please call.

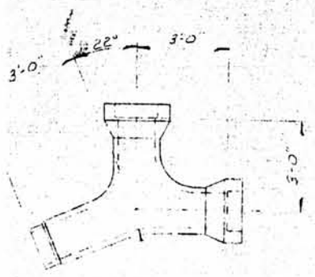
Sincerely yours
Esvelt Environmental Engineering

Larry A Esvelt

Larry A. Esvelt, Ph.D., P.E.

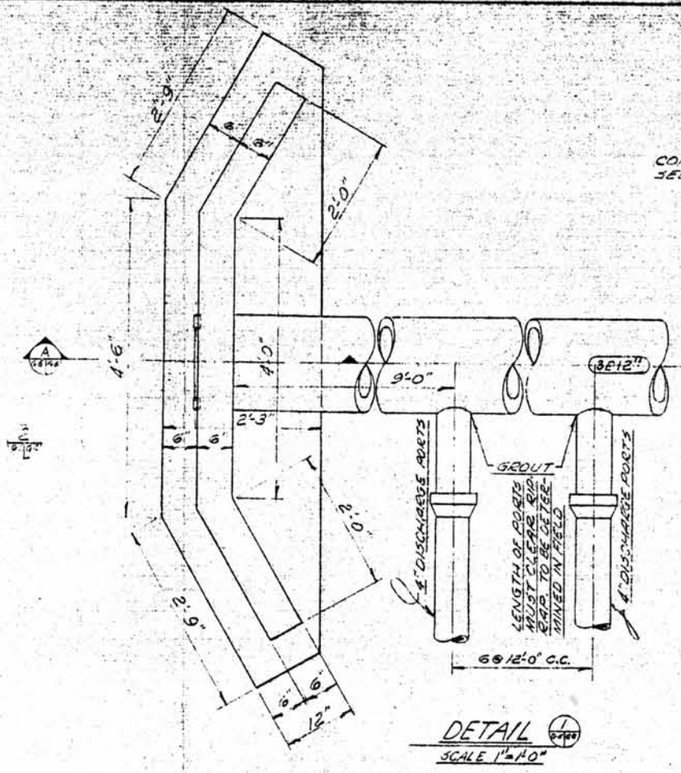
copy: John Sims, City of Clarkston
Keith Olson, Anderson·Perry Associates

EAST 7905 HEROY AVENUE SPOKANE, WASHINGTON 99212 / PHONE (509) 926-3049 / FAX (509) 922-3073



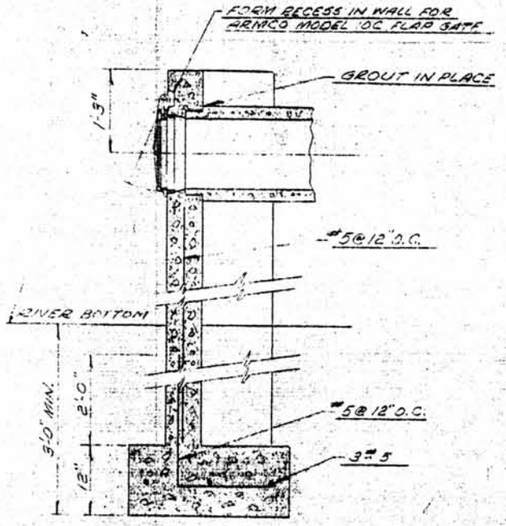
6"CONC. OUTFALL CLEANOUT

SCALE: ½" = 1'-0"



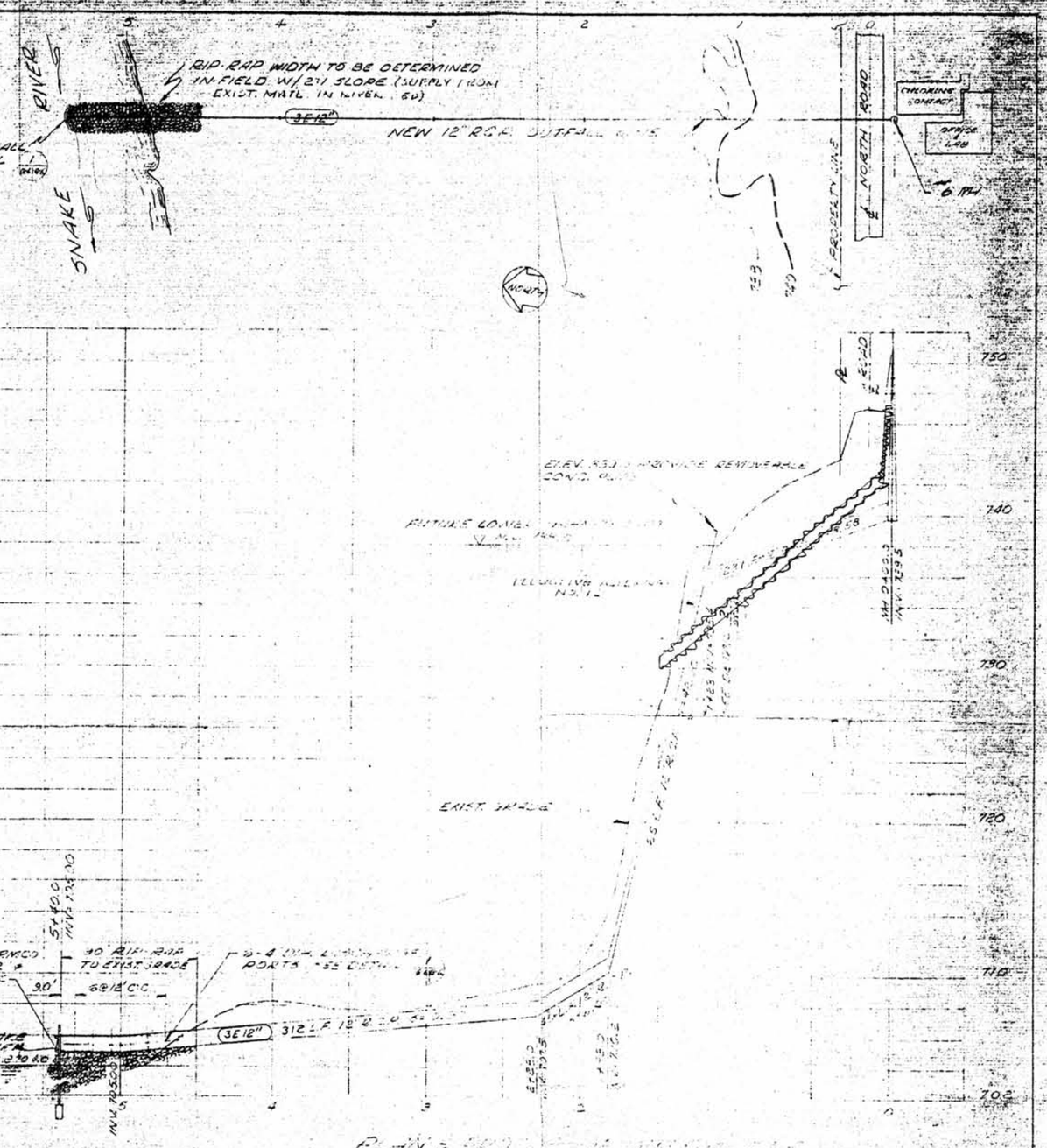
DETAIL

SCALE 1"=1'0"



HEAD WALL SECTION

SCALE: 1" = 1'0"



CITY OF CLARKSTON, WASHINGTON		REVISIONS
SEWAGE TREATMENT PLANT EFFLUENT OUTFALL LINE PLAN & DETAILS	Jack H. Whiteley	
WHITELEY-JACOBSEN & ASSOCIATES CONSULTING ENGINEERS 1518 E. OLIVE WAY, SEATTLE, 98122, WASHINGTON	DRAWN: RH CHECKED: HOM APPROVED: J.H.W.J. DATE: JULY 69	SHEET NO. G-6

CENPW-EN-GB-SC (1110-2-1150a) Mr. Leech/6528/dm 18 Nov 91

MEMORANDUM THRU

Chief, Soils & Civil Design Section

Chief, Geotechnical Branch

Chief, Engineering Division

FOR Engineering Division Files

SUBJECT: Coordination Meeting between Corps of Engineers and Washington Dept. of Transportation for Lower Granite and Little Goose, Spring 1992 Drawdown

1. Date of Meeting.

15 November 1991.

2. Location.

Clarkston, Washington.

3. Purpose.

To discuss potential problems to reservoir roads during subject drawdown.

4. Attendance.

Dick Weller	CENPW-EN-GB-SC
Ken Hutchinson	CENPW-EN-GB-GE
J Scott Leech	CENPW-EN-GB-SC
Tom Lyon	Washington Dept. of Transportation

5. Discussions.

a. During the meeting Mr. Weller informed Mr. Lyon of the current status of the drawdown procedures. Mr. Lyon voiced his concern for the stability of the Red Wolfe Bridge on Highway 193, near Clarkston and the Central Ferry Bridge. He provided copies of the construction drawings which are shown on enclosure 1-3. With Lower Granite drawdown to el. 691.1 as currently planned, the water surface elevation near Clarkston is about el. 705. This, as shown on enclosure 2, would make pier No. 2 susceptible to erosion. According to Mr. Lyon, this pier foundation was armored to the best of his recollection. Mr. Lyon also mentioned that the old Central Ferry Bridge was blown off it piers and allowed to sink in the river and may still be in the channel.

b. The major concern Mr. Lyon had was the road embankments along Highway 12 from about Silcot to the bridge connecting Clarkston and Lewiston and proceeding along Highway 129 on the Snake River from Clarkston to about Asotin Creek. The stretch along Highway 129 was fairly well armored and received riprap protection to the toe of the levee so there may not be a problem in this area. However, there is some reason for concern on the Highway 12 stretch as illustrated by the typical sections given on enclosure 4. As seen on this drawing, riprap protection extends down to el. 728.0. The drawing indicates rockfill protection below el. 728.0 to the toe. The accompanying specs give maximum particle sizes at 36 inches, however, according to Mr. Lyon the placed material was predominantly minus 8-inch material taken from the grizzly operations. The proposed drawdown to el. 705 would indeed fall below the riprap protection.

c. Mr. Weller talked to Mr. Lyon about the capabilities of the State's maintenance crews to respond to any erosion or embankment stability problems during the drawdown. Considering the magnitude of the drawdown operation and the quick response time required, Mr. Lyon felt his present limited staff may be inadequate for such a task.

6. Continuing Action.

Mr. Lyons was told that we would coordinate with him as more develops on the drawdown procedure.

4 Encls
as

J SCOTT LEECH, P.E.
Civil Engineer

LEECH/EN-GB-SC/dm

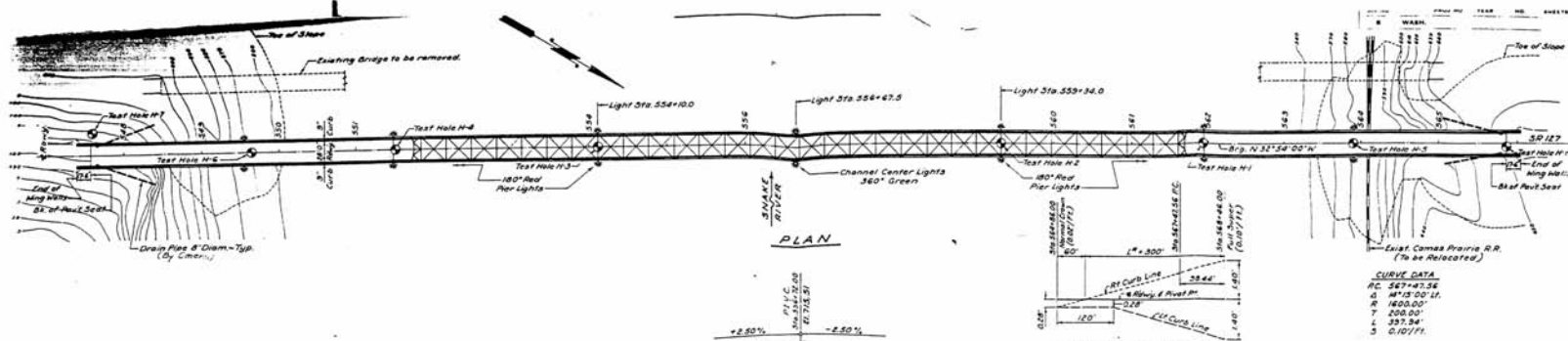
WELLER/EN-GB-SC

MIKLANCIC/EN-GB

BRAMMER/EN

MURAR/ OP-PO

EN



ELEVATION

Grade elevations shown are finish grades on ℄ Rdwy. and are equal to profile grade.

GENERAL NOTES

All material and work shall be in accordance with the requirements of the State of Washington, Department of Highways, Standard Specifications for Road and Bridge Construction, dated 1963 and Amendment No. 2, dated June 1968.

Footing elevations are subject to change depending upon foundation material encountered.

Reinforcing steel for the footings, columns and walls shall not be cut until final footing elevations have been determined in the field.

The concrete in all seals shall be Class D mix. The concrete in all footings and all piers, except as noted for Piers No. 1 & 8, shall be Class B mix. All other cast in place concrete shall be Class AX mix.

The concrete seals are designed for a water elevation of 565.0. After seals are poured, cofferdams shall not be unwatered when the water is above elevation 565.0, and provision shall be made to flood the cofferdam in the event the water surface is above the design elevation.

Falsework shall be carefully released to prevent impact or undue stresses in the structure. The rail base shall not be poured until the falsework has been released.

The maximum design soil pressure per square foot is ten (10) tons for Piers No. 1, 2, 3, 4, 5 & 6 and three (3) tons for Pier No. 8.

Each pile shall be driven to a depth sufficient to develop a minimum load bearing capacity of seventy (70) tons.

Unless otherwise shown on the plans, concrete cover measured from the face of the concrete to the face of any reinforcement bar shall be 1" at the bottom of slabs and at the tops of curbs, 2½" at the bottom of footings and 1½" at all other locations including stirrups and ties.

DATUM
Mean Sea Level

APPROXIMATE QUANTITIES

Mobilization	Lump Sum	
Structure Excavation	7,060	Cu. Yds.
Shoring and Cribs or Extra Excavation	Lump Sum	
Furnishing and Driving Steel Test Piles	3	Only
Furnishing Steel Piling	2,700	Lin. Ft.
Driving Steel Piles	55	Only
Steel Reinforcing Bars	602,200	Lbs.
Concrete Class D	4,695	Cu. Yds.
Concrete Class B	11,120	Cu. Yds.
Concrete Class AX	15	Cu. Yds.
Roadway Deck	Lump Sum	
Structural Carbon Steel	Lump Sum	
Structural Low Alloy Steel	Lump Sum	
Cast Steel	Lump Sum	
Navigation Lighting System	Lump Sum	
Water Reducing Additive	Est. 2,185	Gallons
Removing Existing Structure	Lump Sum	

LOADING: H5-20 OR TWO 24" AXLES @ 4' CTRS.

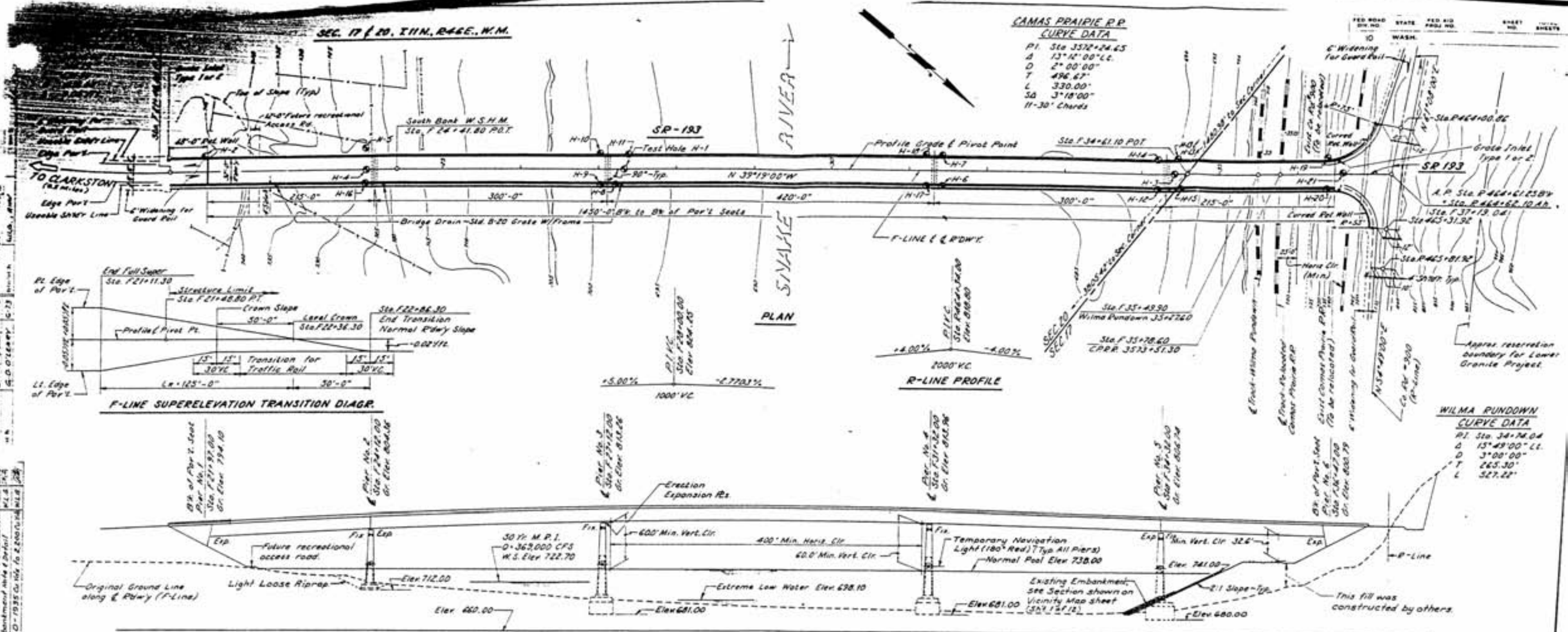
SR 127
SNAKE RIVER BRIDGE
AT CENTRAL FERRY
GARFIELD AND WHITMAN COUNTIES

LAYOUT

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

July 1, 1968

SHEET 3 OF 34 SHEETS



ELEVATION

NOTE: Details shown on Layout are for the finished structure but only Piers 2,3,4 & 5 shall be constructed under this contract.

Grade Elevations shown are finish grades on ℄ R'dw'y and are equal to Profile Grade.

GENERAL NOTES

All material and work shall be in accordance with the requirements of the State of Washington, Department of Highways, Standard Specifications for Road and Bridge Construction, Dated 1972.

This structure has been designed in accordance with the requirements for Load Factor Design, 1969 AASHO Specifications and Interim Specifications thru 1972.

Footing elevations and substructure details are subject to change depending upon foundation material encountered. Reinforcing steel for the footings and piers shall not be cut until final footing elevations have been determined in the field & substructure details have been modified as required.

The concrete in all seals shall be Class D mix. The concrete in the footings and pedestals of all piers shall be Class B mix. All other cast in place concrete shall be Class B (Colored) mix.

The concrete seals are designed for a water surface elevation of 717 feet. After seals are ... shall not be unwatered when ... shall be made to flood the cofferdam in the event the water surface is above the design elevation.

Falsework shall not be released at any Pier until all concrete in that pier has been in place the required length of time and has developed sufficient strength as outlined in the specifications. Falsework shall be carefully released to prevent impact or undue stresses in the structure.

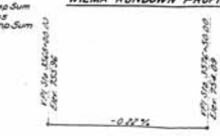
The maximum design soil pressure per square foot is five (5) tons for Piers 2 & 5 and seven and one half (7½) tons for Piers 3 & 4.

Unless otherwise shown on the plans, concrete cover measured from the face of the concrete to the face of any reinforcement bar shall be 2½" at the bottom of footings and 1½" at all other locations.

APPROXIMATE QUANTITIES

Special Excavation	550	Cu. Yds.
Structure Excavation Class A.	2,565	Cu. Yds.
Shoring and Cribs or Extra Excavation.	L.S.	Lump Sum
Steel Reinforcing Bars.	560,000	Lbs.
Concrete Class D.	2,200	Cu. Yds.
Concrete Class B.	740	Cu. Yds.
Concrete Class B (Colored).	1,460	Cu. Yds.
Electrical Conduit.	325	Lin. Ft.
Miscellaneous Hardware.	L.S.	Lump Sum
Light Loose Rip Rap.	1,120	Tons
Boat Transportation	L.S.	Lump Sum

WILMA RUNDOWN PROFILE



CAMAS PRAIRIE R.R. PROFILE

LOADING: HS-20
or
2-24K AXLES @ 4' CTRS.

RED WOLFE

SR 193 MP 0.23 TO MP (

SNAKE RIV. BRIDGE 15TH ST. VIC. - PIER:

ASOTIN AND WHITMAN COUNTIES

LAYOUT

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

July 6,
SHEET 3 OF 12

SEC. 17 & 20, T. 11 N., R. 46 E., W. M.

F-LINE CURVE DATA
P.I. Sta. F18+12.25
Δ 31°45'00" Lt.
T 353.83'
L 689.46'
R 1244.21'
S 0.05'/Ft.

Equation
Sta. F21+47.88 P.T. (Bk.)
Sta. F21+48.79 P.O.T. (Ahd)
Bridge grate inlet

Toe of Slope (Typ.)
28'-0" Port District Access Rd.
37' Ret. Wall
11' Wing Wall
F22+78.20 P.O.T. = PD21+39.01 P.C.C.
South Bank W.S.H.M. Sta. F 24+41.80 P.O.T.
Guard Rail Terminal Connector Design F
Widening for Guard Rail
Useable Shldr. Line
Edge Pav't
79 CLARKSTON (0.5 Mile)
Conc. Inlet or C.B. w/Std. B-20.1 Grate (Not incl. in Br. quantities)
Bridge Drain Type 7 (Typ.)
Sta. F 22+70±
Sta. F 23+15±
Sta. F 24+50±
1449'-4¾" 8"k to 8'k. of Pav't Seams
215'-0" 300'-0" 420'-0" 299'-4¾"
30° Typ.
N 39°19'00" W.
H-1 H-2 H-4 H-5 H-6 H-7 H-8 H-9 H-10 H-11 H-12 H-13 H-14 H-15 H-16 H-17 H-18 H-20 H-21

SR-193
Test Hole H-1
Profile Grade & Pivot Point
Sta. F 34+63.21 P.O.T.
4-4" Telephone Conduits
R/W LINE
F-LINE & ℄ RDWY.
Br. Drain Type 7. Sta. F34+25±
Sta. F35+49.90 2.5° Rt. Wilma Rundown 35+27.60
Sta. F35+78.50 2.5° Rt.
CPRR 3573+51.30 Elev. 756.80 @ top of rail.
5" ϕ Galv. Pipe w/coupling & plug (For Sign Support) Sta. F36+60 Approx.
SEC. 20 — 360.61' to Sec. Corner — SEC. 17
1477.79' to Sec. Corner

PLAN
180° Red Light
360° Green Light

WILMA RUNDOWN CURVE DATA
P.I. Sta. 34+74.04
Δ 15°49'00" Lt.
D 3°00'00"
T 265.30'
L 527.22'

CAMAS PRAIRIE R.R. CURVE DATA
P.I. Sta. 3572+24.65
Δ 13°12'00" Lt.
D 2°00'00"
T 496.67'
L 330.00'
SΔ 3°18'00"
11 - 30' Chords

B-26 Grate Inlets, Type 1 or Type 2 w/Grate A, to be placed @ low points. (Not included in Bridge quantities.)

FED. ROAD DIV. NO. 10 | STATE WASH. | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS

Sta. R463+08.50
Guard Rail Terminal Connector Design F
N 61°08'00" E
SR 193
4' Shldr.
Sta R464+08.50
Bridge Grate Inlet
Sta. R464+58.75±
Sta. F37+19.49
A.P. Sta R464+61.25 Bk.
Sta. R464+62.10 Ahd
6" Asph. Curb 15' Long - Not incl. in Br. Quant.
Sta. R465+28.37
Guard Rail Terminal Connector Design F
Sta. R465+78.3±
4' Shldr. - Typ.
10'
Bot. of Ditch
Approx. reservation boundary for Lower Granite Project.
N 54°49'00" E
C.A. Rd. #300 (℄ Line)
℄ Track Wilma Rundown
℄ Track Relocated Camas Prairie R.R. (Existing)
Horiz. Clr. (Min.)

WILMA RUNDOWN PROFILE
P.I.V.C. Sta. 30+40.00 Elev. 725.89
+1.00% -0.20%
1200' V.C.

R-LINE PROFILE
P.I.V.C. Sta R464+33.00 Elev. 818.80
Equation: Sta R463+62.25 Bk. = Sta. R463+62.10 Ahd
+4.00% -4.00%
2000' V.C.

P.I.V.C. Sta. F28+00 Elev. 824.25
+5.00% -2.7703%
1000' V.C.

Stub fill to Elev. 758.5 (See Special Provisions for Pier 1 Stage Constr.)
Bk. of Pav't Seat Pier 1 Sta. F21+97.00 Gr. Elev. 794.10
Pier 2 ℄ Sta. F24+12.00 Gr. Elev. 804.36
Pier 3 ℄ Sta. F27+12.00 Gr. Elev. 813.26
Pier 4 ℄ Sta. F31+32.00 Gr. Elev. 813.96
Pier 5 ℄ Sta. F34+31.40 Gr. Elev. 806.76
Bk. of Pav't Seat Pier 6 Sta. F36+46.40 Gr. Elev. 800.80
Elev. 781.0
Exp. Fix. Exp. Fix. Exp. Fix. Exp. Fix. Exp.
Port Dist. access road
Steel Piles
Riprap
Original Ground Line along ℄ Rdwy. (F-Line)
Elev. 660.00
400' Min. Horiz. Clr.
60.0' Min. Vert. Clr.
Normal Pool Elev. 738.00
Min. Vert. Clr. = 30.6'
Elev. 741.00
Existing Riprap
Riprap Slope Protection, 2:1 Max. Slope (Not included in Bridge Quantities).
Elev. 794.0
R-Line
Elev. 753.0 (See Special Provisions for Pier 6 Stage Construction.)
* Not included in Bridge Quantities

ELEVATION

Grade Elevations shown are finish grades on ℄ R'dwy and are equal to Profile Grade.
180° Red Light 360° Green Light
3-180° White Lights (vertically aligned)
Piers 2, 3 & 5 constructed by previous contract.

LOADING: HS-20 OR 2-24ᵏ AXLES @ 4' CTRS.

REDUCED

End Full Super Begin Transition Sta. F21+10.38
Structure Limits Sta. F21+47.88 B.P.T.
Crown Slope 50'-0"
Level Crown Sta. F22+35.38
Sta. F22+85.38 End Transition Normal R'dwy Slope
Profile Gr. & Pivot Pt.
Rt. edge of Pav't
Lt. edge of Pav't
-0.02"/Ft.
15' 15' 30'-0" Transition for Traffic Rail. 15' 15' 30'-0"
LR = 125'-0" 50'-0"

F-LINE SUPERELEVATION TRANSITION DIAGR

Bot. of Fig.
1'-0"
1'-0" Typ

RET. WALLS @ PIER 1

LIMITS OF STRUCTURE EXC. - CLASS A

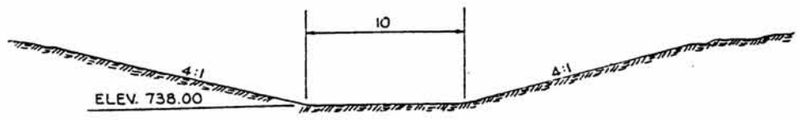
SR 193 MP 0.02 TO MP 0.51
SNAKE RIVER BRIDGE & APPROACHES
ASOTIN & WHITMAN COUNTIES
SNAKE RIVER BRIDGE-SUPERSTRUCTURE

LAYOUT

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
W. A. BULLEY DIRECTOR OF HIGHWAYS

Exhibit 2

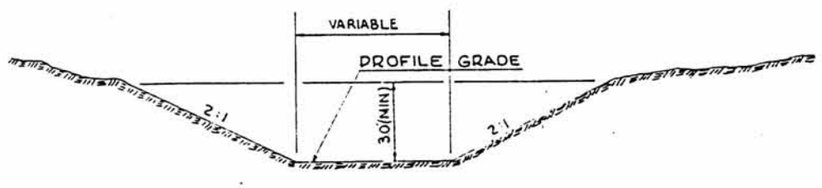
REGION NO.	STATE	FED. AID PROJECT NO.	SHEET NO.
10	WASH.		



CHANNEL SECTION A

STA. 704+25	ON LT.	STA. 763+00	ON LT.
STA. 715+25	ON LT.	STA. 772+00	ON LT.
STA. 726+75	ON LT.	STA. 777+00	ON LT.
STA. 739+75	ON LT.	STA. 787+00	ON LT.
STA. 750+00	ON LT.	STA. 797+50	ON LT.

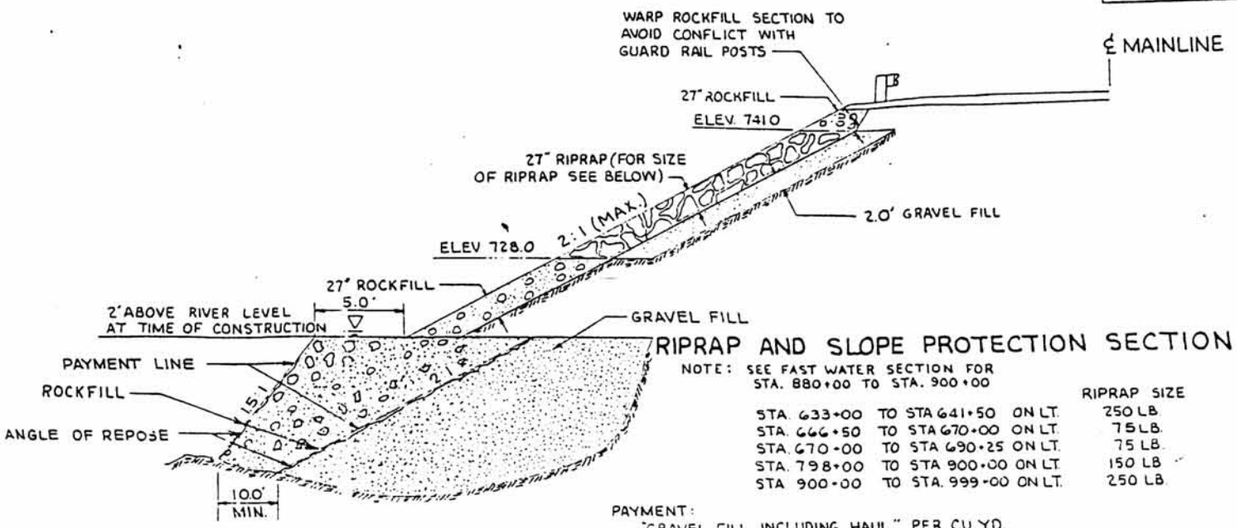
PAYMENT:
"CHANNEL EXCAVATION INCLUDING HAUL", PER CU. YD.



CHANNEL SECTION B

	VARIABLE
STA. SC 8+30 TO STA. SC 9+44	8' TO 15.6'
STA. SC 10+43 TO STA. SC 11+30	15.6' TO 8'

PAYMENT:
"CHANNEL EXCAVATION INCLUDING HAUL", PER CU. YD.



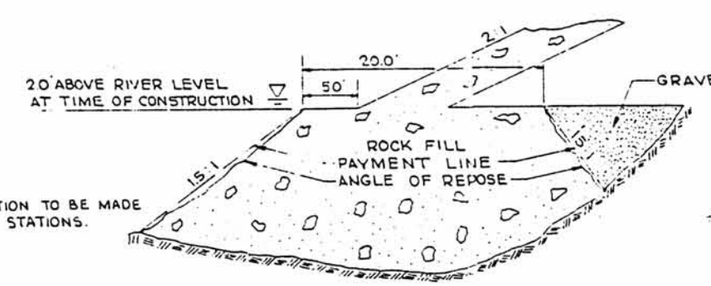
RIPRAP AND SLOPE PROTECTION SECTION

NOTE: SEE FAST WATER SECTION FOR STA. 880+00 TO STA. 900+00

			RIPRAP SIZE
STA. 633+00	TO STA 641+50	ON LT.	250 LB.
STA. 646+50	TO STA 670+00	ON LT.	75 LB.
STA. 670+00	TO STA 690+25	ON LT.	75 LB.
STA. 798+00	TO STA 900+00	ON LT.	150 LB.
STA 900+00	TO STA. 999+00	ON LT.	250 LB.

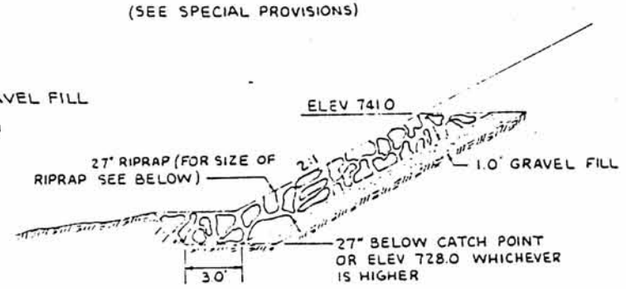
PAYMENT:
"GRAVEL FILL INCLUDING HAUL", PER CU. YD.
"ROCKFILL INCLUDING HAUL", PER CU. YD.
"RIPRAP 75 LB", PER CU YD.
"RIPRAP 150 LB", PER CU YD.
"RIPRAP 250 LB", PER CU. YD.

(SEE SPECIAL PROVISIONS)



FAST WATER SECTION

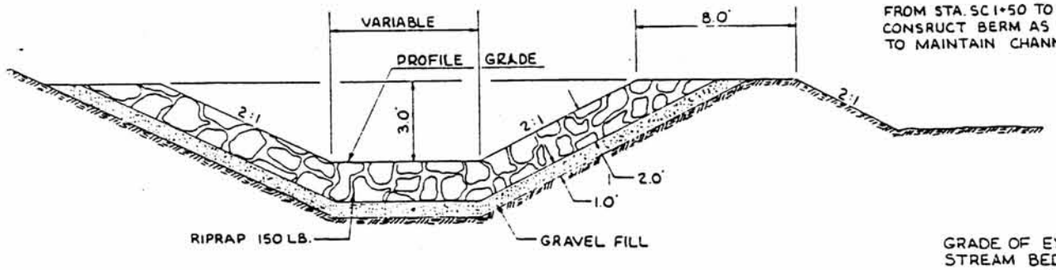
STA 880+00 TO STA 900+00 ON LT.



DETAIL OF RIPRAP TIE-IN TO HIGH GROUND

			RIPRAP SIZE
STA. 622+50	TO STA. 633+00	ON LT.	250 LB.
STA. 641+50	TO STA 648+00	ON LT.	250 LB.
STA. 662+50	TO STA 666+50	ON LT.	75 LB.
STA. 690+25	TO STA. 695+00	ON LT.	75 LB.
STA. 999+00	TO STA 1001+00	ON LT.	250 LB.

PAYMENT: (See Special Provisions)
"DITCH EXCAVATION INCLUDING HAUL", PER CU YD
"RIPRAP 75 LB", PER CU. YD.
"RIPRAP 250 LB", PER CU. YD.
"GRAVEL FILL INCLUDING HAUL", PER CU. YD



FROM STA. SC 1+50 TO STA. SC 9+44 CONSRUCT BERM AS NECESSARY TO MAINTAIN CHANNEL DEPTH.

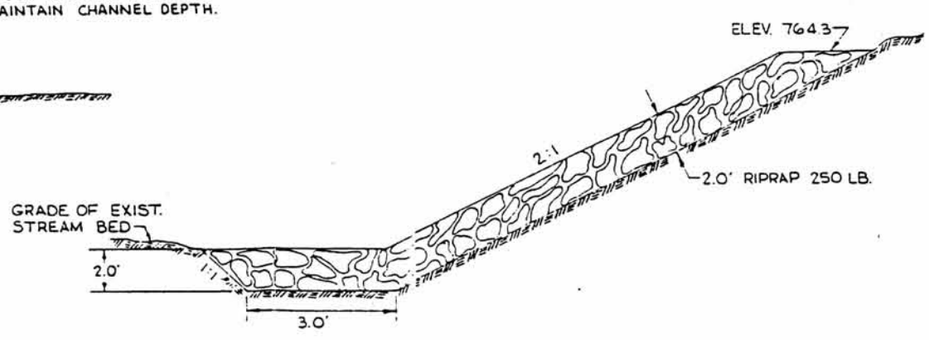
℄ GRAVEL
+00 AHEAD

TO BE MADE
ATIONS

DITCH SECTION A

	VARIABLE
STA. SC 1+50 TO STA. SC 3+00	3'
STA. SC 3+00 TO STA. SC 4+00	3'-6'
STA. SC 4+00 TO STA. SC 8+00	6'
STA. SC 8+00 TO STA. SC 8+30	6'-8'
STA. SC 11+30 TO STA. SC 11+50	8'-6'
STA. SC 11+50 TO STA. SC 12+30	6'

PAYMENT:
"DITCH EXCAVATION INCLUDING HAUL", PER CU. YD.
"RIPRAP 150 LB.", PER CU. YD.
"GRAVEL FILL INCLUDING HAUL", PER CU. YD.



RIPRAP SECTION AT BRIDGE ENDS

STA. 612+80 TO STA. 613+60
STA. 615+00 TO STA. 615+90

PAYMENT:
"DITCH EXCAVATION INCLUDING HAUL" PER CU. YD.

SR 12 **MP 424.80 TO MP 432.64**

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

DRAINAGE & RIPRAP DETAILS

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER CHAIRMAN
HAROLD WALSH VIRGINIA K. GUNBY
BAKER FERGUSON HOWARD SORENSEN

APPROVED September 21, 1973

CONTRACT NUMBER

SHEET 53 OF 76 SHEETS

Washington State Department of Transportation
District 5
2809 Rudkin Road, Union Gap
P.O. Box 12560
Yakima, Washington 98909-2560
(509) 575-2510

Duane Berentson
Secretary of Transportation

January 24, 1992

Scott Leach
U.S. Army Corps of Engineers
City/County Airport, Bldg. 621
Walla Walla, WA 99362-9265

RE: SR-12, Alpowa Creek to Clarkston

Dear Mr. Leach:

You have requested data regarding low level culverts that are installed in the SR-12 embankments that could drain the ponds that are south of the highway, from Alpowa Creek to Clarkston. I have been able to find some data which is reviewed in the following narrative or shown in the attached plan sheets. This information is needed as a part of your planning for the draw-down of the Snake River reservoir for salmon enhancement.

There are five ponds in the subject area. All have low level culverts that were intended to provide drainage prior to filling of the reservoir, to allow the rising reservoir to fill the ponds, and to some extent to act as equalizer tubes. I recall that we anticipated that some of the low culverts might become plugged with silt in time. It was not anticipated that there would ever be a condition where the reservoir would again be below these culverts. The high level culverts were considered to be able to adequately equalize the pond and reservoir levels in the range of normal reservoir operation.

I suspect that the culverts in the major stream courses may be plugged with stream bed drift. These are at Sta. 878+50 and Sta. 897+25. Our local Maintenance Supervisor at Clarkston has reported no evidence that the ponds do not readily equalize when the water has been below the high level culverts.

The embankments are constructed of well graded gravels with maximum size in the 4 inch plus size. This material should make a reasonably good dam. Your organization should be better able to determine the characteristics of the material.

The attached plan sheets show the low level culverts highlighted in yellow. Elevations with a question mark are guesstimated from the quad map. These are all 30 inch diameter. For the two larger culverts that go through the old highway culverts, the elevation was taken off a design sheet. As-constructed elevation should be close. I have no data on the elevation of the 30 inch diameter high level culverts, but they may be findable in the field. The elevations for the larger high level culverts are from the design sheet.

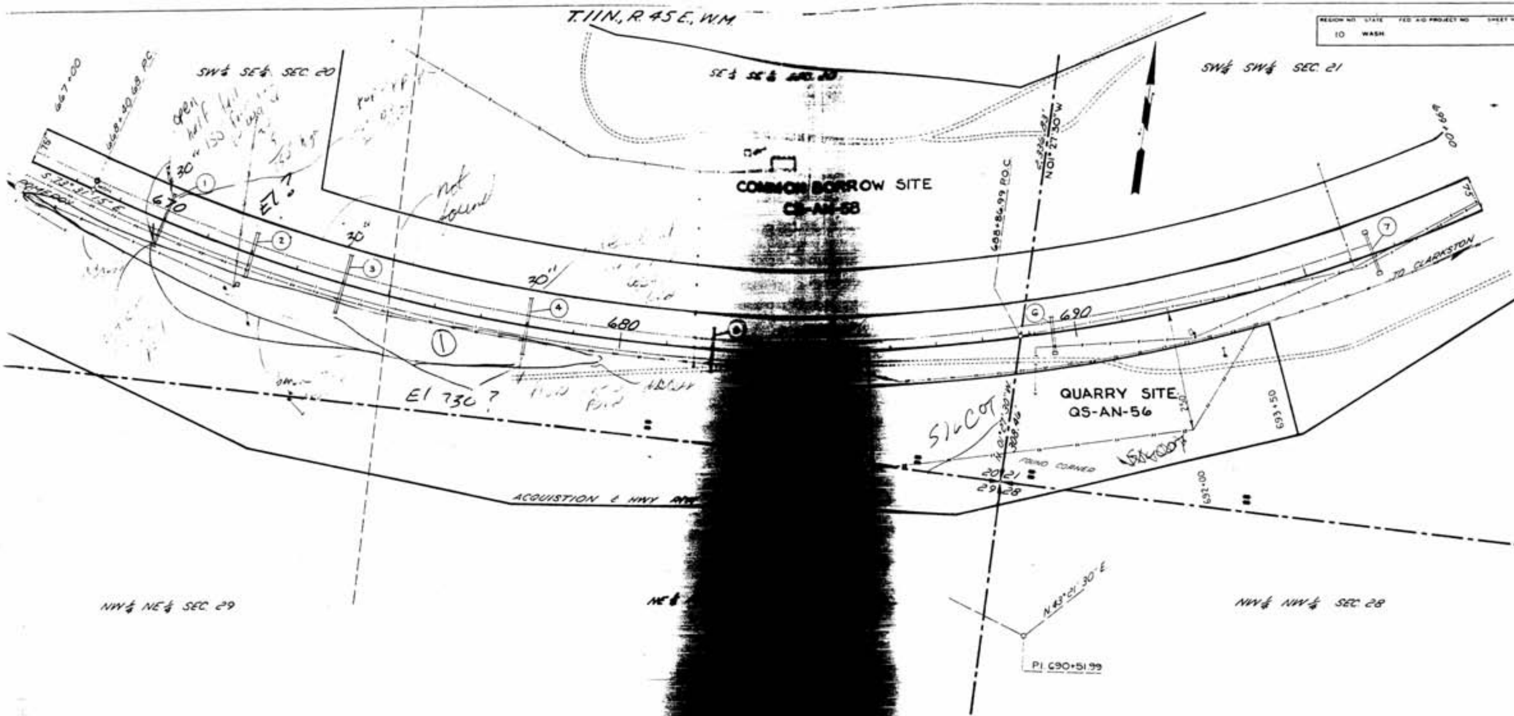
If I can be of further help in your efforts to plan for the Snake River draw-down, please contact me.

Yours truly,

RICHARD L. LARSON, P.E.
District Administrator

BY: THOMAS E. LYON, P.E.
District Operations Engineer

RLL
TEL:bjd



LEGEND
EXISTING FENCE
WIRE FENCE TYPE NO. 1
BEAM GUARD RAIL TYPE 1

CURVE DATA

STATION	Δ	R	T	L	SUPER
[illegible]	63°07'15" LT	[illegible]	[illegible]	[illegible]	[illegible]

SR 12 MP 424.80 TO MP 432.64

ALPOWA CREEK TO CLARKSTON

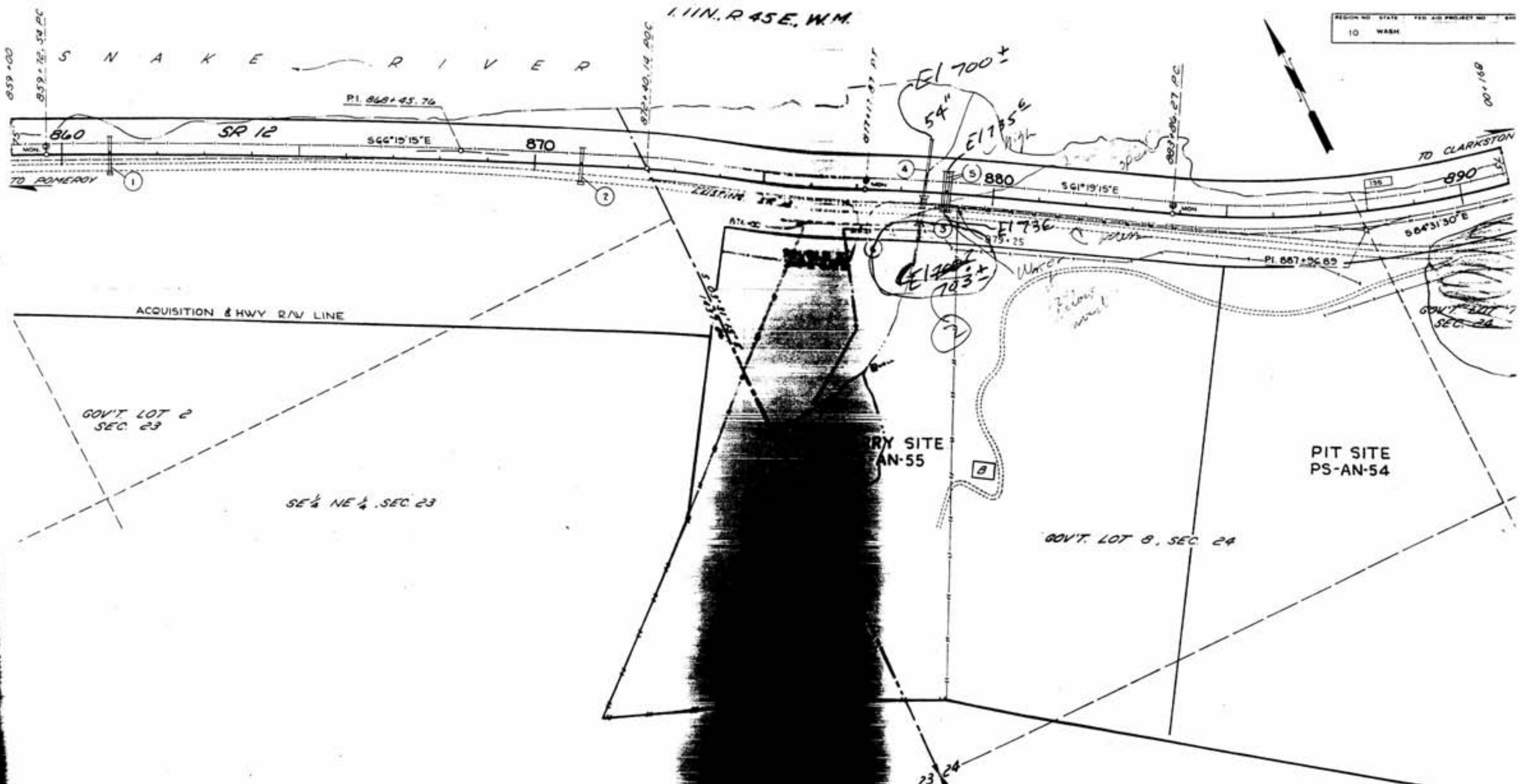
ASOTIN COUNTY

PLAN

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER CHAIRMAN
HAROLD WALSH VIRGINIA K. GUNBY
BAKER FERGUSON HOWARD SORENSEN

Sh 32



LEGEND

- EXISTING FENCE
- WIRE FENCE TYPE NO. 1
- BEAM GUARD RAIL TYPE 1
- EXISTING GUARD RAIL

CURVE DATA					
STATION	Δ	R	T	L	SUPER
8+45.76	5°00'00" RT.	20,000.00'	873.22'	1745.33'	0.02'/FT
7+96.89	23°12'15" LT.	2,000.00'	410.62'	809.98'	0.08'/FT

SR 12 MP 424.80 TO MP 432.64

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

PLAN

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER CHAIRMAN
HAROLD WALSH VIRGINIA K. GUNBY
BAKER FERGUSON HOWARD SORENSEN

APPROVED September 21, 1973

CONTRACT NUMBER

SHEET 38 OF 76 SHEETS

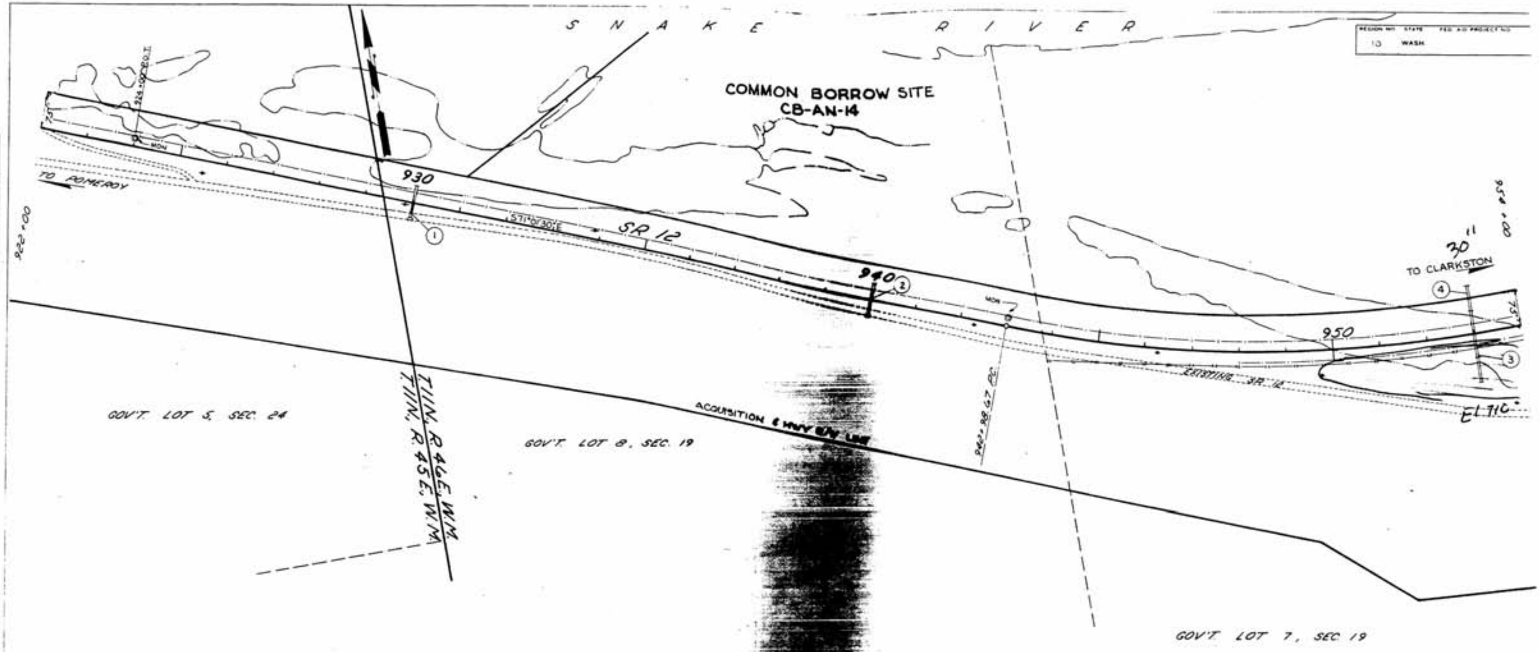
CURVE DATA					
PI STATION	Δ	D	T	L	S
887+96.69	23° 12' 15" LT.	2,000.00'	410.46'	809.98'	0.08/FT
900+55.79	13° 30' 00" RT.	4,000.00'	473.43'	942.48'	0.05/FT
DG 14+97.87	15° 54' 45" RT.	800.00'	111.81'	222.18'	0.02/FT

SR 12 . MP 424.80 TO MP 4.
ALPOWA CREEK TO CLARKSTON
ASOTIN COUNTY

PLAN

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
A. M. PARKER CHAIRMAN
HAROLD WATCH
BARRE FERGUSON
VIRGINIA E. GUNT
HOWARD SORENSEN

5139



LEGEND

- EXISTING FENCE
- WIRE FENCE TYPE NO 1
- BEAM GUARD RAIL TYPE 1

CURVE DATA					
PI STATION	Δ	R	T	L	S
959+87.32	62° 11' 15" LT.	2800.00'	1688.65'	3039.05'	0.067/FT

SR 12 MP 424.80 TO MP 432.64

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

PLAN

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

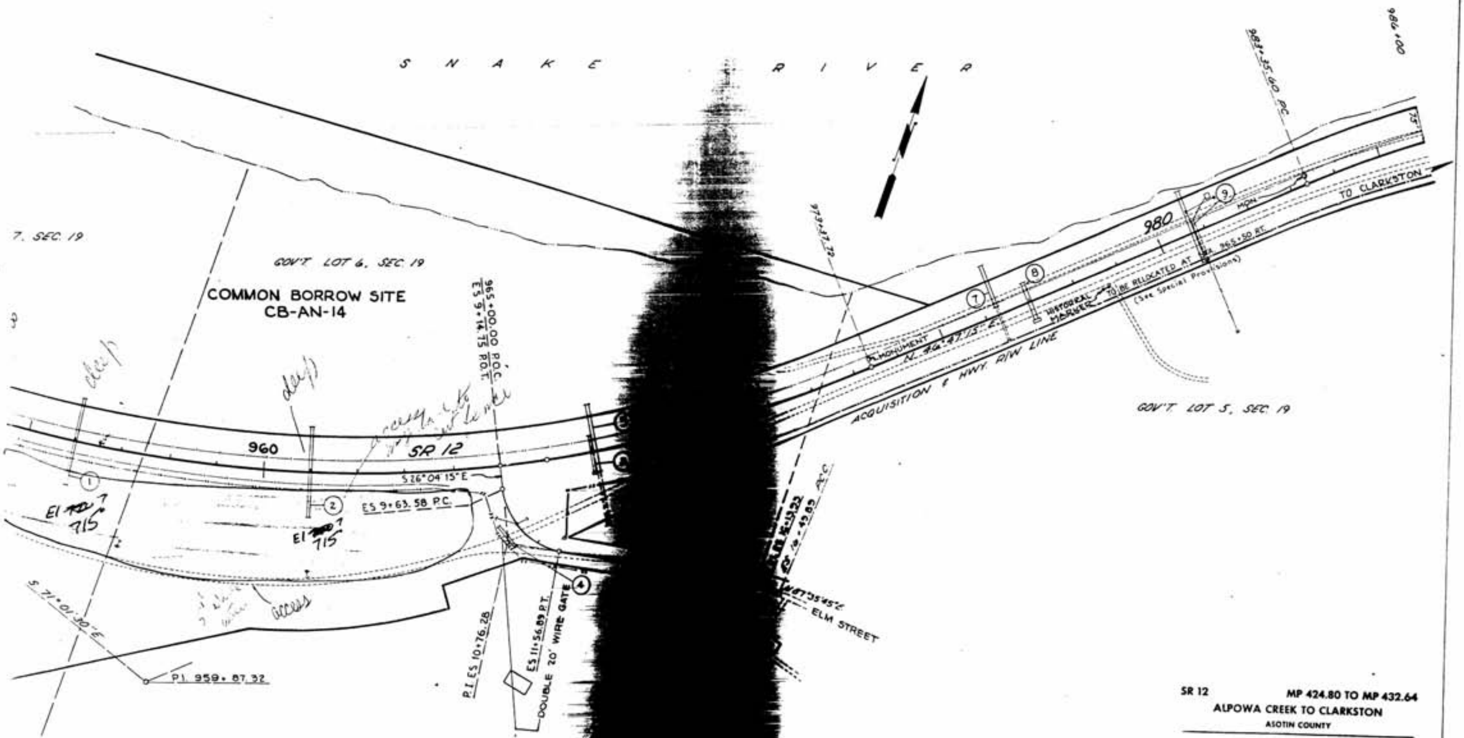
A. H. PARKER CHAIRMAN
HAROLD WALSH VIRGINIA K. GUNBY
BAKER FERGUSON HOWARD SORENSEN

Sh 40

APPROVED

REGION NO.	STATE	FED. AID PROJECT NO.	SHEET NO.
10	WASH.		

T. 11 N., R. 46 E., W.M.



CURVE DATA

Δ	R	T	L	S
...'15" LT	2800.00'	1,488.65'	2039.05'	0.06'/FT
...35'45" RT	2400.00'	887.69'	1,700.47'	0.07'/FT
...30'15" RT.	550.00'	36.07'	72.03'	0.02'/FT
...50'15" LT.	150.00'	112.70'	193.31'	0.02'/FT

LEGEND
WIRE FEN...
CHAIN LI...
BEAM G...

SCALE IN F...

sh 41

SR 12 **MP 424.80 TO MP 432.64**
ALPOWA CREEK TO CLARKSTON
ASOTIN COUNTY

PLAN

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER CHAIRMAN
HAROLD WALSH VIRGINIA K. GUNBY
BAKER FERGUSON HOWARD SORENSEN

STRUCTURE NOTES

REGION NO.	STATE	FED. AID PROJECT NO.	SHEET NO.
10	WASH.		

E:
E FIRST NUMBER OF
DDE" REFERS TO THE
EET NUMBER OF THE
NTRACT PLANS. THE
COND NUMBER REFERS
THE CONSTRUCTION
ATURE FOUND ON THE
RTICULAR SHEET.

DE	STATION	SHORING AND CRIBS OR EXTRA EXCAVATION CLASS B SQ. FT.	STRUCTURE EXCAVATION CLASS B CU. YD.	GRAVEL BACKFILL FOR PIPE BEDDING CU. YD.	CHANNEL EXCAVATION INCLUDING HAUL CU. YD.	CONCRETE CLASS A C.Y.	CONCRETE CLASS B C.Y.	STEEL REINFORCING BARS LBS.	DRAIN PIPE 8" DIAM. L.F.	SCHEDULE A CULVERT PIPE 12" DIAM. L.F.	SCHEDULE A CULVERT PIPE 18" DIAM. L.F.	SCHEDULE A CULVERT PIPE 24" DIAM. L.F.	SCHEDULE A CULVERT PIPE 30" DIAM. L.F.	SCHEDULE B CULVERT PIPE 30" DIAM. L.F.	SCHEDULE C CULVERT PIPE 30" DIAM. L.F.	CLASS III REINFORCED CONCRETE CULVERT PIPE 54" DIAM. L.F.	CLASS IV REINFORCED CONCRETE CULVERT PIPE 60" DIAM. L.F.	PLAIN STEEL CULVERT PIPE 0.064" THICK 36" DIAM. L.F.	PLAIN STEEL CULVERT PIPE 0.079" THICK 60" DIAM. L.F.	PLAIN STEEL CULVERT PIPE 0.079" THICK 90" DIAM. L.F.	PLAIN STEEL CULVERT PIPE ARCH 0.079" THICK 50" SPAN L.F.
1	611+00 ON LT.		22	11							82										
2	615+66 ON LT.		8				1		26												
3	628+00		65	29										160							
4	BM 11+50		24	14							132										
5	BM 14+00		11	6						89											
1	638+06		25	12								83									
2	647+92	810	214	47		18		1,160													
3	652+00	365	73						256												
4	662+50		23	10								70									
5	SC 6+70		5																		
1	670+00		51	23										125							
2	672+00		39	18									97								
3	674+00		51	23										125							
4	678+00		48	22										119							
5	682+00		39	18									97								
6	689+50		22	11								74									
7	696+50	660	27	13								84									
1	704+25	930	92	25	680																
2	715+25	820	98	50	2210																
3	726+75	915	187	16	4480														168		
4	DL 14+25	105	14	6									39								
1	739+75	765	164	32	7750																168
2	750+00		26	12	110							78									
3	763+00	590	23	10	3690							70									
1	772+00	725	27	12	6590							79									
2	777+00	570	24	11	17630							72									
3	787+00	500	24	11	8860							72									
1	797+50	650	24	11	570							72									
2	810+00		23	10								70									
3	823+00		21	10								67									

SR 12 MP 424.80 TO MP 432.6

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER, CHAIRMAN

HAROLD WALSH — VIRGINIA K. GUNEY
BAKER FERGUSON — HOWARD SORENSEN

APPROVED September 21, 1973

CONTRACT NUMBER

SHEET 22 OF 76 SHEET

STRUCTURE NOTES

REGION NO. | STATE
10 | WASH.

NOTE:
THE FIRST NUMBER OF "CODE" REFERS TO THE SHEET NUMBER OF THE CONTRACT PLANS. THE SECOND NUMBER REFERS TO THE CONSTRUCTION FEATURE FOUND ON THE PARTICULAR SHEET.

CODE	STATION	PLAIN STEEL CULVERT PIPE ARCH 0.109" THICK 58" SPAN L.F.	PLAIN STEEL CULVERT PIPE ARCH 0.109" THICK 117" SPAN L.F.	FLARED END SECTIONS 36" DIAM. ONLY	FLARED END SECTIONS 50" SPAN ONLY	FLARED END SECTIONS 58" SPAN ONLY	DESIGN C TRENCH CONSTRUCTION C.Y.	GRATE INLET TYPE 3 ONLY	GRATE OUTLET ONLY	GALVANIZED PIPE 1" DIAMETER L.F.	ASPHALT CONCRETE CURB L.F.	CAST METAL INLET ONLY	RIPRAP 75 LB. C.Y.	REMOVING BOX CULVERT L.S.	SCHEDULE C CULVERT PIPE 18 IN. DIAMETER L.F.	FOR GENERAL NOTES SEE SHEET 26	
30-1	611+00 ON LT.										10	1				(SEE DETAIL ON SHEET 54)	
30-2	615+66 ON LT.						18									2	
30-3	628+00															1	
30-4	BM 11+50															1	
30-5	BM 14+00																
31-1	638+05							1								3	
31-2	647+92		78													5,11	
31-3	652+00							1	1							9	
31-4	662+50									22						3, 4	
31-5	SC 6+70															19	
32-1	670+00						16										
32-2	672+00																
32-3	674+00						16										
32-4	678+00						28										
32-5	682+00							1								3	
32-6	689+50							1	1							3, 4	
32-7	696+50																
33-1	704+25	84				2							54			10, 17,18,20	
33-2	715+25	168				4							32			7,10,17,18,20	
33-3	726+75				4								88			7,10,12,13,18,20	
33-4	DL 14+25												33			1,20	
34-1	739+75				4								108			7,10,16,18,20	
34-2	750+00							1	1							3,4,18	
34-3	763+00							1	1							3,4,18	
35-1	772+00							1	1							3,4,18	
35-2	777+00							1	1							3,4,18	
35-3	787+00							1	1							3,4,18	
36-1	797+50							1	1							3,4,18	
36-2	810+00							1								3	
36-3	823+00							1								3	

10-9-73	Added Item	R.B.
DATE	REVISION	BY

SR 12 MP 424.80 T
ALPOWA CREEK TO CLAR
ASOTIN COUNTY
WASHINGTON STATE HIGHWAY DEPARTMENT OF HIGH
OLYMPIA, WASHING
A. H. PARKER, CHAIR
HAROLD WALSH VIC
BAKER FERGUSON HOW

APPROVED Septemb
CONTRACT NUMBER SHEET 23 OF

STRUCTURE NOTES

REGION NO.	STATE	FED. AID PROJECT NO.	SHEET N
10	WASH.		

OTE:
HE FIRST NUMBER OF
ODE" REFERS TO THE
EET NUMBER OF THE
NTRACT PLANS. THE
ECOND NUMBER REFERS
THE CONSTRUCTION
EATURE FOUND ON THE
RTICULAR SHEET.

ODE	STATION	SHORING AND CRIBS OR EXTRA EXCAVATION CLASS B SQ.FT.	STRUCTURE EXCAVATION CLASS B C.Y.	GRAVEL BACKFILL FOR PIPE BEDDING C.Y.	CHANNEL EXCAVATION INCLUDING HAUL C.Y.	CONCRETE CLASS A C.Y.	CONCRETE CLASS B C.Y.	STEEL REINFORCING BARS LBS.	DRAIN PIPE 8" DIAM. L.F.	SCHEDULE A CULVERT PIPE 12" DIAM. L.F.	SCHEDULE A CULVERT PIPE 18" DIAM. L.F.	SCHEDULE A CULVERT PIPE 24" DIAM. L.F.	SCHEDULE A CULVERT PIPE 30" DIAM. L.F.	SCHEDULE B CULVERT PIPE 30" DIAM. L.F.	SCHEDULE C CULVERT PIPE 30" DIAM. L.F.	CLASS III REINFORCED CONCRETE CULVERT PIPE 54" DIAM. L.F.	CLASS IV REINFORCED CONCRETE CULVERT PIPE 60" DIAM. L.F.	PLAIN STEEL CULVERT PIPE 0.064" THICK 36" DIAM. L.F.	PLAIN STEEL CULVERT PIPE 0.079" THICK 60" DIAM. L.F.	PLAIN STEEL CULVERT PIPE 0.079" THICK 90" DIAM. L.F.	PLAIN STEEL CULVERT PIPE ARCH 0.079" THICK 50" SPAN L.F.
-1	840+00		22	11								73									
-2	850+50		21	10								70									
-1	861+00		21	11								71									
-2	871+00		21	11								71									
-3	878+50																				
-4	878+50		189	72												253					
-5	879+00		179	60			9	390											168		
-6	877+20 ON RT.		8	4							38										
			376	176			16 24	560 1170													285
-1	895+50		550	168																	
-2	897+33		112	75													220				
-3	910+00		21	10								69									
-4	920+00		21	10								69									
-5	DG 17+00		20	11								82									
-6	DG 13+50 ON LT.		12	7							58										
-7	DG 17+00		62	29										150							
-1	930+00		21	10								69									
-2	940+00		21	10								69									
-3	953+00		39	18									97								
-4	953+00		81	37											201						
-7	976+26		21	12																	
-8	977+00		15	8							84										
-1	956+00		74	34											183						
-2	961+00		78	35											192						
-3	967+00		24	12								79									
-4	ES 10+50 ON RT.		7	4						56											
-5	967+05		34	19																	
-6	970+24		20	13																	
-1	988+00		16	8							68										
-2	1002+00		16	8							68										
-3	1010+00		14	6							50										
-4	1016+00		13	5							45										
-5	987+14		33	11																	
-6	992+41		16	11																	
-9	980+75	1,420	105	18																	
	TOTAL	9,825	3401	1,241	52570	18	34	2720	282	145	625	1613	330	679	576	253	220	168	168	285	168

DATE	REVISION	BY
10-9-73	Add Str. Notes for Sheets 41 & 42	R.B.

SR 12 MP 424.80 TO MP 432.80

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER, CHAIRMAN

HAROLD WALSH
BAKER FERGUSON

VIRGINIA K. GUNBY
HOWARD SORENSEN

APPROVED September 21, 1973

CONTRACT NUMBER

SHEET 24 OF 76 SHEETS

STRUCTURE NOTES

10. WASH.

OTE:
HE FIRST NUMBER OF CODE" REFERS TO THE EET NUMBER OF THE NTRACT PLANS. THE ECOND NUMBER REFERS O THE CONSTRUCTION EATURE FOUND ON THE RTICULAR SHEET.

ODE	STATION	PLAIN STEEL CULVERT PIPE ARCH 0.109" THICK 58" SPAN L.F.	PLAIN STEEL CULVERT PIPE ARCH 0.109" THICK 117" SPAN L.F.	FLARED END SECTIONS 36" DIAM. ONLY	FLARED END SECTIONS 50" SPAN. ONLY	FLARED END SECTIONS 58" SPAN ONLY	DESIGN C TRENCH CONSTRUCTION C.Y.	GRATE INLET TYPE 3 ONLY	GRATE OUTLET ONLY	GALVANIZED PIPE 1" DIAMETER L.F.	ASPHALT CONCRETE CURB L.F.	CAST METAL INLET ONLY	RIPRAP 75 LB. C.Y.	REMOVING BOX CULVERT L.S.	SCHEDULE C CULVERT PIPE 18 IN. DIAMETER L.F.	FOR GENERAL NOTES SEE SHEET 26					
7-1	840+00							1								3						
7-2	850+50							1								3						
8-1	861+00							1								3						
8-2	871+00							1								3						
8-3	878+50													L.S.								
8-4	878+50						137															
8-5	879+00															6,7,11,14						
8-6	877+20 ON RT.																					
9-1	895+50															6,8,11,15						
9-2	897+33						123									21						
9-3	910+00							1								3						
9-4	920+00							1								3						
9-5	DG 17+00																					
9-6	DG 13+50 ON LT.															1						
9-7	DG 17+00						27															
10-1	930+00							1								3						
10-2	940+00							1								3						
10-3	953+00																					
10-4	953+00						34															
10-7	976+26						5								91	22,23						
10-8	977+00							1								3						
11-1	956+00						30															
11-2	961+00						35															
11-3	967+00							1								3						
11-4	ES 10+50 ON RT.															1						
11-5	967+05						16								143	22,23						
11-6	970+24						13								94	22,23						
12-1	988+00							1								3						
12-2	1002+00							1								3						
12-3	1010+00							1	1							3,4						
12-4	1016+00							1	1							3,4						
12-5	987+14						8								93	22,23						
12-6	992+41						7								80	22,23						
12-9	980+75						14								160							
	TOTAL	252	78	4	4	6	527	25	10	22	10	1	315	L.S.	661							

10-9-73	Added Str. Notes for Sheets 41 & 42	R.B.
DATE	REVISION	BY

SR 12 **MP 424.80 TO MP 432.64**

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER, CHAIRMAN

HAROLD WALSH — VIRGINIA K. GUNBY
BAKER FERGUSON — HOWARD SORENSEN

APPROVED September 21, 1973

CONTRACT NUMBER

SHEET 25 OF 76 SHEETS

1. CONSTRUCT BEVELED END SECTIONS ON LT. & RT.
2. CONSTRUCT BEVELED END SECTION ON RT.
3. CONSTRUCT GRATE INLET TYPE 3 ON RT.
4. CONSTRUCT GRATE OUTLET ON LT.
5. CONSTRUCT REINFORCED CONCRETE HEADWALLS W/MODIFIED B-14e WINGWALL ON RT. & B-14c WINGWALL ON LT. SEE DETAIL SHEET 56.
6. CONSTRUCT MODIFIED B-28 HEADWALLS ON LT. & RT. SEE DETAIL SHEET 55.
7. DOUBLE PIPE INSTALLATION.
8. TRIPLE PIPE INSTALLATION.
9. QUADRUPLE PIPE INSTALLATION. FUTURE UTILITY CONDUITS.
10. 2 2/3" X 1/2" CORRUGATIONS.
11. 3" X 1" CORRUGATIONS.
12. ALTERNATE - CLASS II REINFORCED CONCRETE CULVERT PIPE 36" DIAM.
13. ALTERNATE - PLAIN ALUMINUM CULVERT PIPE 0.06" THICK 36" DIAM. WITH 2 2/3" X 1/2" CORRUGATIONS.
14. ALTERNATE - PLAIN ALUMINUM CULVERT PIPE 0.060" THICK 60" DIAM. WITH 6" X 1" CORRUGATIONS.
15. ALTERNATE - PLAIN ALUMINUM CULVERT PIPE 0.135" THICK 90" DIAM. WITH 6" X 1" CORRUGATIONS.
16. ALTERNATE - PLAIN ALUMINUM CULVERT PIPE ARCH 0.105" THICK 50" SPAN WITH 2 2/3" X 1/2" CORRUGATIONS.
17. ALTERNATE - PLAIN ALUMINUM CULVERT PIPE ARCH 0.135" THICK 58" SPAN WITH 2 2/3" X 1/2" CORRUGATIONS.
18. SEE CHANNEL SECTION A ON SHEET 53.
19. CONNECT TO EXISTING WATERPIPE.
20. CONSTRUCT SETTLING BASIN. SEE DETAIL SHEET 54.
21. CONSTRUCT PIPE INSIDE OF EXISTING CONCRETE ARCH STRUCTURE. SEE SPECIAL PROVISIONS.
22. USE CONCRETE PIPE ONLY.
23. TIE TO EXISTING PIPE.

SR 12 MP 424.80 TO MP 432.64

ALPOWA CREEK TO CLARKSTON

ASOTIN COUNTY

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON

A. H. PARKER, CHAIRMAN

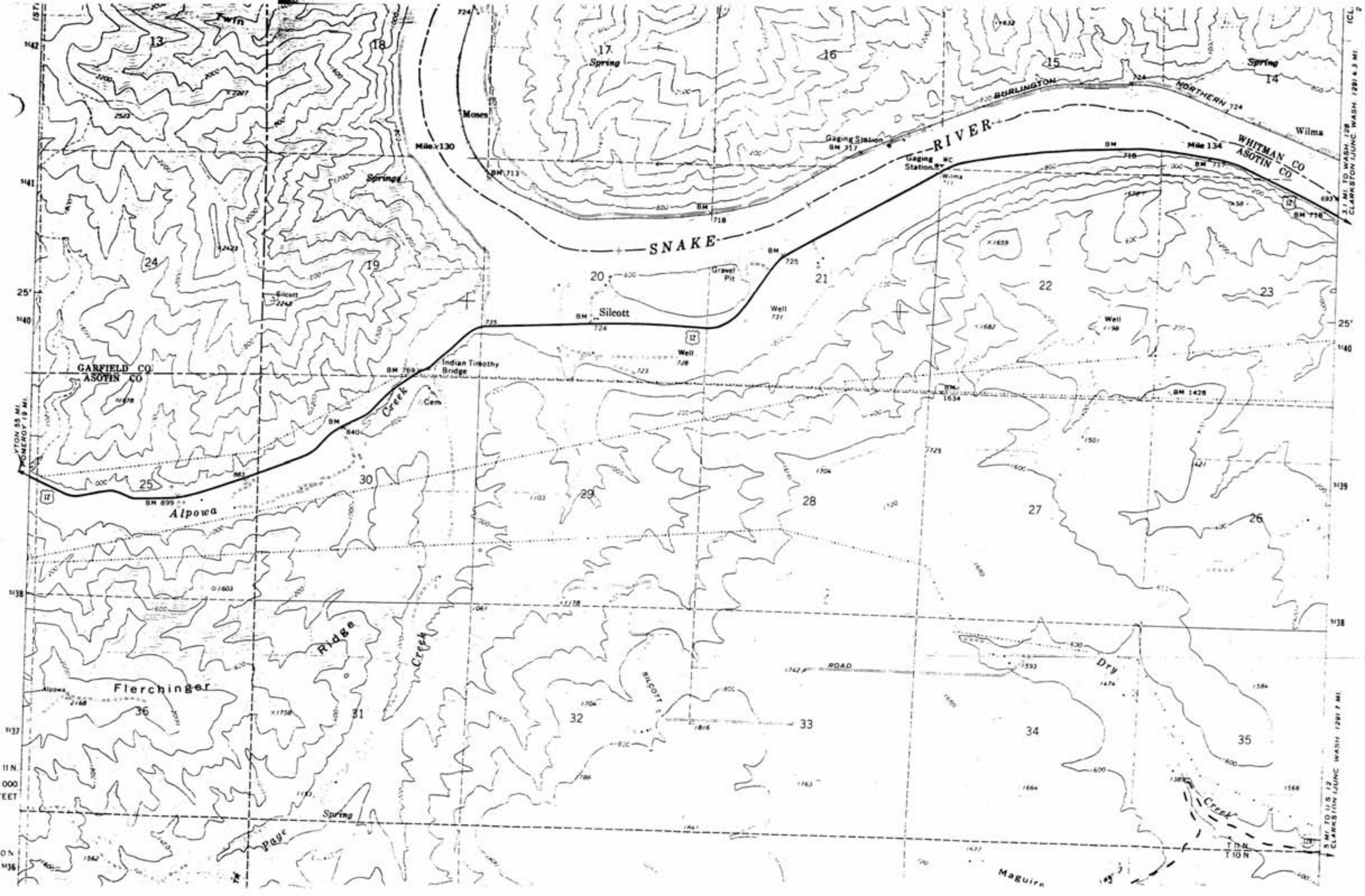
HAROLD WALSH
BAKER FERGUSON
VIRGINIA K. GUNBY
HOWARD SORENSEN

DATE	REVISION	BY
10-9-73	Added Notes	R.B.

CONTRACT NUMBER

APPROVED September 21, 1973

SHEET 26 OF 76 SHEETS



Twin
13
18
17
Spring
16
15
Spring
14
BURLINGTON
NORTHERN
Wilma
Moses
Mile 130
Gaging Station
BM 717
RIVER
Mile 134
WHITMAN CO
ASOTIN CO
Gaging Station
Springs
SNAKE
24
19
20
Gravel Pit
21
22
23
Silcott
Well
GARFIELD CO
ASOTIN CO
Indian Timothy Bridge
Creek
Cem
25
30
29
28
27
26
Alpowa
Ridge
Creek
Flerchinger
36
31
32
33
34
35
SILCOTT
ROAD
Dry
Creek
Spring
Paye
Maguire
T 11 N
T 10 N
3.1 MI. TO WASH. 128
CLARKSTON (JUNC. WASH. 129) 4.3 MI.
5 MI. TO U.S. 12
CLARKSTON (JUNC. WASH. 129) 7 MI.

Materials

Special Embankment shall consist of naturally occurring or screened gravel. It shall be essentially free from various types of wood waste or other extraneous or objectionable materials. It shall have such characteristics of size and shape that it will compact readily and shall meet the following test requirements:

Passing the #200 Sieve	10% Max.
Stabilometer "R" Value	42 min.
Swell Pressure	0.3 psi max.

Special Embankment shall be uniformly spread to the depth, width and cross-section shown on the plans. The minimum depth shall be one (1) foot.

Special preparation of the subgrade will not be required where the Contractor's methods will assure the Engineer that the minimum depth will be achieved.

The approximate compacted depth of material in any course shall be six (6) inches. Each course shall be compacted as specified in section 2-03.3(14) of the standard specifications, before the next succeeding course is placed.

Measurement and Payment

Special Embankment will be measured to the neat line volume of the section shown on the plans or as directed by the Engineer.

Payment will be made at the unit contract price per cubic yard for "Special Embankment Including Haul", and shall include all cost to excavate, process, load, haul, spread, compact and finish the material. No further compensation will be made.

ROCKFILL

This work shall consist of constructing a portion of the roadway prism with rockfill in accordance with the following special provisions and in conformity with the lines and grade as shown on the sections on the plans, or as established by the Engineer.

Material

Rockfill shall consist of 36" minus angular rock from talus deposits and/or sound durable rock from the roadway excavation prism or quarry sites QS-AN-55 and QS-AN-56. Rockfill shall not contain more than 20% by weight passing the 1/2" screen of that portion passing a 6" screen.

Construction

From stations 880 to 900, a berm of rockfill shall be constructed on the riverward side of the roadway prism to an elevation 2 feet above the level of the Snake River at the time of construction. In other areas where the left toe of the roadway prism falls into the Snake River, rockfill shall be constructed on the face of the embankment. Both conditions are shown on the plans.

Rockfill shall be placed on embankment slopes concurrently and at the same elevation as the adjacent embankments.

The construction of rockfill shall otherwise be as specified in section 2-03.3(14) and 2-03.3(14)A of the standard specifications.

Measurement and Payment

Measurement will be the neat line volume of the rockfill sections shown on the plans or as directed by the Engineer. Rockfill placed in lieu of gravel fill for riprap bedding, as permitted in these special provisions, under the provisions titled GRAVEL FILL, shall be measured as "Gravel Fill".

Payment will be made at the unit contract price per cubic yard for "Rockfill Including Haul" and shall include all costs to the Contractor to excavation, process, load, haul, place, compact and finish the material. No further compensation will be made.

GRAVEL FILL

This work shall consist of constructing portions of embankments with gravel fill in accordance with the following special provisions and in conformity with the lines and grades as shown in the sections on the plans, or as established by the Engineer.

Materials

Gravel fill shall consist of sound material from alluvial deposits containing not more than 50% by weight passing the 1/4 inch screen and not more than 10% by weight passing the No. 200 sieve.

Construction

Gravel fill shall be placed as slope protection as shown on the typical sections, as embankment at the bridge approach embankments (see standard specifications section 1-01.5 for definition), and as riprap bedding as shown in the typical sections. Also, where materials containing more than 50% by weight passing the 1/4 inch sieve are to be placed over or adjacent to rockfill or foundation materials having characteristics of rockfill, a 24 inch transition zone of gravel fill shall be placed between the materials to prevent infiltration of the fines into the rockfill.

The roadway prism to a level of 2 feet above the water surface of the Snake River, at the time of construction, shall be constructed of material meeting the requirements of gravel fill, as shown on the plans.

Riprap bedding will not be required where riprap is constructed on the roadway prism constructed of gravel fill or rockfill.

Gravel fill placed on embankment slopes as slope protection or riprap bedding shall be placed concurrently and at the same elevation as the adjacent embankments. The construction of the gravel fill shall be as specified in section 2-03.3(14), 2-03.3(14)A, 2-03.3(14)B, 2-03.3(14)C and 2-03.3(14)D of the standard specifications. Method B compaction shall be used.

Measurement and Payment

Measurements will be the neat line volume of the gravel fill sections shown on the plans or as directed by the Engineer, and includes all gravel fill placed as riprap bedding. Rockfill placed in lieu of gravel fill as riprap bedding will be considered gravel fill.

Payment will be made at the unit contract price per cubic yard for "Gravel Fill Including Haul" and shall include all costs to excavate, process, load, haul, place, compact, and finish the material. No further compensation will be made.

RIPRAP

Section 8-15.1 of the standard specifications shall have the final paragraph deleted and the following substituted:

Riprap will be classified as 250 lb., 150 lb., and 75 lb.

The entire section 9-13 of the standard specifications is deleted and the following substituted:

Materials

All stone for riprap shall conform to the quality and gradation requirements hereinafter defined and as determined and approved by the Engineer. All quarry operations shall be compatible with the requirements of the reclamation plans and/or the provisions titled OPERATIONS IN PIT, QUARRY AND BORROW SITES.

In this specification, quarried riprap or quarried rock is defined as stone produced from bedrock and which requires drilling and blasting for removal.

Quality

Laboratory tests and visual examination will be used to determine the acceptability of riprap materials.

	Test	Requirements
(1)	Specific Gravity, BSSD (ASTM C 127-68)	Not less than 2.65
(2)	Absorption (ASTM C 127-68)	Not more than 2.5 percent
(3)	Freeze-Thaw (100 cycles)	Not more than 5.0 percent loss
(4)	Ethylene Clycol (CRD-C-148-69)	No breakage

In addition to the above test requirements, the stone will be subjected to visual field examination or to laboratory petrographic examination, for cracks, seams, expansive minerals or other defects which would cause accelerated deterioration from exposure to the project climatic conditions. Riprap may be rejected solely on the basis of such visual examination, regardless of laboratory test results when either the field or petrographic examination shows the stone to be unsuitable.

Gradation and Size

All materials for riprap shall be processed either by passing over a vibrating grizzly or by careful selection of individual pieces.

Quarried riprap shall have average and minimum weights of individual pieces of not less than those specified in the following tabulations:

			Minimum Weight - Pounds	
			Passed	Not Passed
		Average Weight in Pounds	Over Grizzly	Over Grizzly
(1)	Riprap for Bridges and Stations 662+50 to 670, and 900 to 1001	250	50	250
(2)	Stations 798 to 900	150	50	150
(3)	Stations 670 to 698	75	50	75

The maximum size of stone shall be such that it may be placed within the mass and within the tolerances specified herein. The vibratory grizzly used for processing riprap shall have openings of sufficient size and shall be operated in such a manner as to produce material which will meet the specified size requirements. If the grizzly operation produces riprap containing undersize rock material weighing less than the specified average weight, the grizzly operation shall be modified as necessary to produce the required sizes. Overloading of the grizzly to increase production will not be allowed. The openings shall be kept clean of wedged stones. For the purpose of determining the average weight of individual pieces, only stone weighing between 50 pounds and 500 pounds will be considered for the 75 pound riprap, between 50 pounds and 1,000 pounds for the 250 pound riprap and between 50 pounds and 700 pounds for the 150 pound riprap. Neither the breadth nor thickness of any piece of riprap shall be less than one-third of its length. The riprap material, after processing, shall conform to the specified size requirements. Subsequent operations of loading, placement, or stockpiling shall be conducted in a manner which will minimize breakage.

Construction Requirements

Areas on which riprap is to be placed shall be trimmed and dressed where required to present a true, even plane with no abrupt ridges or depressions. Bedding for riprap shall be gravel fill, as specified, except where the embankment is rockfill or gravel fill in which case no bedding is required. Immediately prior to placing the riprap, the foundation areas will be inspected by the Engineer, and no material shall be placed thereon until the areas have been approved.

Riprap shall be placed on the prepared slopes, in the toe, and around structures within the limits shown on the plans or as otherwise required by the Engineer. The finished riprap slopes shall present a uniform and regular surface not steeper than those shown on the plans. The Contractor shall maintain the riprap until final acceptance, and any material displaced shall be replaced, at his expense, to the slopes, lines, and grades shown on the drawings.

Riprap stone shall be placed on the prepared base in such a manner as to produce a well-keyed mass of rock with individual stones tightly in contact with the least practicable amount of void spaces. The finished riprap shall be free from pockets of stone less than average size or which would prevent contact between the specified sizes. Placement of small stone to choke the interstices between large rock or for leveling the surface will not be permitted. Breaking individual pieces in place either by blasting or mechanical methods will not be permitted. Riprap shall be placed to its full coarse thickness at one operation and in such manner as to avoid displacing the underlying material. Placing riprap by methods likely to cause segregation of the various sizes will not be permitted. Placement by end dumping will not be permitted. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading at the quarry, by controlled placement of successive loads during placing, or by other methods of placement which will produce the specified results.

Riprap materials that do not meet the specified requirements for size, quality, or distribution of sizes, shall be removed and replaced with suitable materials at no additional cost to the State. Riprap shall be placed concurrently with the placement of embankment material in such a manner that the maximum elevation difference at any point of measurement between top of riprap and top of embankment shall not exceed 8 feet.

Riprap shall be placed to the full thickness shown on the plans and no minus tolerance will be permitted. A greater thickness will be permitted provided the outside slopes present a uniform appearance with a minimum of pieces projecting outside the finished slope surface.

If riprap is stockpiled for the Contractor's convenience, the stockpile shall be constructed in lifts not exceeding 7-1/2 feet and the final height of stockpile shall not exceed 15 feet. Any method of stockpiling which would cause segregation within the stockpile or excessive breakage will not be permitted.

Measurement and Payment

Riprap will be measured by the cubic yard. The number of cubic yards of riprap will be determined from the neat line dimensions shown on the plans, and as accepted by the Engineer.

Payment will be made at the unit contract prices per cubic yard for each of the following bid items:

Riprap, 75 lb.
Riprap, 150 lb.
Riprap, 250 lb.

Payment at the unit contract prices per cubic yard for the above bid items shall be full compensation for all labor, tools, equipment and materials required to complete the riprap in place, except for excavation of the toe trench which will be measured and paid at the unit contract bid price per cubic yard for "Ditch Excavation Including Haul". No further compensation will be made.

SOURCE OF MATERIALS

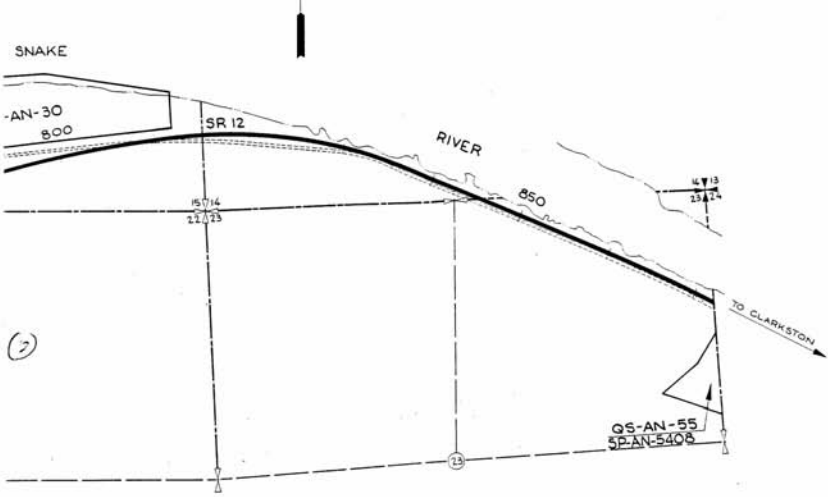
The following source of materials is made available for this improvement at no cost to the Contractor:

Pit Site PS-AN-30, source of raw material for gravel fill, special embankment and embankment, and for the production of asphalt concrete aggregates, crushed coverstone, crushed surfacing top course and gravel backfill for pipe bedding, located in the S 1/2 of Section 15, the SE 1/4 of the SE 1/4 of Section 16 and the N 1/2 of Section 21, all in T. 11 N., R. 45 E., W.M., as shown on sheet 12 of the plans.

The maintenance rock 1/2 inch minus existing in stockpile in pit site PS-AN-30 shall be used by the Contractor as gravel backfill for pipe bedding, key stone or crushed surfacing top course.

The material is furnished without cost to the Contractor.

The Contractor shall be paid for using the stockpiled material at the unit contract bid price per cubic yard for "Crushed Surfacing Top Course" or "Gravel Backfill for Pipe Bedding".



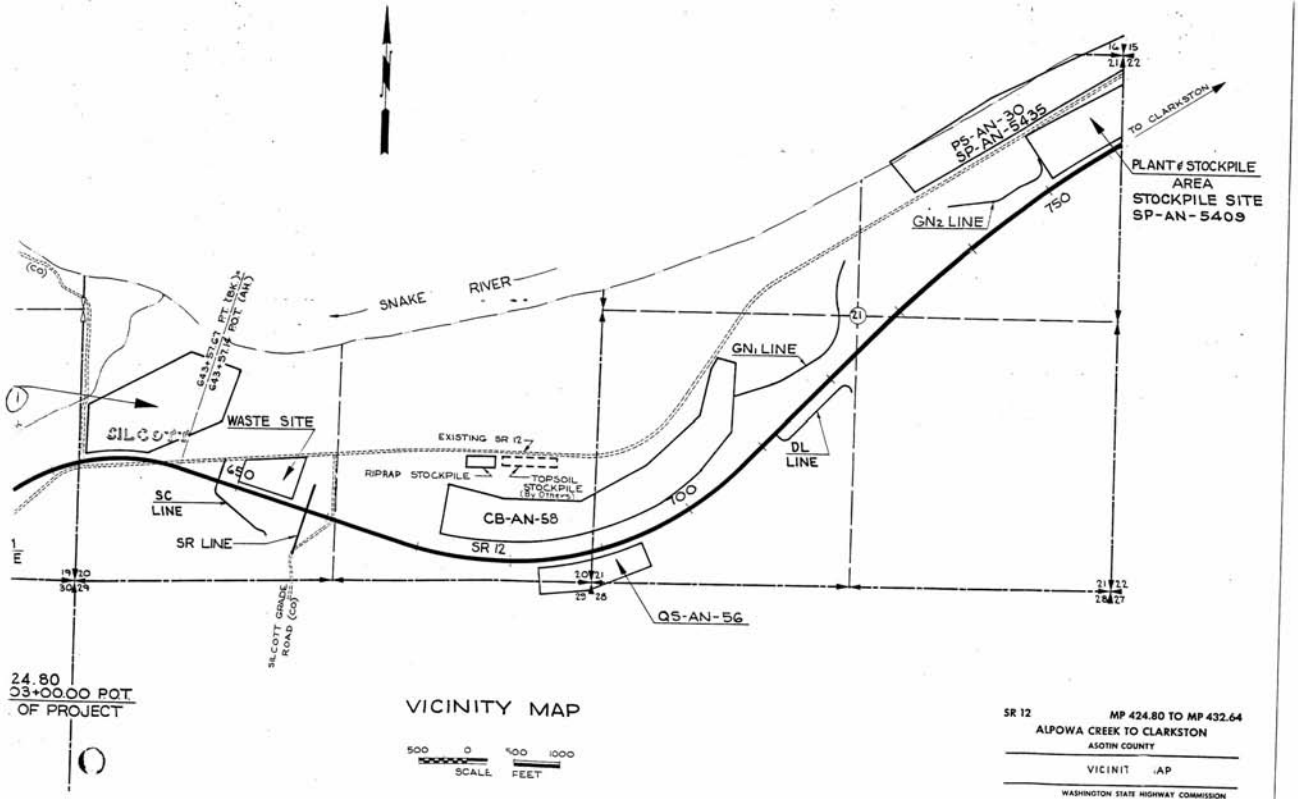
VICINITY MAP

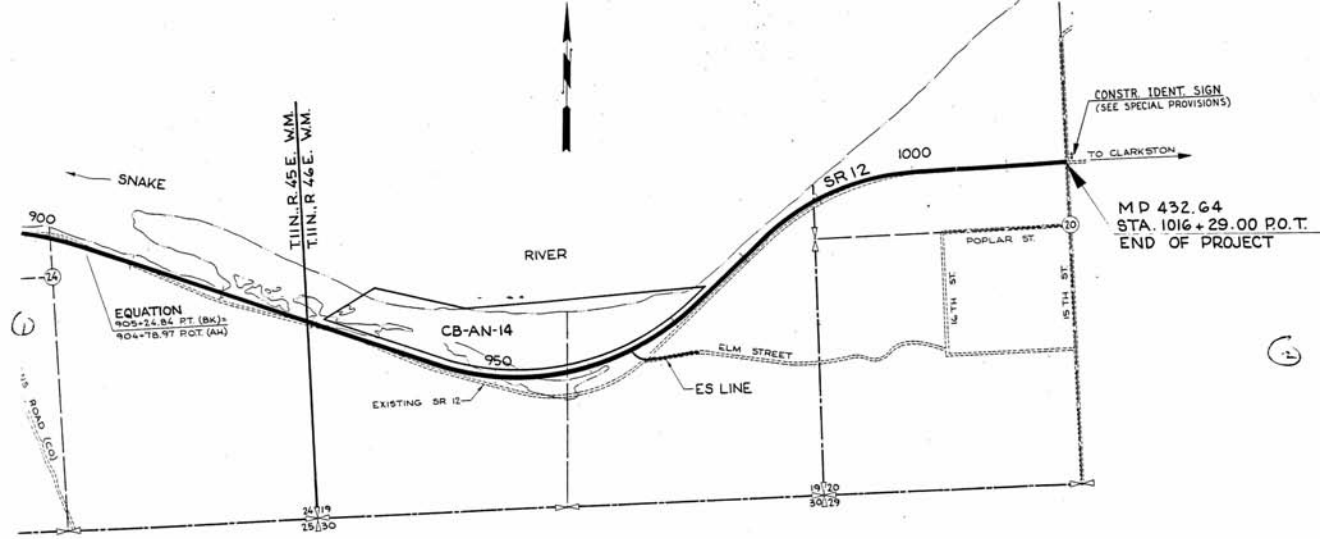
500 0 500 1000
SCALE IN FEET

SR 12 MP 424.80 TO MP 432.64
ALPOWA CREEK TO CLARKSTON
ASOTIN COUNTY

VICINITY MAP

WASHINGTON STATE HIGHWAY COMMISSION
DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
A. H. PARKER CHAIRMAN


SNAKE RIVER
WASTE SITE
SILCOTT
EXISTING SR 12
RIPRAP STOCKPILE
TOPSOIL STOCKPILE (By Others)
CB-AN-58
SR 12
SC LINE
SR LINE
DL LINE
GN1 LINE
GN2 LINE
PS-AN-30
SP-AN-5435
PLANT & STOCKPILE AREA
STOCKPILE SITE
SP-AN-5409
TO CLARKSTON
700
750
QS-AN-56
SILCOTT GRADE ROAD (Co)
643+57.67 EFT (BK)
643+57.14 POT (AH)
24.80
03+00.00 POT
OF PROJECT
VICINITY MAP
500 0 500 1000
SCALE FEET
SR 12
MP 424.80 TO MP 432.64
ALPOWA CREEK TO CLARKSTON
ASOTIN COUNTY
VICINIT AP
WASHINGTON STATE HIGHWAY COMMISSION



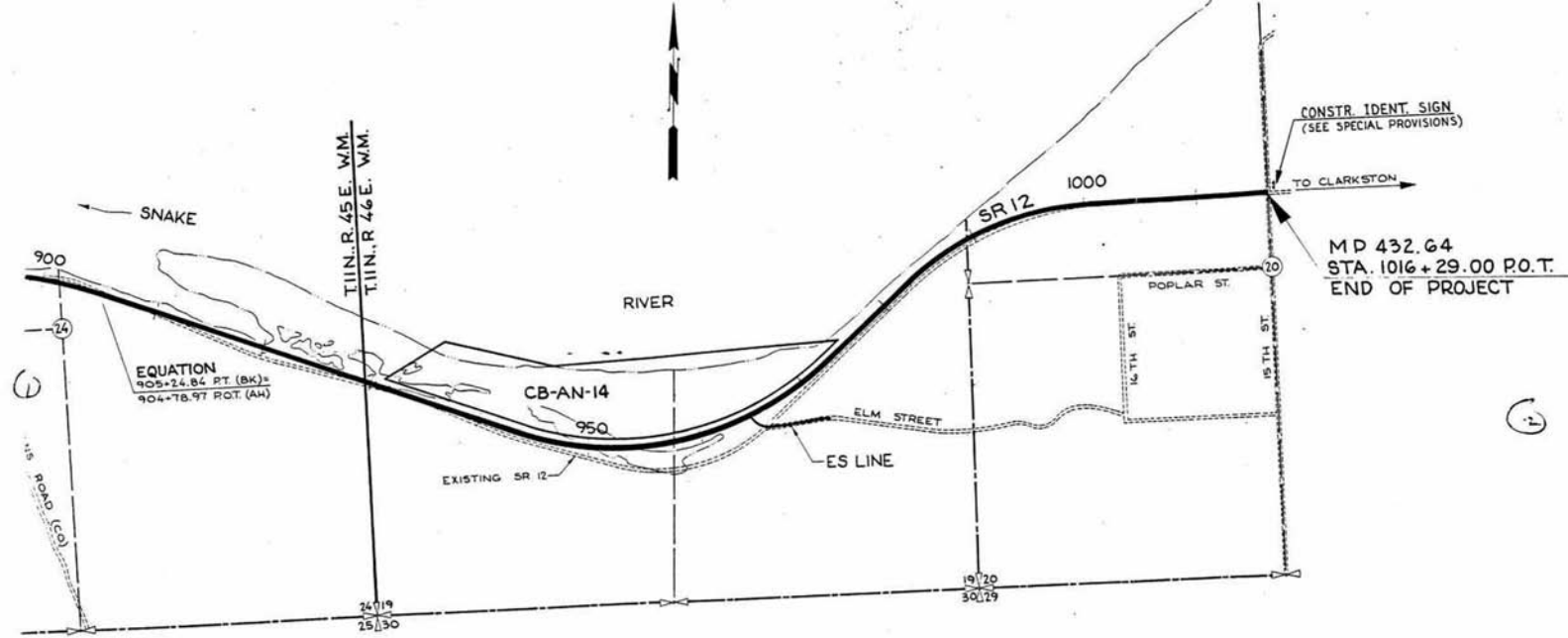
VICINITY MAP

500 0 500 1000
SCALE IN FEET

SR 12 MP 424.80 TO MP 432.64
ALPOWA CREEK TO CLARKSTON
ASOTIN COUNTY

VICINITY MAP

W/ TON STATE HIGHWAY COMMISSION
/DEPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
A. M. PARKER CHAIRMAN



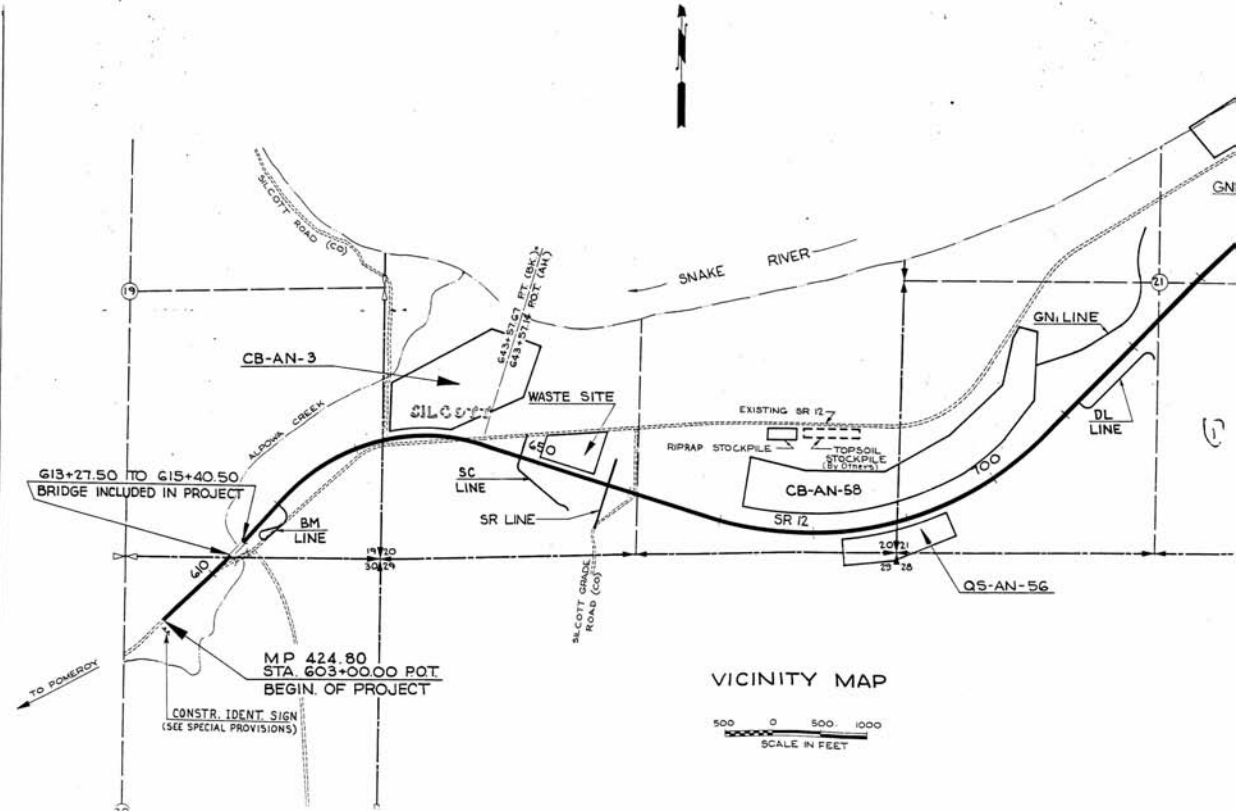
VICINITY MAP

500 500 1000
SCALE IN FEET

SR 12 MP 424.80 TO MP 432.64
ALPOWA CREEK TO CLARKSTON
ASOTIN COUNTY

VICINITY MAP

W/ TON STATE HIGHWAY COMMISSION
/EPARTMENT OF HIGHWAYS
OLYMPIA, WASHINGTON
A. M. PARKER CHAIRMAN


SILCOTT ROAD (CO)
SNAKE RIVER
643+57.67 FT (RK) = 643+57.14 POT (AH)
CB-AN-3
SILCOTT
WASTE SITE
ALPOWA CREEK
EXISTING SR 12
RIPRAP STOCKPILE
TOPSOIL STOCKPILE (By Others)
GN1 LINE
DL LINE
G13+27.50 TO G15+40.50
BRIDGE INCLUDED IN PROJECT
SC LINE
SR LINE
BM LINE
CB-AN-58
SR 12
700
610
19 20
30 29
20 21
25 26
QS-AN-56
SILCOTT GRADE ROAD (CO)
MP 424.80
STA. 603+00.00 POT
BEGIN OF PROJECT
TO POMEROY
CONSTR. IDENT SIGN
(SEE SPECIAL PROVISIONS)
VICINITY MAP
500 0 500 1000
SCALE IN FEET

CENPW-EN-GB-SC (1110) Ms. Shoulders/6528/dm 16 July 1992

MEMORANDUM FOR Chief, Operations Division, ATTN: Project Operations Branch

SUBJECT: Observed Settlement at the Port of Clarkston, Potentially Drawdown Related

1. Mr. Rick Davis, of the Port of Clarkston, informed the Corps of settlement noticed on 7 July 1992, at the Port loading facility. Andy Shoulders, Civil Engineer, Soils and Civil Design Section, went on site to assess the situation.

2. On the southern portion of the landing facility, where the Corps barge is being repaired, two areas of settlement were noted. One area is a 7-foot diameter depression, approximately 3 inches deep; the other is a 1-foot by 6-inch rectangular area approximately 5 inches deep. Both areas of observed settlement are surfaced with asphalt overlying fill materials. The asphalt surfaced area was observed to be settling during the drawdown. A 1/2- to 3/4-inch vertical displacement was measured with the asphalt surfaced area below the concrete deck supported by piles. Also, a 1/2- to 1-inch horizontal displacement was measured. The west end of the concrete deck was 1 to 1 1/2 inches above the embankment when viewed from the shoreline.

3. Concrete around the loading crane supports was also observed to be spalling. The crane sits above a 2-foot thick concrete cap overlying a precast panel and H-pile rectangular cell filled with gravel. View ports to monitor settlement of the gravel fill were opened with no apparent settlement observed. The structure was viewed from the shoreline with no other signs of stress observed. The loading facility was constructed prior to pool raise. Construction documents are available at the Port office.

4. Mr. Davis is concerned about the integrity of the crane. He will be moving a yacht on 13 July 1992, and loading logs in 3 to 4 weeks. He is also concerned about the integrity of the asphalt surfaced area with respect to the loads that will be experienced during the loading activities.

5. Russ Akers, Structural Design Section, was informed of the situation. Photos taken will be compared with the video. He feels that the spalling is probably due to loads that are not being dispersed evenly, but rather concentrated below the crane supports due to settling of the fill material within the rectangular cell. Mr. Davis will be calling again when the log loading begins. Mr. Akers and someone from the Soils and Civil Design Section will go on site to observe and assess the situation.

6. It was suggested to Mr. Davis by phone on 10 July 1992, to have someone monitor the crane supports during loading activities. It was also suggested that borings through the concrete cap and the asphalt surface area would aid in assessing the situation.

KRISTINE L. ALLAMAN, P.E.
Chief, Engineering Division

SHOULDERS/EN-GB-SC/dm

WELLER/EN-GB-SC

MIKLANCIC/EN-GB

JOHNSON/EN

ALLAMAN/EN

EN

APPENDIX F-2

SUMMARY OF FINDINGS BY

REAL ESTATE AND STRUCTURAL DESIGN REPRESENTATIVES

CHIEF LOOKINGGLASS PARK RECOMMENDATIONS

1. Moorage Docks: Docks are presently in need of repair. Leave docks in place and allow to follow pool fluctuation.

2. Walkway Ramp: Leave in place and allow to follow pool fluctuation.

3. Handling Dock and Launch Ramp: Leave in place and allow to follow pool fluctuation.

4. No utilities were observed so no action is necessary.

DRAWDOWN RESULTS

1. Docks settled out as recommended. River bottom flat. Minimal damage noted as follows:

   a. Moorage access ramp which had previously been disconnected had some damage where ramp meets the dock.

   b. Dock anchorage hoops surrounding wood piling torn from dock in four locations.

   c. Wheels damaged on one access ramp.

2. No electrical service damage incurred since it had been disconnected several years ago.

POST DRAWDOWN SURVEY

1. No new apparent damage due to drawdown except a few missing deck boards and items listed under DRAWDOWN RESULTS.

HELLSGATE STATE PARK RECOMMENDATIONS

1. Walkway Ramps: Where pilings are near the end of the ramp, attach and suspend from piles. Where piles are not present, leave in place and allow ramps to follow the pool fluctuation.

2. Moorage Docks: Leave in place and allow to follow pool fluctuation.

3. Gas Dock: Disconnect all utility lines. Remove walkway ramp. Leave in place and allow dock to follow pool fluctuation.

4. Handling Dock and Launch Ramp: Leave in place and allow docks to follow pool fluctuation.

5. Disconnect all utility systems.

DRAWDOWN RESULTS

1. Docks settled out as recommended. River bottom in moorage area flat. A number of steel pipe piles are canted but should come back into realignment when docks are refloated.

2. Walkway Ramps were not suspended from piles as recommended, but did not sustain damage because ramp rollers stayed on docks.

3. All utility lines were disconnected as recommended.

4. Dock fingers did not appear to have sustained any damage where they were attached to docks.

5. Gas Dock was twisted due to a 55 gallon drum underneath on e corner of dock. Minor damage resulted. All utilities had been disconnected.

6. Handling Dock and Launch Ramp had no apparent damage.

7. Southwest corner of moorage area perimeter docks were twisted and tilted. Appears to have sustained minor damage.

POST DRAWDOWN SURVEY

1. Gas Dock wooden section replaced. It was planned, prior to drawdown, to replace the wooden section.

2. Minor damage to wood outside framework, due to a log under dock no. 4 during drawdown. Minor repair will correct situation.

HELLSGATE STATE PARK (Cont'd)

3. Moorage Area Perimeter Docks: Outside frame broken at southwest corner due to bind at the corner of two adjoining dock sections.

PORT OF LEWISTON RECOMMENDATIONS

1. Mooring Cells for supporting framework for conveyors used for loading barges. Nothing recommended. Don't anticipate structural problems during drawdown.

2. Mooring Cells for barge tie up during loading and unloading. Nothing recommended. Don't anticipate structural problems during drawdown.

NOTE: It is not known whether the sheet piling for the above mooring cells was driven into the river bottom or only placed on the river bottom in which case there could be a stability problem during drawdown.

DRAWDOWN RESULTS

1. Mooring Cells, Crane Loading Pier and associated framework for conveyors used for loading barges did not sustained any noticeable damage. There were no signs of cracking at concrete loading pier.

POST DRAWDOWN SURVEY

No visible damage. The second conveyer system, fifth downstream cell shows some settling of the concrete cap. Verification of settlement maybe accomplished by viewing previous videos.

CLEARWATER AND SOUTHWAY LAUNCHING FACILITIES RECOMMENDATIONS

1. Handling Docks: Leave in place and allow to follow pool fluctuation.

2. Walkway Ramps: Leave in place and allow to follow pool fluctuation.

DRAWDOWN RESULTS

1. Clearwater Launching Facilities: No apparent damage.

2. Southway Launching Facilities: No apparent damage.

POST DRAWDOWN SURVEY

No damage. The lease-holder took advantage of drawdown situation and added extra launch lane at Clearwater Landing and replaced handling docks at both Clearwater and Southway sites.

WAWAWAI LANDING RECOMMENDATIONS

1. Handling Docks at Launch Ramps: Leave in place and allow to follow pool fluctuation.

2. W.S.U. Docks: Leave in place and allow to follow pool fluctuation. Note: could be a problem if docks hang up on wood piles.

3. W.S.U. Shell Boat Docks: Disconnect ramp from docks and allow docks to follow pool fluctuation. Reconnect after pool raise.

DRAWDOWN RESULTS

1. Handling Docks at Launch Ramps: No apparent damage. Note: The ends of some of the aluminum floats have corroded exposing styrofoam.

2. W.S.U. Docks: Were disconnected and allowed to settle. Appear undamaged.

3. W.S.U. Shell Boat Docks: Disconnected and relocated downstream.

4. Approach ramps to docks settled in place and sustained only minor damage, i.e., lag bolts were pulled loose.

POST DRAWDOWN SURVEY

1. W.S.U. shell boat docks (one of two): lag bolts at hinges (connecting dock to ramp) pulled out. Hinges not damaged. No other damages.

2. W.S.U. docks (not yet reinstalled) no apparent damage.

3. Handling docks at Launch Ramps sustained no apparent damage.

NISQUALLY JOHN AND BLYTON LANDING RECOMMENDATIONS

1. Handling Docks at Launch Ramp: Leave in place and allow to follow pool fluctuation.

DRAWDOWN RESULTS

Nisqually John and Blyton Landings: Handling docks settled as recommended. No damage from drawdown noted. Corrosion at ends of flotation exposed styrofoam fill.

POST DRAWDOWN SURVEY

No apparent damage.

WILMA - PORT OF WHITMAN RECOMMENDATIONS

1. Hells Canyon Excursions Docking Facilities:

   a. Fixed Dock on piling: should not be a problem.

   b. Loading Docks: Disconnect from ramp and allow to follow pool fluctuation.

   c. Ramps: secure to fixed dock.

2. Grain Conveyer Facility:

   a. Dolphins: should not be a problem.

   b. Sheet Piling Cell: could be a stability problem if piling not driven far enough into river bottom. Don't have information the original design of cells.

3. Wood Chip Loading Facility:

   a. Dolphins: should not be a problem.

   b. Fixed Platform on Piling: should not be a problem.

DRAWDOWN RESULTS

1. Hells Canyon Excursions Dock Facilities:

   a. Fixed Dock on piling: no structural damage noted.

   b. Loading Docks: were disconnected and allowed to follow pool fluctuation. Damage included one broken bracket that was not disconnected from pile.

2. Grain Conveyer Facility: no structural damage to dolphins or sheet piling cell. Dolphin d/s of cell is leaning toward river. It is surmised that this was a pre-existing condition.

3. Tidewater Terminal is comprised of a sheet pile pier with a concrete deck. Piling has deflected 8" to 9" at the top. Deck has some cracking. The dead man anchor bolts (1-inch diameter) had failed at several locations. There were indications that some of the bolt failures happened prior to the drawdown.

WILMA - PORT OF WHITMAN (Cont'd)

POST DRAWDOWN SURVEY

No additional damage to that listed above under "Drawdown Results". There has been additional deck settlement at the Tidewater terminal but no new failures. Tidewater representative stated that there was no damage to the six pump intake facilities located on the pier deck.

PORT OF CLARKSTON GRAIN TERMINAL RECOMMENDATIONS

1. Dolphins: should not be a problem.

2. Steel Plate Cell: Don't have information on original design of cells.

3. Loading Pier: Supported on driven piling. 110-ton crane sits on pier. Don not anticipate structural problems.

DRAWDOWN RESULTS

1. Dolphins: no apparent damage.

2. Steel plate Cell: no apparent damage. Bottom of cell exposed. It appears to be filled with river rock.

3. Loading Pier: no apparent damage. Leg of one dolphin bent from a barge impact previously.

4. Dock facilities adjacent to Quality Inn appear to have suffered no damage.

POST DRAWDOWN SURVEY

1. Dolphins: no apparent damage.

2. Steel Plate Cell: no apparent damage.

3. Loading Pier: Fill on east side settled 1 to 2 inches and shrunk back from pier. Settlement caused seam between asphalt and concrete pier on deck.

4. Dock facilities adjacent to Quality Inn appear to have sustained no damage.

RED WOLF MARINA RECOMMENDATIONS

1. Moorage Docks: Disconnect all utility lines, i.e., electrical, etc. and let docks follow pool fluctuation. Anticipate major damage to dock fingers protruding from the docks. Docks and fingers are one unit.

2. Gas Dock: Disconnect from dock system and allow to follow pool fluctuation. Disconnect all utility lines.

3. Sewage Dump Pumpout Station: Disconnect access ramp from dock and allow to follow pool fluctuation. Disconnect all utility lines.

NOTE: There is concern here that the docks may become stuck in the mud at low pool and difficult to refloat during pool raise due to the cedar log flotation design.

DRAWDOWN RESULTS

1. Moorage Docks: Appears to have sustained considerable damage. Running water in the heavily silted moorage area caused large gully erosion which resulted in bending and twisting of the docks.

2. Gas Dock: Little or no damage.

3. Sewage Dump Pumpout Station: Little or no damage. Two of the piles were tilted that the station was anchored to.

POST DRAWDOWN SURVEY

1. Moorage Docks: damages that resulted from drawdown are not as extensive as estimated from survey performed during maximum drawdown level. There are several dock sections, however, that will need to be replaced along with several piling. Repair and replacement can be verified from the video.

2. Gas Dock: little or no damage.

3. Sewage Dump Pumpout Station: little or no damage. One pile still tilted.

CHIEF TIMOTHY STATE PARK RECOMMENDATIONS

1. Handing Docks at Launch Ramps: Leave in place and allow to follow pool fluctuation.

2. Other Handling Docks: Leave in place and allow to follow pool fluctuation.

3. Sewage Pump Out Dock: Disconnect all utility systems. Leave in place and allow to follow pool fluctuation.

4. Walkway Ramps: Leave in place and allow to follow pool fluctuation.

DRAWDOWN RESULTS

There was no sign of damage at Chief Timothy State Park. This park could serve as a model for preventive measures to be taken during drawdown.

POST DRAWDOWN SURVEY

No apparent damage.

BOYER PARK AND MARINA RECOMMENDATIONS

1. Moorage Docks: (5 with fingers and 2 without fingers) Leave in place and allow to follow pool fluctuation.

2. Gas and Sewage Pump Out Dock: Disconnect all utility systems. Leave in place and allow to follow pool fluctuation.

3. Handling Docks at Launch Ramp: Leave in place and allow to follow pool fluctuation.

4. Walkway Ramps: Attach and suspend from piles which are present at all walkway locations.

DRAWDOWN RESULTS

1. Moorage Docks: Approach ramp dock section was cut loose (steel and wood members) and allowed to settle independent of docks. Need to be repaired after pool is raised. Wooden frames around piles that are attached to docks broke up due to the wood being rotten. All piles still in vertical position and appear to sustained no damage.

2. Gas and Sewage Pump Out Dock: no apparent damage.

3. Handling Docks: no apparent damage.

4. Walkway Ramps: Suspended as recommended. No apparent damage.

POST DRAWDOWN SURVEY

1. Gas and Sewage Pumpout Dock, Handling Docks and Walkway Ramps: No apparent damage.

2. Moorage Docks: Repaired docks by reattaching first section of dock that had been cut loose, as described above under DRAWDOWN RESULTS, back to main dock section with a relatively thick steel side plate on both sides of docks with bolts. Good repair. This was done to all seven docks.

CENTRAL FERRY STATE PARK RECOMMENDATIONS

1. Handling Docks at Launch Ramps: Leave in place and allow to follow pool fluctuation.

2. Sewage Pump Out Dock: Disconnect all utility systems. Leave in place and allow to follow pool fluctuation.

3. Walkway Ramps: Leave in place and allow to follow pool fluctuation.

4. Other Handling Docks: Leave in place and allow to follow pool fluctuation.

DRAWDOWN RESULTS

1. Handling Docks at Launch Ramps: Docks removed prior to drawdown preventing any damage.

2. Sewage Pump Out Dock: Utilities disconnected and ramp to dock removed. Dock settled in place. Minor damage to dock frame.

3. Walkway Ramps: Removed prior to drawdown.

4. Other Handling Docks: Ramps disconnected. Docks disconnected from pipe piles and restrained by ropes. No damage sustained.

POST DRAWDOWN SURVEY

No additional damage to that described above under "DRAWDOWN RESULTS".

PORT OF CENTRAL FERRY RECOMMENDATIONS

1. Dolphins: Should not be a problem.

2. Sheet Piling Cell: Could be a stability problem if piling not driven far enough into river bottom. Don't have information on original design of cells.

3. Grain Conveyer: Supported on piling. SHould not be a problem.

DRAWDOWN RESULTS

No damage sustained.

POST DRAWDOWN SURVEY

No damage.

PORT OF GARFIELD RECOMMENDATIONS

1. Dolphins: Should not be a problem.

2. Sheet Piling Cell: Could be a stability problem if piling not driven far enough into river bottom. Don't have information on original design. Grain Conveyer supported on cell.

DRAWDOWN RESULTS

1. Dolphins: No damage.

2. Sheet Piling Cell: No damage.

NOTE: The Port of Garfield had constructed a Handling Dock and Launch Ramp that was modified prior to the drawdown by installing hinges between floats to prevent breakage of the continuous wood members. Minor damage did occur when the hinges were bent but damage to the docks was prevented.

POST DRAWDOWN SURVEY

No additional damage.

Hinges have been straightened and the bolts reset.

APPENDIX F-3

REPORT BY MR. LARRY MCDEVITT

Subject Relocations Contracts

Little Goose CPRR Relocations

1. Riperia to Central Ferry - 1st stage	67-C-104
2. Riperia to Central Ferry - 2nd stage	69-C-170
3. Central Ferry to Purrington	69-C-141
4. Purrington to Schultz Bar	68-C-86
5. Shultz Bar to Wawawai	69-C-19

Lower Granite CPRR Relocations

1. Wawawai to Bishop	73-C-89
2. Bishop to West Steptoe	73-C-76
3. West Steptoe to East Moses	73-C-96
4. East Moses to Lewiston	73-C-102

Lewiston Area

1. Lewiston levees concrete cutoff	73-C-078
2. Lewiston levees system	73-C-0196
3. Raise CPRR bridge	73-C-204
4. Nez Perce County Road	73-C-143
5. Bank Protection Clarkston	73-C-039

Washington State Contracts

1. Silcott to Clarkston-Hwy 12
2. Red Wolf Bridge-Clarkston to Wilma

Review Comments
Surveillance Plan
Pool Lowering
Lower Granite - Little Goose Reservoirs
March 1 - April 1 - 1992

1. Reservoir Lowering:
    1.1 General
    The majority of all constructed areas within the two reservoir areas have been included in the presented plan. The following comments in outline form will be directed to specific features of constructed facilities within the Little Goose and Lower Granite Reservoir areas.

2. Little Goose Dam:
    2.1 North Shore Embankment section
    2.1.1 Rate of draw down
    2.1.2 Settlement
    2.1.3 Cracking - Locations
    2.1.4 Piezometers history - data.
    2.1.5 Upstream Slope protection
    2.1.6 Filter Ratio, upstream side (Record Samples)
    2.2 Downstream Structures
    2.2.1 Fishway Dike
    2.2.2 Left Bank Esplanada Area

3. Little Goose CPRR Relocations
    3.1 History
    3.2 Contracts (five)
    3.3 Foundation Excavation (none)
    3.4 Test Fill Areas
        3.4.1 Station 328 downstream of Central Ferry
        3.4.2 Station 1257 at Penawawa
    3.5 Settlement - Sink Areas
    3.6 Higher Embankment areas with few lower culverts and/or a high bridge
    3.7 Main areas affected by lowering of the pool area
    3.8 Wave action damage during low pool stages.

4. Washington State Hwy and Bridge at Central Ferry

4.1 County road areas at Deadman and Hasting Hills

5. Lower Granite Dam

5.1 North Shore Embankment section

5.1.1 Settlement

5.1.2 Cracking

5.1.3 Piezometers

5.1.4 Filter Ratio (Record samples)

5.2 Garfield County Road (left bank)

5.3 Downstream spillway flows (Direction)

6. Lower Granite - CPRR, County, State Hwy Relocation

6.1 Contracts - (four)

6.2 Foundation Excavating (none)

6.3 Settlement -Sink Areas

6.4 Higher Embankment Areas with few lower drainage culverts

6.5 Wave acation during lower pool elevations

7. Lewiston Area

7.1 Lewiston levee system

7.1.1 West Lewiston levee

7.1.2 Erosion of Prism or Blanket Area

7.1.3 Settlement

3.1 "Sinkholes" History

3.2 Movement or development of New Sinks

7.1.4 Piezometers

7.1.5 Levee Problem Areas

7.1.6 East Lewiston levee

6.1 Lindsay Creek Structure - 380 Structure

7.1.7 North Lewiston levee

7.1 Downstream levee Tie-in

7.2 Pumping Plant "B" uplift pressures

7.1.8 Lewiston levee ground water levels

8.1 General

7.1.9 Levee Typical Section

9.1 Possible Filter Problem (Riverward side)

7.2 Interstate Bridge Pier Number Three
- 7.2.1 History
- 7.2.2 Riprap Berm
- 7.2.3 Soundings

7.3 CPRR Clearwater River Bridge Pier Three
- 7.3.1 History
- 7.3.2 Remedial Work Contract 73-C-204
- 7.3.3 Erosion

7.4 Nez Perce County Rd. 505 Reinforcement
- 7.4.1 History
- 7.4.2 Movement

7.5 Disposal Areas
- 7.5.1 Encapsulated Fill Area
  - 7.5.1.1 History
- 7.5.2 Clarkston Dump Area (left bank)
  - 7.5.2.1 History
- 7.5.3 Snake River Disposal Area
  - 7.5.3.1 History
- 7.5.4 Clearwater River Disposal Area
  - 7.5.4.1 History

7.6 Recreation Areas
- 7.6.1 Water intake systems and screens

7.7 Bed Load movement within Clearwater and Snake Rivers

7.8 Existing Utilities in levee areas
- 7.8 Summary drawing in office
- 7.8.1 Telephone Cable WL Station 39+70
- 7.8.2 P.F.I outlet pipe into Snake

7.9 List of Available Contractors and Equipment
- 7.9.1 List and Location of available material for remedial repairs
- 7.9.1.1 (a) Impervious Gravels stockpile
  - (b) Rockfill - stockpiles
  - (c) Riprap - stockpiles
  - (d) Gravel Fill - sources

8. Public Safety Within the Project Areas?

8.1 (a) County

(b) State Hwy

(c) CPRR

(d) Ports

(e) City

(f) C. Guard

(g) State Parks

9. Comments

Review Notes:[by outline numbers]

2. Little Goose Dam

2.1 North Shore Earth Embankment.

The upstream shell should tend to move upstream and down. This may result in cracks along the upstream edge of the dam embankment and also adjacent to the concrete non-overflow section. Some time maybe required to detect the cracking due to the paving section.

2.14 Piezometers

The existing piezometers in the dam section were installed in exploration drilled during the 1970 pool raise. Slotted pipes were installed in the drill holes to record the water level. The entrance area of the slotted pipes may be such that accurate drawdown data may be difficult to determine. The location of the water levels in a thin core dam section, in regard to its safety, is often questionable. However, if a prezometer does indicate a rapid filling and / or loss, it may indicate a crack in the core section and a related problem with the earth dam.

2.1.5 Upstream Slope Protection

The basalt slope protection on the upstream slope is very large, with void areas between stones. The underlying rockfill bedding can be seen in many places. A review of the slope may help in determining the condition of the slope "as built" in lieu of damage by draw down.

2.1.6 Filter Ratio, Upstream Side

The Sand-Gravel filter ratio should be checked using the "record sample" data for the Impervious core and filter gradiations. This would be for "Information only" in case further draw downs may result in movement of the core material into the upstream filter.

2.2 Downstream Structures

The Fish Dike (already damaged) , and the left bank esplanada may be eroded if higher flows are discharged into a lowered, Lower Monumental pool.

3. Little Goose CPR Relocations

3.1 History

No foundation excavation was provided for the CPRR. Several Test fill were constructed with extensive instrumentation.

3.4 Test Fill Areas

The Test fill areas are at CPRR Station 328- dwg-LGG 1-9-1/193 (cont-67 C-104) Riperia to C. Ferry. CPRR Station 1257-dwg LGS 1-9-1/232 Purrington, Shultz, & Bar - cont 68-C-86.

3.4.1 The higher embankment areas downstream of Purrington will be subject to the most effect of the draw down. Upstream of this area, most of the railroad subgrade is generally landward and above the pool area.

3.4 Test Fill Areas

The Test fill areas should be considered for review during the draw down to determine if additional movement is found in the embankment and/or foundation areas. It is unknown if any of the instruments as constructed are still in operation or readable.

3.8 Wave Action Damage

Wave action may be a problem on several embankment areas if a wind condition develops during low pool stages. Any damaged areas should be noted, logged and /or mapped so that repair if necessary can be made at a later date from a barge operation.

4. Washington State Highway and Bridge at Central Ferry

There may be some settlement of the bridge abutment area at Central Ferry, along the county road sections at Deadman and along the left bank of the Snake, at the Hasting Hill Quarry area.

5. Lower Granite Dam North Shore Embankment.

5.1 North Shore embankment comments for Little Goose Embankment area also apply to this section.

5.2 Garfield County Road (Left Bank)

Garfield County road on the leftbank upstream of the dam may settle and move riverward. The existing BPA buried cable system should be checked to determine its condition prior to draw down. BPA may need to be made aware of the possible movement.

5.3 Downstream Spillway Flows

Information - Flows thru the spillway w/o flows thru the power house, results in a cross current against the left bank near the fish barge area. Prior discharges have resulted in damage to the left bank and the riverbank area has been protected. However, it may need to be checked during higher flow conditions and a low Little Goose Pool.

6. Lower Granite CPRR _ County, State Relocations

The Comments on little Goose relocation apply also to Lower Granite. *All culverts and bridges along the CPRR are marked with posts, indicating the Railroad "mile post". These post are a good reference point when trying to determine the locaiton of a problem area within the relocation or pool area.

7. Lewiston Area

7.1.1 West Lewiston Levee

7.1.2 Erosion of Prism or Blanket Area

The entire levee system was constructed during higher river stages and erosion of the levee toe during draw down should not be a problem except at Station 10 +00 area Station 104 to 120 (Blanket Area). The river velocities at Station 10 +00 are high during normal flow conditions and may result in movement of the riprap toe material. This condition should be checked and/or sounded to assure a stable toe section. The Blanket area at Station 104 to 120 has a rock fill shell which may be subject to erosion if flows are directed over onto the area. If higher Clearwater River flows are found necessary in the future, the placement of a riprap section over the Blanket Area should be considered.

7.1.3 Settlement And Sink Holes

32 Sinkholes were logged during construction between Station 32 +00 and 77 +00. All Sinks were not logged, some were called "depressions". One Sink", after repair continued up thru the levee section and out the top of the levee Prism at Station 40 +00. The levee section was backfilled with "impervious gravel" and the increased water levels in the levee section was monitored. Location of logged sink areas are indicated in the "Construction History Report" for Lower Granite.

7.1.3.2 Movement and Development of New Sinks

Lowering of the water levels in the levee system could result in movement of embankment materials within the levee section between Station 30 +00 and 77 +00. This reach of levee section should be watched very closely during, and after, the draw down to detect any movement and/or stress. The outer slope areas in this reach should also be reviewed to look for depressions, sinks, or movement of the slope protection. Settlement and movement of the levee section in other reaches of the entire levee system should be minor.

7.1.4 Piezometers

Piezometers were installed in the levee section in areas of seepage and/or construction problem areas. The main areas are:

WL Station - 30 +00 to 50 +00

WL Station - 70 +00 to 80 +00

WL Station - 140 +00.

7.1.9.1 Possible Filter Problem

The lowering of the pool levels will result in a flow of water from the impervious core section into the riverward gravel fill zone. Full draw down was not a condition considered during design. No sand filter system was provided on the riverward side of the the silt core material. This construction condition can and may result in some movement of the silt material into the gravel fill. Only continual review of the levee prism will allow for the detection of slumps or depressions in the levee section. The paved bike path system on top of the levee section will hamper this review and detection.

7.2 Interstate Bridge-Lewiston-Clarkston- Pier Number Three.

The State Hwy bridge Pier number three was provided with a riprap protection berm during construction of the West Lewiston levee section. [Mod Number 6 to Cont - 73-C-0196]. This was found necessary due to the restriction of the Snake River at this

location by the levee section and the possible higher flood flows prior to pool filling in 1975. Pier Number Three is founded on gravel without piling at elevation 687 . Sounding were obtained following the riprap construction during 1974. Sounding sheets showing the riverbed in the area of the Pier Three footing in 1974 til Jan. 1975, are available in the files of the Soil and Civil Design Seciton. New soundings following draw down should be obtained if possible to compare them with the Jan. 1975 data. State Highway bridge drawings showing the Pier Three construction should be found or obtained again, if possible.

7.3 CPRR Pier Three

Pier three of the CPRR , Clearwater River bridge was found during design to be founded on gravel in lieu of on bedrock as thought. A core drill hole as shown in contract 73-C-204, indicates the gravel found. The foundation gravels were contained with a Sheet Pile Cofferdam and grouted with a Neat Cement grout. The Sheet Pile Cofferdam was left in place around the pier footing and a concrete section was placed in the area between the footing and the Sheet Piling. The earth fill work platform around the Pier was also left in place. This Pier should be reviewed during the draw down periods to assure no undermining during higher river flows if they do occur. All other piers and/or the upstream guide are founded on bedrock or piling.

7.4 Nez Perce County Road 505

The existing county road along the right bank of the Snake River upstram of Lewiston was in the past an old railroad grade. This grade area was converted into an access road and had proved to be a problem due to massive landslides. During the design of Lower Granite, a Sur Charge berm was placed along the toe of the landslide mass to prevent its movement into the river area. Other work was also accomplished to drain sub surface water out of the slide areas and provide more stability. A sewer line and bike path were constructed in and on the berm area at a later date. The entire area along the right bank in the reach of the landslide mass should be reviewed to assure that the lowering of the water surface does not trigger movement of larger landslide land masses.

7.5 Disposal Areas Lewiston - Clarkston Area

7.5.1 Encapsulated Fill

The Encapsulated fill was one of the main disposal area designated in the Lewiston levee contract for large amount of "unsuitable material". This waste material existed along the right bank of the Snake River and both banks of the Clearwater Rivers. The main source of waste materials placed in this disposal area come from the West Lewiston levee foundation areas from Station 80 +00 to Station 150 +/-, the North Lewiston levee from

Station 0 +00 to Station 50 +00+/-, and the East Lewiston levee in the reach upstream of the old tailrace area (East Lewiston Pumping Plant). The large island area existing downstream of the encapsulated fill was also constructed with additional" unsuitable materials" encountered in the levee construction.

7.5.2 Clarkston Dump Area.

The left bank of the Snake River just down stream of Lewiston consisted of a high, near vertical bank of garbage placed along the river bank area by the city of Clarkston. This dump area was regraded within the levels of the Lower Granite pool and covered with a layer of "impervious gravel" and rock fill slope protection. All garbage material was contained within the zones of the "impervious gravels". This work was accomplished under contract 74-C-039.

7.5.3 Snake River Disposal Area

The large area existing upstream of the West Lewiston levee right bank tie-in and riverward of the Snake River ave. is a disposal area constructed of surplus or "unsuitable" materials. The waste materials resulted from the Nez Perce county road 505 sur charge berm construction Cont-73-C-143, and the material removed from the levee foundation area along the right bank of hte Snake River, between STation 0 +00 and Station 60 +00+/-.

7.5.4 Clearwater Water Disposal Area

The long berm area constructed along the right bank of the Clearwater River upstream of the North Lewiston levee consists of surplus "unsuitable" materials from the levee construction and from the removal of the Washington Water Power Dam. This material was used as a disposal area and also to provide slope protection for the Idaho State Hwy section which is adjacent to this area. The waste material was covered and provided with gravel fill and/or rock fill slope protection.

7.6 Recreation Areas

Several water intake systems exist in the reservoir areas.

(1) Hellgate-screen on riverbed-upstream area

(2) Hellgate-screen under dock section-

(3) Swallows-screen under dock section-

These may need to be protected during draw down conditions.

7.7 Bed Load Movement

Large amounts of sand will be moved downstream from the area of Asotin on the Snake River and the P.F. I. Plant area on the Clearwater River. The movement of this material should uncover the old river channels in their original positions. Large amounts of this

material should be redeposited along the left bank of the Snake Riverbed area near the Clarkston Sewage Plant and Port area, and near the Red Wolf Bridge on the left bank.

7.8 Existing Utilities in Levee Areas

A summary drawing with all existing utilities in the Lewiston levee area is available in the Engineering Division. A Telephone cable was relocated during the levee construction at Station 39+70 and reinstalled in the levee section. I believe the "in riverbed section" is as it existed prior to pool filling. This condition may need to be checked with the telephone company.

7.8.2 P.F.I. Effluent Pipe

Prior to pool filling in 1975, the outlet end of the P.F.I. discharge pipeline constructed into the Snake River eroded and was washed out. The foundation area of the pipe was eroded for some distance back toward the Clearwater River. Lower pool elevations may result in some more erosion and possible damage to the existing discharge line.

7.9 Available Contractors and Materials

A list of available contactors in the Little Goose and Lower Granite areas should be compiled. This list should include the amount and type of equipment that can be made

available for use in a short period of time. Who will handle contract paper work for contractors during the pool lowering? Operations or the District?

A list and plan of all available stockpiles of materials which can, or may be used, should be made. A plan showing location, access, and type of material should be included. The material list should indicate if it is Government owned or privately controlled. Type of materials considered for use:

(1) Ballast - CPRR (Blyton site) (B)

(2) Rockfill

(3) Riprap (C)

(4) Gravel Fill

(5) "Impervious Gravel Fill" [Levee repair] (A)

(6) Base and/or Top Course.

(A) The stockpile of Impervious gravel existing just downstream of Memorial Bridge and on the left bank should be used as necessary if a problem develops.

(B) Is the remaining amount of Ballast stockpiled at Blyton still Government owned or was it sold? Is it still in the stockpile area or was it removed?

(C) 2,000 cubic yards of riprap and 3,000 cubic yards of rock fill were stockpiled in the

"East Moses" Peter Kewit Quarry area at CPRR Station 3335. This material should be available off of the Washington State Hwy. Mod 4 to cont-73-C-102.

A plan view of available borrow areas in the Lewiston area was included in the Lewiston levee of operation and maintance manuals. These drawings showed both Government and private sources at that time.

8. Public Safety Within the Project Areas

Who has the overall responsibility for safety on the Public projects? I would assume the Corp does not want to take over the other agencies responsibility for their projects and property. During prior pool fillings, the owner of the facility was responsible and policed their own property with the Corp's help. I would assume all counties, states, cities, the railroad, State Parks, etc., would control the public safety on their property.

Will there be help within the Reservoir pool areas for controling the public? The river conditions on the Lower Granite Reservoir will attract many boaters, hikers, fishermen, lookers, which could endanger them. Will a public notice be issued in the general area to "Please Stay Out" of the areas? "Public Control" may become a real problem over the 30 day draw down period, and a worse public relations problem.

9. Comments

The use of only two Geotechnical Engineers to cover these many problem areas can only be accomplished if few or no problems develop. A plan to shift more people into problem areas should be developed prior to the pool lowering. With difficult access to many areas of the relocations prevailing, much time will be spent in traveling between sites. This problem is helped somewhat by the fact that the Lower Granite pool will be lowered prior to the Little Goose pool.

L. J. McDevitt

APPENDIX F-4

GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORTS

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER

DATE 3/1/92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
	X						

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	(32-50)	50-70	70-85	85 up
WIND	Still X	Moder	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	1	

WORK PERFORMED TODAY: PATROLLED LEWISTON LEVEES BY VEHICLE, OBSERVED PONDS BEHIND HWY 12 EMBANKMENT.

MEETINGS AND INSTRUCTIONS: N/A

SAFETY: NONE NOTED

OBSERVATIONS:

LEWISTON LEVEES - WEST LEWISTON - WATER LEVEL DROPPED BLEACHING ACROSS FROM W. LEVEES IN CLARKSTON. NO SIGN OF TOE EROSION. NO SINKHOLES. ~~EAST~~ LEWISTON - WATER LEVEL DROPPING NEAR POTLATCH RIVER BECOMING NEARLY FREE FLOWING IN PLACES. ROCK FILL EXPOSED AT TOE OF SOME PORTIONS. NO TOE EROSION NOTED. NORTH LEVEE - SAME AS EAST LEVEE

LOWER GRANITE DAM AND RESERVOIR - N/A

LITTLE GOOSE DAM AND RESERVOIR - N/A

Inspector's Signature	Date:	OFC Signature	Date:
	3/2/92		

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER

CONTRACTOR'S: MUSSELMAN; PACO

DATE 4/2/92

DAY	S	M	T	W	TH	F	S
		X					

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	(50-70)	70-85	85 up
WIND	(Still)	Moder	High	Recon No.	
HUMIDITY	Dry	(Moder)	Humid	2	

WORK PERFORMED TODAY: 7-8AM: ~~PATROLLED~~ LEWISTON LEVEES AND LOWER GRANITE RESERVOIR BY ~~AIR~~ HELICOPTER
8-9AM: DAILY SITREP MTG. AT LOWER GRANITE DAM
9-10AM: REPATROLLED LOWER GRANITE DAM ~~NORTH~~ AND LEVEES BY HELICOPTER.
10-LUNCH: PREPARED PIEZOMETER & MAP DATA
LUNCH-4:00PM: PICKED UP BEN LAZO AT AIRPORT; PATROLLED LEWISTON LEVEES BY CAR AND HWY 12 PONDS & WILMA.

MEETINGS AND INSTRUCTIONS: LOWER GRANITE SITREP MTG. RECEIVED RADIOS; AWAITING RADIO INSTRUCTION SHEET.

SAFETY: NOTED POWERLINES DURING HELICOPTER FLIGHT.

OBSERVATIONS:

LEWISTON LEVEES - NORTH & EAST LEWISTON LEVEES: CONTINUED LOWERING OF WATER LEVELS. EXTENDED ISLAND EMERGENCE AND CAPIOS AS A SIGN OF FREE-FLOWING CONDITION. NO EROSION NOTED. ROCKFILL EXPOSED AT TOE IN MANY PLACES. BOAT DOCKED AT CLEARWATER LANDING NEEDS TO BE REMOVED. LANDING DOCK AT CLEARWATER HAS PANEL DISTORTED BOLT HOLDING WOOD BUMPER TO CONCRETE IS COMING LOOSE. LANDING PLATFORM ON WEST LEVEE (~STA 10+00 30+00) IS CRACKED AND HAS SPALLED ON BOTTOM OF THE PLATFORM. SLIGHTLY

LOWER GRANITE DAM AND RESERVOIR - NO EVIDENCE OF EROSION ON TOE OF LEVEES OR EMBANKMENTS WITHIN LOWER GRANITE RESERVOIR. POOLS ALONG RR ARE DROPPING DOWN WITH RESERVOIR ALTHOUGH POOL NEAREST TO LOWER GRANITE DAM IS SLOWER THAN OTHERS. SOME POOLS ARE ALREADY COMPLETELY DRAINED. MUD FLATS ARE BECOMING MORE EXTENSIVE AND MORE FREQUENT.

~~LITTLE GOOSE~~ LOWER GRANITE DAM AND RESERVOIR - HWY 12 PONDS ARE FALLING WITH WATER LEVEL. EVANS ROAD PONDS DRAINING. BOTH PONDS BELOW CROSSING CULVERT INVERT. WATER LEVELS ARE NOW BELOW HIGH CULVERTS TO RESERVOIR. FISH BEING CONCENTRATED IN POOLS AS THEY DECREASE IN SIZE. CHIEF TIMOTHY ISLANDS ARE BECOMING PENINSULAS AS WATER RECEDES. BRIDGES, SHEETPILE WALL, AND OTHER MARINE STRUCTURES APPEAR TO BE OK.

3/2/92

Inspector's Signature | Date: | OFC Signature | Date:

~~INCIDENTS AND CORRECTIVE MEASURES:~~

LOCATION: LOWER GRANITE RESERVOIR (CONTINUED OBSERVATIONS)

~~TIME:~~ RAILROAD AND HWY 193 EMBANKMENTS STILL SHOW

~~NATURE AND EXTENT OF INCIDENT~~: RIPRAP REINFORCEMENT.

WAWAWAI HAS BOATS STILL DOCKED AT MARINA.

RECEIVED HANDY TALKIES FROM LGCC, GEOTECHNICAL

ORDERED HEAVY CONST. EQUIPMENT ARRIVED

INCLUDING 1 DOZER AND TRACTOR TRAILER, 1 HYDRAULIC EXCAVATOR

W/ TRACTOR TRAILER, 1 FRONT END LOADER AND

2 PUMPS W/ 4" SCREEN AND HOSES. ALL BUT PUMPS

WERE SUPPLIED BY MUSSELMAN, PACO SUPPLIED

PUMPS HERB BESSEY CONDUCTED PRE-CONST.

MEETING W/ MUSSELMEN. BILL LOFTUS OF THE

~~CORRECTIVE MEASURES TAKEN~~: LEWISTON MORNING TRIBUNE

INTERVIEWED ANDY SHOULDERS AND I TODAY. EXPLAINED

WHAT WE WERE DOING AT ACOE'S REQUEST.

IN GENERAL NO PROBLEM AREAS ENCOUNTERED.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER DATE 31 MAR 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
			X				

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	3	

WORK PERFORMED TODAY: AIR SURVEILLANCE OF HIGHWAY AND RAILROAD EMBANKMENTS ON THE NORTH AND SOUTH BANKS OF THE SNAKE RIVER FROM CLARKSTON RESOURCE CENTER DOWNSTREAM TO LOWER GRANITE DAM. AIR SURVEILLANCE OF LOWER GRANITE LOCK & DAM NORTH EMBANKMENT, AND ALSO THE WEST LEWISTON LEVEE SYSTEM. LAND SURVEILLANCE OF THE NORTH LEWISTON EAST LEWISTON AND WEST LEWISTON LEVEES. ALSO, LAND SURVEY OF RED WOLF MARINA AND N. CLARKSTON EMBANKMENTS

MEETINGS AND INSTRUCTIONS: ALONG SNAKE RIVER S. BANK.

ATTENDED DAILY STAFF MEETING AT LOWER GRANITE LOCK AND DAM. ALSO, MET WITH THE DOT. Informed DOT that we do not have authority to provide emergency assistance.

SAFETY:

OBSERVATIONS:

LEWISTON LEVEES - [illegible] from [illegible] [illegible] seeping [illegible] Lewiston [illegible] recent [illegible] Memorial [illegible] N [illegible] areas of rock [illegible] 1st [illegible] on Memorial [illegible] scour. N. Lewiston [illegible] discolored [illegible] [illegible] pond is also discolored.

LOWER GRANITE DAM AND RESERVOIR - TWO AREAS OF CONCERN WERE INVESTIGATED ALONG THE S. BANK IN N. CLARKSTON:

1) BEHIND THE QUALITY INN IS AN EMBANKMENT SLOUGH AREA APPROX. 625 FT LONG W/ MAX DROP OF 4 FT. IT BEGINS AT THE FIRST WALKWAY RAMP PIER OF THE DOCK AND RUNS UPSTREAM. THE SECTION WAS STILL DRAINING, AND MAY HAVE BEEN CAUSED BY THE WEIGHT OF THE SATURATED SANDY GRAVEL

~~LITTLE GOOSE DAM AND RESERVOIR -~~ AND/OR LACK OF CONSOLIDATION OF THE EMBANKMENT MATERIAL IN THIS AREA. THE SECTION IS APPROX 450 FT FROM THE NEAREST PAVED ACCESS ROAD AND APPEARS TO CAUSE NO THREAT.

2) THE RED WOLF MARINA ALSO HAD A FEW PROBLEMS. ALONG THE EAST BANK ADJACENT TO THE DOCK, 18 INCHES OF SILTY SAND DEPOSITS OVERLAYS A SANDY GRAVEL BASE. WHEN THIS AREA DRAINED IT WASHED AWAY AREAS OF THE SILTY SAND CREATING NUMEROUS DRAINAGE CHANNELS. THIS AREA APPEARS TO BE IN FAIR CONDITION. (CONT.)

Inspector's Signature	Date:	OFC Signature	Date:
		[signature]	3/3/92

3 Mar 92
(cont.)

Lower Granite Dam & Reservoir

Along the South Bank of the Marina was a 100 ft slough area. The largest section of this slough was approx 33 ft wide, 19 ft cut back into the bank and drop of 4 1/2 ft. This area is 52 ft N. of the toe of the Highway 12 embankment and 183 ft W. of the Pomeroy/Dayton/Walla Walla Mileage Road Sign. Another area of concern at this location was boiling. Numerous boils (max size 4") along a 20 ft section of this S. Marina bank. Origin of these boils is unknown, and it is difficult to tell if the water being emitted is clean (no fines) due to the presence of overlying silty sand. This area is approx 70 ft. N. of the Mileage Sign.

Closer to the Lower Granite Lock and Dam, is an area to keep an eye on; the pond at the foot of Buck Canyon. The water level in the pond appeared to be 1-2 ft higher than the river. This area will have to be monitored to ensure proper drainage.

Boils on the south shore downstream of boat ramp were noted. The boils (N 4) were 3' in dia (cone).

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: None

FOREBAY EL 727.18

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER. DATE 4 MAR 92.

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
			X			

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	4	

WORK PERFORMED TODAY: AIR SURVEILLANCE OF EMBANKMENTS AND PONDS ALONG THE LOWER GRANITE DAM AND RESERVOIR. AIR SURVEILLANCE [redacted] AND LAND SURVEILLANCE OF THE LEWISTON LEVEE SYSTEM (N, E, & W). AIR SURVEILLANCE CONTINUED UP THE SNAKE RIVER TO HELL'S GATE MARINA

MEETINGS AND INSTRUCTIONS: ATTENDED DAILY STAFF MEETING AT LOWER GRANITE COMMAND CENTER. ALSO MET WITH DICK NELLER AND FRED

INFORMED VERN HOES OF THE CAMAS PRAIRIE RR ABOUT WATER LEVEL DIFFERENCE AT THE BUCK CANYON POND. ALSO SPOKE WITH MR MCMURRAY AT THE PORT OF LEWISTON CONCERNING THE DOCKING CELLS (H-PILE COFFER STRUCTURE) HOES IS PLANNING ON PUMPING THAT POND IF IT DOESN'T DROP.

SAFETY: INFORMED PAO ABOUT HAZARDS ASSOCIATED WITH LOCAL SLOUGH AREAS AND [redacted] SPOTS.

OBSERVATIONS:

LEWISTON LEVEES - MAIN AREA OF CONCERN WAS THE W. LEWISTON LEVEE SECTION (APPROX STA 1+00 TO 60+00). FOUR LARGE SINK HOLES (12-18") WERE FOUND ALONG THE RIVERSIDE TOP OF LEVEE. ALSO NOTED SOME TENSION CRACKING ALONG SAME STRETCH. THE SINK HOLES MOST LIKELY CAN BE ATTRIBUTED TO SMALL VARMENTS OR "RODENT CAVITIES". THE CRACKING PROBABLY CAUSED BY SUN AND WARMER DRYING CONDITIONS OF THE SOIL. THIS AREA TO BE MONITORED MORE CLOSELY UNTIL ACTUAL CAUSES ~~LOWER GRANITE DAM AND RESERVOIR~~ ARE DETERMINED. AN OTHER PROBLEMS NOTED ALONG THE W. LEVEE WAS AT A CULVERT JUST D/S OF THE SOUTHWAY ~~INTERSTATE~~ BRIDGE. AT THE OUTLET THERE APPEARS TO BE AN APPROX 10' SLOUGH AREA AROUND THE OUTLET WITH WATER RUNNING OVER THE TOP OF THE CUT, PERHAPS INCREASING THE SIZE OF THE SLOUGH. THE WATER IS ABOUT TO ENCROACH ON THE PAVED WALKWAY. SOURCE OF WATER ~~LITTLE GOOSE DAM AND RESERVOIR~~ IS UNKNOWN BUT MAY BE CAUSED BY A DAMAGED OR BLOCKED CULVERT. ALSO NOTED ALONG THE W. LEVEE IS THAT THE LANDING DOCK PLATFORM (APPROX STA 30+00) NOTED ON 2 MAR 92 TO BE SLIGHTLY CRACKING, HAS TOTALLY BROKEN APART.

Inspector's Signature	Date:	OFC Signature	Date:
	4 MAR 92		3/4/92

LOWER GRANITE DAM & RESERVOIR:

AIR SURVEILLANCE ABOVE THE PORT OF LEWISTON SHOWED SETTLEMENT INSIDE THE H-PILE COFFER DOCKING CELL STRUCTURES. MAJOR CRACKING INSIDE THE TOP CONCRETE CAP WAS OBSERVED ON THE 3RD STRUCTURE (COUNTING UPSTREAM). ALSO SIMILAR CRACKING NOTED ON STRUCTURES 7, 8, AND 9 HOWEVER THESE CELLS' CRACKS HAD WHAT APPEARED TO BE GREEN MOSS OR GRASS WITHIN THE CRACKS WHICH MEANS THAT THESE CRACKS ARE NOT VERY RECENT. STRUCTURE 3 HAD NO EVIDENCE OF SAME GREEN MOSS, WHICH PERHAPS MEANS THAT THE SETTLEMENT WAS MORE RECENT.

ANOTHER AREA OF CONCERN WAS THE BUCK CANYON POND NOTED ON YESTERDAYS REPORT (3 MAR 92) THE WATER LEVEL IN THE POND REMAINS 2-3 FT ABOVE THE RESERVOIR. VERN HOES OF THE CAMAS PRAIRIE RAILROAD WAS NOTIFIED ABOUT THIS PROBLEM AND WILL CONSIDER PUMPING TO RELIEVE HEAD PRESSURES.

RE-INSPECTED AREAS OF CONCERN NOTED YESTERDAY. RED WOLF MARINA [redacted] BOILS HAVE [redacted] SLOWED SIGNIFICANTLY AND/OR CEASED, AS WAS THE CASE OF THE BOILS D/S OF THE RED WOLF BRIDGE. →

AT THE AREAS WHERE SLOUGHING WAS CONCERNED THE POOL HAS LOWERED ENOUGH WHERE THERE APPEARS TO BE NO ~~EROSION~~ FURTHER SLIPPING OR EROSION. DRAINAGE OUT OF THESE AREAS HAS SLOWED SIGNIFICANTLY.

ALSO NOTED DURING AIR SURVEILLANCE WAS A MINOR SLOUGH JUST U/S FROM THE PORT OF CLARKSTON

LEWISTON LEVEES:

AN ONGOING MAJOR CONCERN WITH THE LEVEES WILL BE THE TUNNELING OF VARMENTS WITHIN THE LEVEES. AS THE DRAWDOWN PROGRESSES THE ANIMALS WILL CONTINUE TO BURROW DEEPER AND DEEPER JUST ABOVE THE LOWERED WATER LEVEL. UPON REIMPOUNDMENT THESE TUNNELS WILL PRESENT A POSSIBLE PIPING PROBLEM (THROUGHOUT THE SYSTEM WHERE THE ANIMALS LIVE) CAUSING A MAJOR LOSS OF STRUCTURAL INTEGRITY. LOWER GRANITE COE COMMAND CENTER WAS INFORMED, ALSO PARK RANGER FROM COE STATED THAT A CONTRACT IS IN THE WORKS TO CAPTURE AND RELOCATE THE VARMENTS.

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER

DATE 5 MAR 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
					X		

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	5	

WORK PERFORMED TODAY: AIR SURVEILLANCE OF EMBANKMENTS AND PONDS ALONG THE LOWER GRANITE DAM AND RESERVOIR, LEWISTON LEVEE SYSTEM, AND CONTINUED UP THE SNAKE RIVER TO HELLS GATE MARINA. LAND SURVEILLANCE OF THE LEWISTON LEVEE SYSTEM, PORT OF WILMA, AND THE PORT OF CLARKSTON SEWAGE TREATMENT PLANT

MEETINGS AND INSTRUCTIONS: ATTENDED DAILY STAFF MEETING AT LOWER GRANITE COMMAND CENTER

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - FOUND NO SIGNIFICANT PROBLEMS WITH THE LEVEE OR EMBANKMENTS. WEST - REPAIRED BURROW HOLES ON SOUTH END OF LEVEE BY CONCRETE BATCH PLANT; NO MAJOR CHANGES NO PROBLEMS FOUND THROUGHOUT. EAST - AREA JUST D/S FROM POTLATCH CO. HAS SWIFT MOVING CURRENTS IN THE CLEARWATER RIVER, WILL MONITOR CLOSELY FOR SCOURING ALONG THE RIPRAP MATERIAL. NO PROBLEMS FOUND.

LOWER GRANITE DAM AND RESERVOIR - POINT OF CLARKSTON SEWAGE TREATMENT PLANT - LARGE SLOUGH FOUND AROUND TREATMENT PLANT OUTFALL INTO RIVER. TWO CONCRETE PIPES (APPROX 16"-18") EXPOSED DUE TO SLIDE. UPPER PIPE WAS BROKEN AND LEAKING OUTFALL ONTO EMBANKMENT, HOWEVER, DUE TO THE EXISTING LENGTH IT APPEARED TO OUTFALL ON THE EMBANKMENT ANYWAY(PIPE BROKEN APART AT A JOINT W/TOTAL LENGTH STILL IN TACT. THIS PIPE APPEARED TO BE AN ~~LITTLE GOOSE DAM AND RESERVOIR~~ - OVER FLOW FOR THE LOWER CONCRETE PIPE WHICH APPEARED TO BE UNDAMAGED. THIS LOWER CONCRETE PIPE WAS STILL SUPPORTED BY THE EMBANKMENT FILL AND THE OUTLET WAS SOMEWHERE OUT IN THE RIVER. THE SLIDE AROUND THE OUTFALL AREA WAS APPROX 35 FT LONG, 8-10 FT HIGH, AND 17 FT INTO THE EMBANKMENT. THIS SLIDE TIED INTO ANOTHER SLIDE HEADING U/S WHICH MEASURED 223 FT LONG, 3-4 FT HIGH AND 12 FT DEEP INTO THE EMBANKMENT. THIS SLIDE DID NOT APPEAR TO POSE A THREAT TO ANY STRUCTURES IN THE AREA.

Inspector's Signature	Date:	OFC Signature	Date:
	3/7/92		3/7/92
	7 Mar 92		

5 MAR 92

LOWER GRANITE DAM AND RESERVOIR: (CONT.)

MAJOR SLOUGHING FOUND AT THE PORT OF WILMA. FIVE LARGE SLIDES WERE ENCOUNTERED WITH TENSION CRACKS IN THE EMBANKMENT THROUGHOUT. THE LARGE SLIDES MEASURED APPROX 25 - 35 FT IN LENGTH, 15-20 FT CUT INTO THE EMBANKMENT, WITH A DROP OF THE SLIDE MATERIAL AVG 8-10 FT. EVIDENCE OF PIPING THROUGH THE SILTY SAND FILL MATERIAL [redacted] SHOWING PIPES IN THE CUT UP TO 4" IN DIAMETER. ANOTHER OF THE LARGE SLIDES FOUND A GRAVEL LAYER APPROX 9 FT DEEP UNDERLYING THE SILTY SAND. THIS MATERIAL APPEARED TO HAVE ACTED IN THE SAME MANNER AS THE PIPING. ALSO, THROUGHOUT WAS EVIDENCE AND ONGOING BOILS CARRYING OUT FINE GRAINED MATERIAL FROM THE EMBANKMENT. DRAINAGE OF THE EMBANKMENT WAS ALSO EVIDENT. THESE LARGE SLIDES WILL BE VERY SUSCEPTIBLE TO EROSION IF LEFT UNPROTECTED. IT WAS APPARENT THAT WAVE ACTION, EVEN FROM A SMALL WATERCRAFT CAUSED FINE MATERIAL WASHING [redacted] IN THESE AREAS WHERE THE RIP RAP PROTECTION HAD SLID. WIND CONDITIONS CAN ALSO CAUSE THIS WAVE WASHING EROSION. TO PREVENT FURTHER DAMAGE TO THE PORT FROM THESE SLIDES, PROTECTION MUST BE ~~PERFORMED~~ INSTALLED, IF NOT JUST TEMPORARILY,

5 MAR 92

UNTIL A PERMANENT PROPER FIX CAN BE CONSTRUCTED. SLIDING APPEARS TO BE CONCENTRATED IN THE AREA [redacted] D/S FROM THE GRAIN STORAGE AREA (IN FRONT OF THE WOOD CHIPPING AREAS)

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER

DATE 10 MAR 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
						X	

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	6	

WORK PERFORMED TODAY: AIR SURVEILLANCE OF EMBANKMENTS AND PONDS ALONG THE LOWER GRANITE DAM AND RESERVOIR, LEWISTON LEVEE SYSTEM, AND UP THE SNAKE RIVER TO HELLS GATE MARINA. LAND INSPECTION OF THE LEWISTON LEVEE SYSTEM, CHECKED EROSION OF OUTFALL ON E. BANK OF SNAKE RIVER D/S FROM THE SOUTHWAY BRIDGE (ONGOING PROBLEM NOT OUR RESPONSIBILITY) AND RAN LEVELS AT W. EVANS RD POND TO CHECK EL. DIFFERENCE (POND IS 5.7 FT HIGHER THAN RESERVOIR).

MEETINGS AND INSTRUCTIONS: ATTENDED DAILY STAFF MEETING AT LOWER GRANITE DAM COMMAND CENTER, MET WITH DICK WELLER AND JOE MURAR TO VIEW WILMA AND CLARKSTON SLIDES. MET WITH RICK DAVIS OF PORT OF CLARKSTON. HE HAS TOUR BOATS LANDING IN APRIL, HIS LANDING

~~SAFETY:~~ SOLDIER PILES ARE OUT OF COMMISSION. HE HAS REQUESTED FUNDING FROM ~~SEN~~ CONGRESSMAN FOLEY FOR REPAIR FUNDS. THE PILES ARE END BEARING SUPPORTED ON UNDERLYING ROCK. HE WANTS TO USE HEAVIER PILES. I TOLD HIM HIS PROBLEM, PRIMARILY IS THE LACK OF LATERAL SUPPORT. IF DRAWDOWN CONTINUES ANNUALLY THE SAME SCENARIO WOULD HAPPEN, HE MIGHT THINK OF DRILLING AND, GROUTING AND IMPLANTING THE PILE TIPS IN THE ROCK. A WHALER TIE AND CABLE TIE BACK MAY ALSO INHIBIT MOVEMENT. HE CONTENDS THE MOVEMENT OF THE UNDERLYING SILT IS DUE TO ~~DREDGING~~ DREDGING RECENTLY DONE BY THE CORPS. I SAID THIS IS A REMOTE POSSIBILITY. THE MAIN REASON IS THE PORE PRESSURE ~~AND~~ BUILDUP IN THE EMBANKMENT, LOW SHEAR STRENGTH OF THE SILTY FILL MATERIALS.

OBSERVATIONS:

LEWISTON LEVEES - NORTH — NO SIGNIFICANT PROBLEMS NOTED WEST - NO SIGNIFICANT PROBLEMS TO REPORT. RODENTS STILL IN SOUTH END OF W. LEVEE (PROBABLY THROUGHOUT THE SYSTEM). IMPERVIOUS BLANKET STA 104+00 TO STA 120+00 HAS NOT BEEN EXPOSED YET. EAST — CHECKED AREA D/S FROM POTLATCH WHERE SWIFT CURRENT CROSS, FOUND NO SCOURING EROSION OF ROCKFILL TAKING PLACE. ALL APPEARS TO BE VERY STABLE.

LOWER GRANITE DAM AND RESERVOIR - PORT OF WILMA — D/S FROM GRAIN SILOS, IN FRONT OF THE WOOD CHIPPING AREAS IT APPEARS THAT THE TENSION CRACKING HAS BECOME MORE VISIBLE (WIDER) ANOTHER SMALL SLOUGH AREA WAS SPOTTED. THIS WILL BE AN ONGOING OCCURENCE. SOLDIER PILES BEHIND THE QUALITY INN APPEAR TO BE LEANING MORE THAN YESTERDAY (CLOSE TO 45°). THE SEWAGE OUTFALL AT THE PORT OF CLARKSTON - ~~LITTLE GOOSE DAM AND RESERVOIR~~ - THE UPPER CONCRETE PIPE HAS COMPLETELY BROKEN OFF. THE TREATMENT PLANT / PORT OF CLARKSTON WILL CAP OFF BECAUSE IT WILL NO LONGER BE USED. LOWER OUTFALL STILL IN TACT W/ SOME MINOR SLOUGHING ~~ONGOING~~ IN THIS AREA. FAN LEVELS AT W. EVANS POND ALONG HIGHWAY ~~12~~ 12. FOUND IT TO BE 5.2 FT HIGHER THAN RESERVOIR ELEVATION. ALSO, INSPECTED SLIDE AT THE ~~OUTFALL~~ CULVERT OUTLET JUST D/S FROM THE SOUTHWAY BRIDGE. (RIGHT BANK). THIS APPEARED TO BE AN ONGOING (CONT.)

Inspector's Signature	Date:	OFC Signature	Date:
	7 Feb 92		2/7/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: NONE

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: NONE

(CONT.)

PROBLEM DUE TO PREVIOUSLY EXISTING WORK, DETERMINED THAT THIS AREA IS NOT OUR RESPONSIBILITY.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTRE. DATE 7 MAR 92.

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
						X

WEATHER	Bright Sun	Clear	Overcast	Rain X	Snow
TEMP	To 32	32-50 X	50-70	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	7	

* NOTE: DUE TO ADVERSE WEATHER CONDITIONS, AIR SURVEILLANCE WAS NOT CONDUCTED THIS DATE.

WORK PERFORMED TODAY: WATER INSPECTION CONDUCTED THIS DATE WITH BEAMER'S; INSPECTED CRANE PIER AT THE PORT OF CLARKSTON AND THE ONGOING SLOPE FAILURES AT THE PORT OF WILMA. ~~Reserv~~ RESERVOIR EMBANKMENT SURVEYS WERE PERFORMED ~~ON~~ LAND ALONG HIGHWAY 12 & 193. LEVEE INSPECTION ALSO DONE ON THE NORTH, WEST & EAST LEWISTON LEVEES VIA LAND. MADE ARRANGEMENTS WITH DOT AND COE PERSONNEL CONCERNING THE PUMPING OF WEST EVANS ROAD POND.

MEETINGS AND INSTRUCTIONS: MET WITH DOT TO COORDINATE PUMPING OF WEST EVANS RD. POND.

SAFETY: CORPS EMPLOYEE SLIPPED ON WET RIP RAP WHILE INSPECTING LEWISTON LEVEE. NO INJURY OR LOST TIME BECAUSE EMPLOYEE HAS A LOT OF PADDING ON HIS BEHIND.

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted.
East - No Problems Noted.
West - Found Bench Just D/S From Memorial Bridge Which Appears To Have Slumped Rip Rap W/Overlying Fine Material Approx 10-12 ft Down From Crest. Will Monitor For Any Changes. (This Area Might Have Just Been Constructed In This Manner). No Other Problems Noted.

LOWER GRANITE DAM AND RESERVOIR - Inspected Concrete Support Piling For The Port of Clarkston Crane Pier. No Evidence of Cracking or Shifting. Footing Not Exposed For Inspection. Deck Beams Appeared To Be OK. 2 to 3 Wood Protective Bumper Piles Were Sheared Broken Off At Base. Most Likely From Previous Damage. Suggested Port of Wilma From Boat And Shore. No. of Slides Has Increased To 10. Five Previous Slides Appear To Have Enlarged. There is Still Evidence of Toe Drainage. Boils Appear At The Newest Slides And All Show Evidence of Piping. The Material At The Port of Wilma Appears To Be A 10 ft Silty Sand Material Overlying Sandy Gravel Which Will Contribute To Toe Drainage And Piping of Fine Materials Weakening The Slope Stability.
West Evans Road Pond Was Checked And Found To Have A Depth of 15-17 ft. With The Water Level (Cont.)

Inspector's Signature	Date:	OFC Signature	Date:
[signature]	8 Mar 92	[signature]	3/8/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION:

TIME:

NATURE AND EXTENT OF INCIDENT: NONE

~~CORRECTIVE MEASURES TAKEN:~~

(Cont.) DIFFERENTIAL BETWEEN POND AND RESERVOIR AT 5.7 FT, IT WAS DETERMINED THAT THE POND WOULD HAVE TO BE PUMPED TO RELIEVE THE PRESSURE BEHIND THE EMBANKMENT. ARRANGEMENTS WERE MADE WITH THE W DOT AND CHARLESTON RESOURCE OFFICE TO CONSTRUCT ROAD, PUMP PLATFORM, AND TO MOBILIZE, SET UP AND OPERATE PUMPS.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 8 MAR 92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
X						

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	8	

Morning Fog

WORK PERFORMED TODAY: Performed Aerial Surveillance of Lower Granite Dam Reservoir Embankments & Ponds, and also Lewiston North Levee and East & West Levees along Clearwater River. Land Levee Survey of entire Lewiston System. Land Inspection of Slide along Hwy 12 across from Golf Course (Mile 432). Inspected Whirlpool Phenomenom at Steptoe Canyon Ponds, and Rain Levels and Checked on Pumping of West Evans Rd Pond. (H_2O El Dif between Pond and Reservoir Measured 8.8 ft)

MEETINGS AND INSTRUCTIONS: Attended Morning Staff Meeting from the Clarkston Resource Office. Met with WDOT to inform of Slide along Hiway 12 by Golf Course.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED

WEST - NO PROBLEMS NOTED EXCEPT FOR LOTS OF SIGHTSEERS.

EAST - NO PROBLEMS NOTED

LOWER GRANITE DAM AND RESERVOIR - EVANS ROAD POND - WEST POND BEING PUMPED. LEVELS RUN TO DETERMINE WATER LEVEL DIFFERENCE BETWEEN POND & RESERVOIR. DIFFERENCE FOUND POND TO BE 8.8 FT HIGHER. SECOND PUMP BROUGHT IN AND BEGAN PUMPING AT APPROX 1500 HRS. (1ST PUMP APPROX 150 GPM, 2ND 200 GPM).

~~LITTLE~~ STEPTOE CANYON — LAND AND AIR INSPECTION OF WHIRLPOOLING OF UPPER POND AND ~~SEEP~~ PIPING INTO LOWER POND. UPPER POND IS & BRIDGE ABUTMENT

~~LITTLE GOOSE DAM AND RESERVOIR~~ - LEVEED BY HWY 193 EMBANKMENT & BRIDGE ABUTMENT & LOWER POND IS LEVEE'D BY CPRR EMBANKMENT (BOTH ARE WITH SADDLE UNDER BOTH BRIDGES DOWN TO RESERVOIR BRIDGE SECTIONS). DRAINAGE FROM UPPER POND INTO LOWER MAY BE FROM A LOWER CULVERT OR PERHAPS BY A PIPING PROBLEM (UNDER HWY 193) WILL RESEARCH FURTHER TO DETERMINE METHOD OF PIPING.

HIGHWAY 12 - FIRST EMBANKMENT SLOUGH FOUND THIS DATE. AT APPROX MILE 432 FROM CLARKSTON (ACROSS FROM CLARKSTON GOLF & COUNTRY CLUB, JUST D/S FROM RED WOLF MARINA. SPOTTED FROM AIR SURVEILLANCE. SLOUGH MEASURED APPROX 110 FT LONG, (CONT)

Inspector's Signature	Date:	OFC Signature	Date:
	9 MAR 92		3/9/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION:

TIME:

NATURE AND EXTENT OF INCIDENT:

~~CORRECTIVE MEASURES TAKEN:~~

Cont) →

DROP OF 8 FT AND CUT INTO BANK 12 FT. TOE OF SLOUGH VERY SATURATED. SOME EVIDENCE OF PIPING. DOT HAS BEEN INFORMED AND WILL ~~ALSO~~ ALSO MONITOR ALONG WITH COE.

PORT OF WILMA - TENSION CRACKS HAVE FURTHER DEVELOPED AND NUMBER OF SLIDES HAS INCREASED TO 15.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 9 MAR 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
		X					

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	9	

Morning Fog

WORK PERFORMED TODAY: Performed Air Surveillance of Embankments and Ponds along the Lower Granite Dam and Reservoir, Lewiston Levee System, and up the Snake River to Hell's Gate Marina. Land Survey of Lewiston Levee System, Slide on Hwy 12 (Mile 432) across from Clarkston Golf and Country Club D/S from Red Wolf Marina. Checked and Assisted with Set-up of Large Pump at Evans Road Pond West. Also, Checked on Sloing along the Port of Numa Embankment. Ran Levels at Evans Rd Pond West: Hed Level Diff of 9.45 @ 0930 Hrs

MEETINGS AND INSTRUCTIONS: Attended Morning Staff Meeting from the Clarkston Resource Office. Met with Dick Weller to Review and Inspect Ongoing Problems.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED
WEST - NO PROBLEMS NOTED
EAST - NO PROBLEMS NOTED

LOWER GRANITE DAM AND RESERVOIR - WEST POND AT EVANS RD - LEVELS RAN TO DETERMINE HEAD DIFFERENTIAL. DETERMINED TO BE 9.4 FT @ 0930 HRS. PUMPING CONTINUED, THE 2 SMALL PUMPS WERE REPLACED BY 1 LARGE PUMP AND WAS UP AND OPERABLE AT 1730 HRS. BUCK CANYON POND - HELICOPTER WAS LANDED AT CANYON. VISUAL SURVEY FOUND APPROX 10-12 FT HEAD DIFF BETWEEN POND AND RESERVOIR. CPRR PERSONNEL SAID THAT IT WAS DRAINING AT SAME ~~LITTLE GOOSE DAM AND RESERVOIR~~ - RATE AS RESERVOIR (HOW IS THIS POSSIBLE WHEN IT IS HANGING UP). WILL MONITOR. BUT CPRR HAS RESPONSIBILITY. PART OF WILMA - 18 SLIDES ARE NOW VISIBLE. TENSION CRACKS APPEAR TO BE ENLARGING. A SLIDE WAS NOTED FARTHER U/S, BETWEEN BEAMER'S AND THE GRAIN SILOS. HIGHWAY 12 - SLOUGH @ RIVER MILE 432, D/S FROM RED WOLF MARINA, ACROSS FROM CLARKSTON GOLF AND COUNTRY CLUB SHOWS NO FURTHER MOVEMENT. HOWEVER, TOE SEEPAGE WAS STILL EVIDENT. NO SIGNS OF PIPING OR BOILS AT THIS TIME

Inspector's Signature	Date:	OFC Signature	Date:
[signature]	10 Mar 92	[signature]	3/10/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: NONE - EXCEPT FOR EVANS ~~ROAD~~ ROAD

TIME: POND WEST

NATURE AND EXTENT OF INCIDENT: DUE TO HEAD DIFFERENTIAL ~~AT~~ BETWEEN POND AND RESERVOIR PUMPING OF POND BEGAN ON 7 MAR 92

CORRECTIVE MEASURES TAKEN: ~~NONE~~ PUMPING CONTINUES AT WEST POND AT EVANS ROAD

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE _____

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
			X				

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow	*Morning Fog
		X				
TEMP	To 32	32-50	50-70	70-85	85 up	
			X			
WIND	Still	Moder	High	Recon No.		
		X				
HUMIDITY	Dry	Moder	Humid	10		
		X				

WORK PERFORMED TODAY: Performed Air Surveillance of Embankments and Ponds along the Lower Granite Dam and Reservoir, Lewiston Levee System, and up the Snake River to Hell's Gate Marina. Land Survey of Lewiston Levee System, Ran Levels and Checked Progress of Pumping at Evans Road Pond West (Head Differential Between Pond and Reservoir Measured 9.9 ft @ 1530 hrs). Met with KXLY TV out of Spokane to show them the Beavers living in a Slide at the Port of Wilma.

MEETINGS AND INSTRUCTIONS: Attended Morning Staff Meeting at [redacted] the Lower Granite Dam and Lock Command Center. Met with KXLY TV from Spokane. They interviewed Snakeriver Scott about the Beavers at the Port of Wilma and also the Drawdown.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted
East - No Problems Noted
West - No Problems Noted.
Impervious Blanket Becoming
More Pronounced On The River.
Side Between Sta 104+00 to
Sta 120+00. Will Monitor For
Erosion.

LOWER GRANITE DAM AND RESERVOIR - Port of Wilma - 21
Slides Have Developed At This Time With Ongoing
Enlargement of Tension Cracks Along The Port. One
of The Slides Has Become The New Residence of A Beaver
Family of Five. Evans Road Pond West - Pumping
Continued Through The Night With The 1 Large
Pump. Head Differential Between Pond and Reservoir
~~LITTLE GOOSE DAM AND RESERVOIR~~ - Was Measured At 9.9 Ft
@ 1530 Hrs. Highway 12 - Slough At Mile
Post 432, D/S From Red Wolf Marina Appears To
Doing Fine. No [redacted] Noticeable Enlarging At Time
Of Inspection.

Inspector's Signature	Date:	OFC Signature	Date:
	11 Mar 92		3/11/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: EVANS ROAD POND WEST

TIME: ON-GOING SINCE 7 MAR 92

NATURE AND EXTENT OF INCIDENT: EVANS ROAD POND WEST HAS HUNG UP AND IS NOT FREE DRAINAGE. PUMPING OF THE POND IS NECESSARY ~~BECAUSE~~ TO RELIEVE THE HEAD PRESSURES BEHIND THE ROAD EMBANKMENT. PUMP OUTFALL WAS INTO THE EAST POND TO ~~BE~~ UTILIZE THE LOWER CULVERT WHICH THE WEST POND DOES NOT HAVE.

CORRECTIVE MEASURES TAKEN: SEE ABOVE

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Centre

DATE 11 MAR 92

CONTRACTOR'S: _____

DAY: S | M | T | W | TH | F | S

WEATHER	Bright Sun	Clear	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70	70-85	85 up
WIND	Still	Moder	High	Recon No.	
HUMIDITY	Dry	Moder	Humid	11	

WORK PERFORMED TODAY: Performed the surveillance of embankments and ponds along the Lower Granite Dam and Reservoir, Lewiston Levee System, and up the Snake River to Hells Gate Marina. Land survey of Lewiston Levee System, ran levels at Evans Road Pond West (Head Differential of 4.0 ft @ 1030 hrs, and investigated pavement cracks along County Road 193

MEETINGS AND INSTRUCTIONS: Attended morning staff meeting at the Lower Granite Dam Command Center

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted
East - No Problems Noted
West - No Problems Noted
Impervious Blanket (Sta 104+00 to Sta 120+00) has become more apparent. Outline of blanket is visible. Top of is draining and river beginning to divert around blanket.

LOWER GRANITE DAM AND RESERVOIR - County Highway 193 - Informed by Whitman County that a longitudinal crack has formed on highway pavement approx 6 mi D/S from Steptoe Canyon. Upon investigation found crack to be 1/2" to 3/4" wide with a drop towards the river of 1/4" to 1/2". Crack measured 63.7 ft long and was concentrated about 12 ft from the embankment shoulder on the

~~LITTLE GOOSE DAM AND RESERVOIR~~ - Riverward lane. Crack do not appear to meander toward the [redacted] River or pavement edge. [redacted] No bulge of embankment or cracking was found. No evidence of piping or boils found at toe. (Note - Whitman County crew found another crack approx 3 miles D/S from Steptoe Canyon). Will monitor the area for further [redacted] movement & cracking.

Evans Road Pond West - Pumping continued on pond. Measured head differential between pond and reservoir

Inspector's Signature	Date:	OFC Signature	Date:
[signature]	12 Mar 92	[signature]	3/13/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: EVANS ROAD POND WEST

TIME:

NATURE AND EXTENT OF INCIDENT:

PUMPING CONTINUED THROUGHOUT THE DAY. CONTINUED TO LATE LAST NIGHT. WHEN POND DEPTH REACHED APPROX 6 FT. PUMP WAS SHUT OFF AND IS ON STAND BY.

CORRECTIVE MEASURES TAKEN:

TO BE @ 1030 HRS 9.0 FT. ALSO, MEASURED DROP IN POND FROM ORIGINAL WATERLINE. ASSUMED DEPTH TO ANCHORAGE 20 FT. POND DROP @ 1000 HRS WAS 13.9 FT. THIS MEANS THAT THERE IS APPROX 6 FT OF WATER DEPTH LEFT IN POND. IT WAS RECOMMENDED THAT 5 FT REMAIN IN POND FOR FISH SURVIVAL.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER

DATE 12 MARCH 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
					X		

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	12	

WORK PERFORMED TODAY: PERFORMED AIR SURVEILLANCE OF EMBANKMENTS AND PONDS ALONG THE LOWER GRANITE DAM AND RESERVOIR, LEWISTON LEVEE SYSTEM, AND UP THE SNAKE RIVER TO HELL'S GATE MARINA. LAND SURVEY OF LEWISTON LEVEES. RAN LEVELS TO DETERMINE DEPTH OF WEST POND AT EVANS ROAD. INSPECTED DAMAGE AT RED WOLF MARINA, AND INSPECTED CRACKING ALONG COUNTY ROAD 193.

MEETINGS AND INSTRUCTIONS: ATTENDED MORNING STAFF MEETING AT THE LOWER GRANITE DAM COMMAND CENTER. MET WITH BOB GILCHRIST OF THE RED WOLF MARINA TO INSPECT DAMAGE ~~#~~ IN THE AREA

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED
EAST - NO PROBLEMS NOTED
WEST - NO PROBLEMS NOTED WAITING FOR FURTHER DRAINAGE OF IMPERVIOUS BLANKET FOR MORE IN DEPTH ~~CHECK~~ INSPECTION.

LOWER GRANITE DAM AND RESERVOIR - POINT OF WILMA - 27 SLIDES HAVE NOW DEVELOPED WITH MORE ON THE WAY. EVANS ROAD POND WEST - FINAL SURVEY TAKEN TO DETERMINE DEPTH OF POND. LEVELS RAN FROM APPROX MID-UPPER CULVERT (EL 17) TO WATER LEVEL IN POND. EL DIFFERENCE FOUND TO BE 10.2, THEREFORE 6.8 FT [redacted] DEPTH OF WATER REMAINS IN POND. DETERMINED TO BE OK (GOAL WAS 5 FT). REO WOLF

~~LITTLE GOOSE DAM AND RESERVOIR~~ - MARINA - MET WITH BOB GILCHRIST (OWNER) TO INSPECT DAMAGE TO MARINA. CREEK FROM DRAINING AQUIFER HAS WASHED SILTY SAND DEPOSITS SUPPORTING DOCKS. CREEKS FROM AQUIFER HAVE CUT CHANNELS UNDER DOCKS CREATING TAKEN TO BRIDGE AND BUCKLE UNDER THEIR OWN ~~WEIGHT~~ WEIGHT. GUIDE PILES FOR DOCKS HAVE ALSO TILTED FROM THE VERTICAL WHICH WILL CAUSE DAMAGE TO PILES AND DOCKS UPON POOL RAISE (DOCKS WILL HANG UP AND/OR PULL UP PILES. EXTENSIVE DAMAGE IN THIS AREA, DAMAGE WILL

Inspector's Signature	Date:	OFC Signature	Date:
[signature]	13 Mar 92	[signature]	13MAR92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

Continue As Long As Aquifer Drains. County Road 193 — Inspected Cracking In Pavement @ Mile 3.2 D/S From Steptoe Canyon Intersection. Crack Measured 118 ft On Pavement And Continued 30 More Feet Into The Gravel Shoulder. Crack Starts (Facing D/S) In M.D South Lane And Meanders Through North Lane Into Gravel Shoulder. 1/2" Wide Crack With No Noticeable Drop Towards River. @ Mile 6.5 Crack Measured 87', Width Of Crack 1" and drop of Approx 1", D/S 104 ft From This Crack A 37' Transverse Crack Has Formed With A 4" x 8" Sink Hole. From Inspecting The Hole, This Crack Appeared To Be Very Deep ~~Sealed~~ Treated. (Previous Patch Was Found On This Crack Adjacent To Sink Hole

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 13 MAR 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
						X	

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	13	

WORK PERFORMED TODAY: Performed Air Surveillance of Embankments and Roads Along the Lower Granite Dam and Reservoir, Lewiston Levee System, and Up the Snake River To Hells Gate Marina. Land Survey of Lewiston Levees, Inspected Ongoing Pavement Embankment Cracking Along County Rd 193 @ Miles 3.2 & 6.8, Read Water Levels At the Lewiston Waste Area Monitoring Wells. Also Investigated Movement of the Tidewater Sheetpile Dock At the Port of Wilma.

MEETINGS AND INSTRUCTIONS: Attended Daily Staff Meeting At Lower Granite Command Center. Met With Dick Keller And Tech Staff. Met With Mr. _____ Of Tidewater Co. At the Port of Wilma To Discuss His Sheetpile Dock Movement.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted

East - No Problems Noted

West -

LOWER GRANITE DAM AND RESERVOIR -

LITTLE GOOSE DAM AND RESERVOIR -

Inspector's Signature | Date: | OFC Signature | Date:

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center DATE 14 Mar 92

CONTRACTOR'S: _____

Scott Leech
Andy Snoulders

DAY

S	M	T	W	TH	F	S
						X

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70	70-85 X	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	14	

WORK PERFORMED TODAY: Completed air surveillance of levees, embankments, and ponds along the Lower Granite Dam and Reservoir, up the Snake River to Hells Gate Marina, and up the Clearwater past Dworch. Completed vehicle surveillance of levees, old slide area along Snake River, County Rd. 193, and Hwy 12 near Evans Rd and at Rod Wolf Marina. Made ground inspection of Dam embankment.

MEETINGS AND INSTRUCTIONS: Attended daily staff meeting at Lower Granite Dam.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No problems observed.
West - No problems observed
East - No problems observed

LOWER GRANITE DAM AND RESERVOIR - Piping noted w/in slump along HWY 12 across from Golf course. Pipe ~2". 13 slides noted. 1 County Rd 193 17 cracks noted. Cracks are as attached. 27 slides noted at Port of Wilma. Told Dick, Fred & Wayne of concern for safety at original crack. Contact between dam and embankment

~~LITTLE GOOSE DAM AND RESERVOIR~~ - on upstream face looks good, lots of debris. No major changes except as noted on county rd.

Inspector's Signature	Date:	OFC Signature	Date:
Andy Shields	3-14-92		3/14/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

Appendix C: BANK EROSION/RESERVOIR STRUCTURES

INSPECTIONS

DATE	TIME	METHOD	RESULTS
14MAR92	0915-1015	AERIAL	HELICOPTER SURVEY OF LEWISTON LEVEES, PARTS, BRIDGES, LANDINGS, RAILROAD AND ROAD 9000 & EMBANKMENTS, HWY 12, PONDS AND SENSITIVE SITES.
14MAR92	0845-0915	FOOT	INSPECTION OF CONCRETE FACE OF LOWER GRADE DAM NORTH EMBANKMENT.
14MAR92	1030-1300	AUTO	ROAD 9000 CRACK SURVEY
14 MAR92	1300-1400	AUTO	SURVEYED NORTH LEWISTON LEVEE
14 MAR92	1400-1600	AUTO	INSPECTED WEST + EAST LEWISTON LEVEES. HWY 12 SLIDES AND SLIDE AREAS NEAR HELLS CANYON STATE PARK

Nonoverflow Section of Dam:
- SOFT SPOTS AT TOE BUT ABUTMENT SHOWS NO ADVERSE EFFECTS
- CONCRETE SCAR AT NORMAL POOL LEVEL ~~APRON~~ WALL BETWEEN HAULOC AND NORTH EMBANKMENT.

Lewiston Levees: OK

ROAD 9000 CRACKS; LOCATION GIVEN BY COUNTY ROAD MILE MARKERS

CRACK NO.	LOCATION	LENGTH (FT)	WIDTH (IN)	NOTES
(1)	Mile 27.6	197	1/4" - 3/8"	PAVEMENT AND SHOULDER
(2)	76' DOWNSTREAM OF CRACK (1)	237	1/4" - 3/16"	
(3)	SAME LOCALE (2)	140	1/2"	SETTLEMENT AT 0.6"
(4)	MILE 27.5	77	1/4" - 3/8"	ALONG SHOULDER
(5)	MILE 27.5	55	1/4"	
(6)	MILE 24.8	47	1/4"	
(7)	129' DOWNSTREAM OF (6)	33	3/8"	
(8)	92' DOWNSTREAM OF (7)	77	1/4"	DEPRESSION NOTED
(9)	216' DOWNSTREAM OF (8)	62	1/4"	GUARDRAIL DIPPING VERTICALLY
(10)	10' DOWNSTREAM OF (9)	36	1/2"	RIVER SIDE SHOULDER
(11)	MILE 24.5	101	1/2"	
(12)	DOWNSTREAM AT END OF (11)	164	1/2"	1/2" SETTLEMENT; SINK NOTED
(13)	NEAR PARALLEL TO (12)	15	1/4"	
(14)	MILE 24.4	199	1/2"	SETTLEMENT 1/2"
(15)	269' DOWNSTREAM (14)	99	9.5"	1" DEEP SETTLEMENT; DEEP SEATED CRACK GUARDRAIL DIPS VERTICALLY
(16)	MILE 23.4	43	1/4"	SLUMP IN PAVEMENT
(17)	MILE 24.2	56	1/2" - 3/4"	SETTLEMENT 1/4"

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 15 March 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
	X						

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder. X	High	Recon No.	
HUMIDITY	Dry	Moder. X	Humid	15	

WORK PERFORMED TODAY: Performed Air Surveillance of Embankments and Pools Along the Lower Granite Dam and Reservoir, Lewiston Levee System, and up to Hell's Gate Marina Along the Snake River. Land Survey of Lewiston Levees, Checked Ongoing Pavement Cracking Along County Rd 193 D/S From Steptoe Canyon, Inspected State Hwy 12 For Same Cracking (None Found). Checked on Tidewater's Sheet Pile Pier at the Port of Wilma. Checked on Red Wolf Marina and Hwy 12 Slide D/S From Marina

MEETINGS AND INSTRUCTIONS: Attended Daily Staff Meeting From The Clarkston Resource Office. Met With County Rep Concerning County Rd 193. Discussed Closure Or Repair Of [redacted] County Rd 193. Decided To Fill Large Crack @ Approx Mile 6.8 Rather Than Close Down Road.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted
East - No Problems Noted
West - No Problems Noted.

LOWER GRANITE DAM AND RESERVOIR - Port of Wilma - No Change in Slide Count. Tidewater Sheetpile Dock was Inspected. Found 2 Weep Holes Approx 1"-1½" on U/S Side which has Shown the Most Movement. Backfill Material Appeared to be Moist. Gap Between Sheeting Wall and Concrete Cap Appears to Have Enlarged. Three Tension Lines Anchored in the Concrete Cap are in Use to Stabilize the Wall.

~~LITTLE GOOSE DAM AND RESERVOIR~~ - County Road 193 — Cracks Appear to be Widening. County has Placed ~~Gravel~~ Material ~~in~~ in Largest Crack @ Mile 6.5 from Stricter Filling Deep Depression. Decided to do this Rather than Close the Road. Three New Cracks were Located Between Mile Post 20 & 21. County has Marked Them.

Offield Landing - The Three ~~Slides~~ Slides have Merged Forming 1 Larger One. Slides Appear to be in Silt Deposit and Pose No Immediate Danger to Roadway.

Inspector's Signature	Date:	OFC Signature	Date:

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

HWY 12 SLIDE AT MILE 432 - DRAINAGE AND SLOUGHING OF MATERIAL ONGOING. EVIDENCE OF PIPING AND BOILS FOUND. NO IMMEDIATE DANGER TO HWY AT THIS TIME.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 16 March 1992.

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
	X					

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	16	

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam and Reservoir Embankments and Ponds, Lewiston Levee System, and up to Hell's Gate Marina along the Snake River. Land Survey of the Lewiston Levees, Cracking along County Road 900 (Also, converted Road Mile Indicators to Survey Stationing for Crack Mapping Purposes). Checked on Sheetpile Dock at Tidewater Terminal Co, Port of Wilma and Investigated New Slide Found, Through Air Survey, Between RM 17 & 18 Along the Lower Embankment or [redacted] County Rd 900.

MEETINGS AND INSTRUCTIONS: Attended Daily Staff Meeting from the Clarkston Resource Office.

SAFETY:

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED

EAST - NO PROBLEMS NOTED

WEST - NO PROBLEMS NOTED

LOWER GRANITE DAM AND RESERVOIR - LGR - FOUND NEW SLIDE ALONG COUNTY ROAD 900 EMBANKMENT BETWEEN ROAD MILES 17 & 18 ACROSS THE SNAKE RIVER FROM CASTLE ROCK. THE SLIDE MEASURED 190 FT LONG, APPROX 15-18 FT INTO EMBANKMENT AND EXPOSED SCARP OF 3 FT. AT THIS TIME THERE IS NO NOTICEABLE DAMAGE TO ROADWAY, COUNTY RD 900 - CRACKING ALONG ROADWAY BECOMING MORE APPARENT. CRACKS APPEAR TO BE TYING TOGETHER AND ALSO ~~LITTLE GOOSE DAM AND RESERVOIR~~ - WIDENING. PARALLEL CRACKS HAVE DEPRESSIONS OF ½" - 1" DEEP BETWEEN THEM AND WITH SETTLEMENT WILL CAUSE SEVERE VEHICLE DAMAGE IF LEFT UNATTENDED. AT THIS TIME, THE COUNTY HAS ADDED MATERIAL TO ONE SUCH CRACK AT RM 24.5. ALSO, ROADWAY FROM N.S.QUALLY JOHN DOWN TO MILE 20 HAS MORE NOTICEABLE DIPS & GUARD RAIL DEFLECTION.

PORT OF WILMA - VISIBLE SLIDE COUNT UP TO 29. TIDEWATER TERMINAL CO. SHEETPILE DOCK EAST WALL APPEARS TO STILL BE CREEPING AND BOTTOM HALF OF SAME WALL APPEARS BOWED (OUTWARD).

Inspector's Signature	Date:	OFC Signature	Date:
	17 Mar 92		3/18/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: ~~LOWER~~ GRANITE COMMAND CENTER

DATE 17 MARCH 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
			X				

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50 X	50-70	70-85	85 up
WIND	Still	Moderate X	High	Recon No.	
HUMIDITY	Dry	Moderate X	Humid	17	

WORK PERFORMED TODAY: PERFORMED AIR SURVEILLANCE OF LOWER GRANITE DAM AND RESERVOIR, EMBANKMENTS & PONDS, LEWISTON LEVEE SYSTEM, AND UP TO HELL'S GATE MARINA ALONG THE SNAKE RIVER. CHECKED ON BEAMER'S LANDING FLOATING DOCKS LEASED FROM THE PORT OF WILMA. NO CRACKING FOUND. ROAD SURVEY ALONG COUNTY ROAD 900 CHECKED ONGOING CRACKING AND NEW SLIDE BETWEEN MILES 17 & 18. PERFORMED LAND SURVEY OF LEWISTON ~~[redacted]~~ LEVEE SYSTEM.

MEETINGS AND INSTRUCTIONS: ATTENDED DAILY STAFF MEETING FROM THE CLARKSTON RESOURCE OFFICE. MET WITH MRS. MYRNA BEAMER AT THEIR [redacted] PORT OF WILMA OFFICE TO DISCUSS ANY PROBLEMS SHE MAY HAVE.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NO PROBLEMS NOTED ALONG THE NORTH, EAST, AND WEST LEVEES.

LOWER GRANITE DAM AND RESERVOIR - COUNTY ROAD 900 - FOUND NEW CRACK JUST U/S FROM ROAD MILE 17 (LONGITUDINAL) ALSO NEW CRACKS (TRANSVERSE) WITHIN INTER BRIDGE/ROAD INTERFACE ON U/S SIDE OF ROAD BRIDGES APPROX MILES 24 & 21. NEW TOE SLIDES AND SCARP WAVE EROSION FOUND BETWEEN ROAD MILES 26 & 27. D/S FROM DRAINAGE CULVERTS. NEW SLOUGHS THROUGHOUT NATURAL SILTY SAND EMBANKMENTS WHICH MAY BE ATTRIBUTED TO THE TEST SURGE POOL DROP OF 3 FT. DUE TO

~~LITTLE GOOSE DAM AND RESERVOIR~~ - LATE HELICOPTER FLIGHT THE ABOVE ITEMS WERE NOT INVESTIGATED BUT WILL BE TOMORROW. PORT OF WILMA - 31 SLIDES NOTED. BEAMER'S FLOATING DOCKS WERE INSPECTED AND NO CRACKING WAS FOUND. WORK WAS ALSO BEING PERFORMED ON THE CONCRETE BOAT LAUNCH S. OF BEAMERS OFFICE. UNCOMPACTED FILL WAS BEING PLACED ON THE RIVERWARD SIDE OF THE UPPER END OF THE LAUNCH WHICH MAY SETTLE AND SLIDE IN THE FUTURE. WORK WAS PERFORMED TO EXTEND LENGTH OF BOAT LAUNCH.

Inspector's Signature	Date:	OFC Signature	Date:
	16 Mar 92		3/19/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 16 March 92.

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
				X			

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	18	

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite & Little Goose Dams Reservoir Embankments and Ponds, Lewiston Levee System and up to Hell's Gate Marina along the Snake River. Checked on Going Cracking along County Road 900 and also investigated Cracks on County Highway 193. CPRR [redacted] was inspected for Cracking along its RR Ballast Shoulders. Cracks found from RR Miles 51.65 to 52. Also inspected Lewiston Levee System.

MEETINGS AND INSTRUCTIONS: _____

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted

East - No Problems Noted

West - Interior Piezometer Not Designated To Be Monitored for Drawdown Purposes Was Found To Have Risen (Depth to Water) From 12' to 2'. Will Investigate The Increase Due To Fact That The Piezometer Is Across The Levee From The Impervious Blanket.

LOWER GRANITE DAM AND RESERVOIR - County Road 900 - New Crack Found At Road Mile 17.1, 0.6 Miles U/S From Granite Point. Crack Measured 163' and Approx 1/4" Wide. Also, Marked and Previously Noted Inspected Slides On The Embankment, @ Road Mile 26.6 The Toe Sloughs Appear To Have Stabilized, However Wave Action May Erode This Area. Slide Measures 78'. @ Road Mile 17.6 The 190' Slide Appears To Have Stabilized. The Piping Has Slowed Considerably

~~LITTLE GOOSE DAM AND RESERVOIR~~ - However, Boils Are Now Evident At The Same Location. County Highway 193 - Three Cracks Were Marked and Measured. Appear To Be New Due To Color (Black) And Tackiness Of The Asphalt At The Tear. Road Mile 6.5 Crack Measured 111 ft, @ Road Mile 6.1 Crack Measures 180 ft, and @ Road Mile 5.5 Two Separate Cracks Formed 42 Ft Apart Lengths of 249 ft & 156 ft. These Will Eventually Tie Together. Camas Prairie Railroad — Significant Cracking Found On Riverward Side Of The Shoulder Ballast. (CONT..

Inspector's Signature	Date:	OFC Signature	Date:
	19 May 92		5/19/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

Cracks found at approx railroad Mile's 51.85 - 52.0 (Rd 900 road Mile 23.8). Cracks measured in width from 4" - 6" and appear deep seated. Cracks have caused displacement of RR tracks (vert & Horz Movement) and trains have been slowed by 20 mph. CPRR personnel are in the process of Re-aligning tracks.

Little Goose Dam and Reservoir — Recon Helicopter

Flight performed today to familiarize ourselves with the area. Landmarks and river crossing power lines were noted. No significant areas of concern noted this date.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 19 MAR 92.

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
					X		

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid		

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam & Little Goose Dam Reservoir Embankments and Ponds, Lewiston Levee System, and up to Hell's Gate Marina along the Snake River, and up to Potlatch along the Clearwater River. Checked on going cracking along County Roads 900 & 193 and along the CPIRR. Inspected Lewiston Levee System by land and worked on Mapping Pavement Cracking and Piezometer Data.

MEETINGS AND INSTRUCTIONS: Attended Daily Staff Meeting from the Clarkston Resource Office. Met with part of Clarkston Manager, Rick Davis, to discuss cracking and settlement of his concrete crane dock.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - No Problems Noted on North or East Levees, West Levee, No Problems Noted. Checked on Piezometer # . Found to be on Main St in Lewiston. Adjacent to Sewer Line which may Contribute to High Water Level Readings. Other Piezometers in Area Read Fair. Has Dropped [redacted] 4 Little from Previous Date. Will Monitor with Instrumentation Personnel

LOWER GRANITE DAM AND RESERVOIR - County Road 900 - New Cracks Found at Road Mile 24.9 168 ft Long Cracking of River Ward Gravel Shoulder Has Displaced Guardrail from Vertical Guard Rails Leaning Toward River. Width of Gravel Shoulder Crack 4"-6" Another Crack Found @ Rad Mile 26.5 With Length of 213 ft. CPRR - Settlement of RR Tracks were Noted at Railroad Miles 54.98 & 57.00 & 54.6

~~LITTLE GOOSE DAM AND RESERVOIR~~ - Cracks Noted @ Railroad Mile 52 Have ~~Grout~~ Migrated to the Landward Side. Reservoir - Slide @ Road Mile 17.6 Appears to Have Slumped 6" to 1ft, No Immediate Danger.

Little Goose Dam & Reservoir - No Major Problems Noted. Boyer Park Marina Has Floating Gas Pump Station Which may Hang Up and Cause Undercarriage Damaged As Pool Lowers. Ponds Hanging Up @ River Miles 75,

Inspector's Signature	Date:	OFC Signature	Date:
	20 Mar 92		3/20/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

E5, E6, AND E7. ALSO @ BOYCE PARK, GREEN WOOD STORAGE SHACK HAS [redacted] NATURAL EMBANKMENT ADJACENT SLOUGH APPROX 20 FT AWAY. MAY ENCROACH ON FOUNDATION.

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 20 MAR 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
						X	

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	20	

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam Reservoir and Ponds, up to Hell's Gate Marina along the Snake River and up to Potlatch along Clearwater River, Also, Little Goose Dam Reservoir and Ponds. Checked on going Construction County Road 900 and Hwy 193. Found Cracks along State Hwy 12 in the Chief Timothy State Park Area To Be Old (Pre-Drawdown). Land Inspected Lewiston Levee System.

MEETINGS AND INSTRUCTIONS: Attended Daily Staff Meeting From the Clarkston Resource Office.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North — No Problems Noted
East — No Problems Noted
West — No Problems Noted

LOWER GRANITE DAM AND RESERVOIR - Clown Road 702 & Hwy 193 — No New Cracks Encountered. Previous Cracking Still Appears To Be Creeping. State Highway 12 @ Chief Timothy State Park — Investigated Cracking In This Area Found To All Be Old. Entrance & Bridge To The Park Has Transverse Cracking Which All Are And Appear To Be Old (Discussed With Park Official). No Change In Other Areas Of Reservoir.

LITTLE GOOSE DAM AND RESERVOIR - Sheetpile Dock @ Almota - Person Inspected As We Flew Over. Showed Concern At Dock Cap & Sheetpiles. Possible Separation. Boyer Park — The Floating Pump Station In The Marina Is Buckled Underneath. No Further Action. Port of Central Ferry - Sloughing Of Embankment Material Is Now Apparent. No Immediate Danger To Structures. Ponds - Ponds Which Appear To Be Hanging Up Are @ (River) RM 67 Across From Central Ferry Resident Farm. RM 78.5, 86 & 88 Ponds

Port of Garfield — Four Slides Have Developed Along (cont)

Inspector's Signature	Date:	OFC Signature	Date:
	21 Mar 92		3/21/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

(CONT)

DEADMAN CREEK ROAD NO APPARENT DAMAGE TO ROAD SURFACE ANOTHER SLIDE WAS LOCATED AT THE INTERSECTION OF HIGHWAY 12-7 AND THE ENTRANCE TO THE FORT OF GARFIELD. NO STRUCTURES [redacted] ARE IN JEOPARDY. ALSO, THE FLOATING BOAT HANDLING DOCK APPEARS TO HAVE CRACKED CF RESEARCH FARM - SEVERAL LARGE FISH WERE LOCATED IN POND 4/5 FROM FARM. LARGE CARP & CATFISH WERE [redacted] VISIBLE. APPROX 100 FINGERLING SIZE FISH (TYPE UNKNOWN) WERE FOUND IN DRAINED POND @ APPROX RIVER MILE

CPRR - TWO LARGE CRACKS ADJACENT TO THE RAILROAD AT APPROX RIVER MILES 74.8 & 81.8. APPEAR TO BE OLD ROCK FISSURES. RM 81.8; 660 FT LONG 3'-4' WIDE IN SPOTS. RM 74.8; 126 FT LONG BOTH HAVE ROCK DEBRIS [redacted] AND SOME PLANT GROWTH IN CRACKS AND BOTH HAVE BEEN [redacted] IDENTIFIED BY CPRR (BLUE PAINT MARKING CRACKS).

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 21 March 92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
							X

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	21	

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam Reservoir and Ponds, up to Hell's Gate Marina along the Snake River and up to Potlatch along the Clearwater River. Also, Performed Air Surveillance of Little Goose Dam Reservoir and Ponds. Checked Ongoing Cracking along County Road 900 and Hwy 193. Performed Land and Air Surveillance of the Lewiston Levee System.

MEETINGS AND INSTRUCTIONS: Attended Daily Staff Meeting from the Clarkston Resource Office.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED
EAST - NO PROBLEMS NOTED
WEST - NO PROBLEMS NOTED

LOWER GRANITE DAM AND RESERVOIR - COUNTY ROAD 9008 HWY 193 - NO NEW CRACKS FOUND. EXISTING CRACKS APPEAR TO STILL BE WIDENING HOWEVER NOT AS RAPIDLY [redacted]. PORT OF WILMA - SLIDE CONT APPEARS TO HAVE STABILIZED. TOE SLIDES @ ROAD MILE 26.6 APPEARS TO HAVE MIGRATED 1/3 OF CULVERTS. NO IMMEDIATE DANGER. SLIDE @ 17.6 REMAINS STABILIZED. WILL MONITOR BOTH AREAS FROM AIR. CPRR - CRACKING @ RAILROAD MILE 52 SHOWS NO CHANGE.

LITTLE GOOSE DAM AND RESERVOIR - BOYER PARK - 3 SMALL SLIDES ARE VISIBLE IN THE EMBANKMENT ADJACENT - TO GREEN STORAGE SHED, [redacted] NO IMMEDIATE DANGER. CENTRAL FERRY PORT - 3 SLIDES @ PORT. NO IMMEDIATE DANGER. PORT OF GARFIELD - SET DOWN HELICOPTER @ PORT. INSPECTED EMBANKMENT, BOAT HANDLING DOCK, AND FOOT BRIDGE TO SHEETPILE CELL. NO [redacted] PROBLEMS FOUND, HOWEVER HINGES OF FLOATING BOAT HANDLING DOCK ARE BENT AND COULD HAVE BEEN PREVENTED IF HINGE PLATES WERE UNBOLTED AND RELOCATED ON BANK. SLIDE @ INTERSECTION OF HWY 127 SHOWS SOME MOVEMENT, LONGITUDINALLY. SLIDES

Inspector's Signature	Date:	OFC Signature	Date:
	22 Mar 92		3/22/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

ALONG DEADMAN CREEK ROAD SLUW NO MAJOR CHANGE, HOWEVER PIPING & BOILS ARE EVIDENT @ THE TOE. FISH KILLS LOCATED AT THE [redacted] POND U/S FROM THE CF RESEARCH FARM AND ON THE D/S END OF RIDPATH BAR

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 22 Mar 92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
X						

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid		

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam Reservoir and Ponds, up to Hell's Gate Marina along the Snake River and up to Potlatch along the Clearwater River. Also Performed Air Surveillance of Little Goose Dam Reservoir and Ponds. Checked ongoing cracking along County Road 900 and Hwy 193. Performed Land and Air Survey of the Lewiston Levee System.

MEETINGS AND INSTRUCTIONS: Attended Morning Staff Meeting From the Clarkston Resident Office.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED

EAST - NO PROBLEMS NOTED

WEST - NO PROBLEMS NOTED

LOWER GRANITE DAM AND RESERVOIR - PORT OF WILMA - FISH KILL LOCATED D/S FROM PORT. NO OTHER CHANGES TO REPORT. SLIDE AT MILE 26.6 SHOWS TOE SLOUGHS U/S FROM CULVERTS. WILL EXTEND IDENTIFYING MARKERS WHEN POOL IS @ LOWEST POINT. ALL OTHER AREAS REMAIN UNCHANGED

LITTLE GOOSE DAM AND RESERVOIR - PORT OF CENTRAL FERRY - 3 SLIDES NOTED. NO DANGER TO STRUCTURES. PORT OF GARFIELD - SLIDES @ HWY 127 INTERSECTION AND DEADMAN CREEK ROAD APPEAR TO HAVE STABILIZED. FLAGPOLE GULCH - APPROX RIVER MILE 72 HAS 3 SLIDES NOTED IN NATURAL EMBANKMENT FILL. MAY ENCROACH ON RAILROAD. WILL MARK TO IDENTIFY LOCATION.

Inspector's Signature	Date:	OFC Signature	Date:
	13 Mar 92		

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: LOWER GRANITE COMMAND CENTER

DATE 23 MAR 92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still X	Moder	High	Record No.	
HUMIDITY	Dry	Moder X	Humid		

WORK PERFORMED TODAY: PERFORMED AIR SURVEILLANCE OF LOWER GRANITE DAM RESERVOIR AND PONDS, U/D TO HELL'S GATE MARINA ALONG THE SNAKE RIVER AND U/D TO POTLATCH ALONG THE CLEARWATER RIVER. ALSO, PERFORMED AIR SURVEILLANCE OF LITTLE GOOSE DAM RESERVOIR AND PONDS. CHECKED ONGOING CRACKING ALONG COUNTY ~~ROAD 400~~ HWY 193 ROAD 400 ~~HWY 193~~ TO WAWAWAI. PERFORMED LAND & AIR SURVEY OF THE LEWISTON LEVEE SYSTEM. WORKED ON PIEZOMETER DATA.

MEETINGS AND INSTRUCTIONS: ATTENDED MORNING STAFF MEETING FROM THE CLARKSTON RESIDENT OFFICE

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted
East - No Problems Noted
West - No Problems Noted

LOWER GRANITE DAM AND RESERVOIR - County Road 900 - County is filling in larger cracks between Mile's 27 & 28 with Cold Mix Asphalt. Number of Cracks remains the ~~same~~ and it appears movement has slowed. All other areas - show no change.

LITTLE GOOSE DAM AND RESERVOIR - Schulte Bar - Many slides have developed along silt deposit shoreline. No danger to structures or property. Port of Central Ferry - Five slides have developed along the port embankment. One has developed behind a dolphin may undermine support piles. Talked to Port Surveyor who said that the dolphin is tied in horizontally and vertically and shows no movement. Also, crack is developing under grain elevator walkway, loading dock. Support piers show no movement @ this time. Port of Garfield - shows no further development of slides.

Inspector's Signature	Date:	OFC Signature	Date:
	25 Mar 97		3/27/97

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Camp DATE 3/24/92

CONTRACTOR'S: _____

DAY	S	M	T	W	TH	F	S
			X				

Ben
Andy
Scott

WEATHER	Bright Sun X	Clear	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still X	Moder	High	Recon No.	
HUMIDITY	Dry X	Moder	Humid	24	

WORK PERFORMED TODAY: Andy and Ben rode railcar from Lewiston to Little Goose. No new problems were encountered. Jim Moorefield felt there was not any further movement of the track or extending of existing cracks. Jim feels Buck Canyon may have a lower culvert that may be plugged. It has not been exposed as yet, but if it is there won't be time for corrective measures. He is concerned about filling of the pond over the riprap saddle. Jim provided us with a daily summary of findings since Thurs. 3/19. County crews were repairing pre-drawdown slide area (EM 120? turn out near rock outcrop in river) where slope was jeopardizing guardrail. Aerial survey of Goose & Granite Reservoirs performed by Scott, Echo Port of Clarkston outfall effluent being trapped in ponded area. *Dur. Noticed gravel pile resembling red bed near N. Lewiston levee landing. Navigation marker no. 19 on snake R. has footing being undermined. County Rd 193 cracks are (over)

MEETINGS AND INSTRUCTIONS: Duane Bankofer (NPD) and Richard Davidson (COE) visited area. Flew in helicopter survey of reservoirs with Sloth Leech.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - Auto surveillance performed by Mr. Scott Leech of the levees. No problems/changes encountered.

LOWER GRANITE DAM AND RESERVOIR - lengthening. Growth is minimal. Supplemental cracking around major cracks is noted. Crack at Road Mile 17.6 near slide is lengthening. Sand material appears to be transported from inside embankment and being deposited on the slope in distinct evenly spaced lifts. The spacing coincides with drawdown rate. No changes in slides at road miles 17.6 and 26.6.

LITTLE GOOSE DAM AND RESERVOIR - No changes noted.

Inspector's Signature	Date:	OFC Signature	Date:
Andy Shenlder	3/25/92		3/29/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 25 March 92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
			X			

WEATHER	Bright Sun	Clear X	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	25	

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam Reservoir and Ponds, up to Hell's Gate Marina along the Snake River and up to Potlatch along the Clearwater River. Also, Performed Air Surveillance of Little Goose Dam Reservoir and Ponds. Checked Ongoing Cracking along County Hwy 193 and Road 9000 to Wawawai. Performed Land and Air Survey of the Lewiston Levee System. Worked on Piezometer Data

MEETINGS AND INSTRUCTIONS: _____

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - NORTH - NO PROBLEMS NOTED
EAST - NO PROBLEMS NOTED
WEST - NO PROBLEMS NOTED

LOWER GRANITE DAM AND RESERVOIR - COUNTY ROAD 9000 - ~~[illegible]~~ FOUR NEW CRACKS WERE LOCATED THIS DATE. @ ROAD MILE 26.5 CRACKS MEASURING 119 FT & 48.5 FT. @ ROAD MILE 20.9 CRACK MEASURED 61 FT, AND @ ROAD MILE 17.6 CRACK MEASURED 146.8 FT. THESE CRACKS HAVE DEVELOPED ON THE RIVERWARD LANE AND RUN ALONG THE SHOULDER.

LITTLE GOOSE DAM AND RESERVOIR - PORT OF GARFIELD - PORT PERSONNEL HAVE FILLED IN SLIDE @ INTERSECTION WITH HWY 127. NO OTHER CHANGES OR PROBLEMS IN THE RESERVOIR SO FAR DURING REIMPOUNDMENT.

Inspector's Signature	Date:	OFC Signature	Date:
[signature]	25 Mar 92	[signature]	3/29/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center. DATE 3/26/92.

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
				X		

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still	Moder /	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	26	

WORK PERFORMED TODAY: Performed air surveillance of Lower Granite reservoir along clearwater River to Potlatch, up Snake River to steamboat Jane, and down Snake River to Lower Granite. Video taped during flight. Checked county road am before road was closed by county. checked Lewiston Levees. met with Bob Gilcrest at Red Wolf Marina to inspect building.

MEETINGS AND INSTRUCTIONS: Attended daily staff meeting. (8:00) Met with Bob Gilcrest of Red Wolf Marina (11:00). Bob was concerned with cracks in building and outside concrete foundation. some of the corner cracks (kitchen) were previously patched w/ spackle. Most of the cracks were in the plaster around window and door frames. Cracks in the concrete slab in the patio area are transverse cracks, most likely shrinkage cracks. Joints were not placed in the slab. The footing wall also had hairline cracks visible on the riverside of the wall. Pictures were taken.

~~SAFETY:~~

OBSERVATIONS:

LEWISTON LEVEES - No changes/problems noted.

LOWER GRANITE DAM AND RESERVOIR - Port of Clarkston sewage treatment plant covering outfall pipe. County road blocked at Nisqually and Wawawai. Wave action noted on Granite pool with no adverse effects seen. No new activities were noted.

LITTLE GOOSE DAM AND RESERVOIR - Didn't fly.

Inspector's Signature	Date:	OFC Signature	Date:
Andy Smaldone	3/26/92		3/29/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center

DATE 27 March 92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
					X	

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50 X	50-70	70-85	85 up
WIND	Still	Moder X	High	Recon No.	
HUMIDITY	Dry	Moder X	Humid	27	

WORK PERFORMED TODAY: Performed Air Surveillance of Lower Granite Dam Reservoir and Ponds, up to Hell's Gate Marina along the Snake River and up to Potlatch along the Clearwater River. Also, Performed Air Surveillance of Little Goose Dam Reservoir down to the Port of Central Ferry and Port of Garfield. Adverse Wind Conditions Prohibited Further Inspection. Checked on Going Cracking along County Hwy 193 & Rd 90000 Performed Land and Air Survey of the Lewiston Levee System.

MEETINGS AND INSTRUCTIONS: Attended Morning Staff Meeting from the Clarkston Resident Office.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - North - No Problems Noted
East - No Problems Noted
West - No Problems Noted

LOWER GRANITE DAM AND RESERVOIR - [redacted] County Hwy 1934 Rd 9200 - Cracks Appear To Be Widening Throughout Rd 9000; Especially Between Mills 24 & 25 and 27 & 28. Slides @ Road Miles 17.6 & 26.6 Show No Signs Of Movement. Port Of Wilma Shows No Further Slide Movement. Reservoir Ponds Do Not Appear To Be Refilling @ This Time. Pool May Yet Be To Low. However, Water Level Does Appear To Be Rising Throughout Reservoir.

LITTLE GOOSE DAM AND RESERVOIR - Port Of Central Ferry - Slides @ Port Are Now Under Water. No Adverse Effects Appear Due To Reimpoundment. Port Of Garfield - Fill In Slide @ Hwy 127 Intersection [redacted] Shows No Problems. Floating Dock Is Now Floating. Deadman Creek Slides Show No Further Movement. Boyer Park Marina - All Floating Docks Are In Tact And Show Only Minor Effects From Drawdown. Rip Rap Embankment Along The South Bank Just D/S From Lower Granite Dam Appears To Be In Tact After Spill Testing.

Inspector's Signature	Date:	OFC Signature	Date:
	26 Mar 92		3/29/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: None

TIME:

NATURE AND EXTENT OF INCIDENT:

CORRECTIVE MEASURES TAKEN: None

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center DATE 29 Mar 92

CONTRACTOR'S: _____ DAY

S	M	T	W	TH	F	S
						X

WEATHER	Bright Sun X	Clear	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still X	Moder	High	Recon No.	
HUMIDITY	Dry Y	Moder	Humid	29	

WORK PERFORMED TODAY: Performed air surveillance of Lower Granite reservoir including the Snake River up to Hells Gate Mamia and the Clearwater River to Potlach Surveyed cracks along county rd 9000 and CPRR embankments. Performed auto surveillance of levees.

MEETINGS AND INSTRUCTIONS: Attended morning staff meeting at Lower Granite.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - No problems/changes encountered.

LOWER GRANITE DAM AND RESERVOIR - Raising water not causing problems or aggrevating existing slide areas.

LITTLE GOOSE DAM AND RESERVOIR -

Inspector's Signature	Date:	OFC Signature	Date:
Andy Stoller	3/29/92		

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center DATE 3/29/92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
X						

WEATHER	Bright Sun	Clear	Overcast X	Rain	Snow
TEMP	To 32	32-50	50-70 X	70-85	85 up
WIND	Still X	Moder	High	Recon No.	
HUMIDITY	Dry X	Moder	Humid	29	

WORK PERFORMED TODAY: Performed air surveillance of Lower Granite Reservoir including the Snake River up to Hells Gate Marina, and the Clearwater River up to Potlach. Inspected levees via auto and county road 9000 via auto. Finished crack survey of Hwy 193.

MEETINGS AND INSTRUCTIONS: Attended daily staff meeting at Lower Granite Dam command center.

SAFETY: _____

OBSERVATIONS:

LEWISTON LEVEES - Animal burrows at end of west levee near the Southway boat launch appear to be increasing in size. No changes/problems encountered. Water rising to base of rockfill in most areas. Gravel blanket becoming submerged.

LOWER GRANITE DAM AND RESERVOIR - Slide areas being submerged with no adverse effects observed. County road appears to still be moving will verify tomorrow. Docks at Red Wolf Manna beginning to float.

LITTLE GOOSE DAM AND RESERVOIR - No flight.

Inspector's Signature	Date:	OFC Signature	Date:
Andy Brandon	3/30/92	[signature]	3/30/92

INCIDENTS AND CORRECTIVE MEASURES:

LOCATION: _____

TIME: _____

NATURE AND EXTENT OF INCIDENT: _____

CORRECTIVE MEASURES TAKEN: _____

LITTLE GOOSE-LOWER GRANITE RESERVOIRS GEOTECHNICAL SURVEILLANCE
TEAM DAILY INSPECTION REPORT - 1992 DRAWDOWN

TO: Lower Granite Command Center DATE 3/30/92

CONTRACTOR'S: _____

DAY

S	M	T	W	TH	F	S
	Y					

WEATHER	Bright Sun Y	Clear	Overcast	Rain	Snow
TEMP	To 32	32-50	50-70	70-85 X	85 up
WIND	Still X	Moder	High	Recon No.	
HUMIDITY	Dry Y	Moder	Humid	30	

WORK PERFORMED TODAY: Air surveillance of Lower Granite Reservoir completed. Auto survey of levees and county road. Video taped county road. Inspected Red Wolf Manna.

MEETINGS AND INSTRUCTIONS: Attended daily staff meeting at Lower Granite Command Center. Meet with Bob ~~Ems~~ Gillcrest of Red Wolf Marina. Scott Leech interviewed at Red Wolf Manna by Phil Keating of KHQ6

~~SAFETY:~~ Spokane regarding compensation for damages done to private property.

OBSERVATIONS:

LEWISTON LEVEES - Gravel blanket completely submerged. Most bars and islands submerged. Water at base of rockfill in most areas. No problems encountered.

LOWER GRANITE DAM AND RESERVOIR - Flight up clearwater river to Potlach and up Snake River to Hells Gate Marina. Flight to Lower Granite. No problems encountered. Ponds filling along Hwy 12 and county road 9000. Sheet pile structure at Port of Wilma may be moving. Will inspect more closely during tomorrows flight. Port of Lewiston continues to spot weld cells. Welder said "for safety reasons". Water has surface scum visible throughout the surveillance area most likely from outfalls pipes.

~~LITTLE GOOSE DAM AND RESERVOIR~~ -

Inspector's Signature	Date:	OFC Signature	Date:
Andy Sheldon	3/30/92		3/30/92