Northern Pacific Railway Company. Engineering Department Records.

Copyright Notice:

Version 3
August 20, 2018

N. P. 1757
6-24

OFFICE OF Chief Engineer

FILE NO. 8731-2

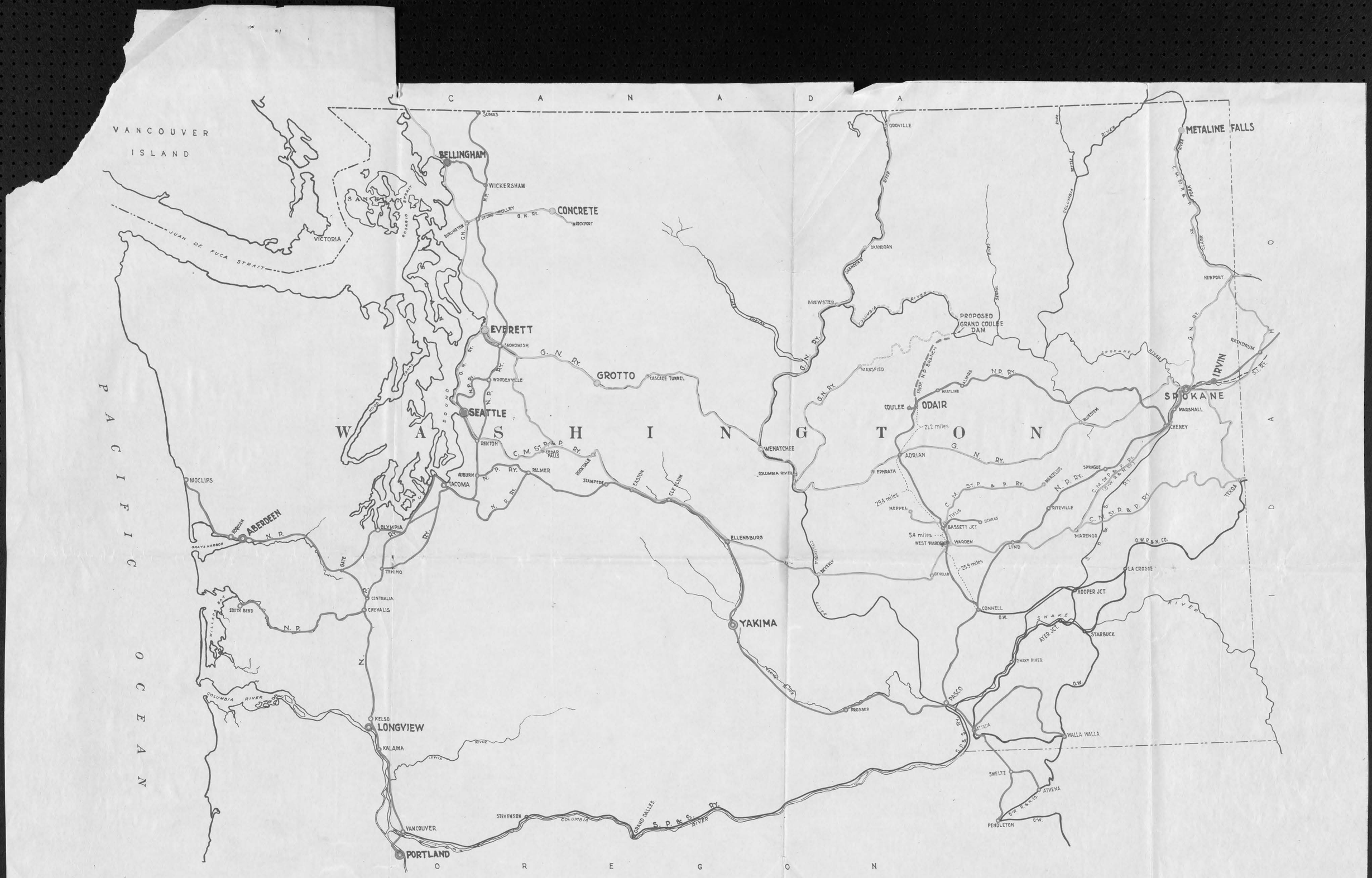
SUBJECT:

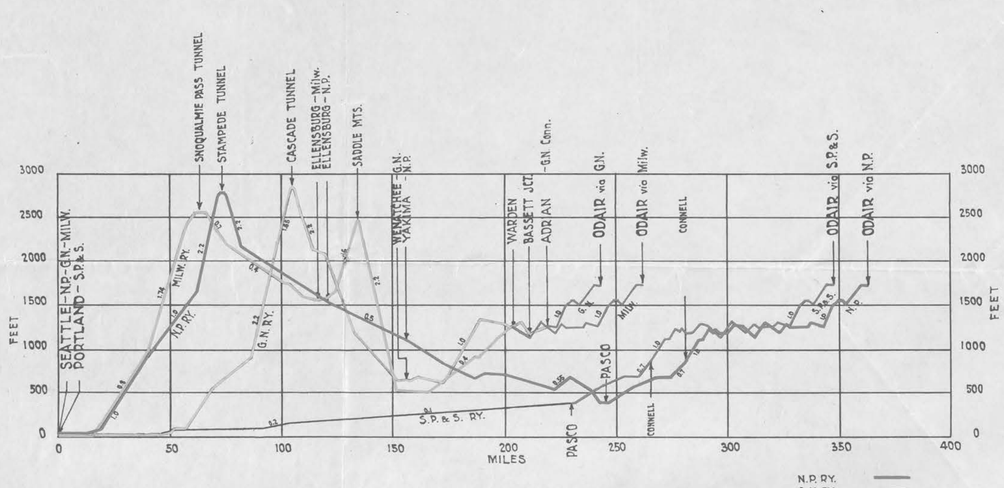
Grand Coulee Dam
Line.

8731

2

CB 3/3





CONDENSED PROFILE

Scale :-
1" = 1000 ft. - Vert.
1" = 40 Mi. - Hor.

N.P. RY.
G.N. RY.
MILW. RY.
S.P. & S. RY.

N

N.P.RY.
Map showing
MAIN TRACKS OF VARIOUS RAILROADS WITH PRESENT CONNECTIONS AND POSSIBLE CONNECTIONS THRU ODAIR FOR HANDLING FREIGHT TO PROPOSED GRAND COULEE DAM

Office of Chief Engineer, St. Paul. Oct. 9, 1933.

Scale :- 1 Inch = 16 Miles

CEMENT PLANTS •		LUMBER POINTS ◎	
STATION	R.R. SERVICE	STATION	R.R. SERVICE
Bellingham	G.N., Milw.	Aberdeen	N.P., Milw.
Concrete	G.N.	Longview	N.P.
Seattle	N.P.,G.N., Milw., O-W.	Portland	N.P., S.P.& S.
Metaline Falls	Milw.	Bellingham	N.P.,G.N., Milw.
Irvin	N.P.	Everett	" " "
Grotto	G.N.	Seattle	" " "
		Yakima	N.P.
		Spokane	N.P.,G.N., Milw.

TRACK CONNECTIONS WITH N.P.			
Station	G.N.	Milw.	S.P.&S.
Adrian	Yes		
Bassett Jct.		No	
Bellingham	Yes	Yes	
Cheney		No	No
Cle Elum		No	
Connell	None with O-W.R.&N.Co.		
Ellensburg		No	
Everett	Yes	Yes	
Irvin			S.I.Ry.
Lind		No	
Pasco			Yes
Pendleton			O-W.
Portland			Yes
Rathdrum, Ida.		Yes	
Renton		Indired	
Seattle	Yes	Yes	O-W.
Sedro Woolley	Yes		
Snohomish	Yes	No	
Spokane	Yes	Yes	Yes
Tacoma	Yes	Yes	O-W.
Vancouver			Yes
West Warden		No	

TABLE OF DISTANCES TO ODAIR, WASH.						
FROM	MATERIAL	N.P.	G.N. via Adrian	MILW. via Warden	S.P.&S. via Pasco & Connell	Remarks
Aberdeen	Lumber	456	373	380		G.N. dist. is via N.P. to Seattle
						Milw. " " " " Renton
Bellingham	Lumber Cement	475	269	356		Milw. car barge to Seattle
Concrete	Cement	466	273			N.P. dist. is via G.N. to Sedro Woolley
Everett	Lumber	403	205	275		
Irvin	Cement	130				
Longview	Lumber	457	373		376	G.N. dist. is via N.P. to Seattle
						S.P.&S. " " " " Vancouver
Metaline Falls	Cement	via Milw & N.P. 249	via Newport 241	289		N.P. 249 miles is via Milw. to Spokane
Portland	Lumber	506	422		347	G.N. dist. is via N.P. to Seattle
Pueblo, Colo.	Steel	(1) 1455 (2) 1496				(1) Via-C&S. to Denver-U.P. to Pendleton (2) " " " -C.B.Q. to Laurel
Seattle	Steel Lumber Cement	367	240	259		
Spokane	Lumber	122				
Yakima	Lumber	206		178		Milw. dist. is via N.P. to Ellensburg.
Grotto	Cement		158			

LENGTH OF PROPOSED LINES		
N.P. Ry.	Odair to Grand Coulee Dam	28 Miles
G.N. Ry.	Mansfield to Grand Coulee Dam	35 Miles
G.N. Ry.	Brewster to Grand Coulee Dam	55 Miles

Rev. 10-25

8731

St. Paul, Minn.,

April 30, 1934e

MR. J. T. DERRIG:

Your letter of April 26 about location of connection of the Government line and our track at Odair.

While I do not like the idea of increasing the grade on our line in Coulee City, apparently the connection that you propose necessitating this and the wye are, as shown on the print which accompanied your letter, the best for all concerned and I, therefore, approve them.

Copy Mr. Blum

Saint Paul, Minn.,

April 30, 1934.

MR. BERNARD BLUM:

Herewith specifications for the construction by the Reclamation Service of a railroad between Odair and the head of the Grand Coulee canyon.

Will you please check over promptly and advise if there are any corrections which should be called to the attention of the Bureau.

Mr Bluem - Memo -

The following parts of Objections other than noted Mr Your letter - Re one, 2, below, comport to Contractors,

(1) Page - 6 - Par 12 No redress for Contractor if Contract is awarded and work Stopped.

(2) Dry Rock - (Rip Rap) Think Specs should provide some item for hauling Rock, or designate location of suitable Rock

(3) Do not think 10 Day Claim fair or consistent to follow also question of a Federal Court trial for legal

8731

Coulee, Wash.,
April 30, 1934.

Mr. J. T. Derrig,
Assistant to the Chief Engineer,
Saint Paul, Minn.

Referring to your letter of April 26th in regard to changing line from the projected location so as to eliminate two road crossings near MP 15.

In running this location in the field I found that it was necessary to change to a line in the vicinity of the dotted yellow line mentioned in your letter in order to hold the top elevation down and get up without excessive grade. This line worked out to be a 0.7 grade and involved a considerable amount of grading near MP 15 and excessive curvature. At this time the Government Land appraisers mentioned that the right of way on the projected location would be cheaper than that along the highway beyond MP 12. I saw Mr. Banks about this time and he agreed that the proper location should be in the vicinity of the projected location and that the idea of trying to run a line so as to eliminate the crossings should be abandoned. The line attempting to eliminate the crossings is known as the L2 and L2-A. The alignment is shown on the original Preliminary map given to the Government and the profile on our Office Hard Copy.

In regard to the 0.6 grade coming out of the dry lake near MP 8: This can be made a 0.5 but would require considerable more excavation and fill. As the grade south (or east profile direction) is level and the 0.6 grade short, I felt that it would be better to use the o.6 grade than to take the additional yardage. This would also hold a higher grade on the Lewis dyke which would be desirable.

Paul R Gibson
Assistant Engineer

PRG/P

Enclosure- Map

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

162 SFOG

COULEE APL 30-34 J T DERRIG

STPAUL

D 31 NOW RUNNING L-LINE FROM PI NEAR 890 TO PI NEAR 1030.

PAUL R GIBSON

803P

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, April 30, 1934

P R Gibson

Coulee, Wash.

Your wire about backing up and using first projection to station 863. You should consider carefully possibility of increasing curve at Station 890 and keep up on bench to point near station 1035. D-31

J T Derrig

8231

St. Paul, Minn.,

April 30, 1934.

MR. J. T. DERRIG:

Your letter of April 26 about location of connection of the Government line and our track at Odair.

While I do not like the idea of increasing the grade on our line in Coulee City, apparently the connection that you propose necessitating this and the wye are, as shown on the print which accompanied your letter, the best for all concerned and I, therefore, approve them.

Copy Mr. Baum


CHEMICAL ENGINEERING
1963
STATE
NORTH
ST. PAUL, MINN.

8731

Saint Paul, Minn.,
April 28, 1934.

MR. BERNARD BLUM:

Your letter of the 27th about terminal facilities for the Coulee Dam railroad.

As I have advised you personally, I told Mr. Walter and Mr. Banks that we would construct interchange tracks at Odair on the usual basis, that is the Northern Pacific stand one-half of the expense and the Government the other half.

Ample facilities should be provided for necessary interchange of cars at that point.

We are not interested in trackage necessary at Odair for handling construction material but we will be glad to give them at a nominal figure lease on any right of way we may own at that point so they can construct their own trackage and use the property for accumulating construction material.

Mr. Walter and Mr. Banks inquired about construction of a wye at Odair and I told them the topography at the junction was unfavorable for wye track but I thought they could get one in after we hit the bottom of the coulee. I think the wye track shown on your sketch is the cheapest and best solution, and we will give the Government a lease for right of way necessary for its construction, and also trackage rights on the Coulee City stub it will be necessary for the contractor to use in turning his power at Odair. This will have to be covered by a contract.

I think it would be well for either you or Mr. Derrig to discuss these items with Mr. Banks and arrange the details. They should pay us something for the trackage rights as it will involve additional protection.

Eventually I think we will have to have a joint agent-telegrapher at Odair, and Mr. Sloan will work out the details of that arrangement after the line is completed.

Copy Mr. W. C. Sloan


DEFENSE SECRETS
CLASSIFIED
NOFORN

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

32 SF X

COULEE APL 28 1934

J T DERRIG

STPAUL

BANKS AGREED TO CHANGES STATIONS 628 TO 863

PRGIBSON

12NOON 30

Mr. Blum
Note 4/30

BB

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

P. R. Gibson

Coulee work

St Paul 7/28

Have you Conferred with Banks and does he agree with changes you are making Station 628 to 863

J. T. Berrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

41 SF X

COULEE APL 27 1934

J T DERRIG

STPAUL

FIRST PART WEEK RUNNING ALTERNATE LINE FROM L 628 TO L TWO 863 TRYING TO ELIMINATE TWO BAD GRADE CROSSINGS BUT THIS ABANDONED ACCOUNT EXCESSIVE YARDAGE AND GRADIANT L LINE ON PROJECTED LOCATION LOCATED TO MP 16 LEVELS COMPLETED TO MP 13 TOPOG COMPLETED TO MP 12

PRGIBSON

1202P28

873

Coulee, Wash.,
April 27, 1934.

Re: Proposed Grand Coulee Line
Weekly Letter Report, Ending
Friday April 27, 1934.

Mr. J. T. Derrig,
Assistant to the Chief Engineer,
Saint Paul, Minn.

The first portion of this week was taken up with the running of an alternate line from Station L-628 to Station L2-683 to determine the possibility of a line to the left of the highway so as to eliminate two bad grade crossings, as mentioned in my letter of last week. This line is designated and known as L2. It was run out and center elevations taken to a point directly west of the town of Rim Rock. The line was finally abandoned due to excess yardage and gradient. Also, the government right of way appraisers maintain the fact that the grazing land to the right of the highway, where the line was originally projected, is cheaper.

Todate "L" line has been located to Station 844, MP 16.0; center line elevations have been taken to Station 686, MP 13, and topography taken to Station 634, MP 12.

On Thursday of this week it was necessary to send a transit party to Grand Coulee and stake the tangent and connection to the Government railroad. This was done at the request of Mr. Banks who was asking the State Highway Dept. for a road change into Grand Coulee City.

Friday of this week level party spent at Odair running levels along the Adrain Branch and checking station plat at Odair.

Map, profile and drawings of the first ten miles are practically completed. Section line ties which are being taken by the Bureau of Reclamation Engineers are yet to be put on the maps, and as soon as these are in our hands the maps will be completed.

Weather has been fair and no delays due to adverse weather conditions have arisen.

Paul R Gelson

Assistant Engineer

Cy: BB

Coulee, Wash.,
April 27th, 1934.

Mr. J. T. Derrig,
Asst. to the Chief Engineer,
St. Paul, Minn.

8731

Re:Proposed Grand Coulee Line
Weekly Letter Report, Ending
Friday April 27th, 1934.

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To date"L" line has been located to Station 844, MP 16.0; center line elevations have been taken to Station 686, MP 13, and topography taken to Station 634, MP 12.

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Weather has been fair andno delays due to adverse weather conditions have arisen.

Paul R. Gibson
Assistant Engineer.

Cy:BB

8731
4159

Saint Paul, April 27, 1934

Mr. H. E. Stevens:

Attached is copy of Mr. Derrig's letter of the twenty-sixth to Mr. Sloan, together with print of map showing suggested layout for connection of the Government's railroad and the facilities at Odair to handle the business.

To get proper grade line on the new branch and not involve excessive grading quantities, it is desirable to make the connection to point A just west of MP 106. This involves relocation of a connection of the Coulee City spur as shown.

In order to develop track room for transferring cars from the Northern Pacific to the Government railroad it is desirable to have the interchange tracks alongside of our main line between points A and H. We have no train movements through Odair between the Washington Central and Connell Northern lines, and by constructing the proposed wye track as shown between B and E we can use the trackage A to H for interchange without interfering with the turning of equipment.

We can most likely get the Government to stand the expense of the new wye track as it will result in an ultimate saving to them.

MB h

8731

Saint Paul, April 26, 1934.

Mr. P. R. Gibson:

Referring to your letter of April 22nd in regard to location of the Grand Coulee Line:

I note you have used .06 grade coming out of Dry Lake and leading toward the Lewis Ranch where the detour was made to avoid dykes.

I have further reviewed the small Government map upon which the topography is shown outside of our present preliminary map, M.P. 15 to 20. It would appear from this map that in order to keep below the elevation of 1600 in the vicinity of Basin Center that you may find it necessary to introduce some additional curvature beyond that contemplated on our projection when I was in the field. I find there has been forwarded to you four prints of this map and I have shown in solid yellow line the approximate outline of our projection. I believe the dotted yellow line shown on this print would give you somewhat of a better profile, but we should of course, if consistent keep the location along the tangents and north of the farm buildings in order to save the Government right of way expense as requested by Mr. Banks.

I suggest after you have the tangent line run out and grade line put on the profile you go over this piece of location

Mr. P.R. Gibson -#2

with Mr. Banks and find out if it meets with his approval before completing your map or revising the line if you encounter any obsticales reaching the bench in the vicinity of Basin Center.

Asst. to Chief Engineer.

JTD-w

8731

Saint Paul, April 26, 1934.

Mr. W. C. Sloan:

In locating our railroad from Odair to Grand Coulee, I have found it necessary to carry the located line about 1000 feet west of Odair Jct. in order to reduce the grade and a heavy fill on the new branch.

The arrangement now proposed contemplates moving the connecting switch to point A on attached map and constructing a new wye between points B and E. This arrangement will permit the Government to use that portion of the main line of the Adrian Branch between points A and H and construct their new yard adjacent to the siding.

I have discussed this arrangement with Mr. Banks which seems to meet with his approval. The Government had contemplated placing their yard of about four tracks between the legs of our long wye, but the arrangement shown on the attached print will be cheaper for them to construct, and with the introduction of a small leg of the wye between points B and E we will I believe, have better operating conditions. In addition, this arrangement will relieve us from maintaining that portion of the track between points A and H. It is also possible at a future time when the dam is constructed we might be able to abandon this portion of the main track, unless you wish to re-

tain some for detour traffic, although I believe the introduction of the small leg of the short wye should amply protect us for detour traffic.

Will you please advise if the arrangement as proposed will meet your approval from an Operating standpoint? If not it will be necessary to relocate the tangent of the new line leading from the connection. If this is done we would be required to back all of the tonnage moved on the Washington Central into the Government yard if located on the East side of our Washington Central Branch.

From my discussion with Mr. Banks, I am certain that he will take care of the construction cost for the wye as in handling their train movements he will undoubtedly wish to have trackage rights around the wye including about 1000 ft. of switching lead as shown on attached print.

I am attaching two prints of the layout as proposed and would like to have your criticism, if any at an early date so that location may be adjusted accordingly.

JTD-w

Asst. to Chief Engineer.

cc - Mr. Blum - One print attached for your information. There are two sidings shown on attached print for the proposed yard. Mr. Banks seemed to think additional trackage will be necessary but has agreed this can be developed as the work progresses.

Saint Paul, April 26, 1934.

Mr. P. B. Gibson:

Referring to your letter of April 22nd in regard to location of the Grand Coulee Line:

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I have further reviewed the small Government map upon which the topography is shown outside of our present preliminary map, M.P. 15 to 20. It would appear from this map that in order to keep below the elevation of 1600 in the vicinity of Basin Center that you may find it necessary to introduce some additional curvature beyond that contemplated on our projection when I was in the field. I find there has been forwarded to you four prints of this map and I have shown in solid yellow line the approximate outline of our projection. I believe the dotted yellow line shown on this print would give you somewhat of a better profile, but we should of course, if consistent keep the location along the tangents and north of the farm buildings in order to save the Government right of way expense as requested by Mr. Banks.

I suggest after you have the tangent line run out and grade line put on the profile you go over this piece of location

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Asst. to Chief Engineer.

JTD-w

8731 #158

Saint Paul, April 25, 1934

Mr. H. E. Stevens:

Your letter twenty-third and returning Mr. Walter's letter of the 21st and copy of invitation to bid on construction of railroad from Odair to the Grand Coulee dam site, also invitation to bid on the Grand Coulee dam and power house:

I have compared the estimates quantities involved in the railroad construction and find there is a slight variation. Grading is 20,000 yards less, ballasting 18,000 yards more, tracklaying two miles more and there are two track miles more of fencing. There is some variation in culverts, bridging and minor items.

It is apparent that they have included in this invitation the work of laying the track and fencing from the Head of the Grand Coulee down to the dam site, a distance of approximately two miles; but grading and bridging down to the dam site is not included as that was included in a previous contract let for grading the combined highway and railroad grade.

With respect to the invitation for the dam: It is not feasible to compare directly the quantities listed in the schedule with the tentative tonnage furnished by Mr. Walter last August. Apparently the concrete item has been increased as the previous advice was that there would be 570,000 tons of cement or 2,850,000 barrels. 3,260,000 cubic yards of concrete will require possibly 700,000 tons of cement. The item of reinforcing bars in the schedule is but two-third's of that contained in the preliminary setup. Apparently the schedule included in the present bid does not include all of the items that will enter the completed work as it does not include electric machinery and apparently does not include numerous building items. At any rate it appears that the magnitude of the job has not decreased.

BB h

8731

Saint Paul, April 25, 1934.

Mr. P. R. Gibson:

You have Mr. Clements' letter of April 16th relative to proposed grade separation near MP 6½, Grand Coulee Line.

In accordance with our location as placed we will not be required to place a bridge at this location.

Asst. to Chief Engineer.

JTD-w

8731

Mr. Gemmell

Mr. Derrig asked me to give you the amount of lumber in the following Standard buildings:

24'×26' Section house	18700	F.B.M.
14'×24' Bunk house	4800	"
10'×20' Fuel shed	2800	"
6'×7' double privy	1150	"
12'×24' Bunk house	5100	"
	32,550	

4/25-34

O.M.K.

8731

Saint Paul, Minn.,
April 24, 1934.

MR. BERNARD BLUM:

Your letter of the twenty-third about valuation of Connell Northern.

I note the book investment account shows $1,334,290 Connell to Adco as compared with your reproduction estimate of $3,182,903 for the line Connell to Odair.

You know for what purpose these figures will be needed and I wish you would set up a summarized comparative statement of all the figures you have given me to cover the line and portions which may be used by the different companies Connell to Odair. In transmitting this, advise your recommendation as to the basis on which negotiations should be started in case the Union Pacific, Milwaukee, or Great Northern, singly or jointly, desire to buy in.

In view of the very large discrepancy between the investment account and your estimate, I will need some argument in support of your recommended five year average figure and it will be necessary for you to break down the figures to give explanation for the major discrepancies.

Copy handed Mr Terrell with request he furnish Statement etc
1928 4/25


CHIEF ENGINEER
DIVISION OF WATER RESOURCES
DEPARTMENT OF PUBLIC WORKS
ST. PAUL, MINN.

COPY

4157

Saint Paul, April 24, 1934.

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H. E. Stevens

8731/25/4

Saint Paul, April 24, 1934

Mr. L. Yager -

Your letter of the twenty-third giving status of 90# rail and angle bars for the Coulee Dam line:

The Government have just sent out bids for the construction of the line, which bids are returnable May 17th. Most likely the construction will be started at Odair by June first and it is not unlikely that they will be ready to take some rail in July for the purpose of building a material yard at Odair.

No promise was made, so far as I know, as to the class of rail to be furnished, but on the basis of the Railway Company building the line, we figured on third class rail and I see no reason why we should furnish anything better than a selection of our third class B rail.

I agree that we should keep our transverse fissure rail for our own use in yards.

For the yard tracks on the Coulee Line, I think the general run of third B rail is sufficient.

Definite location of the line is now being made and we will soon know what the cirve situation is but I do not believe there will be any very sharp curves and I do not apprehend that it will be difficult to provide sufficiently good quality of rail for the curves.

Possibly a few second class rails for turnouts should be provided.

In regard to angle bars: I do not believe it is necessary to figure on any group one angle bars which should be retained for our own main line requirements. Group two bars should I believe be furnished, together with some Group three which should be sufficient for the setout tracks at Odair and the yard tracks at the head of the Dry Coulee. At any rate we could make definite decision on the latter point after an inspection of the bars available.

I believe it is of sufficient importance to have the Store Department sort out the bars into Groups two and three and make definite assignment so that there will be no hitch at the time we are called upon by the Government to furnish the material.

MB h

Saint Paul, April 24, 1934

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MB h

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

SF X

COULEE APL 24 1934

52 B BLUM
53 J T DERRIG

STPAUL

TRANSIT LINE COMPLETED TO MP 14 PLUS 3200 LEVELS COMPLETED TO MP 13¾ PLUS 4300 TOPOG COMPLETED TO MP 9 PLUS 500

PRGIBSON

1205PM 25

Mr. Blum note JD 4/27

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED .8731 M.

18 A FO

Mandan April 24th 1934 R A Kuhelwein

Stpaul

Arrange to get Print of location map scale 400 ft to Inch will a~~XXXXXX~~ arrive Stpaul on No 2

J R Derrig

501pm

Ans Denied Kenneth Quist PAL. 4/24

Send PR Gibson 4/24

F. Ruth 5-24

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

SF X

COULEE APL 24 1934

52 B BLUM
53 J T DERRIG

STPAUL

TRANSIT LINE COMPLETED TO MP 14 PLUS 3200 LEVELS COMPLETED TO MP 13¾ PLUS 4300 TOPOG COMPLETED TO MP 9 PLUS 500

PRGIBSON

1205PM 25

B

8731

St. Paul, Minnesota, April 24, 1934.

Subject:
Joint application of Northern Pacific Ry. Co. et al for a certificate of public convenience and necessity permitting the abandonment and authorizing the operation of certain lines of railroad in Lewis and Cowlitz Counties, Wash. Finance Docket No. 10390. (2209 ICC)

Mr. H. E. Stevens

Mr. Bernard Blum:

I am in receipt of advice from Mr. Oliver E. Sweet, Director, Bureau of Finance of the Commission, that the time for filing the return to questionnaire in the above entitled proceeding has been extended to May 7, 1934.

W. A. Huntington Jr.
Assistant General Counsel.

C-m

R. C. T.
note B.B.
4/24
Noted R.C.T. 4/24/34


OFFICE OF
CHIEF ENGINEER
APR 24 1934
NOR. PAC. RY.
ST. PAUL, MINN.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

1105POG

DOULEE APL 23/34 J T DERRIG

STPAUL

MY WIRE 17TH YOUR LETTER 18TH IN ANSWER I WANTED FOUR WHITE PRINTS OF MAP 400 FEET TO ONE INCH .

R G IBSON

411P

873

4/55

Saint Paul, Minn.,
April 23, 1934.

MR. BERNARD BLUM:

Please note and return with your comments the attached letter from Mr. Walter, enclosing invitation to bidders for the construction of the railroad Odair to Coulee Damsite and for construction of the low dam.

You will note they have apparently consolidated the construction of the railroad Odair to the head of the coulee with the construction of the combined railroad-highway from the head of the coulee to the damsite.

You have copy of my letter to Mr. Walter of April fifth giving our estimated quantities of the principal items for construction of railroad between Odair and the head of the coulee. You will also note the quantities for the dam have been increased.

2 encls.

ADDRESS ALL COMMUNICATIONS TO
THE CHIEF ENGINEER

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
CUSTOMHOUSE
DENVER, COLORADO

OFFICE OF THE CHIEF ENGINEER

April 21, 1934.

Mr. H. E. Stevens,
Vice President,
Northern Pacific Railway Co.,
St. Paul, Minn.

Dear Mr. Stevens:

Due to the pressure of work in connection with preparing the specifications for the Grand Coulee dam and other projects, we have not been able as yet to prepare, for submission to your company, a draft of contract covering the informal agreements relating to the branch line railroad which were reached with you and Mr. Clark during your recent visit to Denver. We hope to be able to submit a draft for your consideration within the next week.

Specifications for the construction of the railroad are now in the hands of the printer and copy will be forwarded to you as soon as available, which will be within the next few days. A copy of the invitation for bids is enclosed.

Invitation for bids for the Grand Coulee dam and power plant was issued today and copy is enclosed. I will be pleased to forward you a copy of the plans and specifications for this work which will be available in about a week.

I wish to take this opportunity to express my appreciation to you, Mr. Clark, Mr. Haw, and other officials of your company for your cooperation in working out the transportation problem on this project.

Very truly yours,

Encl.

A. P. Davis

Chief Engineer.

U.S. Government Combined Form No. P.W.A. 50
Approved by the Federal Emergency Administrator of Public Works
September 7, 1933

UNITED STATES GOVERNMENT COMBINED FORM

(FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS PROJECT)

DEPARTMENT OF THE INTERIOR (Department or establishment) — BUREAU OF RECLAMATION (Office)

WASHINGTON, D. C. (Address) — April 20, 1934. (Date)

INVITATION

Sealed bids, in single, on the attached schedule of supplies, services, buildings, or work, subject to the applicable conditions of Standard Form No. 51 and the specifications covering the project, will be received at ~~this office~~ SPOKANE, WASHINGTON until 10 o'clock A. m., June 18, 1934, and then publicly opened.

Bid security in the sum of $2,000,000 will be required.

ELWOOD MEAD (Name)
Commissioner (Title)

SPECIFICATIONS NO. 570.

BID

(Date)

In compliance with the above invitation for bids, and subject to all the conditions thereof, the undersigned offers and agrees, if this bid be accepted within 60 days (if a different period be not specified) from the date of the opening, to furnish the supplies, services, buildings, or work, as the case may be, upon which prices are quoted, at the price set opposite each item, within the time stipulated on the attached schedule.

~~Discount will be allowed as follows:~~

Bidder should sign this bid and state prices in the schedules of the specifications.

(Bidder)

(Address)

By (Title)
(Member of firm or person authorized to sign bids for corporation)

ACCEPTANCE

(Not required to be executed when U.S. Government Form No. P.W.A. 51 is to be executed)

(Date)

The above bid is accepted as to items numbered

In the event execution of U.S. Government Form No. P.W.A. 51 is waived, the applicable provisions thereof shall nevertheless apply to this project.

(Name)

(Title)

[1] See sec. 4 of Bulletin 51, dated Sept. 7, 1933, issued by the Federal Emergency Administrator of Public Works.

16—1105

SCHEDULE FORM A

(Federal Emergency Administration of Public Works Project)
(Construction or Repair Project)

The contractor shall furnish labor and materials and perform all work for the construction of the Grand Coulee Dam and Power Plant, Columbia Basin Project, Washington, for the consideration of the unit prices stated in the schedule of specifications No. 570, and in strict accordance with the specifications, schedules, and drawings, all of which are made a part hereof and designated as follows: SPECIFICATIONS NO. 570.

The work is located near Almira, Washington, and about 100 miles west of Spokane, Washington.

The principal items of work and the advance estimated quantities involved are as follows:

11,450,000 cubic yards of all classes of open-cut excavation;
1,500 cubic yards of tunnel excavation;
50,000 cubic yards of backfill;
30,000 cubic yards of riprap;
3,260,000 cubic yards of concrete;
40,000 cubic feet of grout;
Drilling 72,000 linear feet of grout and drainage holes;
Placing 22,000,000 pounds of reinforcement bars:
Installing 1,100,000 pounds of small metal tubing, pipe, and fittings;
Installing 8,700,000 pounds of plate-steel penstock pipe;
Installing 1,600,000 pounds of structural steel in power house;
Installing 120,000 linear feet of electrical conduit;
Installing 125,000 linear feet of metal sealing strips in contraction joints; and
Installing 15,750,000 pounds of gates, gate hoists, conduit linings, butterfly valves, hoists, cranes, and trash-rack metal work.

This invitation for bids does not cover the purchase of materials which are to be furnished by the Government. Materials to be furnished by the contractor and those furnished by the Government are described in the specifications which will be a part of the contract.

All prospective bidders are hereby notified that, before any bid submitted in response to this invitation is considered for award, the Government may require the bidder to submit a statement of facts in detail as to the previous experience of the bidder in performing similar or comparable work and of the business and technical organization and financial resources and plant of the bidder available and to be used in performing the contemplated work. The Government expressly reserves the right to reject any bid on which the facts as to business and technical organization, plant, financial, and other resources, or business experience, compared with the work bid upon, justify such rejection.

Every contractor who bids upon a project financed in whole or in part by funds from the Public Works Administration shall submit in a sealed envelope with his bid to the contracting officer the names of all subcontractors and their bids upon which his bid is based. The sealed envelope so submitted shall have on it the name of the contractor with the words "Bids of subcontractors". Such submission shall be deemed to constitute an acceptance by the contractor if awarded the contract of the bid of each subcontractor. Any alteration thereafn after the award of contract shall be subject to the approval of the contracting officer of the federal department or agency concerned.

Any irregular bid which, in the opinion of the contracting officer, jeopardizes the interest of the Government will be subject to rejection for that reason.

The work shall be commenced within thirty (30) calendar days after date of receipt of notice to proceed and shall be completed within one thousand six hundred and fifty (1650) calendar days from the date of receipt of such notice.

Performance bond in the sum of $5,000,000 will be required.

Liquidated damages in the sum of $2,000 will be assessed for each calendar day of delay not excusable pursuant to article 9 of Government Form No. P.W.A. 51.

Partial payments will be made monthly.

The charge for copies of the specifications and drawings is $5.00, not returnable.

The successful bidder will be required to execute the United States Government form of Contract No. P.W.A. 51.

The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid, unless such bid is qualified or specific limitation.

Envelopes containing bids must be sealed, marked, and addressed as follows:

BID FOR GRAND COULEE DAM
AND POWER PLANT
TO BE OPENED 10 O'CLOCK A.M.,
June 18, 1934.

U. S. BUREAU OF RECLAMATION,
C/O COLUMBIA BASIN COMMISSION,
CIVIC BUILDING,
SPOKANE, WASHINGTON.

NOTE:--See P.W.A. Bulletin No. 51, United States Government Form of Contract No. P.W.A. 51, Standard Government Form of Bid Bond, and Standard Government Form of Performance Bond, which may be obtained upon application.

Copies of the standard forms and of the specifications may be obtained from the office of the Bureau of Reclamation at Ephrata, Washington; Denver, Colorado; or Washington, D. C.

U.S. Government Combined Form No. P.W.A. 50
Approved by the Federal Emergency Administrator of Public Works
September 7, 1933

UNITED STATES GOVERNMENT COMBINED FORM

(FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS PROJECT)

DEPARTMENT OF THE INTERIOR (Department or establishment) — BUREAU OF RECLAMATION (Office)

WASHINGTON, D. C. (Address) — April 19, 1934. (Date)

INVITATION

Sealed bids, in single, on the attached schedule of supplies, services, buildings, or work, subject to the applicable conditions of Standard Form No. 51 and the specifications covering the project, will be received at ~~this office~~ SPOKANE, WASHINGTON. until 10 o'clock a.m. M., May 17, 1934, and then publicly opened.

Bid security in ~~the sum of~~ an amount not less than 10 per cent of the amount of the bid. will be required.

ELWOOD MEAD (Name)

Commissioner (Title)

SPECIFICATIONS NO. 572.

BID

(Date)

In compliance with the above invitation for bids, and subject to all the conditions thereof, the undersigned offers and agrees, if this bid be accepted within 60 days (if a different period be not specified) from the date of the opening, to furnish the supplies, services, buildings, or work, as the case may be, upon which prices are quoted, at the price set opposite each item, within the time stipulated on the attached schedule.

~~Discount will be allowed as follows:~~

Bidder should sign this bid and state prices in the schedule of the specifications.

(Bidder)

(Address)

By (Title)
(Member of firm or person authorized to sign bids for corporation)

ACCEPTANCE

(Not required to be executed when U.S. Government Form No. P.W.A. 51 is to be executed)

(Date)

The above bid is accepted as to items numbered

In the event execution of U.S. Government Form No. P.W.A. 51 is waived, the applicable provisions thereof shall nevertheless apply to this project.

(Name)

(Title)

[1] See sec. 4 of Bulletin 51, dated Sept. 7, 1933, issued by the Federal Emergency Administrator of Public Works.

16—1105 U. S. GOVERNMENT PRINTING OFFICE 1934

SCHEDULE FORM A

(Federal Emergency Administration of Public Works Project)
(Construction or Repair Project)

The contractor shall furnish labor and materials and perform all work for the construction of the United States Construction Railroad at Grand Coulee Dam, Columbia Basin project, Washington,

for the consideration of the unit prices stated in the schedule of specifications No. 572

in strict accordance with the specifications, schedule, and drawings, all of which are made a part hereof and designated as follows: SPECIFICATIONS NO. 572.

The work is located between Olair, Washington, a siding about 2 miles northeast of Coulee City, Washington, on the Northern Pacific Railroad, and the Grand Coulee dam site, a distance of about 30 miles.

The principal items and the estimated quantities involved are as follows:

	496,300	cubic yards of all classes of excavation;
	850,000	station cubic yards of overhaul;
	2,500	cubic yards of backfill;
	600	cubic yards of concrete;
	1,200	square yards of dry-rock paving;
Placing	30,000	pounds of reinforcement bars;
Laying	4,250	linear feet of corrugated metal pipe;
Erecting	78	M. feet b.m. of timber;
Driving	1,800	linear feet of piles;
Constructing	60	miles of fence;
Laying	34.5	track-miles of ties and track; and
Placing	50,000	cubic yards of ballast.

This invitation for bids does not cover the purchase of materials which are to be furnished by the Government. Materials to be furnished by the contractor and those furnished by the Government are described in the specifications which will be a part of the contract.

All prospective bidders are hereby notified that, before any bid submitted in response to this invitation is considered for award, the Government may require the bidder to submit a statement of facts in detail as to the previous experience of the bidder in performing similar or comparable work and of the business and technical organization and financial resources and plant of the bidder available and to be used in performing the contemplated work. The Government expressly reserves the right to reject any bid on which the facts as to business and technical organization, plant, financial, and other resources, or business experience, compared with the work bid upon, justify such rejection.

The work shall be commenced within fifteen (15) calendar days after date of receipt of notice to proceed and shall be completed within one hundred eighty (180) calendar days from the date of receipt of such notice.

Performance bond will be required as follows: An amount not less than fifty (50) percent of the estimated aggregate payments to be made under the contract.

Liquidated damages in the sum of $200 will be assessed for each calendar day of delay not excusable pursuant to article 9 of Government Form No. P.W.A. 51.

Partial payments will be made monthly.

No charge to prospective bidders for copies of plans and specifications; to others, $1.00 not returnable.

The successful bidder will be required to execute the United States Government Form of Contract No. P.W.A. 51.

The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid, unless such bid is qualified by specific limitation.

Envelopes containing bids must be sealed, marked, and addressed as follows:

BID FOR UNITED STATES CONSTRUCTION
RAILROAD, GRAND COULEE DAM
TO BE OPENED 10 O'CLOCK A.M.,
May 17, 1934.

U. S. BUREAU OF RECLAMATION,
C/O COLUMBIA BASIN COMMISSION,
CIVIC BUILDING,
SPOKANE, WASHINGTON.

NOTE:--See P.W.A. Bulletin No. 51, United States Government Form of Contract No. P.W.A. 51, Standard Government Form of Bid Bond, and Standard Government Form of Performance Bond, which may be obtained upon application.

Copies of the standard forms and of the specifications may be obtained from the office of the Bureau of Reclamation at Almira, Washington, Denver, Colorado; or Washington, D. C.

ADDRESS ALL COMMUNICATIONS TO
THE CHIEF ENGINEER

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
CUSTOMHOUSE
DENVER, COLORADO

OFFICE OF THE CHIEF ENGINEER

April 21, 1934.

Mr. H. E. Stevens,
Vice President,
Northern Pacific Railway Co.,
St. Paul, Minn.

Dear Mr. Stevens:

Due to the pressure of work in connection with preparing the specifications for the Grand Coulee dam and other projects, we have not been able as yet to prepare, for submission to your company, a draft of contract covering the informal agreements relating to the branch line railroad which were reached with you and Mr. Clark during your recent visit to Denver. We hope to be able to submit a draft for your consideration within the next week.

Specifications for the construction of the railroad are now in the hands of the printer and copy will be forwarded to you as soon as available, which will be within the next few days. A copy of the invitation for bids is enclosed.

Invitation for bids for the Grand Coulee dam and power plant was issued today and copy is enclosed. I will be pleased to forward you a copy of the plans and specifications for this work which will be available in about a week.

I wish to take this opportunity to express my appreciation to you, Mr. Clark, Mr. Haw, and other officials of your company for your cooperation in working out the transportation problem on this project.

Very truly yours,

Encl.

A. P. Davis
Chief Engineer.

U.S. Government Combined Form No. P.W.A. 50
Approved by the Federal Emergency Administrator of Public Works
September 7, 1933

UNITED STATES GOVERNMENT COMBINED FORM

(FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS PROJECT)

DEPARTMENT OF THE INTERIOR — (Department or establishment)

BUREAU OF RECLAMATION — (Office)

WASHINGTON, D. C. — (Address)

April 20, 1934. — (Date)

INVITATION

Sealed bids, in single, on the attached schedule of supplies, services, buildings, or work, subject to the applicable conditions of Standard Form No. 51 and the specifications covering the project, will be received at ~~this office~~ SPOKANE, WASHINGTON until 10 o'clock a. m., June 18, 1934, and then publicly opened.

Bid security in the sum of $2,000,000 will be required.

ELWOOD MEAD — (Name)

Commissioner — (Title)

SPECIFICATIONS NO. 570.

BID

(Date)

In compliance with the above invitation for bids, and subject to all the conditions thereof, the undersigned offers and agrees, if this bid be accepted within 60 days (if a different period be not specified) from the date of the opening, to furnish the supplies, services, buildings, or work, as the case may be, upon which prices are quoted, at the price set opposite each item, within the time stipulated on the attached schedule.

~~Discount will be allowed as follows:~~

Bidder should sign this bid and state prices in the schedules of the specifications

(Bidder)

(Address)

By _____ (Title) _____
(Member of firm or person authorized to sign bids for corporation)

ACCEPTANCE

(Not required to be executed when U.S. Government Form No. P.W.A. 51 is to be executed)

(Date)

The above bid is accepted as to items numbered _____

In the event execution of U.S. Government Form No. P.W.A. 51 is waived, the applicable provisions thereof shall nevertheless apply to this project.

(Name)

(Title)

[1] See sec. 4 of Bulletin 51, dated Sept. 7, 1933, issued by the Federal Emergency Administrator of Public Works.

16—1105

SCHEDULE FORM A

(Federal Emergency Administration of Public Works Project)
(Construction or Repair Project)

The contractor shall furnish labor and materials and perform all work for the construction of the Grand Coulee Dam and Power Plant, Columbia Basin Project, Washington, for the consideration of the unit prices stated in the schedule of specifications No. 570, and in strict accordance with the specifications, schedules, and drawings, all of which are made a part hereof and designated as follows: SPECIFICATIONS NO. 570.

The work is located near Almira, Washington, and about 100 miles west of Spokane, Washington.

The principal items of work and the advance estimated quantities involved are as follows:

11,450,000 cubic yards of all classes of open-cut excavation;
1,500 cubic yards of tunnel excavation;
50,000 cubic yards of backfill;
30,000 cubic yards of riprap;
3,260,000 cubic yards of concrete;
40,000 cubic feet of grout;
Drilling 72,000 linear feet of grout and drainage holes;
Placing 22,000,000 pounds of reinforcement bars;
Installing 1,100,000 pounds of small metal tubing, pipe, and fittings;
Installing 8,700,000 pounds of plate-steel penstock pipe;
Installing 1,600,000 pounds of structural steel in power house;
Installing 120,000 linear feet of electrical conduit;
Installing 125,000 linear feet of metal sealing strips in contraction joints; and
Installing 15,750,000 pounds of gates, gate hoists, conduit linings, butterfly valves, hoists, cranes, and trash-rack metal work.

This invitation for bids does not cover the purchase of materials which are to be furnished by the Government. Materials to be furnished by the contractor and those furnished by the Government are described in the specifications which will be a part of the contract.

All prospective bidders are hereby notified that, before any bid submitted in response to this invitation is considered for award, the Government may require the bidder to submit a statement of facts in detail as to the previous experience of the bidder in performing similar or comparable work and of the business and technical organization and financial resources and plant of the bidder available and to be used in performing the contemplated work. The Government expressly reserves the right to reject any bid on which the facts as to business and technical organization, plant, financial, and other resources, or business experience, compared with the work bid upon, justify such rejection.

Every contractor who bids upon a project financed in whole or in part by funds from the Public Works Administration shall submit in a sealed envelope with his bid to the contracting officer the names of all subcontractors and their bids upon which his bid is based. The sealed envelope so submitted shall have on it the name of the contractor with the words "Bids of subcontractors". Such submission shall be deemed to constitute an acceptance by the contractor if awarded the contract of the bid of each subcontractor. Any alteration therein after the award of contract shall be subject to the approval of the contracting officer of the federal department or agency concerned.

Any unbalanced bid which, in the opinion of the contracting officer, jeopardizes the interest of the Government will be subject to rejection for that reason.

The work shall be commenced within thirty (30) calendar days after date of receipt of notice to proceed and shall be completed within one thousand six hundred and fifty (1650) calendar days from the date of receipt of such notice.

Performance bond in the sum of $5,000,000 will be required.

Liquidated damages in the sum of $2,000 will be assessed for each calendar day of delay not excusable pursuant to article 9 of Government Form No. P.W.A. 51.

Partial payments will be made monthly.

The charge for copies of the specifications and drawings is $5.00, not returnable.

The successful bidder will be required to execute the United States Government form of Contract No. P.W.A. 51.

The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid, unless such bid is qualified as specific limitation.

Envelopes containing bids may be sealed, marked, and addressed as follows:

BID FOR GRAND COULEE DAM
AND POWER PLANT
TO BE OPENED 10 O'CLOCK A.M.,
June 18, 1934.

U. S. BUREAU OF RECLAMATION,
C/O COLUMBIA BASIN COMMISSION,
CIVIC BUILDING,
SPOKANE, WASHINGTON.

NOTE:--See P.W.A. Bulletin No. 51, United States Government Form of Contract No. P.W.A. 51, Standard Government Form of Bid Bond, and Standard Government Form of Performance Bond, which may be obtained upon application.

Copies of the standard forms and of the specifications may be obtained from the office of the Bureau of Reclamation at Amarillo, Washington, Denver, Colorado; or Washington, D. C.

U.S. Government Combined Form No. P.W.A. 50
Approved by the Federal Emergency Administrator of Public Works
September 7, 1933

UNITED STATES GOVERNMENT COMBINED FORM

(FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS PROJECT)

DEPARTMENT OF THE INTERIOR (Department or establishment) — BUREAU OF RECLAMATION (Office)

WASHINGTON, D. C. (Address) — April 19, 1934. (Date)

INVITATION

Sealed bids, in single, on the attached schedule of supplies, services, buildings, or work, subject to the applicable conditions of Standard Form No. 51 and the specifications covering the project, will be received at ~~this office~~ SPOKANE, WASHINGTON. until 10 o'clock a. m., ~~May 17, 1934~~, and then publicly opened.

Bid security in ~~the sum of~~ an amount not less than 10 per cent of the amount of the bid. will be required.

ELWOOD MEAD (Name)

Commissioner (Title)

SPECIFICATIONS NO. 572.

BID

(Date)

In compliance with the above invitation for bids, and subject to all the conditions thereof, the undersigned offers and agrees, if this bid be accepted within 60 days (if a different period be not specified) from the date of the opening, to furnish the supplies, services, buildings, or work, as the case may be, upon which prices are quoted, at the price set opposite each item, within the time stipulated on the attached schedule.

~~Discount will be allowed as follows:~~

Bidder should sign this bid and state prices in the schedule of the specifications.

(Bidder)

(Address)

By (Title)
(Member of firm or person authorized to sign bids for corporation)

ACCEPTANCE

(Not required to be executed when U.S. Government Form No. P.W.A. 51 is to be executed)

(Date)

The above bid is accepted as to items numbered

In the event execution of U.S. Government Form No. P.W.A. 51 is waived, the applicable provisions thereof shall nevertheless apply to this project.

(Name)

(Title)

[1] See sec. 4 of Bulletin 51, dated Sept. 7, 1933, issued by the Federal Emergency Administrator of Public Works.

16—1105 U. S. GOVERNMENT PRINTING OFFICE 1934

SCHEDULE FORM A

(Federal Emergency Administration of Public Works Project)
(Construction or Repair Project)

The contractor shall furnish labor and materials and perform all work for the construction of the United States Construction Railroad at Grand Coulee Dam, Columbia Basin project, Washington,

for the consideration of the unit prices stated in the schedule of specifications No. 572

in strict accordance with the specifications, schedule, and drawings, all of which are made a part hereof and designated as follows: SPECIFICATIONS NO. 572.

The work is located between Olair, Washington, a siding about 2 miles northeast of Coulee City, Washington, on the Northern Pacific Railroad, and the Grand Coulee dam site, a distance of about 30 miles.

The principal items and the estimated quantities involved are as follows:

	496,300	cubic yards of all classes of excavation;
	850,000	station cubic yards of overhaul;
	2,500	cubic yards of backfill;
	600	cubic yards of concrete;
	1,200	square yards of dry-rock paving;
Placing	30,000	pounds of reinforcement bars;
Laying	4,250	linear feet of corrugated metal pipe;
Erecting	78	M. feet b.m. of timber;
Driving	1,800	linear feet of piles;
Constructing	60	miles of fence;
Laying	34.5	track-miles of ties and track; and
Placing	50,000	cubic yards of ballast.

This invitation for bids does not cover the purchase of materials which are to be furnished by the Government. Materials to be furnished by the contractor and those furnished by the Government are described in the specifications which will be a part of the contract.

All prospective bidders are hereby notified that, before any bid submitted in response to this invitation is considered for award, the Government may require the bidder to submit a statement of facts in detail as to the previous experience of the bidder in performing similar or comparable work and of the business and technical organization and financial resources and plant of the bidder available and to be used in performing the contemplated work. The Government expressly reserves the right to reject any bid on which the facts as to business and technical organization, plant, financial, and other resources, or business experience, compared with the work bid upon, justify such rejection.

The work shall be commenced within fifteen (15) calendar days after date of receipt of notice to proceed and shall be completed within one hundred eighty (180) calendar days from the date of receipt of such notice.

Performance bond will be required as follows: An amount not less than fifty (50) percent of the estimated aggregate payments to be made under the contract.

Liquidated damages in the sum of $200 will be assessed for each calendar day of delay not excusable pursuant to article 9 of Government Form No. P.W.A. 51.

Partial payments will be made monthly.

No charge to prospective bidders for copies of plans and specifications; to others, $1.00 not returnable.

The successful bidder will be required to execute the United States Government Form of Contract No. P.W.A. 51.

The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid, unless such bid is qualified by specific limitation.

Envelopes containing bids must be sealed, marked, and addressed as follows:

BID FOR UNITED STATES CONSTRUCTION
RAILROAD, GRAND COULEE DAM
TO BE OPENED 10 O'CLOCK A.M.,
May 17, 1934.

U. S. BUREAU OF RECLAMATION,
C/O COLUMBIA BASIN COMMISSION,
CIVIC BUILDING,
SPOKANE, WASHINGTON.

NOTE:--See P.W.A. Bulletin No. 51, United States Government Form of Contract No. P.W.A. 51, Standard Government Form of Bid Bond, and Standard Government Form of Performance Bond, which may be obtained upon application.

Copies of the standard forms and of the specifications may be obtained from the office of the Bureau of Reclamation at Almira, Washington, Denver, Colorado; or Washington, D. C.

BIDS RECEIVED

Project .....

Contract Awarded to .....

	Item	Quantity	Estimate		Prelim				
	Construction of Dam		Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost
1	Excavation all classes of								
2	open Cut	C. yds		11,450,000					
3	Tunnel Excavation	"		1.500					
4	Back fill	"		50,000					
5	Rip Rap	"		30 000					
6									
7	Concrete	"		3,260,000		2,850,000 Pounds		(1)	
8	Grout	Cubic feet		40.000					
9	Drilling linear feet grout and								
10	drainage holes			72,000					
11									
12	Placing pounds reinforcing Bars			22,000,000		34 500 000		(2)	
13	Installing pounds of small metal								
14	Tubing pipe and fittings			1,100,000		1,650,000		(3)	
15	Installing pounds plate steel penstock			8,700,000		8186000 #		(4)	
16	Installing pounds of structural steel								
17	in Power House			1,600,000					
18									
19	Installing linear feet Electrical Conduit			120.000					
20	Installing linear feet of metal sealing								
21	strips in contraction joints			125.000					
22	Installing pounds of gates gate hoists								
23	conduit linings butterfly Valves, hoists								
24	cranes and trash rack metal work			15,750.000		15,000,000		(7)	
25						775 000			
26									
27						NP			
28	Construction of Railroad at Dam								
29									
30	Excavation all classes	C. yds		496 300		$17.600			
31	over haul	"		850 000		1.000.000			
32	Backfill	"		2 500					
33	Concrete	"		600					
34	Dry Rock Paving	Sq. yds		1 200		1040 Cyds			
35	Placing Reinforcing Bars	pounds		30,000					
36	Laying corrugated metal pipe	Lin feet		4 250		3928			
37	Erecting Lineal feet B. M.			78,000		75000			
38	Driving piles	Lin feet		1800		5000			
39	Fence	miles		60		56			
40	Track laying	"		34.5		32.5			
	Ballasting	C. yds		50 000		32500			

Saint Paul, April 23, 1934w

MR. BERNARD BLUM:

Referring to your inquiry concerning status of rail and secondhand angle bars available for the Coulee Dam line.

I am attaching several copies of memorandum outlining present aupply of third class 90# rail on hand, together with location. This is divided into two kinds of rail; first, transverse fissure and condemned heats together with damged rail; the second item is the third B rail composed largely of curve-worn rail. It seems to me that the rail to be selected will depend somewhat upon general specifications of the kind of rail that we may have promised to furnish. It would seem desirable to preferentially retain if possible the transverse fissure rail for our own use. On the other hand, it seems necessary to furnish rail of good section for the curves on the new line. I have not listed the rail available from the relays this season. We would not be able to furnish very much second class rail for the new line, other than possibly several miles of short lengths because we are out of second class 90# repair rail for our own purposes, and there would be very little second class rail available except from some of the tangent out of face relays.

The secondhand angle bar situation is also shown. It has been our practise to divide secondhand angle bars into two groups; first, being second class heat treated bars which we use for main line repair replacement. Group 2 is composed of the best four-slot bars. Group 3 is composed of the poorest bars containing cracks and other defects which may not preclude their use in unimportant secondary tracks although a good many of these bars would not be acceptable for main track use on branch lines. The setup shows in line 7 the apparent surplus of 2500 pair after making assignment for the 35 miles of new line. In view of the probable rejection of many of the secondhand bars for the new line I believe it proper to conclude that we would not have enough acceptable secondhand bars available for the new line until after we had relaid at least a considerable part of the desirable tangent relays.

If it is of sufficient immediate importance I can ask the Store Department to sort out the 11054 pair bars on hand into groups 2 and 3 which will give us a better lineup on acceptable bars available.

L. Hayes

MEMORANDUM

STATUS OF 3RD CLASS 90# RAIL AND SECONDHAND 90# ANGLE BARS. FOR COULEE DAM LINE, SAY 35 MILES TRACK.

	Trans.Fiss. & Condemned Miles.	3rd B. Miles.	Total Miles
1. Carlton	1.70	6.60	8.30
2. Northtown and Staples	6.50	4.50	11.00
3. Dilworth, Jamestown	1.20	4.60	5.80
4. Glendive and Laurel	6.00	14.00	20.00
5. Total East of Livingston	15.40	29.70	45.10
6. Missoula	.80	5.20	6.00
7. Parkwater and Pasco	1.60	4.40	6.00
8. Auburn	1.30	2.20	3.50
9. Total west of Livingston	3.70	11.80	15.50
10. Total System	19.10	41.50	60.60

Secondhand Angle Bar Situation

1. Group #1 2-slot Plan T-6-5	207 pair
2. Group #2 - #3, 4-slot Plan T-20-106	11050 pair
3. Total	11250 pair
4. Available from 1934 necessary program, 10 miles	3500 pair
5. Total available	14750 pair
6. Required for Coulee Line, 35 miles @ 350	12250 pair
7. Balance apparent surplus	2500 pair
8. Available from desirable curve relays 7 miles	2450 pair
9. Available from desirable tangent relays 21 miles	7350 pair
10. Total available	12300 pair

Office of Asst. Chief Engr.
St. Paul, Minnesota
April 23, 1934w

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10. Total System	19.10	41.50	60.60

Secondhand Angle Bar Situation

1. Group #1 2-slot Plan T-6-5	207 pair
2. Group #2 - #3, 4-slot Plan T-20-106	11050 pair
3. Total	11250 pair
4. Available from 1934 necessary program, 10 miles	3500 pair
5. Total available	14750 pair
6. Required for Coulee Line, 35 miles @ 350	12250 pair
7. Balance apparent surplus	2500 pair
8. Available from desirable curve relays 7 miles	2450 pair
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Office of Asst. Chief Engr.
St. Paul, Minnesota
April 23, 1934w

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Office of Asst. Chief Engr.
St. Paul, Minnesota
April 23, 1934w

8731

St. Paul, Minn., April 23, 1934

Mr. H. E. Stevens:

Your letter of the 16th requesting valuation of the Connell Northern line from Odair to the crossing of the branch line of the Milwaukee that runs to Moses Lake. This for the purpose of setting up figure in case the Milwaukee buy in to reach the Grand Coulee dam.

This valuation is in lieu of the estimate submitted you October 30, 1933 covering valuation between West Warden and Odair.

Herewith two copies of estimate made up on the usual reproduction basis, that is quantities allowed on the basic engineering report, plus additions and betterments to October 1st, 1933, all priced out at an average five year period reproduction price. The total of this estimate is $1,959,745, or an average of $40,718 per mile. The I.C.C. reproduction estimate new as of June 30, 1917, plus additions and betterments to date, totals $1,459,071, or an average price per mile of $30,315.

Your inquiry as to the book value of the Connell Northern. Attached is sheet showing the construction charges as $1,268,806.60, additions and betterments $65,483.99, making a total of $1,334,290.59. This is an average of $21,929 per mile of road. This covers Connell to Adco as of February 28th, 1934.

You will note from the statement that there is no interest charged out on the construction account, although there is a credit for interest under additions and betterments. Such credit is of course simply an arbitrary book setup which should be eliminated in determining the cost of the road as it was never charged out in the first place.

It is also noted that there is a credit for ballast although no charge for same. The revenue during construction should probably be eliminated.

BB:wp
enc

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BB:wp
enc

8731

Coulee, Wash.,
April 22, 1934.

Re: Proposed Grand Coulee Line
Weekly Letter Report, Ending
Friday April 20, 1934.

Mr. J. T. Derrig,
Assistant to Chief Engineer,
St. Paul, Minn.

At this time the "L" line has been staked to station 520x00 or MP 10. Center line elevations also have been taken to this station, topography has been taken to station 340x00 or MP 6½.

The line as now staked follows the original projection fairly close up to station 451x00. At this point a two degree curve to the left was run in, this was doneat the request of Mr. Banks, the government engineer, who objected to the original projection cutting thru the dykes at Mr. Dave Lewis's ranch. Due to this change at the Lewis ranch it was thot advisable to continue the back tangent across the lake to obtain better support and intersecting the preliminary P-4 line at station 372. A day was consumed in running this out but was abandoned when it was shown that an accessive amount of filling was necessary to get down to the lake bed with a satisfactory grade. This line is known and marked as L-1 void.

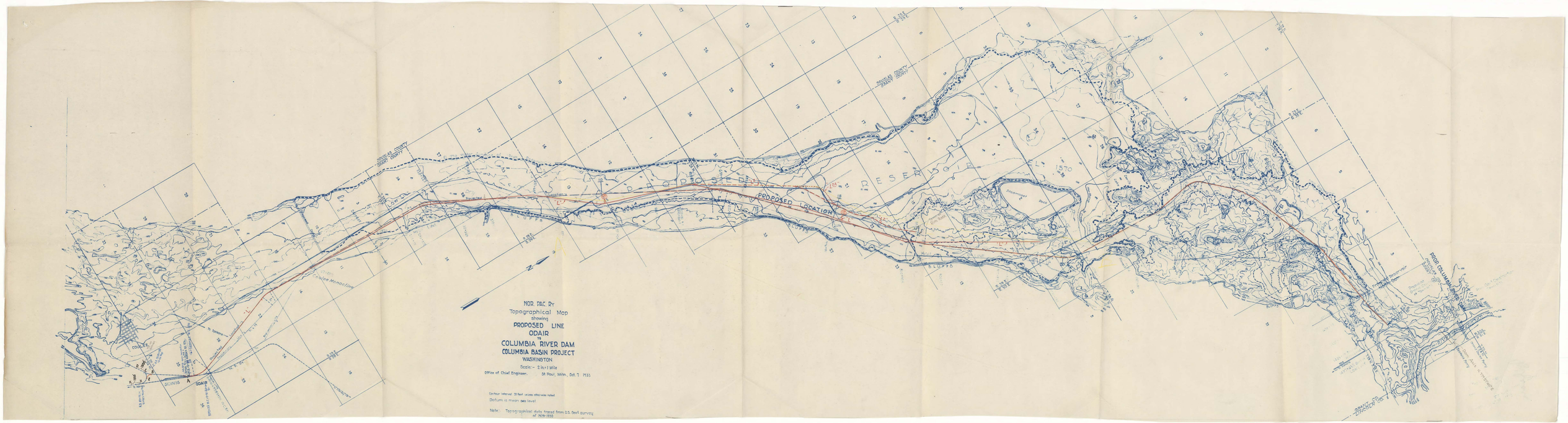
As I stated in the first of my letter the line as now staked follows the projection fairly close up to station 451x00 which is about the end of the dryblake. At this point a two degree curve to the right 513 feet long was put in using the east end of the first dyke and an irrigation drainage ditch approximately at station 500 as control points. This puts the line away from all the dykes and above Mr. Lewis's cultivated land and climbs out of the lake bed on a o.60 grade. This tangent was produced up to station 520, at this point we cross the main creek channel that feeds water in the spring to Mr. Lewis's land, a five span pile bridge will be necessary at this point. There is a curve to the left at this particular point and to keep it offnthe bridge I am using a three degree curve. As you know and contemplated while out here last week, the line will stay to the left of the highway from this point and will eliminate two bad grade crossingsproviding a suitable grade to high ground back of Rim Rock can be made.

Map, profile and drawings of the first ten miles are being completed as soon as possible, which will probably be around the end of next week. Weather has been exceptionally warm.

Paul R Gibson
Assistant Engineer

Copy: Bernard Blum

RDP/G



NOR. PAC. Ry.
Topographical Map
showing
PROPOSED LINE
ODAIR
to
COLUMBIA RIVER DAM
COLUMBIA BASIN PROJECT
WASHINGTON
Scale:- 2 in = 1 Mile
Office of Chief Engineer. St. Paul, Minn., Oct. 7 1935

Contour interval 20 feet unless otherwise noted
Datum is mean sea level

Note:- Topographical data traced from U.S. Gov't survey of 1929-1930

8231

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April 22, 1934.

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Paul R Gibson
Assistant Engineer

Copy: Bernard Blum

RDP/G

Eliminate credit Interest and Revenues

St. Paul, April 21, 1934.

Mr. Bernard Blum -

As requested in Mr. Stevens letter to you of April 16, 1934, I hand you herewith four copies of estimate for that portion of our Washington Central and Adrian Branches between Odair and crossing of the Milwaukee Moses Lake Line, a distance of 48.13 miles. This estimate covers that portion of the line which the Milwaukee may desire to use in order to reach the proposed lines to the Columbia River dam site.

This estimate is made up on our usual reproduction principles, that is, to the quantities allowed us in the basic engineering report, there is added total quantities since that date for A&B work, all priced out at an average five year period reproduction price. The amount of this estimate is $1,959,745, or an average of $40,718 per mile. We have also made up estimate, but not typed same, on the basis of ICC reproduction new as of June 30, 1917, plus A&B to October 1, 1933, to correspond with a reproduction estimate. This estimate totals $1,459,071, or an average price per mile of $30,315.

As requested in the last paragraph of Mr. Stevens' letter, I have had prepared book value of the Connell-Northern from Connell to Adco as of Feb. 28, 1934. The construction charges are $1,268,806.60, A&B $65,483.99, making the total $1,334,290.59. This is $21,929 per mile of road. Attached are two copies of this statement by accounts, for above quoted figure.

You will note from this statement there is no interest charged out on the construction account. There are probably various items not charged out, which can only be detected by an analyses of the accounts.

Mr. Stevens' letter returned herewith.

Valuation Engineer

ACT:FJ

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

102 SF X

ALMIRA APL 21 1934

B BLUM

STPAUL

E. L. G.
T. K. Y.
E. L.
R. E.

HAVE THE FIRST TEN MILES OF LOCATION COMPLETED TODAY TO SATISFACTION OF BANKS HAVE REVISED PROJECTION MP SIX TO TWENTY TO MEET BANKS REQUEST IN ORDER TO GET AWAY FROM DYKES AND TOWNSITE CONSTRUCTED AND PLATTED SINCE PRELIMINARY WAS RUN WILL TAKE ALL SECTION TIES FOR FIRST TEN MILES STARTING MONDAY AND COMPLETE MAP FOR FIRST TEN MILES SECTION TIES WILL BE COMPLETED ABOUT THURSDAY HAVE ALSO SET FORESIGHTS FOR REVISED LOCATION MP TO END AND CHECKED TO MEET MR BANKS DESIRE

JTDERRIG

308P

Mr Stevens
Note
4/23
B.B.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

103 SF X

ALMIRA APL 21 1934

B BLUM

8731

STPAUL

TO GRAND COULEE THIS PM WITH MR CLARK AND BANKS AND TO SPOKANE WITH THEM TONIGHT

J T DERRIG

309P

B.

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16 at Odair, Washington, the Adrian Branch from H.B. Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from H.B. Station 1+57 at Adco to Station 1490+00 near crossing of C. M. St.P. & P. R. R. Co's Moses Lakeline.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	48.130	Miles
Other Tracks	2.269	Miles
Total	50.399	Miles

	Units	No. of Units	Unit Price $	Total $	$
Acct. 1 - Engineering					74303
Acct. 2 - Land for Transportation Purposes					59505
Acct. 3 - Grading					
Clearing sage brush	Acre	51.07	12.75	651	
Common	Cu.Yd.	449818	.29	130447	
Hard pan	"	193188	.50	96594	
Loose rock	"	308912	.55	169902	
Solid rock	"	332124	1.12	371979	
Team haul over 500'	CY-100'	2857608	.015	42864	
Cinders, av. haul 95 miles	Cu.Yd.	100	0.89	89	
Gravel blanket, av. haul 8.6 miles	"	41816	.45	18817	
Riprap, loose	"	142	1.57	223	
" hand placed	"	206	2.32	478	
Cribs, timber	M.B.M.	2.302	31.00	71	
" iron	Lb.	10	.07	1	83211
Acct. 6 - Bridges, Trestles & Culverts					
Combination Bridge 62 ft. long					
Substructure - 2 frame abutments, east abutment on mud sills and west abutment on concrete footing.					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
Excavation, solid rock	Cu.Yd.	75	1.15	86	
Superstructure - One 62 ft. deck Howe truss. span					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	.07	1848	
Bridge sign	Each	1	1.25	1	
15 Pile & Frame Trestles, 4333 ft. long					
Piling, cedar	Lin.ft.	1428	.92	1314	
" fir	"	3460	.92	3183	
Stringers	M.B.M.	314.950	54.50	17165	
Other timber	"	1255.971	51.00	64055	
Iron	Lb.	98596	.065	6409	
Galv. iron	"	18684	.07	1308	
[illegible]etion, common	Cu.Yd.	854	.64	547	
, loose rock	"	1296	.75	972	
, solid rock	"	61	1.15	70	

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16 at Odair, Washington, the Adrian Branch from H.B. Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from H.B. Station 1+57 at Adco to Station 1490+00 near crossing of C. M. St.P. & P. R. R. Co's Moses Lakeline.

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Combination Bridge 62 ft. long					
Substructure - 2 frame abutments, east abutment on mud sills and west abutment on concrete footing.					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
Excavation, solid rock	Cu.Yd.	75	1.15	86	
Superstructure - One 62 ft. deck Howe truss span					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	.07	1848	
Bridge sign	Each	1	1.25	1	
15 Pile & Frame Trestles, 4333 ft. long					
Piling, cedar	Lin.ft.	1428	.92	1314	
" fir	"	3460	.92	3183	
Stringers	M.B.M.	314.950	54.50	17165	
Other timber	"	1255.971	51.00	64055	
Iron	Lb.	98596	.065	6409	
Galv. iron	"	18684	.07	1308	
Excavation, common	Cu.Yd.	854	.64	547	
" , loose rock	"	1296	.75	972	
" , solid rock	"	61	1.15	70	

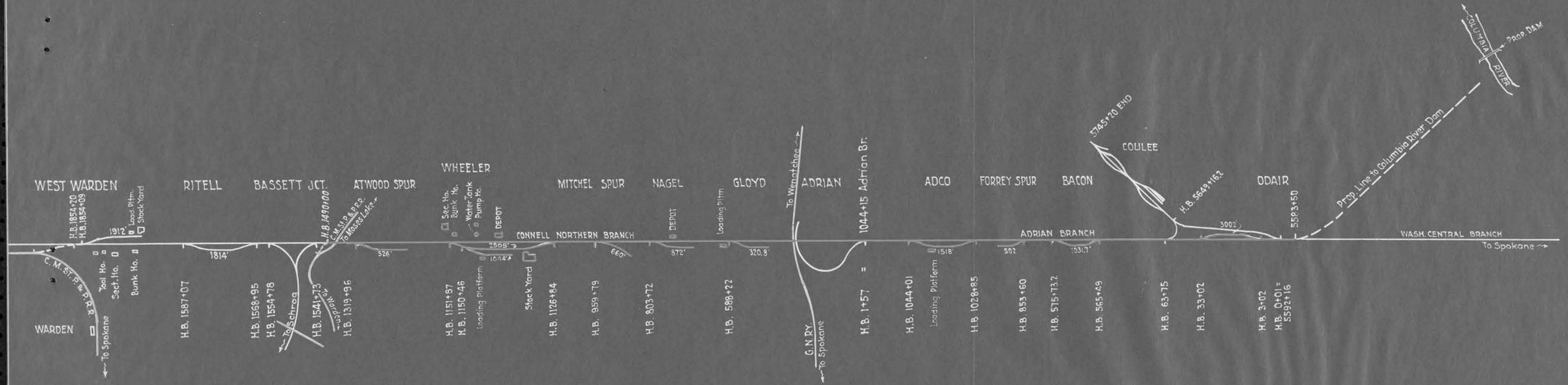
	Units	No. of Units	Unit Price $	Total $	$
Acct. 6 - Bridges, Trestles & Culverts (Cont'd)					
17 Pile & Frame Trestles, 4333' long (Cont'd)					
Riprap, hand placed	Cu.Yd.	174	2.32	404	
" loose	"	169	1.57	265	
Water barrels	Each	39	1.25	49	
Bridge signs	"	15	1.25	19	
Pipe & Timber Culverts -					
Culvert, timber	M.B.M.	4.724	53.00	250	
24" Cast iron pipe, 616 L.Ft.	N. Tons	52.668	73.30	3861	
36" " " " 522 "	"	78.822	73.30	5778	
24" Vitr. tile "	L. Ft.	1206	4.00	4824	
24" Reinf. Conc."	"	235	6.00	1410	
36" " " "	"	87	10.00	870	
Riprap, hand placed	Cu.Yd.	38	2.32	88	
" loose	"	10	1.57	16	
Rubble in mortar	"	34	10.00	340	
Blind drain, loose rock	"	21	2.50	53	
Excavation, " "	"	6	.75	5	
Cobble paving	"	1	5.25	5	120575
Acct. 8 - Ties					
Cross ties, treated	Each	109472	1.58	172966	
" " , untreated	"	17368	.90	15631	
Switch " , "	M.B.M.	43.369	26.70	1158	
Bridge " , "	"	212.296	35.20	7473	197228
Acct. 9 - Rail					
85# Rail, relay, 1901.0 L.F.	Gr.Tons	24.045	40.50	974	
72# " " ,306241.6 "	"	3281.160	40.50	132887	
66# " " ,222325.4 "	"	2183.553	40.50	88434	
56# " " , 876.0 "	"	7.300	40.50	296	222591
Acct. 10 - Other Track Material					
85# Angle bars, relay, 64 pr.	Cwt.	30.72	2.50	77	
72# " " " 10698 "	"	3851.28	2.50	9628	
66# " " " 7771 "	"	2698.09	2.50	6745	
56# " " " 28 "	"	8.68	2.50	22	
85/66# Offset bars, " 2 "	Each	2	4.00	8	
Track bolts, 13/16"x4½", 255 pc.	Cwt.	3.32	4.74	16	
" " 3/4"x3-3/8",73288 "	"	564.32	4.74	2674	
" spikes, 9/16"x6", 561428 "	"	3537.00	3.83	13547	
" " 9/16"x5½", 27948 "	"	155.11	3.83	594	
72# Rail braces, cast, 30 "	"	1.80	9.70	17	
66# " " " 13 "	"	1.01	9.70	10	
66# " " P.& M., 2113 "	"	76.07	8.30	631	
56# " " " 67 "	"	2.45	8.30	20	
85# Tie plates, 7"x9" Int.,158 "	"	13.75	3.10	43	
85# " " 6"x8½" " 886 "	"	58.48	3.10	181	
85# " " 6"x8½"Jt. 118 "	"	7.63	3.10	24	
72# " " 6"x8" Int.90258"	"	5740.04	3.10	17794	
72# " " 6"x8"Goldie 509"	"	32.98	3.66	121	
66# " " 6"x8" Int.,67737 pc.	"	4314.85	3.10	13376	
66# " " 6"x8" Jt. 10743 "	"	663.92	3.10	2058	
66# " " 6"x8" Sellar,2264 "	"	156.90	3.10	486	

	Units	No. of Unit	Unit Price	Total	
			$	$	$
Acct. 10 - Other Track Material - (Cont'd)					
85# Split switch, 15' Reinf.	Each	1	73.40	73	
72# " " 15' "	"	8	65.64	525	
66# " " 15' "	"	7	62.10	435	
85# Rigid frog, #9, 11½'	"	1	72.90	73	
72# " " #9, 11½'	"	7	63.60	445	
66# " " #9, 11½'	"	5	60.60	303	
72# Spr. rail frog, #9, 15'	"	1	106.50	107	
66# " " " #9, 15'	"	2	106.50	213	
85# Guard rails, spiked, 15', 1 set	Cwt.	8.820	3.54	31	
72# " " " 15', 8 "	"	59.04	3.54	209	
66# " " " 15', 7 "	"	47.53	3.54	168	
66# Spl. sw. point derail	Each	1	15.60	16	
Hobart derail, All free, size L. 7	"	1	16.85	17	
Switch stands, High Banner	"	16	27.75	444	
" " Low "	"	1	22.70	23	
Switch lamps	"	1	10.00	10	
Switch locks	"	17	0.86	15	
Rail rack	"	48	1.50	72	
Cobble paving	Sq.Yd.	5	0.75	4	
Bumping post, timber	M.B.M.	0.250	47.00	12	
" " , earth	Cu.Yd.	24	0.64	15	71282
Acct. 11 - Ballast					
Gravel, av. haul 9 miles	Cu.Yd.	34369	0.57	19590	
" " " 64 "	"	5804	0.98	5688	
Cinders, " " 10 "	"	1659	0.45	747	26025
Acct. 12 - Tracklaying & Surfacing					
Main Track					
Lay & initial surf., 90/61# rail	Miles	48.130	1718.00	82687	
Extra for full earth surfacing	"	28.460	390.00	11099	
Other Tracks					
Lay & initial surf., 90/61# rail	"	2.186	1503.00	3286	
" " " " , 60/0# "	"	.083	1460.00	121	
All Tracks					
Placing ballast, gravel	Cu.Yd.	40173	0.45	18078	
" " , cinders	"	1659	0.37	614	
" turnouts	Each	16	72.00	1152	
" spl. sw. derail with stand	"	1	20.00	20	
" derail, block type	"	1	5.25	5	
" tie plates	"	172673	0.024	4144	
" rail braces	"	2223	0.028	62	
Framing and placing bridge ties	M.B.M.	212.296	19.10	4055	125323
Acct. 13 - Right of Way Fences					
Post, split cedar, 6"x7'	Each	1695	0.26	441	
" " " , 5"x6'	"	3800	0.26	988	
Labor setting posts	"	5495	0.195	1072	
Post, rd. cedar, 6"x8', with auger hole for sharpened 4" dia. x 6' brace, price in place	"	1234	1.00	1234	
Barbed wire	Cwt.	319.03	4.20	1340	
48" Woven wire	"	93.52	4.33	405	
Labor stringing barbed wire over 12'	Wi.Mi.	91.731	6.80	624	
" " woven " " 12'	Fc.Mi.	2.107	50.00	105	
Stays, 4'	Each	13630	0.04	545	
Staples	Cwt.	5.01	4.20	21	
Nails	"	4.71	4.00	19	
Rustic rail, 4" dia.	L.Ft.	21139	0.08	1691	

	Units	No. of Units	Unit Price $	Total $	$
Acct. 13 - Right of Way Fences - (Cont'd)					
Bracing in place	M.B.M.	5.344	41.80	223	
Gates, Eureka	Each	6	10.40	62	
Cattle guards, wood surface	"	28	24.80	694	9464
Acct. 14 - Snow and Sand Fences					
Post, cedar, 10" dia. x 24', in place	Each	154	8.75	1348	
Plank in place	M.B.M.	4.704	41.80	197	
Barbed wire guys	Cwt.	2.05	4.20	9	
Ties, 7 x 8 - 8	Each	77	.90	69	
Iron	Lb.	16	.05	1	
Labor, guy wires and deadman	Each	77	6.75	520	2144
Acct. 15 - Crossings and Signs					
Common	Cu.Yd.	4699	.29	1363	
Loose rock	"	60	.55	33	
Planking	M.B.M.	12.289	35.00	430	
Iron	Lb.	427	.07	30	
Riprap, hand placed	Cu.Yd.	1	2.32	2	
Signs -					
Warning	Each	24	6.00	144	
Mile Boards	"	47	2.23	106	
Section	"	1	1.88	2	
1 Mile to Water	"	5	4.13	21	
1 Mile to Station	"	5	4.13	21	
Whistle Post	"	41	3.00	123	
Flanger	"	14	1.88	26	
Yard Limit	"	1	4.50	5	
Dump Cinders	"	2	4.13	8	
Station	"	5	6.00	30	
Cobble paving	Cu.Yd.	26.50	5.25	139	2483
Acct. 16 - Station and Office Buildings					
Adco					
Loading platform, frame, 16'x96'	Each	1		779	
Gloyd					
Shelter shed, 8'x34' carbody	"	1		459	
" " furniture	"	1		64	
" " platform	"	1		33	
Nagel					
Depot, 8'x34' carbody	"	1		449	
Wheeler					
Depot, 1 story, 30'x68', frame	"	1		4846	
" furniture	"	1		367	
" Platform, 1376 sq.ft., frame	"	1		370	
" grading, cinders, 20 cu.yd.cinders	"	1		19	
" outside piping	"	1		581	
Cellar	"	1		60	
Outhouse	"	1		77	
Stockyard, 48'x141'	"	1		1714	
Portable ice house, 10.3x25.3'	"	1		311	
Loading platform, 12'x40' and 6'x16'	"	1		154	
Station Signs					
At Adco, Gloyd, Nagel, Bassett Jct., and Ritell	"	5		64	10347

	Units	No. of Units	Unit Price $	Total $	$
Acct. 17 - Roadway Buildings					
Wheeler					
Sec. Ho. 1⅛ sty 16'x24' and 1 sty 6'x11'	Each	1		1843	
Bunk house, 1 story 16'x24', frame	"	1		759	
Water in section house & bunk house	"	1		326	
Tool house, 10 x 12, frame	"	1		174	
Gas cellar	"	1		113	
Outhouse	"	1		62	
Gas cellar	"	1		21	
Root "	"	1		25	
Outhouse	"	1		74	
Gas. storage tank, 100 gal.	"	1		31	3428
Acct. 18 - Water Stations					
Wheeler					
Pump house, 12'x16' and 11'x24.4'	Each	1		1582	
Equipment	"	1		1637	
Gas. tank & cellar, one 500 & one 200 G.	"	1		201	
Pipe lines	"	1		65	
Water tank, 24' dia., 16' high on concrete foundation	"	1		3344	
Well,10" dia. x 386' deep				5956	12785
Acct. 26 - Telegraph & Telephone Lines					14563
Acct. 37 - Roadway Machines					434
Acct. 38 - Roadway Small Tools	Sets	2	200.00		400
Acct. 71 to 75 & 77 - General Expenditures					25882
Acct. 76 - Interest During Construction					148867
GRAND TOTAL - - - -					$1959745

Office of Valuation Engineer
St. Paul, Minn., Apr. 20, 1934.



NORTHERN PACIFIC RAILWAY COMPANY
SKETCH
Sta. 1490 near Crossing of CMStP&P RR's
Moses Lake Branch
To
Odair, Washington
To Accompany
Estimate dated April 20, 1934.

Office of Valuation Engineer
Saint Paul, Minnesota.

No Scale

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16 at Odair, Washington, the Adrian Branch from H.B. Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from H.B. Station 1+57 at Adco to Station 1490+00 near crossing of C. M. St.P. & P. R. R. Co's Moses Lakeline.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	48.130	Miles
Other Tracks	2.269	Miles
Total	50.399	Miles

	Units	No. of Units	Unit Price	Total	
			$	$	$
Acct. 1 - Engineering					74305
Acct. 2 - Land for Transportation Purposes					59505
Acct. 3 - Grading					
Clearing sage brush	Acre	51.07	12.75	651	
Common	Cu.Yd.	449818	.29	130447	
Hard pan	"	193188	.50	96594	
Loose rock	"	308912	.55	169902	
Solid rock	"	332124	1.12	371979	
Team haul over 500'	CY-100'	2357608	.015	42864	
Cinders, av. haul 95 miles	Cu.Yd.	100	0.89	89	
Gravel blanket, av. haul 8.6 miles	"	41816	.45	18817	
Riprap, loose	"	142	1.57	223	
" hand placed	"	206	2.32	478	
Cribs, timber	M.B.M.	2.302	31.00	71	
" iron	Lb.	10	.07	1	852116
Acct. 6 - Bridges, Trestles & Culverts					
Combination Bridge 62 ft. long					
Substructure - 2 frame abutments, east abutment on mud sills and west abutment on concrete footing.					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
Excavation, solid rock	Cu.Yd.	75	1.15	86	
Superstructure - One 62 ft. deck Howe truss span					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	.07	1848	
Bridge sign	Each	1	1.25	1	
15 Pile & Frame Trestles, 4333 ft. long					
Piling, cedar	Lin.ft.	1428	.92	1314	
" fir	"	3460	.92	3183	
Stringers	M.B.M.	314.950	54.50	17165	
Other timber	"	1255.971	51.00	64055	
Iron	Lb.	98596	.065	6409	
Galv. iron	"	18684	.07	1308	
Excavation, common	Cu.Yd.	854	.64	547	
" , loose rock	"	1296	.75	972	
" , solid rock	"	61	1.15	70	

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5563+50 and 5592+16 at Odair, Washington, the Adrian Branch from H.B. Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from H.B. Station 1+57 at Adco to Station 1490+00 near crossing of C. M. St.P. & P. R. R. Co's Moses Lakeline.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	48.130	Miles
Other Tracks	2.269	Miles
Total	50.399	Miles

	Units	No. of Units	Unit Price	Total	
			$	$	$
Acct. 1 - Engineering					74305
Acct. 2 - Land for Transportation Purposes					59505
Acct. 3 - Grading					
Clearing sage brush	Acre	51.07	12.75	651	
Common	Cu.Yd.	449818	.29	130447	
Hard pan	"	193188	.50	96594	
Loose rock	"	308912	.55	169902	
Solid rock	"	332124	1.12	371979	
Team haul over 500'	CY-100'	2857608	.015	42864	
Cinders, av. haul 95 miles	Cu.Yd.	100	0.89	89	
Gravel blanket, av. haul 8.6 miles	"	41816	.45	18817	
Riprap, loose	"	142	1.57	223	
" hand placed	"	206	2.32	478	
Cribs, timber	M.B.M.	2.302	31.00	71	
" iron	Lb.	10	.07	1	852116
Acct. 6 - Bridges, Trestles & Culverts					
Combination Bridge 62 ft. long					
Substructure - 2 frame abutments, east abutment on mud sills and west abutment on concrete footing.					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
Excavation, solid rock	Cu.Yd.	75	1.15	86	
Superstructure - One 62 ft. deck Howe truss span					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	.07	1848	
Bridge sign	Each	1	1.25	1	
15 Pile & Frame Trestles, 4333 ft. long					
Piling, cedar	Lin.ft.	1428	.92	1314	
" fir	"	3460	.92	3183	
Stringers	M.B.M.	314.950	54.50	17165	
Other timber	"	1255.971	51.00	64055	
Iron	Lb.	98596	.065	6409	
Galv. iron	"	18694	.07	1308	
Excavation, common	Cu.Yd.	854	.64	547	
" , loose rock	"	1296	.75	972	
" , solid rock	"	61	1.15	70	

	Units	No. of Units	Unit Price $	Total $	$
Acct. 6 - Bridges, Trestles & Culverts (Cont'd)					
17 Pile & Frame Trestles, 4333' long (Cont'd)					
Riprap, hand placed	Cu.Yd.	174	2.32	404	
" loose	"	169	1.57	265	
Water barrels	Each	39	1.25	49	
Bridge signs	"	15	1.25	19	
Pipe & Timber Culverts -					
Culvert, timber	M.B.M.	4.724	53.00	250	
24" Cast iron pipe, 616 L.Ft.	N. Tons	52.668	73.30	3861	
36" " " " 522 "	"	78.832	73.30	5778	
24" Vitr. tile "	L. Ft.	1206	4.00	4824	
24" Reinf. Conc."	"	235	6.00	1410	
36" " " "	"	87	10.00	870	
Riprap, hand placed	Cu.Yd.	38	2.32	88	
" loose	"	10	1.57	16	
Rubble in mortar	"	34	10.00	340	
Blind drain, loose rock	"	21	2.50	53	
Excavation, " "	"	6	.75	5	
Cobble paving	"	1	5.25	5	120575
Acct. 8 - Ties					
Cross ties, treated	Each	109472	1.58	172966	
" " , untreated	"	17368	.90	15631	
Switch " , "	M.B.M.	45.369	26.70	1158	
Bridge " , "	"	212.296	35.20	7473	197228
Acct. 9 - Rail					
85# Rail, relay, 1901.0 L.F.	Gr.Tons	24.045	40.50	974	
72# " " ,30624l.6 "	"	3281.160	40.50	132887	
66# " " ,222325.4 "	"	2185.553	40.50	88434	
56# " " , 876.0 "	"	7.300	40.50	296	222591
Acct. 10 - Other Track Material					
85# Angle bars, relay, 64 pr.	Cwt.	30.72	2.50	77	
72# " " " 10698 "	"	3851.28	2.50	9628	
66# " " " 7771 "	"	2698.09	2.50	6745	
56# " " " 28 "	"	8.68	2.50	22	
85/66# Offset bars, " 2 "	Each	2	4.00	8	
Track bolts, 13/16"x4½", 255 pc.	Cwt.	3.32	4.74	16	
" " 3/4"x3-3/8", 73288 "	"	564.32	4.74	2674	
" spikes, 9/16"x6", 561438 "	"	3537.00	3.83	13547	
" " 9/16"x5½", 27948 "	"	155.11	3.83	594	
72# Rail braces, cast, 30 "	"	1.80	9.70	17	
66# " " " 15 "	"	1.01	9.70	10	
66# " " P.& M., 2113 "	"	76.07	8.30	631	
56# " " " 67 "	"	2.45	8.30	20	
85# Tie plates, 7"x9" Int.,158 "	"	13.75	3.10	43	
85# " " 6"x8½" " 886 "	"	58.48	3.10	181	
85# " " 6"x8½"Jt. 118 "	"	7.63	3.10	24	
72# " " 6"x8" Int.90258"	"	5740.04	3.10	17794	
72# " " 6"x8"Coldie 509"	"	32.98	3.66	121	
66# " " 6"x8" Int.,67737 pc.	"	4314.85	3.10	13376	
66# " " 6"x8" Jt. 10743 "	"	665.92	3.10	2058	
66# " " 6"x8" Sellar,2264 "	"	156.90	3.10	486	

	Units	No. of Unit	Unit Price $	Total $	$
Acct. 10 - Other Track Material - (Cont'd)					
85# Split switch, 15' Reinf.	Each	1	73.40	73	
72# " " 15' "	"	8	65.64	525	
66# " " 15' "	"	7	62.10	435	
85# Rigid frog, #9, 11½'	"	1	72.90	73	
72# " " #9, 11½'	"	7	63.60	445	
66# " " #9, 11½'	"	5	60.60	303	
72# Spr. rail frog, #9, 15'	"	1	106.50	107	
66# " " " #9, 15'	"	2	106.50	213	
85# Guard rails, spiked, 15', 1 set	Cwt.	8.820	3.54	31	
72# " " " 15', 8 "	"	59.04	3.54	209	
66# " " " 15', 7 "	"	47.53	3.54	168	
66# Spl. sw. point derail	Each	1	15.60	16	
Hobart derail, All free, size L. 7	"	1	16.85	17	
Switch stands, High Banner	"	16	27.75	444	
" " Low "	"	1	22.70	23	
Switch lamps	"	1	10.00	10	
Switch locks	"	17	0.88	15	
Rail rack	"	48	1.50	72	
Cobble paving	Sq.Yd.	5	0.75	4	
Bumping post, timber	M.B.M.	0.250	47.00	12	
" " , earth	Cu.Yd.	24	0.64	15	71282
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Gravel, av.haul 9 miles	Cu.Yd.	34369	0.57	19590	
" " " 64 "	"	5804	0.98	5688	
Cinders, " " 10 "	"	1659	0.45	747	26025
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Other Tracks					
Lay & initial surf., 90/61# rail	"	2.186	1505.00	3296	
" " " " , 60/0# "	"	.083	1460.00	121	
All Tracks					
Placing ballast, gravel	Cu.Yd.	40173	0.45	18078	
" " , cinders	"	1659	0.37	614	
" turnouts	Each	16	72.00	1152	
" spl. sw. derail with stand	"	1	20.00	20	
" derail, block type	"	1	5.25	5	
" tie plates	"	172673	0.024	4144	
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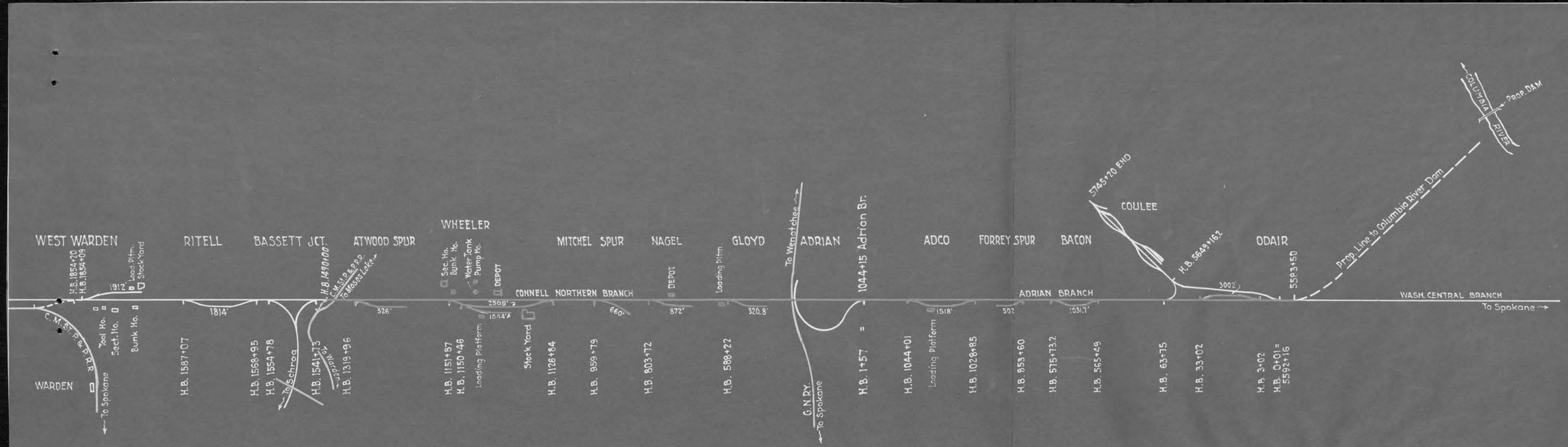
Post, split cedar, 6"x7'	Each	1695	0.26	441	
" " " , 5"x6'	"	3800	0.26	988	
Labor setting posts	"	5495	0.195	1072	
Post, rd. cedar, 6"x8', with auger hole for sharpened 4" dia. x 6' brace, price in place	"	1234	1.00	1234	
Barbed wire	Cwt.	319.05	4.20	1340	
48" Woven wire	"	93.52	4.33	405	
Labor stringing barbed wire over 12'	Wi.Mi.	91.731	6.80	624	
" " woven " " 12'	Fe.Mi.	2.107	50.00	105	
Stays, 4'	Each	13630	0.04	545	
Staples	Cwt.	5.01	4.20	21	
Nails	"	4.71	4.00	19	
Rustic rail, 4" dia.	L.Ft.	21139	0.08	1691	

	Units	No. of Units	Unit Price $	Total $	$
Acct. 13 - Right of Way Fences - (Cont'd)					
Bracing in place	M.B.M.	5.344	41.80	223	
Gates, Eureka	Each	6	10.40	62	
Cattle guards, wood surface	"	28	24.80	694	9464
Acct. 14 - Snow and Sand Fences					
Post, cedar, 10" dia. x 24', in place	Each	154	8.75	1348	
Plank in place	M.B.M.	4.704	41.80	197	
Barbed wire guys	Cwt.	2.05	4.30	9	
Ties, 7 x 8 - 8	Each	77	.90	69	
Iron	lb.	16	.05	1	
Labor, guy wires and deadman	Each	77	6.75	520	2144
Acct. 15 - Crossings and Signs					
Common	Cu.Yd.	4699	.29	1363	
Loose rock	"	60	.55	33	
Planking	M.B.M.	12.289	35.00	430	
Iron	lb.	427	.07	30	
Riprap, hand placed	Cu.Yd.	1	2.32	2	
Signs -					
Warning	Each	24	6.00	144	
Mile Boards	"	47	2.25	106	
Section	"	1	1.88	2	
1 Mile to Water	"	5	4.13	21	
1 Mile to Station	"	5	4.13	21	
Whistle Post	"	41	3.00	123	
Flanger	"	14	1.86	26	
Yard Limit	"	1	4.50	5	
Dump Cinders	"	2	4.13	8	
Station	"	5	6.00	30	
Cobble paving	Cu.Yd.	26.50	5.25	139	2485
Acct. 16 - Station and Office Buildings					
Adco					
Loading platform, frame, 16'x96'	Each	1		779	
Cloyd					
Shelter shed, 8'x34' carbody	"	1		459	
" " furniture	"	1		64	
" " platform	"	1		33	
Nagel					
Depot, 8'x34' carbody	"	1		449	
Wheeler					
Depot, 1 story, 30'x68', frame	"	1		4846	
" furniture	"	1		367	
" Platform, 1376 sq.ft., frame	"	1		370	
" grading, cinders, 20 cu.yd.cinders	"	1		19	
" outside piping	"	1		581	
Cellar	"	1		60	
Outhouse	"	1		77	
Stockyard, 48'x141'	"	1		1714	
Portable ice house, 10.3x25.3'	"	1		311	
Loading platform, 12'x40' and 6'x16'	"	1		154	
Station Signs					
At Adco, Cloyd, Nagel, Bassett Jct., and Ritell	"	5		64	10347

	Units	No. of Units	Unit Price $	Total $	$
Acct. 17 - Roadway Buildings					
Wheeler					
Sec. No. 1½ sty 16'x24' and 1 sty 6'x11'	Each	1		1843	
Bunk house, 1 story 16'x24', frame	"	1		750	
Water in section house & bunk house	"	1		326	
Tool house, 10 x 12, frame	"	1		174	
Gas cellar	"	1		113	
Outhouse	"	1		62	
Gas cellar	"	1		21	
Root "	"	1		25	
Outhouse	"	1		74	
Gas. storage tank, 100 gal.	"	1		31	5423
Acct. 18 - Water Stations					
Wheeler					
Pump house, 12'x16' and 11'x24.4'	Each	1		1582	
Equipment	"	1		1657	
Gas. tank & cellar, one 500 & one 200 G.	"	1		201	
Pipe lines	"	1		65	
Water tank, 24' dia., 16' high on concrete foundation	"	1		3344	
Well,10" dia. x 386' deep				5956	12785
Acct. 26 - Telegraph & Telephone Lines					14563
Acct. 37 - Roadway Machines					434
Acct. 38 - Roadway Small Tools	Sets	2	200.00		400
Acct. 71 to 75 & 77 - General Expenditures					25882
Acct. 76 - Interest During Construction					148867
GRAND TOTAL - - - -					$1959745

Office of Valuation Engineer
St. Paul, Minn., Apr. 20, 1934.



NORTHERN PACIFIC RAILWAY COMPANY
SKETCH
Sta. 1490 near Crossing of CMStP&P RR's
Moses Lake Branch
To
Odair, Washington
To Accompany
Estimate dated April 20, 1934.

Office of Valuation Engineer
Saint Paul, Minnesota.

- No Scale -

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

69 SF X

COULEE APL 20 1934 JTDERRIG

STPAUL

TRANSIT LINE COMPLETED TO MP 8 PLUS 3060 LEVELS COMPLETED TO MP 8 PLUS 1260

TOPOG COMPLETED TO MP 5 PLUS 1000

P R GIBSON

145PM21

8731

April 20, 1934

Mr. F. A. Banks,
Project Engineer,
Grand Coulee Dam,
Almira, Washington

Dear Sir:

In accordance with Mr. Derrig's message of the nineteenth to me I am forwarding herewith tracing of map, scale two inches equal one mile, being topography map of the Grand Coulee upon which is indicated in pencil the various preliminary and projected lines of railroad proposed from Odair to the head of the Dry Coulee. The topography on this was traced from a Government plat.

This map is supplementary to the data turned over to Mr. Walters by Mr. Stevens at Denver.

Yours truly,

BERNARD BLUM

cc Mr. Derrig

8731

April 20, 1934

Mr. F. A. Banks,
Project Engineer,
Grand Coulee Dam,
Almira, Washington

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This map is supplementary to the data turned over to Mr. Walters by Mr. Stevens at Denver.

Yours truly,

BB:h
cc Mr. Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

STPAUL 4/19/34w J T Derrig, Coulee Wash.

Why is it necessary for Railway Company to work out details of highway change would seem to be sufficient to make location most economical for railway and highway leaving details of construction for Banks to work out stop Tied up here account budget no definite date for leaving B-193

Bernard Blum

B

N. P. 1386 12-24

74 SF X

TELEGRAM—BE BRIEF

TIME FILED

M.

COULEE APL 19 1934

B BLUM

STPAUL

MEETING BANKS AT ALMIRA TODAY WILL ALSO HAVE TO SEE HIGHWAY ENGINEER AT WENATCHEE AND IF WE CANNOT GET ROAD CHANGES WE ~~XXXX~~ WANT WILL GO TO OLYMPIA MONDAY AND SEE HIGHWAY COMMISSIONER DO YOU EXPECT TO BE WEST SOON

JTDERRIG

135P

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

[redacted]FOG

ALMIRA APL 19-34

BERNARD BLUM

STPAUL

FIND THAT BANKS RECEIVED PRELIMINARY MAP SCALE 2 INCHES PER MILE WE HAVE COMPLETE MAP THIS SCALE WITH TOPOG AND PROJECTION ON MAKE VANDYKE AND SEND TRACING TO BANKS AT ALMIRA ADVISE ME COULEE WHEN FORWARDED

DERRIG

622PM

8231

April 19, 1934w

Mr. M. H. Dick, Associate Editor
Railway Age, 105 W. Adams St.,
Chicago, Illinois

Dear Sir:

Your letter of the eighteenth, in regard to status of proposed line of railroad to the Grand Coulee Damsite from a point on the Northern Pacific west of Coulee City.

The information contained in your letter is correct. I now have a party on the ground making definite location for this railroad, which is to start from the Washington Central Branch of the Northern Pacific at Odair, Washington. The line is to be 28.5 miles long to the head of the Dry Coulee of the Columbia River. From that point track will be constructed down to the Columbia River, which is about eight hundred feet below the floor of the Dry Coulee.

It is my understanding that the Government will include in their bids for dam work, grading and laying of track for the railroad.

I would prefer that information on this come from the Reclamation Service. You can get the details from Mr. Walters, Chief Engineer of the Reclamation Service, at Denver, Colo., or Mr. F. A. Banks, Project Engineer, Grand Coulee Dam, Almira, Washington.

Yours truly,

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

75 SF X

COULEE APL 19 1934

B BLUM

STPAUL

HAVE INQUIRY FROM MURPHY ABOUT MEETING CLARK WHO EXPECTS TO BE AT DAM FRIDAY HAVE ARRANGED TO MEET HIM AT ALMIRA IF HE MAKES TRIP

J T DERRIG

136P

B


CHIEF OF ENGINEERS
1969
NDR
ST. PAUL, MINN.

8731

Saint Paul, April 18, 1934.

Mr. P. R. Gibson:

Your request of the 17th for white prints of general mass projected line Grand Coulee Line:

I am enclosing preliminary mass diagram on onion skin paper, which I presume is the diagram which you desire. You will note the line is shown in pencil and we were unable to run off blue prints.

RAK-W

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

52 SF X

COULEE APL 18 1934 JTDERRIG

STPAUL

TRANSIT LINE COMPLETED TO MP SIX PLUS 1900 LEVELS COMPLETED TO MP SIX PLUS 300 TOPOG COMPLETED TO MP ~~XX~~ 1 PLUS 4000

PRGIBSON

1201PM 19

PUBLISHER OF

RAILWAY AGE
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NEW YORK 30 CHURCH STREET | CHICAGO 105 WEST ADAMS STREET | CLEVELAND TERMINAL TOWER | WASHINGTON 625 TRANSPORTATION BLDG. | SAN FRANCISCO 215 MARKET STREET

ADDRESS REPLY TO
105 W. ADAMS STREET
CHICAGO, ILL.

April 18, 1934

Mr. Bernard Blum, Chief Engineer,
Northern Pacific Ry. Co.,
St. Paul, Minn.

Dear Sir:

I am writing you in an attempt to confirm information that the Federal Reclamation Bureau has decided to build a railroad line to the Grand Coulee dam site from a point on the Northern Pacific, three miles west of Coulee City. Are you in a position to confirm this information?

In addition, it is my understanding that the railroad is to furnish free second-hand rails for the line and make available to the government its engineering studies, and its projected location. Our information is that bids for the construction of the line will be asked within the next few weeks.

If you cannot furnish the information requested I will appreciate it if you will advise me where it can be obtained. If possible, we would like also to obtain the name of the successful contractor when this becomes available.

I assure you that your co-operation in this matter will be appreciated.

Yours very truly,

M. H. Dick

Associate Editor.

MHD:OA.

MEMBER: AUDIT BUREAU OF CIRCULATIONS AND ASSOCIATED BUSINESS PAPERS, INC.

N. P. 1386 12-24

54 SF X

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

COULEE APL 18 1934

B BLUMM

STPAUL

SIX MILES OF LOCATED LINE RUN OUT GROUND LINE IS SLIGHTLY BETTER THAN PROJECTION WILL SEE BANKS TODAY

JTDERRIG

1234P

B


GREF
ORFEBVRE
MOR. PAVL.
ST. PAVL

N. P. 1386 12-24

36 SF X

TELEGRAM—BE BRIEF

TIME FILED

M.

COULEE APL 17 1934 JTDERRIG

STPAUL

SEND FOUR WHITE PRINTS OF GENERAL MASS PROJECTED LINE

PRGIBSON

1203P

MFC

Saint Paul, April 16, 1934.

Mr. P. R. Gibson,
Assistant Engineer,
Coulee, Washington.

Dear Sir:-

At the request of Mr. J. T. Derrig, I prepared an estimate for a highway undercrossing at M. P. 6-3/4 on the proposed railroad to Coulee Dam. From the location map it appears that the crossing angle will be a skew and for the purpose of making an estimate, the angle has been assumed at 45 degrees.

The estimate covers a timber bridge 130 feet long, roadway 28 feet clear at right angles to roadway, 14 feet vertical clearance. The span over the roadway to be steel I Beams and the beams to be placed after track has reached the bridge.

Estimated cost $6,600.

M. S. Clements

Bridge Engineer.

Cy-Mr.J.T.Derrig ✓

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

37 SF X

COULEE APL 16 1934 JTDERRIG

STPAUL

L LINE STAKED TO MP ~~34~~ 3 PLUS 3900 LEVELS TO MP 2 PLUS 1200 TOPOG PARTY STARTS TUESDAY

PRGIBSON

1204P 17

Saint Paul, Minn.,

April 16, 1934.

MR. BERNARD BLUM:

Your letter of even date about valuations of the Connell Northern.

I note you give the valuation West Warden to Odair. Probably the Milwaukee would connect with their Soap Lake Branch, which would make a reduction of about seven miles in the mileage they would use of the Connell Northern.

Please have alternate figures set up on that basis, also advise book value of Connell Northern.

NORTHERN PACIFIC RAILWAY COMPANY

Investment in Connell Northern Branch from Adcoo Wash., to Connell, Wash., as of February 28, 1934.

Acct. No.	Primary Account	Construction Charges	Additions and Betterments	Total investment
1	Engineering	$ 60 949.86	$ 1 301.29	$ 59 648.57
2	Land for transportation purposes	54 871.04	327.82	55 198.86
3	Grading	452 921.39	9 505.42	462 426.81
6	Bridges, treatles & culverts	104 191.92	14 887.59	119 079.51
8	Ties	112 707.79	1 538.11	111 169.68
9	Rails	296 584.96	4 421.75	292 163.21
10	Other track material	36 453.18	29 707.50	66 160.68
11	Ballast	-	479.63	479.63
12	Tracklaying and surfacing	71 884.92	1 212.53	70 672.39
13	Right of way fences	1 323.46	11 553.58	12 877.04
14	Snow & sand fences & snowsheds	-	455.01	455.01
15	Crossings and signs	5 113.45	13.53	5 099.92
16	Station and office buildings	5 460.09	1 557.29	7 017.38
17	Roadway buildings	-	1 205.04	1 205.04
18	Water stations	17 819.09	2 472.11	20 291.20
26	Telegraph & telephone lines	8 677.50	98.06	8 775.56
35	Miscellaneous structures	5 453.29	1 888.45	7 341.74
37	Roadway machines	69.40	-	69.40
38	Roadway small tools	746.80	-	746.80
40	Revenue & operating expenses during construction	964.74	-	964.74
74	Stationery and printing	219.46	-	219.46
75	Taxes	467.14	-	467.14
76	Interest during construction	-	1 421.15	1 421.15
77	Other expenditures - General	130.86	-	130.86
- -	Transportation of men & material	14 947.70	-	14 947.70
- -	Rents & repairs of equipment	18 778.04	2 214.11	20 992.15
	Total	$1 268 806.60	$65 483.99	$1 334 290.59

8731

4154

Saint Paul, April 16, 1934

Mr. H. E. Stevens:

Your verbal request for valuation of the Connell Northern Line in connection with possible use of same by other railroads:

Herewith our office backed-up carbon copies of the following estimates:

Connell to Odair, main track 80.888 miles, other track 3.939 miles

Cost based on average five year reproduction Prices		$3,182,903
Cost based on ICC inventory, using 1914 prices	$2,235,209	
A&B to October 1st, 1933	55,484	$2,290,693

Cost per mile of main track

Reproduction	$ 39350
ICC plus A&B	28320

The above is the trackage that would be used by the OW.

- - - - -

West Warden to Odair

Main track	55.027 miles
Other tracks	2.975 "
	58.002 "

Cost based on average five year reproduction Prices	$2,251,172
Cost based on ICC inventory, using 1914 prices, plus A&B to October 1, 1933	1,650,004

Cost per mile of main track

Reproduction	$ 40,910
ICC plus A&B	29,985

The above is trackage that would be used by the Milwaukee.

Mr. Stevens #2

Adrian to Odair

Main track	20.483 miles
Other tracks	1.147 "
	21.630 "

Cost based on average five year reproduction Prices $1,071,154

Cost based on ICC inventory, using 1914 prices, plus A&B to October 1, 1933 809,323

Cost per mile of main track

Reproduction	$ 52,294
ICC plus A&B	39,512

The above is the trackage that would be used by the Great Northern.

I assume if any of the other roads buy in, we should present the reproduction estimate for first consideration.

BB h

Saint Paul, April 16, 1934

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EB h

8731

April 16, 1934

George F. Cram Company,
52 East Georgia Street,
Indianapolis, Indiana

Gentlemen:

Your letter of the seventh addressed to our Mr. A. F. Stotler at Seattle, transmitting portion of map of Washington on which you desire we show proposed new railroad between Odair and the site of the proposed Grand Coulee dam:

I am returning your map herewith, on which we have indicated in broken red line, location for the proposed line. For your information I may say that tentative arrangements have been made with the Government for the Northern Pacific to stake out this line and we have a party now so engaged. The Government is to build the railroad in connection with contract for the dam itself.

I have also shown three minor corrections as to station on the Northern Pacific line indicated on the map.

Yours truly,

BB:h

cc Mr. Stotler

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

SF X

COULEE APL 16 1934

49 B B LUM
50 JTDERRIG

STPAUL

A LINE STAKED TO MP 1 PLUS 2700 TRACK CHANGES AT ODAIR STAKED FIVE MEN ARRIVED NOON FRIDAY ONE ARRIVED SATURDAY NOON KETCHUM NOT HERE LINE AND LEVELS WILL BE IN FULL PROGRESS MONDAY EVERYTHING OK

P R GIBSON

1225PM

B.

8T31

Coulee, April 15th. 1934.

Re: Proposed Grand Coulee Line
Weekly Letter Report.

Mr. Bernard Blum,
Chief Engineer,
St. Paul, Minnesota.

The advance portion of the locating party, consisting of my self and transitman arrived in Coulee, Thursday April 12th. The draughtsman, topographer and all the rest of party except levelman and one chainman reported April 13th, with leveler reporting at noon April 14th. This completes the party except for chainman whom I expect to report Monday April 16th.

We have established our offices in the station building and living quarters have all been found and we are comfortably settled.

On Friday April 13th, I went to Almira and interviewed, Mr. Banks Goverment Engineer also, talked to Mr. Cole his Field Engineer.

On Friday April 13th we had enough men to orggnize a transit party and we started running line and intersected the first main tangent. To date we have run on "L" line from M.P. 0 to M. P. 1plus 2700, including the first curve. Track changes at Odair also has been staked.

Line and levels will be in full progress Monday April 16th.

Weather has been fair and warm.

Yours truly,
Paul R Gibson
Assistant Engineer.

CC -: Mr. J. T. Derrig.

B.

8731

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Yours truly,
Paul R Gibson
Assistant Engineer.

CC -: Mr. J. T. Derrig.

8731

Saint Paul, April 14, 1934.

Mr. M. P. Clements:

I have handed you profile of projection of the Grand Coulee line.

It is possible we will want to consider a grade separation at MP 62. The ground line and location of the project is approximately shown on the profile and angle of the crossing is more clearly shown on the map projection.

Will you please let me have an alternate estimate predicated on the construction of a pile bridge with 30 ft. clear opening. Also an alternate estimate using I-beam construction over the roadway.

I will thank you to kindly send copy of this estimate to Mr. P. R. Gibson at Coulee, Wash.

Asst. to Chief Engineer.

JTD-W

cc - Mr. P.R. Gibson

8231

Saint Paul, April 14, 1934.

Mr. Bernard Blum:

Your memorandum on attached letter in regard to proposed pile bridge and grade separation near MP 64 on the Grand Coulee line.

I am inclined to believe that the grade separation will probably be as cheap as a grade crossing. This feature of course is dependent on just how the County will relocate the highway. If they hold to the present location there would be a considerable amount of grading under the roadway approaches, and if the road is changed to the grade point the expense will probably be greater than the cost of the bridge. I will go into this matter further when our location reached this point and also discuss the matter with Mr. Banks. I presume we should be governed by his wishes in the matter.

Asst. to Chief Engineer.

JTD-w

8731

Saint Paul, April 14, 1934.

Mr. Bernard Blum:

Your memorandum on attached letter in regard to proposed pile bridge and grade separation near MP 6¾ on the Grand Coulee line.

I am inclined to believe that the grade separation will probably be as cheap as a grade crossing. This feature of course is dependent on just how the County will relocate the highway. If they hold to the present location there would be a considerable amount of grading under the roadway approaches, and if the road is changed to the grade point the expense will probably be greater than the cost of the bridge. I will go into this matter further when our location reached this point and also discuss the matter with Mr. Banks. I presume we should be governed by his wishes in the matter.

Asst. to Chief Engineer.

JTD-w

Mr. Blum

Line shown as suggested.
I have also corrected the Wash. Central Branch, removing three stations.

P.H. 4/14

Mr. Blum:

To you for handling.

AFS-b
4-11-34

Mr Blum

Note original tracing sent to Bank's Co[illegible] Atty Ltr dtd attached I have Van Duzer in drafting Room

J. T. D.

For such a temporary R. R. [illegible] and the amount of slow traffic do not think a grade separation is justified.

4/13

Mr Blew

I will note Comparative Estimates. do not think the separation wise as increasing the grade by £500 or a Chimney Rd Board

April 12, 1934.

Mr. F. A. Banks,
Project Engineer,
Grand Coulee Dam,
Almira, Wash.

Dear Sir:

I am advised that you have received profile and map of our preliminary survey, together with print of map showing the projected location. I am at this time forwarding you print of projected profile, together with original tracing of this projected profile.

The profile as you will note balances closely except for cut at MP 20 and cut between MP 27 and 28 where the excavation quantities are in excess. These cuts can be balanced in the final location. The cut at MP 20 it will be necessary to move the alignment slightly and at MP 27 to 28 it will be necessary to increase the curvature. For your information I am attaching hereto copy of my letter of this date to Mr. P.R. Gibson with reference to these two points on the projected line.

I expect to be in Coulee the first part of the week and will arrange to call on you at that time and will be glad to be governed by any suggestions you may have to make in the way of locating the line. I presume you will agree with me that it will be advisable to hold to a .04 grade near the end of the line in order to facilitate switching and that it will be better to introduce a little curvature rather than increase the grade at this location.

I would call your attention to the fact that the projected line between MP 6 and 7 is predicated on constructing a pile bridge over the roadway giving a grade separation at that point. It will be possible to slightly reduce the grade quantities at this location if we put in a grade crossing. I do not expect there will be any objection to a grade crossing if the highway is surfaced, but you will recall during the past Fall there was a large amount of traffic on this highway and due to dust conditions a grade separation might be advisable in order to eliminate the hazard.

However, if the road is oiled I see no objections to the grade crossing, in which case the grade line could be lowered and the grading quantities reduced proportionately.

I will be glad to discuss this feature with you when I arrive at Coulee, and be governed by your wishes in making the final location.

Yours truly,

Asst. to Chief Engineer.

JTD-w

Saint Paul, Minn. April 12, 1934.

Mr. P. E. Gibson:

I am attaching two prints of projection profile of the Coulee line. This profile will balance very closely except for the cut at MP 20 to 20½ and again between MP 26¾ to MP 28.

The cut at MP 20 carries a steep slope and it is probable when this projected alignment is run out on the ground we will have a better profile. If not a slight adjustment in the alignment will obtain balanced quantities. The projection is some distance from the preliminary, and I do not think anything can be gained by reprojecting the line at this location and suggest that the location be run out as projected revising the alignment if necessary to balance the quantities.

In regard to cut at MP 27 to 28, I would like to hold the location to a .04 grade if possible. It appears from the map that this grade line can be balanced by slightly increasing the curvature. If we find that it is advisable to raise the grade through the cut we can do so if necessary but I wish to hold the yard tracks and the switching lead to a .04 grade, and would rather take the curvature than increase the grade. I will look this location over with you on the ground when I arrive at Coulee the first of the coming week.

JTD-w

Asst. to Chief Engineer.

8731

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Grand Coulee Dam,
Almira, Wash.

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JTD-v

8731

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JTD-W

Asst. to Chief Engr.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

S 23/

St Paul, April 12, 1934.

A F Stotler

Seattle, Wash.

B-92 Will arrange to carry Stanton on construction payroll as levelman at one ninety month. Assume you will make temporary replacement on your maintenance party. Advise Mr. Gibson Coulee date you will make transfer. B-27

J T Derrig

cc J H Pachon

J R Gibson

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8 CF GI

SEATTLE APL 12 1934 J T DERRIG

STPAUL.

D-23 STANTON WILL LEAVE SEATTLE TONIGHT ON NO 4X REPORTING TO GIBSON AT COULEE.ASSUME HE WILL BE CARRIED ON CONSTRUCTION ROLL AND WILL DROP FROM OUR ROLL AFTER TO-DAY ADVISE B-92

A F STOTLER.

1041AM

4X

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8-7-31 M.

St Paul, April 11, 1934 Agent - Yakima, Wash.

Advise D. F. Ketchum chainman job at Coulee will not exceed thirty days. I will therefore arrange to fill this job with local man. D-25

J T Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

13 YA X

YAKIMA APL 11 1934 JTDERRIG

STPAUL

PLEASE ADVISE HOW LONG JOB WILL LAST AT PRESENT AM WORKING BUT WILL ACCEPT AS CHAINMAN IF WORK LASTS EIGHT MONTHS

D F KETCHUM

234P

3	Bottles Black India Ink	3 Pcs
4	Scratch Pads	400 Shts
1	Typewriter Paper	500 "
	Envelopes Form 321	50 Pcs
	Estimate Paper 2-Col	100 Shts
	Pens various	18 Pcs
	Pen Holders	4 "
	Mucilage small	2 "
	Telegram Yellow	200 Shts
	Form 7557 Distribution	100 Shts

87 31

Slotterman Surveying Party

The above furnished D R Gibson for field survey Coulee line

Dmt 4/9/24


DEPARTMENT OF
DEFENSE
CHEF
FAR
1964
MDR
ST. PAUL, MINN.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 2731 M.

1

St Paul April 11, 1934 Agent - Yakima, Wash.

Please advise D J Ketchum, 219 North First Street Yakima to report to P R Gibson Assistant Engineer Coulee at once if he is willing to accept position as chainman on survey advising if he will accept. D-24

J T Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St paul April 11, 1934

A S Stotler

Seattle

L-13 Arrange to have Stanton report to PR Gibson at Coulee as levelman at once. Advise. D-23

J T Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, April 11, 1934

Paul R. Gibson
c/o No. 1 Rocky Mtn. Divn.

Stanton will report to you as levelman or topographer. Allen and Linell out of St.Paul No.3 10th. Borne Kugler and Palmer on No. 1 today. Am wiring Ketchum to report to you as chainman.
D-22

J T Derrig

8731

Saint Paul, April 11, 1934.

Mr. A. C. Terrell:

Will you please arrange to carry Mr. J. F. Allen on your payroll at his present rate while he is temporarily assigned on location work at Coulee. Mr. Gibson will arrange to handle his expense account while in the field through his office.

Asst. to Chief Engineer.

JTD-w

cc - Mr. J. H. Rochon,
Mr. P. H. Gibson

8731

Saint Paul, April 11, 1934.

Mr. H. W. Clements:

With reference to our understanding, will you please arrange to carry Mr. Linell on your payroll at his present rate while he is temporarily assigned on location work at Coulee. Mr. Gibson will arrange to handle his expense account while in the field through this office.

Asst. to Chief Engineer.

JTD-w

cc - Mr. J. M. Rochon
Mr. P. M. Gibson
Mr. A. C. Terrell

8731

Saint Paul, April 11, 1934.

Mr. Paul R. Gibson:

I am enclosing herewith for your information five receipts for $20.00 each, covering money advanced to C. J. Kugler, E. A. Linell, J. F. Allen, R. D. Palmer, and F. O. Borne to defray contingent expenses in connection with Grand Coulee Dam.

Will you please acknowledge receipt.

Asst. to Chief Engineer.

RAK-w

8731

Saint Paul, April 11, 1934.

Mr. Paul R. Gibson:

Form 202 has been submitted and approved for your location party as follows:

	Present Rate	Proposed Rate
P. R. Gibson, Asst. Engineer	$200.00	$300.00
F. B. Darling, Transitman	147.50	225.00
E. B. Stanton, Levelman	112.50	190.00
F. O. Borne, Topographer	-	190.00
J. F. Allen, Draftsman	187.50	187.50
E. A. Linell, Rodman	195.00	195.00
C. J. Kugler, "	-	147.50
R. D. Palmer Head Chainman	-	147.50
D. F. Ketchum Rear "	-	117.50

Will you please arrange to prepare your payroll in the usual manner and forward to Chief Engineer at St. Paul. Mr. Allen, draftsman and Linell, rodman will be carried on their respective St. Paul payrolls and considered as loaned temporarily on your location party. You should, however arrange to incorporate their names on your field payroll and Mr. Rochon will arrange to make the necessary distribution in St. Paul in preparing the consolidated roll.

Asst. to Chief Engineer.

JTD-w

cc - Mr. J. H. Rochon

		Present Rate	Proposed Rate
R. R. Gibson	Asst Engr (Instrman rate)	200	300
F B. Darling	Transitman (Rodman rate)	147.50	225
E.B. Stanton	Leveliman (Chainman rate)	112.50	190
Floyd Borne	Topographer	—	190
~~J F Allen~~	~~Instman~~	~~187.50~~	~~187.50~~
~~Elmer Lionell~~	~~Rodman~~	~~195.00~~	~~195.00~~
C J. Kugler	Rodman	—	147.50
R S Palmer	H Chain	—	147.50
D F Ketchum	R. Chain	—	117.50
		460 00	1317.50
			460.00
	Basin Increase Less 10%		* 857.50
			85.75
Reformation party Survey Chain to Head Coulee			* 771.75

Net Increase

8731

Saint Paul, April 10, 1934

Mr. H. E. Stevens:

I am handing you herewith Form 202 for locating party to establish definite line for branch from Odair to the head of Grand Coulee on the Columbia River.

This form covers change in rates for two of our present employes, Mr. Gibson and Mr. Darling, who will be borrowed from maintenance parties.

Mr. Stanton will be furnished from the Tacoma party but on account of washout work and the Railroad Avenue improvement work it will be necessary to replace him.

In addition to the authorities contained on this form, we will use two men from the St. Paul office without increase in pay.

As you know, men with engineering experience in the Valuation Department were transferred a short time ago to the Clerks' schedule and it is not practical to send them out in the field on account of excessive overtime rates.

I would be glad to have immediate approval. We are sending the party out at once. I think we can complete this work in thirty days.

BB h

N. P. 202/10-29

AUTHORITY FOR PAYROLL CHANGES

FOR LOCATION PARTY SURVEY ODAIR TO GRAND COULEE

Engineering DEPARTMENT Grand Coulee Dam Survey DIVISION April 10, 1934 19

NAME OR LOCATION	OCCUPATION	PRESENT RATE Basic	PROPOSED RATE Basic	DATE EFFECTIVE
P. R. Gibson	Assistant Engineer		300.00	4-10-34
	Instrumentman Mtce	200.00		
F. B. Darling	Transitman		225.00	4-10-34
	Rodman Mtce	147.50		
E. B. Stanton	Levelman		190.00	4-10-34
Floyd Borne	Topographer		190.00	4-10-34
C. J. Kugler	Rodman		147.50	4-10-34
	Rodman		147.50	4-10-34
	R Chairman		117.50	4-10-34
		347.50	1317.50	
			347.50	
	Basic increase		970.00	
	Less 10%		97.00	
	Net Increase		873.00	

REASON FOR CHANGE:

INCREASE OR DECREASE PER MONTH $ 873.00 PER ANNUM

RECOMMENDED:	APPROVED:	APPROVED:
APPROVED:	APPROVED:	APPROVED: VICE PRESIDENT.
APPROVED:	APPROVED:	AUTHORIZED: FOR THE PRESIDENT.

N. P. 202/10-29

AUTHORITY FOR PAYROLL CHANGES

FOR LOCATION PARTY SURVEY ODAIR TO GRAND COULEE

Engineering DEPARTMENT Grand Coulee Dam Survey DIVISION April 10 19 34

NAME OR LOCATION	OCCUPATION	PRESENT RATE Basic	PROPOSED RATE Basic	DATE EFFECTIVE
P R Gibson	Assistant Engineer		300.00	4/10/34
	Instrumentman Mtce	200.00		
F B Darling	Transitman		225.00	4/10/34
	Rodman Mtce	147.50		
E B Stanton	Levelman		190.00	4/10/34
	Chainman Mtce	112.50		
Floyd Borne	Topographer		190.00	4/10/34
C J Kugler	Rodman		147.50	4/10/34
	H Chainman		147.50	4/10/34
	R Chainman		117.50	4/10/34
		~~460.00~~ 347.50	1317.50 ~~460.00~~	
	Basic Increase		~~857.50~~	970.00
	Less 10%		~~85.75~~	97.00
	NET INCREASE		$ ~~771.75~~	~~684.25~~

REASON FOR CHANGE: INCREASE ~~OR DECREASE~~ PER MONTH 771.75 PER ANNUM 873.00

Granted

RECOMMENDED:	APPROVED:	APPROVED:
APPROVED: Bernard Kenn	APPROVED:	APPROVED: VICE PRESIDENT.
APPROVED:	APPROVED:	AUTHORIZED: FOR THE PRESIDENT.

N.P. 1382 9-24

EMPLOYE'S REQUEST

8731

Office of Chief Engineer,

St. Paul, April 10, 1934

Please furnish Pass, ~~Mileage~~ for R. D. Palmer

Not prohibited by law from receiving free or reduced rate transportation:

Address St. Paul Account Rodman

Employe requesting, or upon whose account pass requested, in continuous service since

REMARKS: Good on trains 1 and 2 - Company business CONSTRUCTION Coulee Dam Survey

Number	Date					
P 53	4/10	From St.Paul	To Coulee	and Return Via N.P.	Limited to 90 days	
		From	To	and Return Via		
		From	To	and Return Via		
		From	To	and Return Via		

Approved:

Chief Engineer.

To insure foreign line transportation being furnished when wanted, application should be filed with the Pass Bureau at least ten days prior to date to be used.

(This form may be used for requesting Northern Pacific and foreign line trip passes and half rate orders, but a separate copy, properly signed, should be made out for each road.)

N.P. 1382 9-24

EMPLOYE'S REQUEST

Office of Chief Engineer

St.Paul, April 10, 1934.

Please furnish Pass, ~~Ride~~ for C. J. Kugler

Not prohibited by law from receiving free or reduced rate transportation.

Address St. Paul Account Rodman

Employe requesting, or upon whose account pass requested, in continuous service since

REMARKS: Good on Trains 1 and 2 - Company business CONSTRUCTION Grand Coulee Survey.

Number	Date					
		Limited to 90 days				
520		From St. Paul	To Coulee	and Return Via N.P.		
		From	To	and Return Via		
		From	To	and Return Via		
		From	To	and Return Via		

Approved:

Chief Engineer

To insure foreign line transportation being furnished when wanted, application should be filed with the Pass Bureau at least ten days prior to date to be used.

(This form may be used for requesting Northern Pacific and foreign line trip passes and half rate orders, but a separate copy, properly signed, should be made out for each road.)

N.P. 1382 9-24

EMPLOYE'S REQUEST

Office of Chief Engineer

St.Paul, April 10, 1934

Please furnish Pass, ~~Mail Rate~~ for F. O. Borne

Not prohibited by law from receiving free or reduced rate transportation.

Address St. Paul Account Topographer

Employe requesting, or upon whose account pass requested, in continuous service since

REMARKS: Good on Trains 1 and 2 - Company business CONSTRUCTION Grand Coulee survey.

Number	Date					
		Limited to	90 days			
✓		From St.Paul	To	Coulee	and Return Via	N.P.
619		From	To		and Return Via	
		From	To		and Return Via	
		From	To		and Return Via	

Approved:

E. E. Blume

Chief Engineer.

To insure foreign line transportation being furnished when wanted, application should be filed with the Pass Bureau at least ten days prior to date to be used.

(This form may be used for requesting Northern Pacific and foreign line trip passes and half rate orders, but a separate copy, properly signed, should be made out for each road.)

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

St. Paul, April 9, 1934

Mr. Bernard Blum

St. Paul,

It will be necessary to advance expenses to some of the men we are sending out on the location party. Will you therefore, please arrange to advance $200 to Mr. P. R. Gibson to carry the expenses of the party. Mr. Gibson is leaving on Number two tomorrow morning.

J. T. Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

St Paul April 9, 1934 Agent - Almira, Wash.

Advise Mr. Banks that P R Gibson will arrive at Coulee Thursday noon and get in touch with him. Gibson will be prepared to start location survey on his arrival at Coulee.

D-20

J T Derrig

cc P R Gibson

Saint Paul, April 9, 1934.

Mr. H. F. Brown:

Confirming my verbal discussion with you, we will arrange to locate the so-called Grand Coulee line in Washington. I desire to use Mr. Gibson as Assistant Engineer on this location and Mr. Darling as transitman. Will you please arrange to have Mr. Gibson report to me at St. Paul and Mr. Darling report to Mr. Gibson at Coulee with as little delay as possible.

It is contemplated that this work will be completed in three weeks at which time both of the above men will be returned to their former positions.

Mr. Gibson is leaving St. Paul on No. 7 Tuesday morning and Mr. Darling should be instructed to leave Glendive on #3 Tuesday night so that he will arrange to be at Coulee at the same time.

Asst. to Chief Engineer.

JTD-w

cc - P R Gibson

Saint Paul, April 9, 1934.

Mr. P. R. Gibson:

It has been decided to carry out the location of the Coulee Line with as little delay as possible. I feel confident that you will be able to handle this work, and with that thought in mind I am placing you in charge of the party which sh ould be organized along the lines of our discussion this morning.

It is contemplated that we can fill out the party without hiring more than one or two men.

Projection for this line has been made on the large scale map and there should not be much delay in staking out the final location if the topography is reasonably correct.

The Railway Company has entered into an understanding with the Government, the Government to construct and operate the line and the railway company to furnish completed survey. In this connection the Government is sending out proposals within the next week or ten days and it is desired to have the located line run and complete surveys turned over to the Government with the least possible delay. It is my thought therefore that we should arrange to make up the map and profile in ten mile sections so that we can turn over completed sections of the survey to the Government with as little delay as possible. If this arrangement is followed out there is no reason why the Government should not start work over the completed survey in not to exceed ten days.

The right of way map should be made along the lines of our Standard Practice, scale 400 ft. to the inch, plotting the profile in accordance with our present standard, using linen cloth for the profile.

I am wiring Mr. Banks today advising him that you will arrive at Coulee Thursday noon and will get in touch with him immediately.

Asst. to Chief Engineer.

JTD-w

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

12 CF GT

SEATTLE APL 9 1934 BERNARD BLUM.

STPAUL.

B-72 AND 91 CAN TURN OVER CHAINMAN E B STANTON WHO CAN QUALIFY FOR LEVELMAN OR TOPOGRAPHER BUT HIS POSITION WOULD HAVE TO BE FILLED AS WE CANNOT SPARE ANY-ONE ACCOUNT LARGE AMOUNT OF WORK MAKING SURVEYS FOR RECOMMENDATIONS FOR WASHOUT TROUBLE ALSO HAVE SEVERAL IMPROVEMENT JOBS AND REARRANGEMENT OF TRACKS RAILROAD AVENUE STOP IF YOU WISH TO GO OUTSIDE CAN SECURE R L FLETCHER WHO FORMERLY WORKED FOR THIAN AS TOPOGRAPHER L-13

STOTLER.

1225PM.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 9231 M.

St Paul 4-9-34

A F Stotler Seattle

My B 72 Account making Form 202 would appreciate reply quick as possible stop Can use levelman and topographer rates One hundred and ninety dollars B 91

Bernard Blum

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8 73/ M.

7YDE

PARKWATER APR 9 1934 J T DERRIG

ST PAUL

D-18 WILL GO FORWARD BY BAGGAGE TODAY A-1080

WHR

1257AM 10

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, April 9, 1934 D.S.K. - Parkwater

Please arrange to ship baggage or local freight today one drafting table complete to P R Gibson, Assistant Engineer, Coulee. D-18

J T Derrig

cc P R Gibson

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, April 9, 1934 D.S.K. - Parkwater

Please arrange to ship baggage or local freight today one drafting table complete to P R Gibson, Assistant Engineer, Coulee.

D-18

J T Derrig

cc P R Gibson

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

St Paul April 9, 1934

Agent

Coulee Wash.

Figure on sending small locating party to Coulee. Would it be possible to use small room in depot between express and store room as temporary office for about thirty days. D-19

J T Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8731

St Paul 4-7-34

A F Stotler Seattle

Can you loan some men for temporary work definite location Coulee Branch stop Expect to send out party first of week Advise names quick B 72

Bernard Blum

The GEORGE F. CRAM COMPANY
Map and Atlas Publishers
ESTABLISHED 1867
Indianapolis, Indiana

HOME OFFICE & PLANT
32 EAST GEORGIA STREET

TELEPHONE RILEY 5564

April 7, 1934

A. F. Stotler, Asst. Chief Engineer
Northern Pacific Railroad
Seattle, Washington

Dear Sir:

Will you please indicate on the enclosed map section the location of your new railroad between odair and the site of the proposed Grand Coulee Dam, showing any stations located thereon and mileage between stations.

We wish this information that we may accurately correct our state maps of Washington and shall greatly appreciate receiving the information at your earliest convenience.

Very truly yours

THE GEORGE F. CRAM COMPANY

Editorial Department

Enc.--S.E. & Map Section
FLL/1

8731

Saint Paul, April 7, 1934

Mr. J. T. Derrig:

Herewith Mr. Stevens' letter of the fifth about construction of the railroad between Odair and the head of the Grand Coulee Canyon.

Please arrange to organize a party at once to run out definite location for the railroad. I wish you would look after the matter so that the work can be completed as quickly as possible.

I do not understand from the correspondence that it will be necessary for us to cross section the line but we should prepare a profile from which the approximate quantities can be computed.

Requisition should also be prepared for the track material which we are to loan to the Government.

EB h

8731

Saint Paul, April 7, 1934

Mr. J. T. Derrig:

Herewith Mr. Stevens' letter of the fifth about construction of the railroad between Odair and the head of the Grand Coulee Canyon.

Please arrange to organize a party at once to run out definite location for the railroad. I wish you would look after the matter so that the work can be completed as quickly as possible.

I do not understand from the correspondence that it will be necessary for us to cross section the line but we should prepare a profile from which the approximate quantities can be computed.

Requisition should also be prepared for the track material which we are to loan to the Government.

Bernard Allen

Mr Gibson
note 4/9

OK
P.R. Gibson

8731

Saint Paul, Minn.,

April 6, 1934.

MR. LOWRY SMITH:

I am returning herewith negatives of Plans T-2-3, 8-6-1, 8-5-2, 8-5-1, and 1816-234, sent me with your letter of March 29th.

All of the balance of the items enumerated in that letter were handed to Mr. Walter, Chief Engineer of the Bureau of Reclamation.


OFFICE OF
PRIME
A-71
1084
NEBR PKG CTR
St. Paul, Minn.

On Yellowstone Division,
April 5, 1934.

MR. BERNARD BLUM:

Herewith copy of my letter to Mr. R. F. Walter, Chief Engineer of the Bureau of Reclamation, dated March 28th, outlining conditions for the construction by the Bureau of Reclamation of a railroad between Odair and head of the Grand Coulee Canyon.

Subsequently an agreement was reached on rates and the Bureau will put in their general specifications covering the construction of the dam a clause to the effect that a railroad will be furnished by the Bureau from the damsite to a connection with the Northern Pacific at Odair. They intend to send out their invitation this week if possible, but will not have the specifications for the railroad ready to forward until next week. They intend to let the railroad construction as a separate contract.

I turned over to Mr. Harper all of the data forwarded me with Mr. Lowry Smith's letter of March twenty-ninth with the exception of the negatives for culverts and head-walls. This data, as you know, is quite incomplete account of no definite location having been made. I told Mr. Harper we would put on a party and run in the center line for a definite location, and I wish you would arrange to do so as quickly as possible. I suggested they forward to Mr. Banks' office at Almira all data which I turned over to them so it would be available for your use in running in the center line, although I assume Mr. Smith kept tracings of such negatives as he forwarded. The Bureau intend to reproduce the 2000 foot scale map and preliminary profile to a small scale for use in sending out with their specifications for bids. They will use the approximate quantities given Mr. Walter with my letter which were taken from the only estimate I had on the file, as you failed to furnish me with copy of your final estimate made up on the basis of my letter to you of November second.

I have also agreed to furnish Mr. Walter with specification for ties or any other information he may request and which we have available.

I made no definite promises as to weight of rail we would furnish. If we do not relay a portion of the Washington Central I presume we will have available sufficient third 90# to lay the branch. They asked me to furnish in addition to the rail necessary to lay to the head of the canyon the additional tonnage necessary to lay from the head of the canyon to the damsite, which I understand will be about two miles, and I agreed to furnish this additional material. Mr. Banks will give us definite information on quantities later.

I suggested they use untreated ties and I do not think tie plates will be necessary for the tonnage they will move over this line. The contractor will operate it and probably use light power.

For the low dam they now estimate a total of 800,000 tons of cement and about 100,000 tons of other items, a total of 900,000 tons. The work will be spread over three or four years and I doubt if the maximum movement exceeds forty cars in any one day and probably the average will be around twenty cars per day. This volume of traffic in itself will not justify tie plates on the branch or relay of the Washington Central, but it is my understanding you may wish to make a relay account of the general rail situation.

Copy Mr. W. C. Sloan

Denver, Colorado, March 28, 1934

Mr. R. F. Walter, Chief Engineer,
Bureau of Reclamation,
Denver, Colorado

Dear Sir:

Confirming our verbal understanding this morning, the Northern Pacific Railway Company agrees to furnish f.o.b. Coulee City, sufficient rail and fastenings to complete the construction of a railway, including yard, tracks and sidings, from a connection with the Washington Central Branch near Coulee City to the head of the Grand Coulee Canon. We will also turn over to you the complete data covering our preliminary survey for this railway and agree to stake out on the ground definite location of center line, also furnish subject to your approval, specification for its construction. No charge to be made by the railway company for the use of the rails or for the survey data and engineering work.

The Government agrees to include in its specifications and proposal blanks, covering the construction of the Grand Coulee Low Dam project, items to cover grading, ballasting, track laying and surfacing of the above described railway on a right-of-way to be furnished by the Government. It will also require the successful bidder to proceed with the construction of this railway with all possible dispatch promptly on the award of the general contract.

The Government further agrees that it will return to the railway company without cost to it, f.o.b. cars Coulee City, all rail and fastenings loaned to it by the railway company promptly on completion of the Low Dam Project. Provided, however, that if on completion of this Project it appears probable that the Government will, within a few years thereafter, proceed with the construction of the High Dam Project, the railway will not require the return of the rails and fastenings until the High Dam Project has been completed. If no definite decision on construction of the High Dam is

reached within a period of ten (10) years from date, the Government will, on demand of the railway company, pick up and return the rail and fastenings to the railway free of charge, f.o.b. Coulee City; at the option of the Government the railway will pick up the rail and fastenings, the Government to pay the railway the actual cost of doing the work.

The Government agrees to require its general contractor to maintain the railway and to provide reasonable service thereover for handling the business of the Government and others through out the contract period. Revenues for handling other than Government business over the railway to accrue to the Government but to be entirely independent of rates fixed by the railway company for delivery of materials at the interchange point of connection with its Washington Central branch.

It is my understanding that the above conditions are acceptanbe to you provided we can agree on maximum rates for major items of material shipped on Governmen bills of lading. A responsible traffic officer of our company will confer with you not later than April 3rd, 1934 and undertake to determine these maximums on a basis that will be equitable and take into consideration all factors of your transportation problem.

I am enclosing herewith estimated quantities of principal items entering into the construction of the proposed railway as determined from our preliminary survey.

Yours truly,

Vice President
NORTHERN PACIFIC RAILWAY

HEW/JC

C
O
P
Y

Principle items of material entering into the construction of a railroad between Odair and the head of the Grand Coulee Canyon.

Main track	28.5 miles	
Yards and sidings	4.0 miles	
	32.5 miles	
Right of way		370 acres
Common Excavation	410,000 cu.yd.	
Loose Rock	46,000 " "	
Solid Rock	50,000 " "	
Total Grading		406,000 cu.yd

Bridging:

6 Pile and Frame trestles	25 spans or	369 ft.
24 inch corrugated iron pipe		550 "
36 inch corrugated iron pipe		1,900 "
88 inch corrugated iron pipe		1,500 "

Ties:

7'8" cross ties	608,840 pcs.
17 sets switch ties	50,000 FBM
Bridge Ties	20,000 "

Rail	38.5 miles	
Switches	17 sets	
Ballast 1000 cu.yd. per mile main track		28,500 cu.yd.
Trac laying and surfacing	38.5 miles	
Right of way Fence	36 miles	

EXHIBIT "E"

EXHIBIT E - PART 1

Estimate based on preliminary surveys. Approximate estimated cost by primary accounts is as follows:

Length of Main Track	28.5 miles
Length of Other Track	1.6 miles
Total All Tracks	30.1 miles

Acct. No. 1 -	Engineering 5%	$ 33,252
" " 2 -	Land for Transportation Purposes	50,000
" " 3 -	Grading	239,786
" " 6 -	Bridges, Trestles & Culverts	28,800
" " 8 -	Ties	61,959
" " 9 -	Rails	102,490
" " 10 -	Other Track Material	32,495
" " 11 -	Ballast	21,500
" " 12 -	Tracklaying & Surfacing	62,583
" " 13 -	Right of Way Fences	22,100
" " 15 -	Crossings & Signs	7,858
" " 16 -	Station & Office Buildings	5,983
" " 17 -	Roadway Buildings	4,217
" " 18 -	Water Stations	11,000
" " 19 -	Fuel Stations	800
" " 26 -	Telegraph & Telephone Lines	12,960
" " 27 -	Signals & Interlockers	60
" " 37 -	Roadway Machines	400
" " 38 -	Roadway Small Tools	200
" " 71 -	75 & 77 - General Expenditures	27,938
" " 76 -	Interest During Construction	32,680
	TOTAL	$759,135

EXHIBIT E - PART 2

Existing equipment owned by the Carrier will be sufficient to handle the expected business.

LO 8731

Spokane, March 30, 1934.

Mr. Bernard Blum:- Coulee Dam.

As information, am attaching hereto a clipping from the Spokane Chronicle of March 27th, describing a rather large slide on the west side of the proposed Coulee dam where open excavation is now in progress.

Later accounts are that this slide would approximate 500,000 yards instead of of the 1,000,000 as reported.

H. M. Tinsman

District Engineer.

HMT-T

Encl.

Mr Stevens

To note

B.B

4/3

BB Looks as though the contractor or Engineer were taking a big gamble on underestimating

1 A D 4/6

B

NOTED
H. E. S. ✓
E. L. G.
T. K. Y.
E. L. L.
R. D. Y.

COULEE DAM SITE, March 27. — (Special.) — Fifteen men took a ride with death and escaped injury at 10 a. m. today when the anticipated 1,000,000 cubic yard landslide at the Grand Coulee dam site went out.

The slide occurred on the west side of the river, above the excavation area.

The slide is not expected to delay work by Goodfellow Brothers of Wenatchee, subcontractors for excavation in that region.

Lifts Steam Shovel.

As the mountain of dirt came down, it lifted a steam shovel 30 feet into the air, carrying Carl Fox, shovel operator, and Oscar Petersen, oiler, who rode the shovel to safety.

Thirteen other men were atop the mountain of the dirt when the cracks appeared and the ground began moving. They scurried like rabbits, jumping the seams that appeared, in a fruitless effort to gain solid ground. They finally were caught and were carried the full 90 feet of the movement.

Two caterpillar tractors were covered by the slide.

The slide will necessitate a new route for the highway and railroad grades, as both these were torn out and moved 75 feet downhill by the movement.

The power and electric lines going into the dam site were torn out, leaving the construction camp without electric power and cutting off outside telephone communication.

Mr. Fox, the shovel operator, in describing the sensation of riding his shovel atop the crest of the gigantic earth-wave said:

"I was just taking another scoop of dirt when I felt everything go up. It was just like an earthquake. The shovel just lifted into the air."

Didn't Tip Over.

Fox, and Petersen, the oiler, still were in the shovel cab when the machine came t orest on the brink of the slide. Workmen afterward speculated at what kept the shovel from tipping over and rolling down the hillside.

W. A. Dibble, a diamond driller, who was at the top of the slide when the dirt began slipping, said:

"First, we felt the earth begin to move. We knew the slide had started, and we started for the top. Cracks opened all around us. We had to jump them to keep from falling in. We jumped and jumped, until we couldn't jump any more, and we had to ride the slide until it stopped."

Included in the group of men who rode the slide were eight engineers, three diamond drillers and one electric line crew.

These men were working on the highway or the railroad grade, which skirted the edge of the area.

Lasted Two Minutes.

The entire slide covered a distance of approximately 300 yards, and the major movement of the dirt occupied a time of about two minutes.

Joe Mehan, representative of the Columbia Basin commission, was on the scene shortly after the slide and took charge of the placement of guards about the area.

The steamshovel, which Fox and Peterson rode, had already resumed work at 11 a. m., and was working down into the region where the tractors were covered.

BANDIT LINES UP

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

19 NPK

STPAUL MAR 29 1934

BERNARD BLUM CAR 12
BILLINGS.

FOLLOWING FROM MR STEVENS QUOTE SEND ME QUICKLY TRACINGS OF LOCATION MAP PROFILE AND CROSS SECTION OF ROADBED FOR COULEE LINE ALSO THREE SETS SPECIFICATIONS NEGATIVE OF PILE BRIDGE RIGHT OF WAY FENCE AND CULVERTS STOP. GOVERNMENT WILL ASK FOR BIDS FOR CONSTRUCTION AND I HAVE AGREED TO GIVE THEM ALL DATA NECESSARY NOT LATER THAN MONDAY RETAIN NEGATIVES OF TRACINGS FOR YOUR FILES END QUOTE SUCH DATA AS AVAILABLE INCLUDING THREE COPIES OF PRINTED CONSTRUCTION SPECIFICATIONS SET FIRST CLASS MAIL TONIGHT STOP. COPY OF LETTER GIVING INVENTORY OF MATERIAL IN MAIL. S-12.

LOWRY SMITH

437PM

B.

8731

St. Paul, Minn., March 29, 1934

Mr. H. E. Stevens:

Your telegram to Mr. Blum about maps, etc., of the Coulee line. The following is being sent you:

Tracing of preliminary lines, projected line, topography, etc., scale 1" = 400'.

Tracing of preliminary lines, scale 1" = 2000'.

3 Tracings of profiles of preliminary lines.

5 Hard paper profiles of preliminary lines.

Negative of pile trestle, Plan 8-1-1.
" " " " " R-11-103.
" " right of way fence, Plan 7-1-1.
" " culvert plans 8-5-1, 8-5-2 and 8-6-1.
" " concrete culvert headwall, Plan 1816-234.
" " Ballast plans T-2-1 and T-2-3.
" " Roadbed and ballast for Lake Basin line, dated October 18, 1917.

3 Construction specifications E-114.

No profile was ever prepared of the projecting line shown on 400' scale map.

I am not familiar with what discussion you have had with Mr. Blum, so we are sending you what would seem to be of use.

Copy of this letter along with copy of your telegram is going to Mr. Blum at Billings.

LOWRY SMITH

LS:wp Office Engineer

cc Mr. Blum

1206 A

CLASS OF SERVICE DESIRED

DOMESTIC		CABLE	
TELEGRAM		FULL RATE	
DAY LETTER		DEFERRED	
NIGHT MESSAGE		NIGHT LETTER	
NIGHT LETTER		WEEK END LETTER	

Patrons should check class of service desired; otherwise message will be transmitted as a full-rate communication.

WESTERN UNION

NEWCOMB CARLTON, PRESIDENT — J. C. WILLEVER, FIRST VICE-PRESIDENT

CHECK

ACCT'G INFMN.

TIME FILED

Send the following message, subject to the terms on back hereof, which are hereby agreed to

Copy

CA 430 CAK-4 Denver Colo. March 29 1934

Bernard Blum
St.Paul Minn .

Send me quickly tracings of location map profile and cross section of roadbed for Coulee line and three sets specifications, negative of pile

bridge, right of way fence and culverts Stop. Government will call for bids and I have agreed to give them all data necessary not later than Monday

Retain negatives of tracings for your file.

H E Stevens.

H E Stevens
Cosmopolitan Hotel = Denver Colorado =

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8731

St. Paul, Minn., March 29, 1934

Bernard Blum
Car 12
Billings, Mont

Following from Mr Stevens Quote Send me quickly tracings of location map profile and cross section of roadbed for Coulee

Line also three sets specifications negative of pile bridge right of way fence and culverts stop Government will ask

for bids for construction and I have agreed to give them all data necessary not later than Monday retain negatives of

tracings for your files end quote Such data as available including three copies of printed construction specification

sent first class mail tonight stop Copy of letter giving inventory of material in mail S-12

LOWRY SMITH

Form 1202

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

CLASS OF SERVICE	SYMBOL
Day Message	
Day Letter	Blue
Night Message	Nite
Night Letter	N L

If none of these three symbols appears after the check (number of words) this is a day message. Otherwise its character is indicated by the symbol appearing after the check.

RECEIVED AT _____ 191__

NUMBER	RECEIVED BY	CHECK

DATED St. Paul, Minn., ~~Jan~~ March 29, 1934

TO Mr. H. E. Stevens,

Cosmopolitan Hotel, Denver, Colo.

Am sending to you at Cosmopolitan Hotel by United States Mail Special Delivery tonight data Coulee Line

LOWRY SMITH

CHARGE NOR. PAC. RY. CO.
ENGINEERING DEPT.

St. Paul, Minn., March 29, 1934

Mr. H. E. Stevens:

Your telegram to Mr. Blum about maps, etc., of the Coulee line. The following is being sent you:

Tracing of preliminary lines, projected line, topography, etc., scale 1" = 400'.

Tracing of preliminary lines, scale 1" = 2000'.

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5 Hard paper profiles of preliminary lines.

Negative of pile trestle, Plan 8-1-1.
" " " " " R-11-103.
" " right of way fence, Plan 7-1-1.
" " culvert plans 8-5-1, 8-5-2 and 8-6-1.
" " concrete culvert headwall, Plan 1816-234.
" " Ballast plans T-2-1 and T-2-3.
" " Roadbed and ballast for Lake Basin line, dated October 18, 1917.

3 Construction specifications E-114.

No profile was ever prepared of the projecting line shown on 400' scale map.

I am not familiar with what discussion you have had with Mr. Blum, so we are sending you what would seem to be of use.

Copy of this letter along with copy of your telegram is going to Mr. Blum at Billings.

LS:wp

Office Engineer

cc Mr. Blum

PATRONS ARE REQUESTED TO FAVOR THE COMPANY BY CRITICISM AND SUGGESTION CONCERNING ITS SERVICE

1220S

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable sign above or preceding the address.

WESTERN UNION

NEWCOMB CARLTON, PRESIDENT J. C. WILLEVER, FIRST VICE-PRESIDENT

SIGNS
DL = Day Letter
NM = Night Message
NL = Night Letter
LCO = Deferred Cable
NLT = Cable Letter
WLT = Week-End Letter

The filing time as shown in the date line on full-rate telegrams and day letters, and the time of receipt at destination as shown on all messages, is STANDARD TIME.

Received at 332 Robert Street. St. Paul. Minn. TELEPHONE 9685

1934 MAR 29 PM 12 33

CA30 CAK=H DENVER COLO 29 1107A

BERNARD BLUM=

NORTHERN PACIFIC RY STPAUL MINN=

SEND ME QUICKLY TRACINGS OF LOCATION MAP PROFILE AND CROSS SECTION OF ROADBED FOR COULEE LINE ALSO THREE SETS SPECIFICATIONS NEGATIVE OF PILE BRIDGE RIGHT OF WAY FENCE AND CULVERTS STOP GOERNMENT WILL ASK FOR BIDS FOR CONSTRUCTION AND I HAVE AGREED TO GIVE THEM ALL DATA NECESSARY NOT LATER THAN MONDAY RETAIN NEGATIVES OF TRACINGS FOR YOUR FILE=

H E STEVENS.

THE QUICKEST, SUREST AND SAFEST WAY TO SEND MONEY IS BY TELEGRAPH OR CABLE

Maps, Profiles etc. sent to Denver as per Mr. Stevens telegram to Mr. Blum March 29, 1934

Grand Coulee Dam Survey:

Tracing of preliminary lines, projected line, topography etc. scale: 1"=400'

Tracing of preliminary lines scale 1"=2000'

3 tracings of profiles of preliminary lines

5 hand paper " " " "

Negative of pile trestle Plan 8-1-1

" " " " " R-11-10B

" " R/W fence " 7-1-1

" " Culvert plans 8-5-1, 8-5-2 and 8-6-1

" " Concrete culvert headwall, Plan 1816-234

" " Ballast Plans T-2-1 and T-2-3

" " Roadbed and ballast for Lake Basin line, date Oct. 18, 1917.

3 construction specifications E-114

No profile has been prepared of projected line shown on map scale: 1"=400'

PHL.

3/29

8731

The Baldwin Locomotive Works
Philadelphia

CHARLES RIDDELL
DISTRICT MANAGER

627 RAILWAY EXCHANGE
CHICAGO, ILL.

March 26, 1934

FILE B CR:DVN

Mr. Bernard Blum, Chief Engineer
Northern PacificRailway Company
St. Paul, Minnesota.

Dear Sir:

Thank you very much for your letter of March 24, concerning possible construction of a branch line to the Coulee Dam site in the State of Washington.

If this work is eventually placed in the hands of a contractor and you can authorize your office to let us know the name of the successful contractor at the proper time, you will confer a favor which we shall highly appreciate.

Yours very truly,

THE BALDWIN LOCOMOTIVE WORKS

Charles Riddell

District Manager.

8731 4/153

March 24, 1934

The Baldwin Locomotive Works,
627 Railway Exchange,
Chicago, Illinois

Attention Mr. Charles Riddell

Gentlemen:

Your letter of the 22nd about our possibly constructing a branch line to the Coulee dam site in the State of Washington:

It has not been decided that the Railway Company will construct such a line as the conditions under which we applied to the Interstate Commerce Commission were not accepted by it in granting the certificate. In any event we would contract the construction work and any equipment such as you have in mind would naturally be furnished by the contractor.

Yours truly,

IS:wp

The Baldwin Locomotive Works
Philadelphia

CHARLES RIDDELL
DISTRICT MANAGER

627 RAILWAY EXCHANGE
CHICAGO, ILL.

March 22, 1934

FILE B CR:LQ

Mr. B. Blum, Chief Engineer
Northern Pacific Railway Company
St. Paul, Minnesota

Dear Sir:

I am informed that authority has been given to construct 28.5 miles of railroad from Odair northeast to the Columbia River. I understand this is in connection with the Grand Coulee Dam.

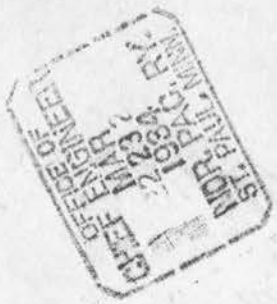
Our Subsidiary, The Whitcomb Locomotive Company, is interested in the small internal combustion locomotives, gasoline and oil burning, for construction use. Can you inform me whether there will be equipment required in that connection, and if so, with whom we should get in contact?

I shall highly appreciate any information with which you can favor us.

Yours very truly,

THE BALDWIN LOCOMOTIVE WORKS

Charles Riddell
District Manager


OFFICE OF
CHIEF ENGR.
1263 C.R.
ST. PAUL, MINN.

8731

March 15, 1934

Mr. A. M. Sheffer,
General Railway Equipment Co.,
2741 Book Building,
Detroit, Michigan

Dear Sir:

I have your letter of the fourteenth in regard to interesting us in Koppel air dump cars in connection with proposed construction of branch line in Washington.

I wish to advise that it has not been decided that the Railway Company will build this line as conditions under which we applied to the I.C.C. were not accepted by them in the granting of certificate. In any event we would contract the construction.

Yours truly,

BB h

TELEPHONE CADILLAC 0989

GENERAL RAILWAY EQUIPMENT COMPANY
2741 BOOK BUILDING
DETROIT. MICHIGAN

March 14, 1934..

~~PHILADELPHIA OFFICE~~
~~1224 WIDENER BLDG.~~
~~TELEPHONE RITTENHOUSE 2220~~

Northern Pacific Railway Company,
St. Paul, Minnesota.

Gentlemen:

Attention: The Chief Engineer.

We note that your company intends to build a 29 mile line from Odair, Washington to the site of Grand Coulee Dam for handling machinery and materials for the construction of the dam.

If you are going to do this work with your own forces, we thought possibly you might be interested in the purchase or rental of six, practically new, Koppel all-steel, air dump cars which we own and can offer you at an attractive price. 20 yd.

These cars were new in 1929 or 1930, only used on one short job and to all intents and purposes are the equivalent of new ones.

We also have here at Detroit a practically new NORDBERG TRACK SHIFTER which we can offer you at a real bargain.

If you are interested in either of the above items, we will be pleased to send you specifications and price.

May we hear from you?

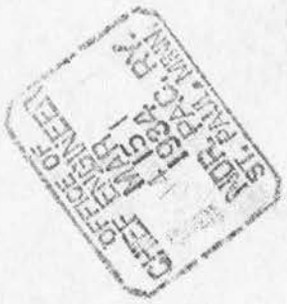
Yours very truly,

GENERAL RAILWAY EQUIPMENT COMPANY.

A. M. Sheffer

AMS*S

P.S. Also have a very fine offering in an INDUSTRIAL, type H, factory overhauled, 25-ton capacity locomotive crane.



8731

March 10, 1934

Mr. H. E. Chilcoat,
General Manager of Sales,
Koppel Industrial Car & Equipment Co.,
Koppel, Pennsylvania

Dear Sir:

I have your letter of the seventh inquiring as to status of our application for construction of a branch railroad from Odair to the head of Grand Coulee:

While the I.C.C. granted us permission to build the branch line applied for, they did not accede to the requirements we stipulated must be met before we would build. In view of the lack of such stipulations we have done nothing further towards making survey of definite location, without which plans and specifications cannot be made.

Yours truly,

RB h

41352

Saint Paul, Minn.,
March 8, 1934.

PERSONAL

MR. BERNARD BLUM:

As I have advised you, the Reclamation Bureau will be unable to give us any guarantee as to business which would move over an extension between Coulee City and the Damsite if built, consequently the Northern Pacific will not exercise its rights under the certificate issued by the Interstate Commerce Commission to build a line.

We are offering to turn over without cost to the Bureau our complete surveys and data, and I think it quite possible that they may decide to undertake construction themselves.

I wish you would review the data which we have available to make certain that everything is in shape to turn it over promptly in case the Government so requests. This should include field notes and topography, as well as maps, profiles, etc.

Hold for further request.

KOPPEL INDUSTRIAL CAR AND EQUIPMENT COMPANY

PURCHASER FROM ALIEN PROPERTY CUSTODIAN OF
ORENSTEIN-ARTHUR KOPPEL COMPANY

TRADE MARK REGISTERED KOPPEL U. S. PATENT OFFICE

GENERAL OFFICE AND WORKS, KOPPEL, PA.

MANUFACTURERS OF
AIR DUMP CARS,
CONTRACTOR'S CARS
INDUSTRIAL CARS
PORTABLE RAILWAY MATERIALS

TELEPHONES
3020-3021 BEAVER FALLS
CABLE ADDRESS
"KOPPELRAIL"
WESTERN UNION TELEGRAPH CO.

POSTAL TELEGRAPH-CABLE CO.

SALES OFFICES
KOPPEL, PA.
NEW YORK, N. Y.
CHICAGO, ILL.
ST. PAUL, MINN.

MANILA, P. I.
HAVANA, CUBA
SAN JUAN, P. R.
HONOLULU, T. H.
LONDON, ENG.
SHANGHAI, CHINA
BOGOTA, COLOMBIA
MEDELLIN, COLOMBIA
MEXICO CITY, MEXICO

PITTSBURGH, PA.

H. E. CHILCOAT,
GENERAL MANAGER OF SALES

March 7,1934

File 30203/3 - Branch Railroad from Adair to head of Grand Coulee.

Mr. B. Blum, Chief Engineer,
Northern Pacific Railway,
St. Paul, Minn.

Dear Sir:

Are you in a position to indicate whether you were successful in your application to the Interstate Commerce Commission for authority to construct a new branch railroad from Adair to head of Grand Coulee? We would also like to know if plans and specifications for this project are ready for distribution. If a deposit is required to insure their safe return, please designate the amount and we will arrange accordingly.

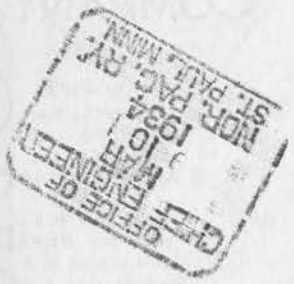
If you can give us this information, in the enclosed business reply envelope, the courtesy will be very much appreciated.

Very truly yours,

H. E. Chilcoat.

General Manager of Sales.

RPC:EB
encl.-1


OFFICE OF
CHIEF ENGINEER
1934
ST. PAUL, MINN.

8731

February 27, 1934

Mr. A. Gilbert Darwin, Editor,
Western Con. News & Highways Builder,
114 Sansome Street,
San Francisco, California

Dear Sir:

Acknowledging your letter of the twenty-third with questionnaire covering the proposed construction of the Grand Coulee Branch:

It is true that the I.C.C. has granted permission for construction of a branch line from Odair to the Grand Coulee dam site but the Northern Pacific application for permission to construct such a branch was made providing certain conditions were met by the I.C.C. and the Bureau of Reclamation who have charge of the construction of the dam. So far these provisions have not been granted and I have no instructions to proceed with the work. Accordingly I think it best not to release information until definite decision has been reached.

At the proper time I will be very glad to give you necessary information.

Yours truly,

BB h

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8731

St Paul 2-24-34

A F Stotler Seattle

B 37 Advise Betchel no decision about proceeding and no date for taking bids B 242

Bernard Blum

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

1750PR

SEATTLE FEBRY 23 1934

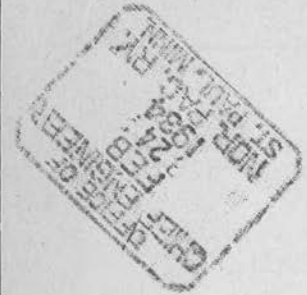
BERNARD BLUM

STPAUL

FOLLOWING WIRE FROM W A BETCHEL CO SAN FRANCISCO QUOTE UNDERSTAND PROBABILITY CONSTRUCTION OF EXTENSION ADAIR TO GRAND COULEE IN NEAR FUTURE STOP WOULD APPRECIATE ANY INFORMATION REGARDING THIS WORK THAT IT IS CONSISTENT TO GIVE OUT AT THIS TIME IN PARTICULAR THE DATE DEFINITE OR APPROXIMATE THAT BIDS WILL BE TAKEN STOP PLEASE ANSWER UNQUOTE B-37.

A F STOTLER

812PM



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LOS ANGELES

WESTERN CONSTRUCTION NEWS AND HIGHWAYS BUILDER

PUBLISHED BY
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ADVERTISING
MANAGER

SAN FRANCISCO, CALIF.

February 23, 1934

Mr. Bernard Blum, Chief Engineer
Northern Pacific Railway Co.
St. Paul, Minn.

Dear Mr. Blum:

We note from press dispatches that the I.C.C. has granted permission for construction of a 30-mi. extension from the Central Washington Branch of the N.P. at Odair to Grand Coulee damsite. If any information on this project can be released in our March issue, will you be good enough to have the attached form on railroad construction filled in so far as possible and returned to us by early mail. We would also like to have any additional notes which could be made public at this time.

Very sincerely yours,

WESTERN CONSTRUCTION NEWS & HIGHWAYS BLDR.

By A.Gilbert Darwin

A.Gilbert Darwin,
Editor

REPORT ON GRAND COULEE RAILROAD PROJECT

(Please return to Western Construction News & Hwys.Bldr.,114 Sansome,San Francisco)

State_____. County_____. Termini_____

Length, mi._____. Single track____. Double track_____. Steam____. Electric_____

Maximum curvature, deg.____. Max. grade,%____. Elevation of project, ft._____

Width roadbed in cut_____. on fills_____. Dist. between sidings____. Lgth.sid.____

Owner_____. Address_____ Est.cost $___

Purpose of project_____

Clearing right of way. Width r/w____. Character clearing & grubbing_____.Acres___

Roadway excavation, cu.yd. _____earth _____intermediate _____solid _____total

Roadway borrow, cu.yd._____earth _____rock _____total. Freehaul, ft._____

Overhaul, sta.yd._____. Culverts, lin.ft. _____metal _____conc.pipe _____box

Bridges. No.___. Total length,ft.____. Locations_____

_____. Types bridges_____. Structural steel, lb._____

Concrete, cu.yd._____. Structure excavation, cu.yd._____. Timber, M f.b.m._____

Tunnels. No.___. Total length, ft.____. Locations_____

_____. Width tunnels on tangent____. on curves____. Ht. tunnels_____

Tunnel excavation, cu.yd.____. Tunnel timber, M f.b.m.____. Tunnel lining, cu.yd.___

Retaining walls. Type_____. Total length_____. Const. quantities_____

Fine grading_____. Slope finishing_____cuts_____fills

Ballast. Type_____. Amount, cu.yd._____. Source_____

Ties. No._____. Kind_____. Length_____. Cross-section_____.Source_____

Rail. Tons_____. Wt., lb. per yard_____. New____. Relay_____. Source_____

Switches. No._____. Type_____. Fastenings_____

Buildings. No.____. Type_____. Location_____

Work now contemplated___. Designing___. Bids called___. Bids received____. Contract

awarded_____ to_____. %compl. to date_____. Est.compl. time_____

Chief engineer_____. Construction engineer_____. Address___
Construction supt._____. Address_____
REMARKS (use reverse side if needed)_____

Data furnished by_____. Address_____.Date_____

8731

St. Paul, February 19, 1934

Mr. J. L. Watson:

Your letter of the sixteenth in regard to inquiry from Mr. Wood, a real estate dealer at Seattle, who proposes to plat the S½SW¼ Section 10 and N½NW¼ Section 15, T-28-N R-30-E at Grand Coulee:

Two of our preliminary lines will cross the south half of the SW¼ of Section 10 but our projected line misses Mr. Wood's property entirely and it is my opinion that our definite location will not run across the land in question.

RB h

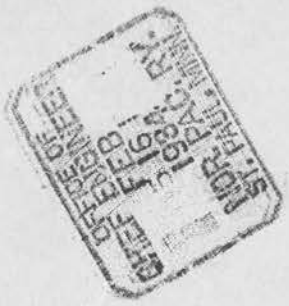
February 16, 1934.

Mr. B. Blum:

I have a letter from Mr. M. R. Wood, Realtor, Seattle, Washington, advising he proposes to plat the S½SW¼ Section 10 and N½NW¼ Section 15, Township 28 North, Range 30 East, W.M. He asks to be advised if any of this land will be affected by our Grand Coulee Line. What may I say to Mr. Wood?

J. L. Watson, Jr.

JET-p



8731 4/57

February 13, 1934

Wm. Halloran & Company,
414 Marion Building,
Seattle, Washington

Gentlemen: Attention Mr. Halloran

Replying to your letter of the ninth about property you own adjacent to the Government land at the Coulee dam site:

So far we have only run our preliminary survey line and I have shown by red line on print of the township plat you sent me where our preliminary line crosses your property. It will be necessary for us to make definite location on the ground before we are able to advise you where the railroad will be built.

In regard to the last paragraph of your letter, will say that we have made a bona fide applic ation to I.C.C. for permission to construct this railroad providing certain conditions are met by the Government. Hearing before the I.C.C. was held February 22nd at Olympia and as yet order has not been received from the Commission.

Yours truly,

BB h

WM. HALLORAN & CO.

INVESTMENT SECURITIES

TITLE & TRUST BUILDING

SEATTLE

J.T.D. can you say 2/10 B.B

414 Marion Building
February 9, 1934.

Mr Blum
about location of proposed line shown in Red on print attached. Profile of this line is independent
JTD 2/12

Mr. Bernard Blum,
Chief Engineer, N. P. Railroad,
St. Paul, Minn.

Dear Sir:

We are owners of property described on the inclosed plat being adjacient to the Government land at the Coulee dam site.

The Northern Pacific Railroad have, as we understand, three different surveys across this property.

It is our intention to plat a part or all of this land as a townsite and it is quite essential that we know where the railway right of way is to be located, as well as information to possible cuts or fills in so far as this property is concerned, in order to have our plat and grade conform with the right of way.

Mr. Williams, of the right of way department here in Seattle, suggests we write you in reference to the information we desire.

If it is in order for us to have this information it will be appreciated, and any charge for blueprints, etc., will be promptly remitted.

We understand from press dispatch that your railroad does not propose, at this time, to build this road; however, we will appreciate you sending us this information with blue prints, showing the most feaseable and likely location of this road, when it is built.

Very truly yours,

WM. HALLORAN & CO.,

Wm Halloran

WH/B

Map Sheet No. Instrument No. Sheet No.

UNITED STATES GOVT
PROPOSED TOWNSITE

Township 28 North, Range 30 E. W. M. GRANT COUNTY WASHINGTON

4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1	4	3	2	1
5	SE¼ NW¼	S½ NE¼		S½ NW¼		S½ NE¼		S½ NW¼		E½ NE¼		S½ NW¼		S½ NE¼		S½ NW¼		S½ NE¼		S½ NW¼		S½ NE¼	
6	E½ SW¼	6		5				4				3				2							
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1	E½ NW¼	7		8				9				10				11				12			
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3	E½ SW¼																						
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1	E½ NW¼	18		17				16				15				14				13			
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1	E½ NW¼	30		29				28				27				26				25			
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2																							
3	E½ SW¼																						
4																							

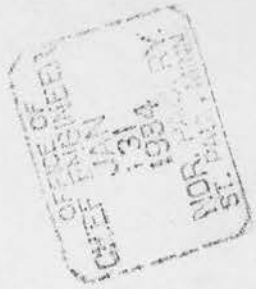
COLUMBIA RIVER

GRANT COUNTY

LINCOLN COUNTY

35

8731



M E M O R A N D U M

Jan. 31, 1934.

Mr. Bernard Blum:

For your information I am attaching hereto clipping from the Spokesman Review, Spokane, Wash. dated Jan. 28, 1934.

JTD-w

Spokesman Review

Spokane, Wash. Sunday January 28, 1934

TRUCKS TO DAM GET STATE O. K.

Inland and Cater's of Spokane Among Four Winners of Permits—May Start Monday.

Motor freight service to the Grand Coulee dam site probably will start Monday morning, following the granting yesterday of four certificates by the state department of public works. Companies granted certificates and the routes they will serve, as reported by the Associated Press, are:

Inland Motor Freight, Spokane to dam site; Cater's Spokane-Seattle-Tacoma Fast Motor Freight, Seattle and Tacoma to dam site; Waterville Transfer company, Wenatchee to dam site; Davis & Banker, Inc., Omak and Okanogan to dam site. The Inland was also granted a temporary permit to furnish service from Wilbur, Almira and Coulee to the dam site, pending action on the application by the Northern Pacific railway to build a spur line to the dam site.

The Spokane companies, the Inland and Cater's, both plan daily service, probably starting Monday, but did not know yesterday what roads would be used or what equipment. These decisions depend on designation of roads by the state highway department and possible load limits during wet weather.

The Inland may use the Coulee route at present for its Spokane service and also under the temporary certificate, picking up consignments at Wilbur and Almira, said Grover C. Ealy, president of the company.

Roads to the dam site have been cut up considerably during the wet weather, but heavy loads are still being hauled, it is said. The Inland has been freighting goods consigned to the dam site, delivering them at Almira, where they were picked up by trucks of buyers.

Cater's have been using the North Central highway in its cross-state service. Their trucks may use the Sunset highway for service to the dam site from the Coast, although officials said yesterday they were not prepared to say what roads would be used.

The freight line officials do not expect heavy shipments for another two or three months.

8731

M E M O R A N D U M

Jan. 31, 1934.

Mr. Bernard Blum:

For your information I am attaching hereto clipping from the Spokesman Review, Spokane, Wash. dated Jan. 28, 1934.

JTD-w

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8231

St Paul January 19, 1934

Bernard Blum

Car 12 - Seattle

Derrig wires from Baker 19th:

"If Milwaukee train NP connection Miles City will go through to Seattle on Milwaukee advise me Baker via Terry if you have all data for hearing and if can get in touch with you Seattle Sunday. Jury still out at noon today D-193." M-43

R E Gemmell

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

123 GIK

Baker Jan 19 1934 B Blum

Car 12 Seattle.

If Milwaukee train N P connection Miles City will go thru to Seattle on Milwaukee advise me Baker via Terry if you have all data for hearing leaving and if can get in touch with you seattle sunday jury still out at noon today D- 193

J T Derrig 4 PM

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

St Paul January 19, 1934

Bernard Blum
Car 12 - Seattle

Derrig wires case went to jury nine oclock last night. Also advises he will leave Miles City number one Saturday morning arriving Seattle Sunday. M-41

R E Gemmell

N. P. 1386 12-24

TELEGRAM—BE BRIEF

M.

Baker GID

Baker Jan 19 1934 73 B Blum Car 12 Seattle

74 B Blum St Paul

Will arrange leave Miles City No 1 Saturday morning arrive Seattle Sunday D-191

J T Derrig

1046 AM

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 8731 M.

STPAUL 1/18/34w

J T Derrig

Baker Mont via Terry

Please arrange attend hearing at Olympia and advise Mr. Blum your movements. Acknowledge. M-40

~~R. E. Gemmell~~ Bernard Blum

N. P. 1586 12-24

62 WRD

TELEGRAM—BE BRIEF

M.

Olympia Jan 18 1934

RE Gemmell

St Paul

M-35 Tell Derrig to attend hearing and advise me his movements

B Blum

440 pm

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

St Paul January 18, 1934

Bernard Blum

Car 12 - Seattle

Your wire 17th from Hoquiam. Have wire from Derrig that he plans to come in Saturday night If not will be in Sunday. Have seen copy Olson's wire this date to you advising if Derrig available will be glad to have him present at hearing. Please advise instructions that should be sent Derrig. M-35

R E Gemmell

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul Minn Jan 18 1934

Copy received from Lou Dipl 1/20

Bernard Blum
C/O Car No 12
Seattle Washington

B E Stoutmeyer is located at six hundred three P O building Portland Stop If Derrig available will be glad to have him present at hearing.

CONRAD OLSON

N. P. 1386 / 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8731

105 WR N

H 10AM JAN 17 34

R E GEMMELL

STPAUL

M-34 AM WIRING OLSON IF HE WILL WANT DERRIG WHAT IS DERRIGS LINE UP

B BLUM

1023PM

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED [illegible] M.

St. P[illegible], Minn., Jan. 17, 1934

Bernard Blum,
Care Car 12, Centralia, Wash.

Following from Mr. Derrig today. Quote Evidence completed last night 16th Jury visiting Wibaux today Court argument Thursday Stop All evidence submitted in highly satisfactory manner and consider the record of case especially good Stop Lillis and Clements made very good witnesses Stop Should have jury verdict sometime Friday Stop Advise if necessary to go to Olympia for hearing 22nd D-172 End quote M-34.

R. E. Gemmell

8731

January 11, 1934.

Mr. F. A. Banks,
Construction Engr. Grand Coulee Dam,
Almira, Washington.

Dear Sir:

I enclose copy of answer of the Northern Pacific Railway Co. to questionnaire concerning application for permission to construct a branch line from Odair to a point at the head of the Grand Coulee above the proposed Columbia River Dam in the State of Washington.

Yours truly,

Chief Engineer.

JMG-W

5

8731

4/50

Saint Paul, Minn.,

January 10, 1934.

MR. BERNARD BLUM:

For your information I am attaching blue print copy of Amended Declaration of Taking, signed by the Secretary of the Interior and Federal Emergency Administrator of Public Works, dated December 19th.

This we understand was made for the purpose of securing immediate possession of some of the property at the Coulee Damsite.

You will note the Declaration sets up seven reasons why the property is required for public use.

B

B

(Copy)

IN THE UNITED STATES DISTRICT COURT FOR

THE EASTERN DISTRICT OF WASHINGTON, NORTHERN DIVISION

United States of America vs. Continental Land Company, et al.	AMENDED DECLARATION OF TAKING

I, Harold L. Ickes, Secretary of the Interior of the United States, and Federal Emergency Administrator of Public Works, acting in such capacity and by virtue of the provisions of (a) the Act of June 17,1902 (32 Stat.,388) and all acts amendatory thereof or supplementary thereto, commonly known as the Reclamation Law, (b) the Act of Congress of June 16, 1933,(48 Stat., 195), and (c) the Act of February 26,1931, 46 Stat., 1421 (Chap.307), do hereby make and file this amended declaration of taking pursuant to the provisions of said Act of February 26,1931, and declare that the lands described in the complaint filed in this cause and shown on the plan hereto annexed and made a part of this declaration, are hereby taken for the use of the United States and under the authority of and for the purposes set forth in said Acts; that the estate in said lands hereby taken for the public use aforesaid is an estate in fee simple absolute; that the sum estimated by me to be just compensation for said lands, including all buildings, structures, and improvements thereon, if any, is Eleven Thousand Two Hundred and Sixty-seven Dollars and Ninety-two Cents, ($11,267.92) which said sum is hereby deposited into the registry of this Honorable Court to the use and for the benefit of the persons thereto entitled, that the following is a statement by legal subdivisions of the land taken under this declaration with the estimated values of the respective tracts:

Tract (1)	Lots 1,2,3 and SW¼NW¼, Sec. 1,T.28N.,R. 30 E WM and improvements Estimated value of Tract 1, $1,210.63	169.25 A
(2)	Lots 4 and 5; also NW¼SW¼ and SW¼SW¼ Sec.1, T 28 N., R 30 E WM and improvements Estimated value of Tract 2, $623.75.	164.50 A
(3)	Lots 1 and 2, Sec. 31, T. 29 N, R.31 E Lots 5,6,7, Sec.36, T.29 N, R 30 E Lots 6,7,8,9, Sec. 1, T 28 N, R 30 E WM and improvements Estimated value of Tract 3, $7,301.87	315.30 A

(4) Lots 2, 3, and 4, Sec. 6 T. 28 N, R 31 E WM and improvements 111.37 A
Estimated value of Tract 4, $792.37.

(5) Lot 3, Sec. 31, T. 29 N, R 31 E WM 39.89 A
Estimated value of Tract 5, $699.45

(6) Lot 4, Sec. 31, T. 29 N, R 31 E WM 39.97 A
Estimated value of Tract 6, $639.85

That said land is taken under the authority of the constitution and laws of the United States for the following purposes:

(1) Regulation and control of the flow of the Columbia River, a navigable stream of the United States, by means of a dam located at the Grand Coulee site and a storage reservoir above said site for use at said Grand Coulee site and at all the dam sites on the Columbia River below said Grand Coulee and all parts of said Columbia River from the Canadian Line to the mouth of said stream for the following purposes:

(2) Improvement of navigation;

(3) Flood control;

(4) Hydro-electric power development at said Grand Coulee site and at each of the proposed dam sites below the said Grand Coulee site as an aid and incident to the other purposes herein enumerated, including the increase of the amount of firm power which may be made available at each of the lower dam sites on said stream and the improvement of the feasibility of each of said proposed lower dams on the Columbia River as self-liquidating projects:

(5) Reclamation of arid and semi-arid land, including public land of the United States;

(6) Domestic use of water, including domestic use by entrymen on public lands;

(7) Relief of unemployment under the provisions of the Act of Congress of June 16, 1933 (48 Stat. 195) and particularly under Title II thereof.

and that pursuant to the provisions of said last mentioned Act of Congress and by virtue of the appropriations made by Congress for the purposes of said act, the Public Works Administration has allocated funds for the construction of a part of the Columbia Basin project and such funds are available for just compensation for said lands so taken.

In Witness Whereof, I have hereunto set my hand this 19th day of December, 1933, in the City of Washington, District of Columbia.

This Declaration is intended to amend and supersede Declaration for the same purpose signed by me under date of December 12, 1933.

HAROLD L. ICKES
Secretary of the Interior of the United States,
and Federal Emergency Administrator of Public Works

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

25 SF S

Spokane 1/10/34 R E Gemmell

St Paul

Send Mr Banks direct at Almira Washington copy of answer to Question-
-naire coulee dam stop. Send me out two or three extra copies

B-101

Bernard Blum

1247 am 11th

7 A Banks
Construction Engineer
Grand Coulee Dam
Almira Wash—

N. P. 1386 12-24

TELEGRAM—BE BRIEF

8231

TIME FILED

M.

St Paul January 10, 1934

Bernard Blum

Car 12 - Missoula Mont

B-91 Coulee Dam file including copy application and questionnaire sent out January 8th. Will send tonight prints of Derrig's locations. M-15

R E Gemmell

Done

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

129 MD N

MISSOULA JAN 9 34

R E GEMMELL

STPAUL

HAVEYOU SENT OUT FILE ON COULEE DAM INCLUDING PRINTS OF PRELIMINARY LOCATION SHOWING LINE PROJECTED BY DERRIG STOP I WANT THIS FILE AS SOON AS POSSIBLE INCLUDE COPY OF APPLICATION AND QUESTIONNAIRE B 91

BERNARD BLUM

1123PM

8731

D 1/16

O-279-1

January 3, 1934.

Guthrie-McDougall Company,
552 Sherlock Building,
Portland, Oregon.

Attn: Mr. Natt McDougall, Pres.

Coulee, Wash: Proposed spur to dam site.

Dear Sirs:

I have your letter of December 8, advising that it is your understanding that the Northern Pacific is to build a spur track to the Coulee Dam, at an early date, and you wish to be furnished with proposals so you may bid on the work.

This work will be handled by our Chief Engineer, Mr. Bernard Blum, but if and when the bids are to be submitted, it is my understanding from Mr. Blum that he will submit proposals to this office for passing out to various Contractors on the West End, and as you are on our list, you will be furnished with same.

You state that you would appreciate being permitted to make a proposition for the work, as on account of the large amount of idle equipment you have, and men, you can expedite the work. I assume that you have some special proposition to submit and if so, I suggest that you submit direct to Mr. Blum. I am furnishing him with copy of this letter, for his information.

Yours truly,

ASSISTANT CHIEF ENGINEER.

AFS:L

Copy to
Mr. Blum,
St. Paul, Minn.

J.T.D. note B.B.
1/8/34

8731 B

St. Paul, Minnesota,
December 30, 1933.

Subject:

In the Matter of the Application of the Northern Pacific Railway Company for a Certificate of Public Convenience and Necessity for the Construction of a New Line of Railroad from a Connection with Applicant's Existing Line at Odair, Washington, to a Point at the Head of the Grand Coulee above the Proposed Columbia River Dam in Grant County, Washington. Finance Docket No. 10212.(2191 ICC)

Mr. Charles Donnelly,
Mr. H. E. Stevens,
Mr. R. W. Clark,
Mr. Bernard Blum:

I am advised that the newspapers in the state of Washington have published an item stating that the Interstate Commerce Commission has set our application for a certificate to build a branch line to the Coulee dam project for hearing at Olympia, Washington, on January 22, 1934.

We have not as yet received any official notice from the Interstate Commerce Commission.

C-s

Assistant General Counsel

y T.D. GWB 1/2
A C T.

note B.B. 12/31

N.Y.T. 1/3/34

8731

December 30, 1935

Mr. L. V. Murrow,
Director of Highways,
State of Washington,
Olympia, Washington

Dear Sir:

Acknowledging your letter of the 21st about conference on highway locations in the State of Washington:

I regret that the expediency of the recent washouts prevent my calling on you at Olympia. I am hoping to leave for the west not later than the middle of January and will make it a point to see you.

Yours very truly,

BB:h

cc Mr. Stotler

8731

December 27, 1933

Dear George:

Thank you for your letter of the twenty-second attaching clipping from the Seattle Times of December twentieth. Yes I saw the article in a Spokane paper on my way west and as a matter of fact Senator Dill got on train two, which I took out of Seattle, and I rode with him all day Thursday and had an interesting discussion with him.

I am sure you had a nice Christmas and with all best wishes for a very prosperous and happy New Year.

Sincerely,

Mr. George Faltico,
c/o Addison Miller, Inc.,
909 Arctic Building,
Seattle, Washington

EB h

ADDISON MILLER
INCORPORATED

909 Arctic Bldg.,
Seattle, Washington,
December 22nd, 1933.

Mr. Bernard Blum,
Chief Engineer,
Northern Pacific Rlwy. Co.,
St. Paul, Minnesota.

Dear Bernie:-

Attached hereto a clipping taken out of the Seattle Times, Wednesday, December 20th.

I do not know if you saw this in the paper or not, and am forwarding it to you for your information.

Personal regards, and the Season's Greetings.

Sincerely,

GF:TJ
Att-1

"SEATTLE TIMES"
12-20- 1933

TIMES-

WEDNESDAY, DEC

COULEE RAILROAD OPPONENTS ARE WARNED BY DILL

By Associated Press.

SPOKANE, Wednesday, Dec. 20.—Senator C. C. Dill warned trucking companies last night that continued efforts to prevent construction of a railroad to the site of the proposed Grand Coulee Dam may cause the federal government to construct a line of its own.

"A railroad is needed to haul the materials that will be required in building the dam," said the senator. "And it is preposterous to expect the people of the state to spend $1,000,000 building highways and then have the trucking companies move in and make a profit without any investment in the highway. We simply won't stand for it."

Cases to Be Argued

Six motor truck lines have been granted permission by the Interstate Commerce Commission to intervene in the Northern Pacific's application for a rail permit, the senator said, and a hearing will be held to give both sides opportunity to argue their cases.

"If the truck interests persist in this effort to block the construction of a railroad to the dam site, I certainly shall ask that a government rail line be built to the project. Then we'll see how much business the trucks get," said the senator.

Senator Dill said he had drafted a new bill for introduction at the next session of Congress providing for the creation of a Columbia River authority similar to the Tennessee Valley authority.

U. S. in Power Business

He suggested that a superpower commission of three members be created to handle the Coulee and Bonneville dams, empowered to create extensive development on the Snake and Columbia Rivers and deal with power, navigation and flood-control erosion.

The bill also would give authority for the issuance of $50,000,000 worth of bonds for building transmission lines from the two dams to centers of population. He would have the government sell the power outright to cities and commercial enterprises, or lease the lines to private companies.

The senator has announced a plan to pool power from the two dams and sell it over government-built lines, putting the government in the power business.

STATE OF WASHINGTON
DEPARTMENT OF HIGHWAYS
OLYMPIA

ADDRESS ALL COMMUNICATIONS TO
THE DIRECTOR OF HIGHWAYS

December 21, 1933

Mr. Bernard Blum, Chief Engineer
Northern Pacific Railway Company
ST. PAUL, Minnesota

Dear Sir:

Replying to your letter of December 17 advising that your itinerary did not permit a meeting with you on your recent trip, I regret very much that it was not possible to arrange this meeting and I will gladly furnish you the information as to the highway location at such time as these maps become available.

Very truly yours,

L. V. MURROW
Director of Highways

LVM:GL
JAD

8931

St. Paul, December 18, 1933.

Mr. Bernard Blum -

As requested in your letters of October 5th and 18th, 1933, in reference to making estimates for that portion of our Washington Central Branch, and Adrian Branch, that might be used by the Great Northern, Milwaukee, and OW. On October 26th, I transmitted to you portions to be used by the Great Northern and Milwaukee, but had not yet completed same for the OW.

I hand you herewith three copies of estimate for the line from Connell to Odair based on ICC Revised Engineering Report quantities, plus A&B quantities to October 1, 1933, priced at an average five year reproduction price basis. I have also made up estimate for ICC allowance as of June 30, 1917, plus A&B, which for all practical purposes is the best estimate of original cost. Find below statement of these estimates set out for comparison:

Main Track	80.888 Miles	
Other Track	3.939 Miles	
Total	84.827 Miles	
Cost based on Average 5 year Reproduction Prices		$3,182,903
Cost based on ICC inventory, using 1914 prices	$2,235,209	
A&B to Oct. 1st, 1933	55,484	$2,290,693

Cost per Mile of Main Track

Reproduction	$39350
ICC plus A&B	28320

We have not made any estimate for trackage that may be used by the OW at Connell, as we do not know what trackage they might need.

Hold

A. J. Lund
Valuation Engineer.

ACT:FJ

8731

On Line 12-17-33

Dear Mr. Murrow:

Mr. Tremaine phoned yesterday that you would like to see me in regard to highways leading to the Grand Coulee dam. On account of serious washouts on the LP&N Railway I was forced to go south last night and will be tied up over tomorrow. I may have to leave immediately for the east.

I do not have with me preliminary location survey of our proposed line to the dam site from Coulee City and presume you desire conference in connection with location of your highway with respect to our railroad line.

We have not made definite location but I will be glad to let you have information as to our preliminary line if this will be of benefit to you. If you have print of your highway location, I will be glad to check it up at the same time with our maps.

Yours very truly,

Mr. Lacey Murrow,
Director of Highways,
Olympia, Washington

AB h

8-731

December 12, 1933.

Mr. J. Norman Jensen,
343 So. Dearborn St.,
Chicago, Illinois.

Dear Sir:

Referring to your letter of December 9th making inquiry about possible use of steel bridges on our proposed Grand Coulee Line:

In the event that this line is constructed there will be practically no bridges involved. The total length of the bridging will not exceed 400 feet, all of which will be small pile trestles.

I am referring your letter of the 9th to our Bridge Engineer, Mr. H. F. Clements and he will be glad to get in touch with you and ascertain if we have use for any of the steel structures you have for sale.

Yours truly,

JTD-w

Chief Engineer.

cc - Mr. Clements:- Letter attached. Will you please get in touch with him. Possibly we will be able to use some of this steel on the Missouri River bridge which the Government is constructing at Ft. Peck.

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16 at Odair, Washington, the Adrian Branch from Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from H.B. Station 1+57 at Adco to H.B. Station 3214+65 at Connell, Washington.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	80.888 Miles
Other Tracks	3.939 Miles
Total	84.827 Miles

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 1 - Engineering					120561
Acct. 2 - Land					99675
Acct. 3 - Grading					
Clearing sage brush	Acre	51.140	12.75	652	
Common	Cu.Yd.	1270517	.29	368450	
Hard pan	"	387846	.50	193923	
Loose rock	"	310279	.55	170653	
Solid rock	"	397310	1.12	444987	
Team haul over 500'	CY-100'	4152707	0.015	61991	
Cinders	Cu.Yd.	215	.74	159	
Gravel, blanket avg. haul 8.6 Mi.	"	53810	.45	24215	
" " " " 19.1 "	"	20355	.57	11601	
Riprap, loose	"	212	1.57	333	
" hand placed	"	635	2.32	1473	
Cribs, timber	M.B.M.	2.302	31.00	71	
" iron	lb.	10	.07	1	1278509
Acct. 6 - Bridges, Trestles & Culverts					
Combination Bridge - 62 feet long					
Substructure - 2 frame abutments, east abutment on mudsills and west abutment on concrete footing -					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1055	
Iron	lb.	3900	0.065	254	
Excav., solid rock	Cu.Yd.	75	1.15	86	
Superstructure, One 62' deck Howe truss span -					
Timber	M.B.M.	21.400	120.00	2568	
Iron	lb.	26400	0.07	1848	
Bridge signs	Each	1	1.25	1	
Pile & Frame Trestles, 6424.3 ft. long					
Piling, cedar	Lin.ft.	18253	.92	16793	
" , fir	"	3400	.92	3128	
Stringers	M.B.M.	526.667	54.50	28703	
Other timber	"	1655.245	51.00	84417	
Iron	lb.	139379	.065	9055	
Galv. iron	"	33517	.07	2346	

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5563+50 and 5592+16 at Odair, Washington, the Adrian Branch from Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from M.B. Station 1+57 at Adco to M.B. Station 3214+65 at Connell, Washington.

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Team haul over 500'	CY-100'	4152707	0.015	61991	
Cinders	Cu.Yd.	215	.74	159	
Gravel, blanket avg. haul 8.6 Mi.	"	53810	.45	24215	
" " " " 19.1 "	"	20353	.57	11601	
Riprap, loose	"	212	1.57	333	
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Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
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Superstructure, One 62' deck Howe truss span -					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	0.07	1848	
Bridge signs	Each	1	1.25	1	
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Stringers	M.B.M.	526.667	54.50	28703	
Other timber	"	1655.245	51.00	84417	
Iron	Lb.	139279	.065	9053	
Galv. iron	"	33517	.07	2346	

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 6 - Bridges, Trestles & Culverts (Cont'd)					
Pile & Frame Trestles, 6424.3 ft. long (Cont'd)					
Excavation, common	Cu.Yd.	1746	.64	1117	
Loose rock	"	1296	.75	972	
Solid rock	"	61	1.15	70	
Riprap, derrick	"	88	2.90	255	
" hand placed	"	440	2.32	1021	
" loose	"	388	1.57	609	
Water barrels	Each	71	1.25	89	
Bridge signs	"	33	1.25	41	
Dyke timber	M.B.M.	27.138	31.00	841	
" iron	Lb.	760	.07	53	
Pipe and Timber Culverts					
Culvert timber	M.B.M.	4.724	53.00	250	
24" Cast iron pipe, 2292 L.Ft.	N. Ton	195.966	73.30	14364	
36" " " " 1608 "	"	242.808	73.30	17798	
24" Vitr. tile "	L. Ft.	1606	4.00	6424	
24" Reinf. conc."	"	322	6.00	1932	
36" " " "	"	87	10.00	870	
Riprap, loose	Cu.Yd.	10	1.57	16	
" , hand placed	"	40	2.32	93	
Rubble in mortar	"	34	10.00	340	
Blind drains, L.R.	"	21	2.50	53	
Excavation, loose rock	"	6	.75	5	
Cobble paving	"	1	5.25	5	
Reinforced concrete	"	2.3	13.80	31	
Plain "	"	4	13.30	54	
Dry stone wall	"	18.5	5.50	102	
Reinforced steel	Lb.	238	0.07	17	199232
Acct. 8 - Ties					
Cross ties, treated	Each	185156	1.58	292546	
" " untreated	"	46289	.90	41660	
Switch " "	M.B.M.	82.925	26.70	2214	
Bridge " "	"	346.427	35.20	12194	348614
Acct. 9 - Rail					
90# Rail, relay, 92 L.Ft.	Gr.Ton	1.232	40.50	50	
85# " " 2167 "	"	27.410	40.50	1110	
72# " " 659052.4 "	"	7061.276	40.50	285982	
66# " " 232176.4 "	"	2280.304	40.50	92352	
56# " " 876 "	"	7.300	40.50	296	379790
Acct. 10 - Other Track Material					
90# Angle bars, relay, 5 pr.	Cwt.	1.62	2.50	4	
85# " " " , 70 "	"	33.60	2.50	84	
72# " " " , 23051 "	"	8291.16	2.50	20728	
66# " " " , 8119 "	"	2818.92	2.50	7047	
56# " " " , 28 "	"	8.88	2.50	22	
90/85# Offset angle bars, 2 "	"	1.07	10.98	12	
85/72# Compr. jts.,DuWell, 2 "	"	1.50	10.98	16	
85/66# Offset angle bars, 2 "	"	.74	10.98	8	
90# Insulated joints	Each	2	9.41	19	
85# " "	"	2	5.66	11	
Track bolts, 1"x4-3/4", 16 pc.	Cwt.	0.52	4.74	2	
" " 15/16"x4-1/4",291 "	"	3.79	4.74	18	
" " 3/4"x3-3/8", 122996 "	"	947.07	4.74	4489	
" " 3/4"x3½", 501 "	"	4.01	4.74	19	
90# Nut locks	M.	0.016	48.00	1	
72# " "	M.	0.660	35.00	23	

		Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 10 - Other Track Material (Cont'd)						
Track spikes, 9/16"x6",	945011 pc.	Cwt.	5953.57	3.85	22902	
" " 9/16"x5½",	47385 "	"	262.99	3.85	1007	
90# Tie plates, 7"x9",	43 "	"	4.19	3.10	13	
90# " " 6"x9½",	900 "	"	63.00	3.10	195	
85# " " 7"x9"	400 "	"	34.80	3.10	108	
85# " " 6"x8½" Int.,	1000 "	"	66.00	3.10	205	
85# " " 6"x8½" Jt.,	108 "	"	6.99	3.10	22	
72# " " 6"x8" Int.,	201563 "	"	12819.41	3.10	39740	
72# " " 6"x8" Goldie,	1100 "	"	71.28	3.66	261	
72# " " 4½"x8" Wolh.,	124 "	"	3.50	3.10	11	
72# " " 4½"x8½" " ,	50 "	"	.85	3.10	3	
66# " " 6"x8", Int.,	68798 "	"	4382.43	3.10	13586	
66# " " 6"x8", Jt.,	11142 "	"	688.58	3.10	2135	
66# " " 6"x8", Sellers,	2264 "	"	156.90	3.10	488	
72# Rail braces, cast,	30 "	"	1.80	9.70	17	
66# " " "	15 "	"	1.01	9.70	10	
66# " " P.S.M.	2113 "	"	76.07	8.30	631	
56# " " "	67 "	"	2.45	8.30	20	
90# Split switch, 16½'		Each	1	122.45	122	
85# " " 15'		"	1	73.40	73	
72# " " 15'		"	17	65.64	1116	
66# " " 15'		"	7	62.10	435	
90# Spr. rail frog #11, 16½'		"	1	115.25	115	
72# " " " # 9, 15'		"	1	106.50	107	
66# " " " # 9, 15'		"	2	106.50	213	
85# Rgd frog, #9, 11½'		"	1	72.90	73	
72# " " #9, 11½'		"	16	63.60	1018	
66# " " #9, 11½'		"	5	60.60	303	
90# Guard rails&p., 16½',	1 pr.	Cwt.	16.28	4.40	72	
85# " " braced, 15',	1 "	"	8.82	3.54	31	
72# " " " 15',	17 "	"	125.46	3.54	444	
66# " " " 15',	7 "	"	47.53	3.54	168	
72# Derail spl. sw. pt., 15',		Each	1	32.80	33	
66# " " " " 15',		"	1	15.60	16	
Derail, Hobart All Free size L.7		"	1	16.85	17	
Switch stand, H. Ban.		"	28	27.75	777	
Switch locks		"	28	.86	24	
Switch lamps		"	2	8.80	18	
Rail racks		"	79	1.50	119	
Cobble paving		Sq.Yd.	5	.75	4	
Bumping post, timber		M.B.M.	0.250	47.00	12	
" " earth		Cu.Yd.	4	.64	3	119068
Acct. 11 - Ballast						
Gravel, avg. haul 64 Mi.		Cu.Yd.	7054	.98	6913	
" " " 21 "		"	245	.71	174	
" " " 11 "		"	1911	.60	1147	
" " " 9 "		"	32458	.57	18501	
Cinders, " " 10 "		"	1659	.45	747	27482
Acct. 12 - Tracklaying and Surfacing						
Main Track						
Lay. & Init. Surf., 90/CI# rail,	427090'	Mile	80.888	1718.00	138966	
Extra for full earth surfaced,	291499'	"	55.206	390.00	21530	
Other Tracks						
Lay. & Init. Surf., 90/CI# rail,	20559.9'	"	3.856	1505.00	5796	
" " " " 60/C# "	458'	"	.085	1460.00	121	

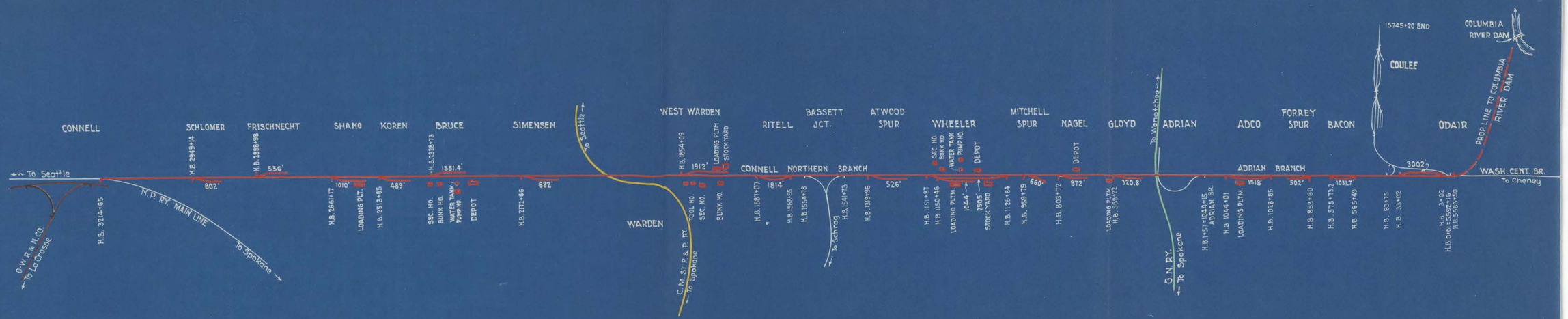
	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 12 - Tracklaying and Surfacing (Cont'd)					
All Tracks					
Placing ballast gravel	Cu.Yd.	41666	.45	18751	
" " cinders	"	1659	.37	614	
" turnouts	Each	26	72.00	1872	
" spl. sw. derail with stands	"	2	20.00	40	
" derail block type	"	1	5.25	5	
" tie plates	"	207477	0.024	6899	
" rail braces	"	2225	0.028	62	
Framing & placing bridge ties	M.B.M.	346.437	19.10	6617	201273
Acct. 13 - Right of Way Fences					
Posts, split cedar, 6"x7'	Each	4122	.26	1072	
" " " 5"x6'	"	11013	.26	2863	
Labor setting posts	"	15135	.195	3951	
Post, round cedar, 6"x8' with auger hole for sharpened 4" dia. x 6' brace, in place	"	1234	1.00	1234	
Barbed wire	Cwt.	812.48	4.20	3408	
48" Woven wire	"	93.52	4.35	405	
Labor stringing barbed wire, over 12'	Wi.Mi.	228.762	6.80	1556	
" " woven " " 12'	Fe.Mi.	2.107	50.00	105	
Stays, 4'	Each	42624	.04	1705	
Staples	Cwt.	11.45	4.20	48	
Nails	"	6.90	4.00	27	
Rustic rail	L. Ft.	21139	.08	1691	
Bracing, in place	M.B.M.	10.256	41.80	429	
Gates, Eureka	Each	20	10.40	208	
Cattle guards, wood surface	"	73	24.80	1810	19512
Acct. 14 - Snow and Sand Fences					
Cedar posts, 10"x18', in place	Each	700	6.40	4480	
" " 10"x30'	"	90	6.40	576	
" " 8"x20'	"	49	6.40	314	
" " 10"x24'	"	209	8.75	2616	
Fir posts, 4"x6"-16'	"	135	1.36	184	
Plank, in place	M.B.M.	47.575	41.80	1989	
Barbed wire guys	Cwt.	5.67	4.20	24	
#9 wire guys	"	3.52	4.00	14	
Ties, 7"x8"x8'	Each	605	.90	545	
Iron	Lb.	489	.06	29	
Labor stringing guy wire and placing deadman	Each	603	6.75	4070	14839
Acct. 15 - Crossings and Signs					
Common	Cu.Yd.	13044	.29	5783	
Hard pan	"	606	.50	303	
Loose rock	"	70	.55	39	
Solid rock	"	13	1.12	15	
Planking	M.B.M.	23595	35.00	825	
Iron	Lb.	491	.07	34	
Riprap, hand placed	Cu.Yd.	1	2.32	2	
Signs					
Warning	Each	48	6.00	288	
Mile board	"	79	2.25	178	
Section	"	1	1.88	2	
1 Mi. to Water	"	5	4.13	21	
1 Mi. to Station	"	10	4.13	41	

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 15 - Crossings and Signs (Cont'd)					
Signs (Cont'd)					
Whistle Post	Each	67	3.00	201	
Flanger	"	14	1.88	26	
Yard Limit	"	2	4.50	9	
Dump Cinders	"	2	4.13	8	
Station	"	8	6.00	48	
County	"	2	4.00	8	
Cobble paving	Cu.Yd.	26.600	5.25	139	5270
Acct. 16 - Station and Office Buildings					
Adco					
Loading platform, frame, 16'x96'	Each	1		779	
Cloyd					
Shelter shed, 8x34, carbody	"	1		450	
" " furniture	"	1		64	
" " platform	"	1		33	
Nagel					
Depot, 8x34, carbody	"	1		449	
Wheeler					
Depot, 1 story, frame, 30x38	"	1		4846	
" furniture	"	1		367	
" platform, 1376 sq.ft., frame	"	1		370	
" grading cinders, 20 cu.yd.	"	1		19	
" outside piping	"	1		361	
Cellar	"	1		60	
Outhouse	"	1		77	
Stockyard	"	1		1714	
Portable ice house, 10.3'x25.3'	"	1		311	
Loading platform, 12x40 and 6x16	"	1		154	
West Warden					
Depot, 8'x33'9", carbody	"	1		461	
" furniture	"	1		41	
" platform, 46 cu.yd, cinders	"	1		70	
Stockyard, 4494 FBM	"	1		308	
Loading platform, 30x40 and 11x58	"	1		625	
Bruce					
Depot, 1 story, frame, 30x38	"	1		4710	
" platform, 1360 sq.ft., frame	"	1		327	
" outside piping	"	1		92	
" grading, 137 cu.yd. cinders	"	1		151	
" outhouse, 5x7	"	1		77	
Shano Spur					
Loading platform, 1730 F.B.M.	"	1		90	
Grading, 337 cu.yd., common	"	1		215	
Station Signs	"	8		103	
Adco, Cloyd, Nagel, Bassett Jct., Ritell, W.Warden, Shano Spur, Frieschnecht Spur					17533

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 17 - Roadway Buildings					
Wheeler					
Section house, 1½ story, 16x24, and 1 story 6x11	Each	1		1845	
Bunk house, 1 story, 16x24, frame	"	1		739	
Water in sec. ho. and bunk ho.	"	1		526	
Tool house, 10x12, frame	"	1		174	
Gas cellar	"	1		115	
Outhouse	"	1		62	
Gas cellar	"	1		21	
Root "	"	1		25	
Outhouse	"	1		74	
Gas. storage tank, 100-gal.	"	1		31	
West Warden					
Section house, 1½ story 16x24, and 1 story 6x11	"	1		1845	
Bunk house, 1 story 16x24, 8x8, and 6x8	"	1		640	
Cistern, 10" dia. x 6', concrete	"	1		365	
Tool house, 10x12, frame	"	1		206	
Outhouse	"	1		69	
Gas cellar	"	1		121	
Root "	"	1		218	
Shed	"	1		194	
Outhouse	"	1		62	
Fence	"	1		60	
Embankment	"	1		47	
Portable ice house, 10.3'x25.3'	"	1		298	
Gas. storage tank, 100-gal.	"	1		29	
Bruce					
Section house, 1½ story 16x24', 1 story 6x11'	"	1		1901	
Root cellar, 11x17	"	1		290	
Pipe lines	"	1		508	
Bunk house, 1 story 16x24' and 8x11'	"	1		818	
Tool house, 10x12	"	1		227	
Portable ice house, 10.3x25.3'	"	1		317	
Outhouse	"	1		125	
Fence	"	1		90	
Gasoline storage tank, 100-gal.	"	1		27	12085
Acct. 18 - Water Stations					
Wheeler					
Pump house, 12'x16' and 11'x24.4'	"	1		1582	
Equipment	"	1		1637	
Gas tank and cellar, 1 500-gal. and 1 200-gal.	"	1		255	
Pipe lines	"	1		65	
Water tank, 24' dia. x 16' high on concrete foundation	"	1		3852	
Well, 10" dia. x 386 ft. deep	"	1		5956	
Bruce					
Pump house, 12x28', brick	"	1		1524	
Equipment	"	1		2728	
Gas. cellar, 8x8, conc., 200-gal. tank	"	1		127	
" " 9x10 brick, 150, 180, 225-gal. tank	"	1		475	
Pipe lines	"	1		182	
Tank, 24' dia. x 16', wood, conc. fdn.	"	1		3822	
Well, 10" dia. x 476 ft. deep	"	1		7757	29960

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 26 - Telegraph and Telephone Lines					23098
Acct. 27 - Signals and Interlockers					66
Acct. 37 - Roadway Machines					1298
Acct. 38 - Roadway Small Tools	Sets	4	200.00		800
Acct. 71-75 & 77 - General Expenditures					41995
Acct. 76 - Interest During Construction					241543
Grand Total					$3182905

Office of Valuation Engineer
St. Paul, Minn., Dec. 14, 1933



N.P.RY.

SKETCH

CONNELL TO ODAIR, WASH.

TO ACCOMPANY

ESTIMATE DATED DEC. 14, 1933

OFFICE OF VALUATION ENG'R. ST. PAUL, MINN.

NO SCALE

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16 at Odair, Washington, the Adrian Branch from Station 0-01 to Station 1044+15 at Adco, and the Connell-Northern Branch from H.B. Station 1+57 at Adco to H.B. Station 3214+65 at Connell, Washington.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	80.888 Miles
Other Tracks	3.939 Miles
Total	84.827 Miles

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 1 - Engineering					120561
Acct. 2 - Land					99675
Acct. 3 - Grading					
Clearing sage brush	Acre	51.140	12.75	652	
Common	Cu.Yd.	1270517	.29	368450	
Hard pan	"	387846	.50	193923	
Loose rock	"	310279	.55	170653	
Solid rock	"	397310	1.12	444987	
Team haul over 500'	CY-100'	4132707	0.015	61991	
Cinders	Cu.Yd.	215	.74	159	
Gravel, blanket avg. haul 8.6 Mi.	"	53810	.45	24215	
" " " " 19.1 "	"	20353	.57	11601	
Riprap, loose	"	212	1.57	333	
" hand placed	"	635	2.32	1473	
Cribs, timber	M.B.M.	2.302	31.00	71	
" iron	Lb.	10	.07	1	1278509
Acct. 6 - Bridges, Trestles & Culverts					
Combination Bridge - 62 feet long					
Substructure - 2 frame abutments, east abutment on mudsills and west abutment on concrete footing -					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
Excav., solid rock	Cu.Yd.	75	1.15	86	
Superstructure, One 62' deck Howe truss span -					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	0.07	1848	
Bridge signs	Each	1	1.25	1	
Pile & Frame Trestles, 6424.3 ft. long					
Piling, cedar	Lin.ft.	18253	.92	16793	
" , fir	"	3460	.92	3183	
Stringers	M.B.M.	526.667	54.50	28703	
Other timber	"	1655.245	51.00	84417	
Iron	Lb.	139279	.065	9053	
Galv. iron	"	33517	.07	2346	

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Cinders	Cu.Yd.	215	.74	159	
Gravel, blanket avg. haul 8.6 Mi.	"	53810	.45	24215	
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Riprap, loose	"	212	1.57	333	
" hand placed	"	635	2.32	1473	
Cribs, timber	M.B.M.	2.302	31.00	71	
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Timber	M.B.M.	20.300	51.00	1035	
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Excav., solid rock	Cu.Yd.	75	1.15	86	
Superstructure, One 62' deck Howe truss span -					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	0.07	1848	
Bridge signs	Each	1	1.25	1	
Pile & Frame Trestles, 6424.3 ft. long					
Piling, cedar	Lin.ft.	18253	.92	16793	
" , fir	"	3460	.92	3183	
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Other timber	"	1655.245	51.00	84417	
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85# " " 2167 "	"	27.410	40.50	1110	
72# " " 659052.4 "	"	7061.276	40.50	285982	
66# " " 232176.4 "	"	2280.304	40.50	92352	
56# " " 876 "	"	7.300	40.50	296	379790
Acct. 10 - Other Track Material					
90# Angle bars, relay, 3 pr.	Cwt.	1.62	2.50	4	
85# " " " , 70 "	"	33.60	2.50	84	
72# " " " , 23031 "	"	8291.16	2.50	20728	
66# " " " , 8119 "	"	2818.92	2.50	7047	
56# " " " , 28 "	"	8.88	2.50	22	
90/85# Offset angle bars, 2 "	"	1.07	10.88	12	
85/72# Compr. jts.,DuWell, 2 "	"	1.50	10.88	16	
85/66# Offset angle bars, 2 "	"	.74	10.88	8	
90# Insulated joints	Each	2	9.41	19	
85# " "	"	2	5.66	11	
Track bolts, 1"x4-3/4", 16 pc.	Cwt.	0.32	4.74	2	
" " 13/16"x4-1/4", 291 "	"	3.79	4.74	18	
" " 3/4"x3-3/8", 122996 "	"	947.07	4.74	4489	
" " 3/4"x3½", 501 "	"	4.01	4.74	19	
90# Nut locks	M.	0.016	48.00	1	
72# " "	M.	0.660	35.00	23	

		Units	No. of Units	Unit Price	Amount	Total
				$	$	$
Acct. 10 - Other Track Material (Cont'd)						
Track spikes, 9/16"x6",	945011 pc.	Cwt.	5953.57	3.83	22802	
" " 9/16"x5½",	47385 "	"	262.99	3.83	1007	
90# Tie plates, 7"x9",	48 "	"	4.19	3.10	13	
90# " " 6"x8½",	900 "	"	63.00	3.10	195	
85# " " 7"x9"	400 "	"	34.80	3.10	108	
85# " " 6"x8½" Int.,	1000 "	"	66.00	3.10	205	
85# " " 6"x8½" Jt.,	108 "	"	6.99	3.10	22	
72# " " 6"x8" Int.,	201563 "	"	12819.41	3.10	39740	
72# " " 6"x8" Goldie,	1100 "	"	71.28	3.66	261	
72# " " 4¾"x8" Wolh.,	124 "	"	3.50	3.10	11	
72# " " 4¾"x8½" " ,	30 "	"	.85	3.10	3	
66# " " 6"x8", Int.,	68798 "	"	4382.43	3.10	13586	
66# " " 6"x8", Jt.,	11142 "	"	688.58	3.10	2135	
66# " " 6"x8", Sellar,	2264 "	"	156.90	3.10	486	
72# Rail braces, cast,	30 "	"	1.80	9.70	17	
66# " " "	15 "	"	1.01	9.70	10	
66# " " P.&M.	2113 "	"	76.07	8.30	631	
56# " " "	67 "	"	2.45	8.30	20	
90# Split switch, 16½'		Each	1	122.45	122	
85# " " 15'		"	1	73.40	73	
72# " " 15'		"	17	65.64	1116	
66# " " 15'		"	7	62.10	435	
90# Spr. rail frog #11, 16½'		"	1	115.25	115	
72# " " " # 9, 15'		"	1	106.50	107	
66# " " " # 9, 15'		"	2	106.50	213	
85# Rgd frog, #9, 11½'		"	1	72.90	73	
72# " " #9, 11½'		"	16	63.60	1018	
66# " " #9, 11½'		"	5	60.60	303	
90# Guard rails clp., 16½',	1 pr.	Cwt.	16.28	4.40	72	
85# " " braced, 15',	1 "	"	8.82	3.54	31	
72# " " " 15',	17 "	"	125.46	3.54	444	
66# " " " 15',	7 "	"	47.53	3.54	168	
72# Derail spl. sw. pt., 15',		Each	1	32.80	33	
66# " " " " 15',		"	1	15.60	16	
Derail, Hobart All Free size L.7		"	1	16.85	17	
Switch stand, K. Ban.		"	28	27.75	777	
Switch locks		"	28	.86	24	
Switch lamps		"	2	8.80	18	
Rail racks		"	79	1.50	119	
Cobble paving		Sq.Yd.	5	.75	4	
Bumping post, timber		M.B.M.	0.250	47.00	12	
" " earth		Cu.Yd.	4	.64	3	119068
Acct. 11 - Ballast						
Gravel, avg. haul 64 Mi.		Cu.Yd.	7054	.98	6913	
" " " 21 "		"	245	.71	174	
" " " 11 "		"	1911	.60	1147	
" " " 9 "		"	32458	.57	18501	
Cinders, " " 10 "		"	1659	.45	747	27482
Acct. 12 - Tracklaying and Surfacing						
Main Track						
Lay. & Init. Surf., 90/61# rail,	427090'	Mile	80.888	1718.00	138966.	
Extra for full earth surfaced,	291489'	"	55.206	390.00	21530	
Other Tracks						
Lay. & Init. Surf., 90/61# rail,	20359.9'	"	3.856	1503.00	5796	
" " " " 60/0# "	438'	"	.083	1460.00	121	

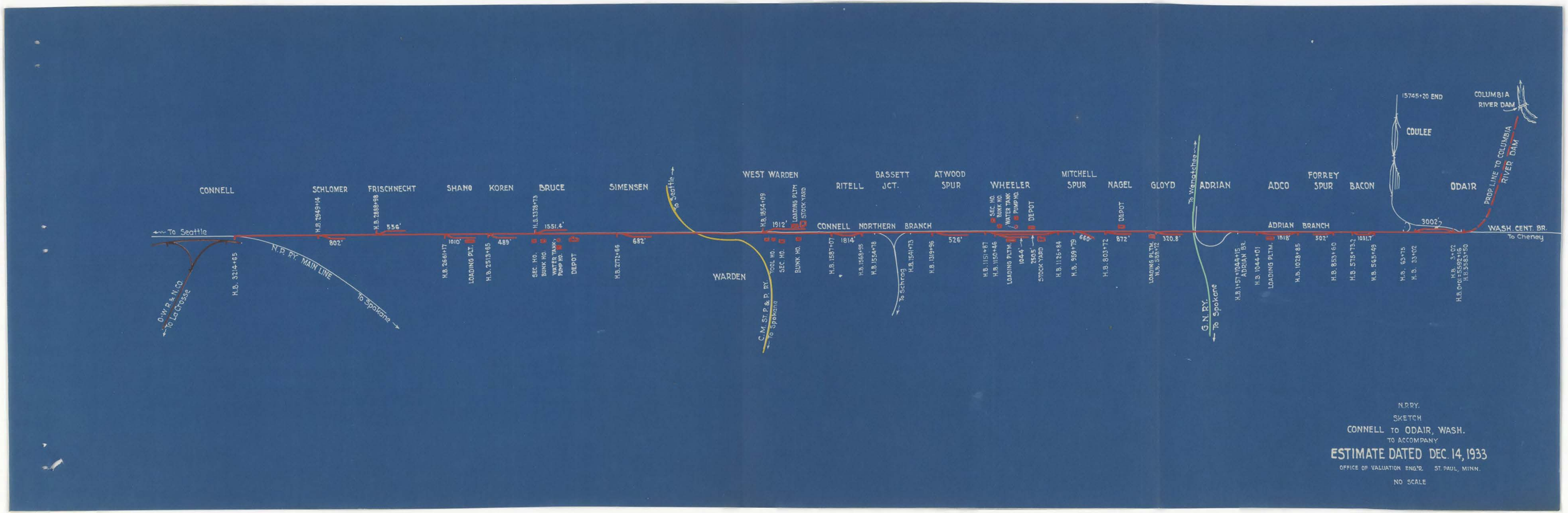
	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 12 - Tracklaying and Surfacing (Cont'd)					
All Tracks					
Placing ballast gravel	Cu.Yd.	41668	.45	18751	
" " cinders	"	1659	.37	614	
" turnouts	Each	26	72.00	1872	
" spl. sw. derail with stands	"	2	20.00	40	
" derail block type	"	1	5.25	5	
" tie plates	"	287477	0.024	6899	
" rail braces	"	2223	0.028	62	
Framing & placing bridge ties	M.B.M.	346.427	19.10	6617	201273
Acct. 13 - Right of Way Fences					
Posts, split cedar, 6"x7'	Each	4122	.26	1072	
" " " 5"x6'	"	11013	.26	2863	
Labor setting posts	"	15135	.195	2951	
Post, round cedar, 6"x8' with auger hole for sharpened 4" dia. x 6' brace, in place	"	1234	1.00	1234	
Barbed wire	Cwt.	811.48	4.20	3408	
48" Woven wire	"	95.52	4.35	405	
Labor stringing barbed wire, over 12'	Wi.Mi.	228.762	6.80	1556	
" " woven " " 12'	Fc.Mi.	2.107	50.00	105	
Stays, 4'	Each	42624	.04	1705	
Staples	Cwt.	11.45	4.20	48	
Nails	"	6.80	4.00	27	
Rustic rail	L. Ft.	21139	.08	1691	
Bracing, in place	M.B.M.	10.256	41.80	429	
Gates, Eureka	Each	20	10.40	208	
Cattle guards, wood surface	"	75	24.80	1810	19512
Acct. 14 - Snow and Sand Fences					
Cedar posts, 10"x18', in place	Each	700	6.40	4480	
" " 10"x20'	"	90	6.40	576	
" " 8"x20'	"	49	6.40	314	
" " 10"x24'	"	299	8.75	2616	
Fir posts, 4"x6"-16'	"	135	1.36	184	
Plank, in place	M.B.M.	47.575	41.80	1989	
Barbed wire guys	Cwt.	5.67	4.20	24	
#9 wire guys	"	3.52	4.00	14	
Ties, 7"x8"x8'	Each	603	.90	543	
Iron	Lb.	489	.06	29	
Labor stringing guy wire and placing deadmen	Each	603	6.75	4070	14839
Acct. 15 - Crossings and Signs					
Common	Cu.Yd.	13044	.29	3783	
Hard pan	"	606	.50	303	
Loose rock	"	70	.55	39	
Solid rock	"	13	1.12	15	
Planking	M.B.M.	23585	35.00	825	
Iron	Lb.	491	.07	34	
Riprap, hand placed	Cu.Yd.	1	2.32	2	
Signs					
Warning	Each	48	6.00	288	
Mile board	"	79	2.25	178	
Section	"	1	1.88	2	
1 Mi. to Water	"	5	4.13	21	
1 Mi. to Station	"	10	4.13	41	

	Units	No. of Units	Unit Price $	Amount $	Total $
Acct. 15 - Crossings and Signs (Cont'd)					
Signs (Cont'd)					
Whistle Post	Each	67	3.00	201	
Flanger	"	14	1.88	26	
Yard Limit	"	2	4.50	9	
Dump Cinders	"	2	4.13	8	
Station	"	8	6.00	48	
County	"	2	4.00	8	
Cobble paving	Cu.Yd.	26.500	5.25	139	5970
Acct. 16 - Station and Office Buildings					
Adco					
Loading platform, frame, 16'x96'	Each	1		779	
Gloyd					
Shelter shed, 8x34, carbody	"	1		459	
" " furniture	"	1		64	
" " platform	"	1		33	
Nagel					
Depot, 8x54, carbody	"	1		449	
Wheeler					
Depot, 1 story, frame, 30x68	"	1		4846	
" furniture	"	1		367	
" platform, 1376 sq.ft., frame	"	1		370	
" grading cinders, 20 cu.yd.	"	1		19	
" outside piping	"	1		581	
Cellar	"	1		60	
Outhouse	"	1		77	
Stockyard	"	1		1714	
Portable ice house, 10.3'x25.3'	"	1		311	
Loading platform, 12x40 and 6x16	"	1		154	
West Warden					
Depot, 8'x33'9", carbody	"	1		461	
" furniture	"	1		41	
" platform, 46 cu.yd, cinders	"	1		70	
Stockyard, 4494 FBM	"	1		308	
Loading platform, 30x40 and 11x58	"	1		625	
Bruce					
Depot, 1 story, frame, 30x68	"	1		4710	
" platform, 1360 sq.ft., frame	"	1		327	
" outside piping	"	1		92	
" grading, 137 cu.yd. cinders	"	1		131	
" outhouse, 5x7	"	1		77	
Shano Spur					
Loading platform, 1730 F.B.M.	"	1		90	
Grading, 337 cu.yd., common	"	1		215	
Station Signs	"	8		103	
Adco, Gloyd, Nagel, Bassett Jct., Ritell, W.Warden, Shano Spur, Frieschnecht Spur					17533

	Units	No. of Units	Unit Price	Amount	Total
			$	$	$
Acct. 17 - Roadway Buildings					
Wheeler					
Section house, 1½ story, 16x24, and 1 story 6x11	Each	1		1843	
Bunk house, 1 story, 16x24, frame	"	1		759	
Water in sec. ho. and bunk ho.	"	1		326	
Tool house, 10x12, frame	"	1		174	
Gas cellar	"	1		113	
Outhouse	"	1		62	
Gas cellar	"	1		21	
Root "	"	1		25	
Outhouse	"	1		74	
Gas. storage tank, 100-gal.	"	1		31	
West Warden					
Section house, 1½ story 16x24, and 1 story 6x11	"	1		1843	
Bunk house, 1 story 16x24, 8x8, and 6x8	"	1		840	
Cistern, 10" dia. x 8', concrete	"	1		365	
Tool house, 10x12, frame	"	1		208	
Outhouse	"	1		69	
Gas cellar	"	1		121	
Root "	"	1		218	
Shed	"	1		194	
Outhouse	"	1		62	
Fence	"	1		60	
Embankment	"	1		47	
Portable ice house, 10.3'x25.3'	"	1		298	
Gas. storage tank, 100-gal.	"	1		29	
Bruce					
Section house, 1½ story 16x24', 1 story 6x11'	"	1		1901	
Root cellar, 11x17	"	1		290	
Pipe lines	"	1		503	
Bunk house, 1 story 16x24' and 8x11'	"	1		818	
Tool house, 10x12	"	1		227	
Portable ice house, 10.3x25.3'	"	1		317	
Outhouse	"	1		125	
Fence	"	1		90	
Gasoline storage tank, 100-gal.	"	1		27	12085
Acct. 18 - Water Stations					
Wheeler					
Pump house, 12'x16' and 11'x24.4'	"	1		1582	
Equipment	"	1		1637	
Gas tank and cellar, 1 500-gal. and 1 200-gal.	"	1		253	
Pipe lines	"	1		65	
Water tank, 24' dia. x 16' high on concrete foundation	"	1		3852	
Well, 10" dia. x 386 ft. deep	"	1		5956	
Bruce					
Pump house, 12x28', brick	"	1		1524	
Equipment	"	1		2728	
Gas. cellar, 8x8, conc., 200-gal. tank	"	1		127	
" " 9x10 brick, 150, 180, 225-gal. tank	"	1		475	
Pipe lines	"	1		182	
Tank, 24' dia. x 16', wood, conc. fdn.	"	1		3822	
Well, 10" dia. x 476 ft. deep	"	1		7757	29960

	Units	No. of Units	Unit Price	Amount	Total
			$	$	$
Acct. 26 - Telegraph and Telephone Lines					23098
Acct. 27 - Signals and Interlockers					66
Acct. 37 - Roadway Machines					1298
Acct. 38 - Roadway Small Tools	Sets	4	200.00		800
Acct. 71-75 & 77 - General Expenditures					41995
Acct. 76 - Interest During Construction					241543
Grand Total					$3182903

Office of Valuation Engineer
St. Paul, Minn., Dec. 14, 1933



N.P.RY.

SKETCH

CONNELL TO ODAIR, WASH.

TO ACCOMPANY

ESTIMATE DATED DEC. 14, 1933

OFFICE OF VALUATION ENGR. ST. PAUL, MINN.

NO SCALE

8731

Saint Paul, Minn.,

November 28, 1933

MR. BERNARD BLUM:

Your letter of the twentieth suggesting that we go ahead and make a definite location of the proposed line of the Grand Coulee Damsite.

Until this matter has been further developed I would not care to recommend any further expenditures on the part of the railway company.

Our application to the Interstate Commerce Commission has certain very definite and important stipulations which must be met before we are willing to proceed with the construction.

Incidentally I would appreciate a statement as to approximate cost of the preliminary survey to date.

A. Loree

Mr Blum
Statement handled
your preliminary
11/29 R 12/1

J.T.D.

Note
11/29 BLB

JTR
statement for
Mr Blum pen
12/1

Grand Coulee Dam Survey

Cost

Engineering

Salaries (See attached)	3495.15	
Exp	356.84	
Supplies	85.48	3937.47

Camp Exp

Salaries	296.13	
Equip	281.35	
Socies	635.55	1213.03

Pump transpn	240.10
auto Exp	803.62
	6193.22
	=

JWK 11/29/33

Grand Coulee Dam Survey

	Office Roll		Inter Rolls		Special	
	Office work	Field work	East	West	Tonasket	Campbell
Aug	70.46	82.50		104.40	362.99	34.84
Sept	69.78	95.85 296.64	76.16	391.95	969.75	202.50
Oct	76.40	171.39	101.41	135.69	539.78	58.79
	166.64	646.38	177.57	632.04	1872.52	296.13
	Regular Roll				Special Roll	
	1622.63				2168.65	

	Tonasket	Campbell
Regular Roll	1622.63	
Special "	1872.52	296.13
	3495.15	296.13
	296.13	
Total Rolls	3791.28	

JAK 11/29

8731

November 27, 1935

Mr. W. M. Pamello, Secretary,
Philip J. Healey, Inc.,
25 Church Street,
New York, N. Y.

Dear Sir:

Acknowledging your communication of the 25th about test borings in connection with proposed line we have under consideration:

If anything comes up of this nature, I will be glad to communicate with you although I doubt if we will need any test borings for the proposed branch to the Coulee dam.

Yours truly,

BB h

PHILIP J. HEALEY, INC.

ENGINEERS AND CONTRACTORS

25 CHURCH STREET, NEW YORK

TELEPHONE BARCLAY 7-2728

JERSEY CITY OFFICE
207 BALDWIN AVENUE
TELEPHONE
JOURNAL SQUARE 2-3313

BORINGS FOR FOUNDATIONS
CORE DRILLING A SPECIALTY
MINERAL LANDS AND QUARRIES PROSPECTED
ARTESIAN AND DRILLED WELLS

November 25th, 1933.

SUBJECT: Railway, Washington, D. C.

Northern Pacific Railway,
St. Paul, Minn.

Gentlemen:- Att. of Mr. B. Blum, Chief Engr.

We note that you are preparing plans for a Railway, and we beg to inquire if you contemplate having Test Borings made.

We make a specialty of this line, and shall be pleased to submit you an estimate for doing any work of this nature that you may require.

Thanking you in anticipation, we are,

Very truly yours,
PHILIP J. HEALEY, INC.
W. M. Tomella
Secretary

PLEASE NOTE OUR
NEW ADDRESS
15 PARK PLACE
NEW YORK, N. Y.

BORINGS

CORE DRILLING

Any Kind — Any Depth — Any Purpose — Anywhere

PHILIP J. HEALEY, INC.

ENGINEERS AND CONTRACTORS

207 BALDWIN AVENUE
JERSEY CITY, N. J.
TEL. 2-3313 JOURNAL SQ.

25 CHURCH STREET
NEW YORK CITY
TEL. 7-2728 BARCLAY

BORING FOR FOUNDATIONS

FOR

BRIDGES, BUILDINGS, DOCKS, DAMS, SUBWAYS, TUNNELS, ETC.

CORE DRILLING A SPECIALTY

DIAMOND DRILL CORES, 15/16 IN. TO 3 IN. DIAM. SHOT CORES, 2 IN. TO 12 IN. DIAM.

MINERAL LAND AND QUARRIES PROSPECTED

KINDLY FILE THIS CARD FOR FUTURE REFERENCE. (OVER)

REFERENCES

Chrysler Building, N. Y. C.
Madison Square Garden, N. Y. C.
New York Life Insurance, N. Y. C.
Jersey City Medical Centre, Jersey City, N. J.
Ford Automobile Plant, Edgewater, N. J.
Hotel New Yorker, N. Y. C.
Y. M. C. A. Building, N. Y. C.
Downtown Athletic Club, N. Y. C.
State Capitol, Charleston, W. Va.
U. S. Chamber of Commerce, Wash., D. C.
London Terrace Apartments, N. Y. C.
U. S. Army Barracks, Governors Island
Ziegfeld Theatre, N. Y. C.
Academy of Music, N. Y. C.
Mount Hope Bay Bridge, Bristol, R. I.
Raritan River Bridge, New Brunswick, N. J.
Waldo-Hancock Bridge, Bucksport, Me.
Genessee River Bridge, Rochester, N. Y.
Washington Memorial Bridge, Wil., Del.
York River Bridge, York, Va.
Walnut Avenue Bridge, Roanoke, Va.
Robins Dry Dock, Brooklyn, N. Y.
Tietjan & Lang Dry Dock, Hoboken, N. J.
Fore River Ship Yards, Quincy, Mass.
Washington County Dam, Williamsport, Md.
Elizabeth New Jersey Trunk Sewer System
Westchester County Sanitary Sewer System
State of N. J. Viaducts, Bridges and Highways
Broad Street Subway, Philadelphia, Pa.
New York Subways:
6th Avenue, 8th Avenue, 14th Street,
Corona Lines, etc.
Holland Vehicular Tunnel, N. Y. to N. J.
Williamsburgh Savings Bank, Brooklyn, N. Y.
Crawford County Trust Co., Meadville, Pa.
Barnett National Bank, Jacksonville, Fla.
West Side Savings Bank, N. Y. C.
First Trust Company of Albany, Albany, N. Y.
First National Bank, Binghamton, N. Y.
Schuylkill Trust Company, Pottsville, Pa.,
U. S. War Department Intracoastal Canal,
Across State of New Jersey.
and many others.

8731

Saint Paul, Nov. 23, 1933.

Mr. A. C. Terrell:

I am attaching hereto statement showing total lengths of curvature and tangents on the proposed Grand Coulee line.

These figures have been obtained from a projection and are for your use in completing data for the questionnaire. The 7° 30' curve referred to is for a distance of 150 ft. and covers the tangent at Odair. The maximum curvature on the balance of the line is 3°. I have not marked the profile projection but the alignment is close to the preliminary and if rise and fall figures are desired preliminary profile data for the low line can be used.

Asst. to Chief Engineer.

JTD-w

Statement of Tangents & Curvature
Proposed Grand Coulee Line

11-21-33

Sta. to Sta.	Total Angle	Curve Length	Tangent Length	
		7°30' C.		0+00 = H.B. = 1690.2' south of 0+00 of Prel. Lines
0+00 to 1+50	11° 15' L.	150'		
1+50 to 8+25			675'	
		2°		
8+25 to 23+50	30° 30' L.	1525'		
23+50 to 119+90			9640'	
		2°C.		
119+90 to 130+90	22° 00' R.	1100'		
130+90 to 324+75			19385'	
		2° C.		
324+75 to 338+67	27° 50' R	1392'		
338+67 to 651+40			31273'	
		1°C.		
651+40 to 669+40	18° 00' R.	1800'		
669+40 to 885+30			21590'	
		1°C.		
885+30 to 895+80	10° 30' L.	1050'		
895+80 to 1054+00			15820'	
		2° C.		
1054+00 to 1071+25	34° 30' L.	1725'		
1071+25 to 1165+70			9445'	
		1°C.		
1165+70 to 1176+95	11° 15' L.	1125'		
1176+95 to 1214+45			3750	
		3°C.		
1214+45 to 1231+62	51° 30' R.	1717'		
1231+62 to 1266+80			3518'	
		1°C.		
1266+80 to 1292+80	26° 00' R.	2600'		

Tang. & Curvature Prop. Grand Coulee Line -Cont.

Sta. to Sta.	Total Angle	Curve Length	Tangent Length	
1292+80 to 1381+20			8840'	
1381+20 to 1394+20	13° 00' R.	1°C. 1300'		
1394+20 to 1464+40			7020'	
1464+40 to 1472+40	8° 00' L	1°C. 800'		
1472+40 to 1496+00			2360'	1496+00 assumed as end.
Total	263° 20'	16,284'	133,316'	
Miles		3.08	25.25	Total $\frac{3.08}{25.25}$ / 28.33 Miles

Statement of Tangents & Curvature
Proposed Grand Coulee Line

11-21-33

Sta. to Sta.	Total Angle	Curve Length	Tangent Length	
		7°30' C.		0+00 = H.B. @ 6890.2 South of 0+00 of Prel. Lines
0+00 to 1+50	11° 15' L	150'		
1+50 to 8+25			675'	
8+25 to 23+50	30° 30' L	3° 1525'		
23+50 to 119+90			9640'	
119+90 to 130+90	22° 00' R	2°C. 1100'		
130+90 to 324+75			19385'	
324+75 to 338+67	27° 50' R	2°C. 1392'		
338+67 to 651+40			31273'	
651+40 to 669+40	18° 00' R	1°C. 1800'		
669+40 to 885+30			21590'	
885+30 to 895+80	10° 30' L	1°C. 1050'		
895+80 to 1054+00			15820'	
1054+00 to 1071+25	34° 30' L	2°C. 1725'		
1071+25 to 1165+70			9445'	
1165+70 to 1176+95	11° 15' L	1°C. 1125'		
1176+95 to 1214+45			3750	
1214+45 to 1231+62	51° 30' R	3°C. 1717'		
1231+62 to 1266+80			3518'	
1266+80 to 1292+80	26° 00' R	1°C. 2600'		

Tang & Curvature Prop. Grand Coulee Line - Cont.

Sta. to Sta.	Total Angle	Curve Length	Tangent Length	
1292+80 to 1381+20			8840'	
1381+20 to 1394+20	13° 00' R	1°C. 1300'		
1394+20 to 1464+40			7020'	
1464+40 to 1472+40	8° 00' L	1°C. 800'		
1472+40 to 1496+00			2360'	1496+00 assumed as end.
Total	263° 20'	16,284'	133,316'	
Miles		3.08	25.25	Total $\frac{3.08}{25.25}$ / 28.33 Miles

8731

November 22, 1933.

Mr. J. A. Campbell,
622½ Ouachita Ave.,
Hot Springs, Ark.

Dear Mr. Campbell:

Referring to your letter of the 17th making application for position in connection with bridge work on our proposed Grand Coulee line.

This railroad, if constructed will lay on the floor of the canyon and is very light work over arid country. The total amount of bridge work will be in the neighborhood of 360 ft. Bridges are two and three span length and probably will be driven by our own forces.

The track, if constructed to the dam will be of a temporary nature and we do not propose to locate any station buildings such as we have heretofore placed on branch lines.

I recall your previous contract work on the Northern Pacific and assure you that if we had anything to offer you would be glad to have you on our lines.

The Government, as you know are contemplating the construction of two large dams, one of which is located at Grand Coulee in the State of Washington, and the other project is at Ft. Peck, Mont. which is approximately 30 miles southeast of Glasgow, on the Great Northern. The Glasgow project is definitely under way and the Government will be advertising shortly for bids to house approximately 4000 inhabitants at the Ft. Peck dam site. There will be a large amount of timber work involved in the contract for this townsite. However, I expect the actual building work will be handled by contract. Capt. Theodore Wyman, Dist. Engineer, U.S. Army, Kansas City, Mo. is in direct charge of this work, and if you could get in touch with him he probably could give you employment. The Government at this location are constructing 18 miles of railroad and will

probably put up some station buildings, water tanks, etc. I understand that bids covering the grading of this roadway are returnable to the Kansas City office on Nov.29th.

If you are interested in the Ft. Peck project I suggest that you get in touch with Capt. Wyman, Postal Telegraph Building, Kansas City. I am personally acquainted with Capt. Wyman and will be glad to give reference if necessary.

I was very pleased to hear from you and know that you are well and still in business.

Hoping you will be able to land something in the immediate future, I am.

Yours v ry truly,

JTD-w

8731

St. Paul, November 20, 1933

Mr. H. E. Stevens:

In regard to the proposed Grand Coulee Line:

On the basis that the new branch will be built, I think we should definitely locate the line so that map and profile can be prepared for submitting to Contractors for bids. It will take several weeks to locate the line definitely and undoubtedly we will be called upon to get the work done as quickly as possible in order to get the freight which is even now starting to move. We can undoubtedly save some expense in the location work if it is done before cold weather.

BB:h

8-731

St Paul, November 20, 1933

Mr. H. E. Stevens:

The attached clipping from the Spokane Chronicle of November 13th is very interesting. You will note that now the truck people are complaining about railroad construction.

EB h

8731

St. Paul, November 20, 1933

Mr. J. T. Derrig:

Yours of the eighteenth about specifications for the Grand Coulee Line:

I am aware of our standard specification E-114 but I found for any specific job, special specifications have to be prepared and not all of the provisions of the printed specification are required in each case.

Bernard Blum

8731

St. Paul, November 20, 1933

Mr. H. E. Stevens:

Bids for excavation 2,000,000 yards Coulee Dam were opened this morning by Reclamation Service in Spokane and David H. Ryan of San Diego, California, was the low bidder with an average price of 25.1¢ per cubic yard for common excavation. His price for overhaul is one-fourth of one cent per yard per station.

BB:h

cc Mr. R. W. Clark

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

55 SF S

Spokane 11/20/33

Bernard Blum

St Paul

At Opening of Bids for the two million yards of excavation coulee dam by Reclamation service this morning in Spokane David H Ryan of San Diego Calif was low bidder with an average price of twenty five and one tenth cents per cubic yard for common excavation with one fourth of one cent per cubic yard for overhaul. A-32

H M Tremaine

239 pm

8731

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BB h

Saint Paul, Nov. 18, 1933.

Mr. Bernard Blum:

Referring to your letter of the 13th regarding proper specifications for the proposed Grand Coulee Line:

I believe that it is of the utmost importance that this line be located, as in sending out specifications we should incorporate map and profile showing the located line.

We have, as you know, standard specifications No. E-114 for grading which can be supplemented on short notice to complete the specifications for the grading work on this particular line. It will take at least 30 days to locate the line and if there is any hurry in getting the work done, I would recommend that the location be started with a s little delay as possible. The expense of locating work can be somewhat reduced if the work is done before extreme cold weather.

J. T. Dennis
Asst. to Chief Engineer.

JTD-w

8731

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Asst. to Chief Engineer.

JTD-w

8731

St. Paul, November 18, 1933

Mr. H. E. Stevens:

Your letter of the 17th and returning papers about obtaining secondhand track material from Stone & Webster Engineering Corporation from the Rock Island dam to be used in the Grand Coulee project:

I do not believe we are interested with respect to track metal. We have sufficient material of that character of our own and it is not likely that the Stone-Webster material would be standard on the Northern Pacific.

In regard to secondhand ties. It is my recollection that the Rock Island dam project started about five years ago, and while they state that they were used only during the life of the construction job, which was about a year and a half, they must have been stored since or were left in the ground. I presume they are untreated and I seriously question if taking them up and reapplying them would enable us to get sufficient life out of them to last during the construction of the Grand Coulee dam. The element of transportation, labor, etc. would be the same in either case and I don't think there is anything in the proposition, but there would be no harm in asking them to quote a price on the ties delivered at Adrian.

BB h

Saint Paul, Minn.,

November 17, 1933.

MR. BERNARD BLUM:

With return of attached from Mr. Kyle will you please advise if in your judgment any economy would be made through the purchase of the second-hand material offered in the construction of the Coulee Dam Line.

W. Thum

622½ Ouachita Avenue,
Hot Springs, Arkansas.
November 17, 1933.

Mr. J. T. Deerig, Chief Engineer,
Northern Pacific Railway,
St. Paul, Minn.

Dear sir:

I notice in the "Construction Bulletin" that you have been out to the Columbia River in Washington, site of the new Government Dam. From the article I presume that you are contemplating building a spur to the site.

I was thinking that being a timber country you might use a great deal of timber in the bridges. As I have followed bridge construction for a number of years before they started putting in concrete I thought probable that you might be able to use me in the capacity as foreman or inspector. If you remember the Campbell Construction Company of Minneapolis, Minneosota, of which I was president and general manager, I will refer you to several of our jobs; Coal Pocket, Watertank, and Cinder Pit for your company at Bozeman, Montana; also a timber Coal Pocket at Rice Point, Duluth, Minneosota, Power House and Coal Trestle at Helena, Montana, and Timber Car Sheds at Jamestown, North Dakota, and several other jobs for the Northern Pacific Railway.

The Campbell Construction Company does not exist any more, due to the fact that we took a contract to build twenty-five miles of paving in Wisconsin. About the time we started the water in the Fox River, of which we thought we would be able to get water, was condemned. It being a dry year and having to pump water so far and for a number of days not being able to get any at all, and it being a penal job caused us to lose all we had. After our company went broke I went to St. Louis with the Winston Brothers of Minneapolis contracting with the Missouri Pacific. Was with them from 1927 to 1931. Completing the job I joined my family in Hot Springs, Arkansas.

I would appreciate anything you can do for me toward obtaining a position with your company. If you can't do anything for me in the line I ask I would appreciate anything you could give me.

Yours very truly,

J. A. Campbell.

Spokane, Nov. 17, 1933.

Mr. Bernard Blum:-

Herewith clipping from the Spokane Chronicle, of November 13th relative to move by Motor Freight Operators to prevent the construction by the Northern Pacific of a branch line to the Grand Coulee dam site.

Hurdman

District Engineer.

HMT-T

Encl.

8731

St. Paul, November 17, 1933

Mr. H. E. Stevens:

I am transmitting herewith requisition ED-528 covering 80,000 pieces of cross ties which the Purchasing Department ordered last week from the Inland Empire for the Coulee Branch requirements. I have shown that the designation and dates of delivery be specified later. This for the reason that it is not considered desirable to advertise our positive commitment to the construction of the line.

BB:h

cc Mr. F. V. Weisenburger

St. Paul, Minn., Nov. 16th 33

ED 528

Bernard Blum, Chief Engineer

75,000 Pcs. Grade 4, 7"x8"x8' Fir & Larch Ties

5,000 " " 3 6"x8"x8' " " "

Sawed four sides

For
Grand Coulee Dam
Line.

To cover ties
already purchased

NOTE: Place and dates of delivery
to be specified later

St. Paul, Minn., Nov. 16th 33

MD 528

Bernard Blum, Chief Engineer

75,000 Pcs. Grade 4, 7"x8"x8' Fir & Larch Ties
5,000 " " 3 6"x8"x8' " " "

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St. Paul, Minn., Nov. 16th 33

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Bernard Blum, Chief Engineer

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Sawed four sides

For
Grand Coulee Dam
Line.

To cover ties
already purchased

NOTE: Places and dates of delivery
to be specified later

Bernard Beam —

75000 - Grade 4 - 7"x8"x8" Fir Land Ties
5000 — — 3 - 6"x8"x8" " "
Sawed four sides

Grand Coulee Dam
Line -
To cover ties
already purchased.

Place and Dates of delivery ~~and~~
~~final~~ to be specified
later —

~~Specified later~~

~~Grand Coulee Dam~~
~~Line~~ —

8731

St. Paul, November 16, 1933

Mr. H. E. Stevens:

I think you saw the article in the Spokesman Review of November 13th covering our recent trip to the Coulee dam. However there is another clipping from the Spokesman Review of the same date on the attached sheet, from which you will note there is some question about the availability of the $2,000,000 that has been currently reported as transferred to the Reclamation Bureau at Denver. This indicates that the only money so far available for the project is that turned over by the State, namely $377,000.

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BB:H

On Rocky Mountain Division,

November 13, 1933.

MR. J. T. DERRIG

MR. A. C. TERRELL:

I think we should work up as soon as possible specifications for construction of the Grand Coulee Line.

I would be glad if you would confer and submit draft that we can go over as soon as possible.

Bernard Allen

8731

On Rocky Mountain Division,

November 13, 1933.

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NORTHERN PACIFIC RAILWAY COMPANY.

CONSTRUCTION SPECIFICATION NO. E-114

OFFICE OF CHIEF ENGINEER

ST. PAUL, MINN., JUNE 1, 1928.

CONTENTS

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section One

GENERAL

1. **Contract Work.** The term "contract work" or "work" as used in this contract and specifications, shall be considered as meaning all labor, material, equipment, tools, temporary structures, fuel, supplies, and any other items necessary to fulfill the requirements of the contract, plans and specifications. Except as herein specifically provided otherwise, the Contractor shall furnish for the compensation specified, all work covered by the contract, plans and specifications, complete, to the satisfaction of the Engineer.

2. **Extra Work.** the Term "extra work" as used in this contract and specifications shall be considered as meaning work done by written orders of the Engineer which is not properly a part of or incidental to the creation of a completed unit of the work for which a unit price has been specified in the contract. Cost of extra work shall be considered as including all labor, field supervision and direct overhead costs, material, insurance, and a fair and agreed charge for rental of equipment, if use of equipment is required.

3. **Contractor's Understanding.** It is understood and agreed that the Contractor has by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work, the general and local conditions, and all other matters which can in any way affect the work under this contract. No verbal agreement or conversation with any officer, agent or employee of the Company, either before or after the execution of this contract, shall affect or modify any of the terms or obligations herein contained.

4. **Preliminary Estimate and Classification.** Preliminary estimated quantities, distribution and classification, if shown on plans or profiles, or otherwise furnished the Contractor, are approximate only and shall in no way govern the final estimate. The Company reserves the right to increase or diminish the approximate estimated quantities without affecting the contract unit prices for the various parts of the work except as provided in the contract.

5. **Verification of Plans and Physical Conditions.** If the Contractor, in the course of the work, finds any discrepancy between the instructions, plans and physical conditions of the work, or any errors in plans, or in the layout made from said plans and instructions, it shall be his duty to immediately inform the Engineer. Any work done after such discovery, except on written instructions from the Engineer, shall be done at the Contractor's risk.

6. **Unloading and Storing Materials.** The Contractor shall unload and be responsible for all material whether furnished by the Company or by the Contractor. Material shall be properly stored at least six feet from the nearest rail on suitable foundations or platforms, and if necessary to prevent deterioration, it shall be protected from the weather. Any material furnished by the Company, lost or damaged in handling by the Contractor during the progress of the work, shall be replaced at his expense; unless such loss or damage is plainly the fault of the Company. Material furnished by the Company which is delivered before the Contractor is on the ground, will, if necessary to release cars, be unloaded by the Company along the set out track constructed for or assigned to the work, or the nearest available siding to the work. All material held on cars, or received after the Contractor is on the ground, shall be unloaded promptly by the Contractor in the material yard nearest the point of use.

7. **Hauling Material.** All material, whether unloaded by the Company or by the Contractor, shall be hauled from the point where it is delivered by the Company to the site of the work by the Contractor, by team, truck or train as directed in writing by the Engineer. Haul of material, except track laying material, if made by the Contractor by train, shall be paid for at the contract rate for moving loaded and empty cars per car mile, and if made other than by train, it shall be paid for at the contract unit price for team or truck haul applicable to the kind of material moved, measured along the most direct practicable route as determined by the Engineer.

8. **Rehandling Material.** The contract unit prices for hauling and placing material shall be considered as including the cost of unloading material from cars at point where delivered and one rehandling to move it to the point of use. If for any reason an extra handling becomes necessary, it shall be done by the Contractor on written orders from the Engineer, and shall be paid for as extra work.

9. **Material Yard Tracks.** The Contractor shall construct such material yard tracks as the Engineer may order and shall be paid for same at the contract unit prices applicable to the classes of work performed. On the completion of the work, he shall take up such of these tracks as the Engineer may direct, and the work of taking up the tracks and loading the material shall be paid for as extra work.

10. **Contractor's Temporary Tracks.** Temporary tracks put in by the Contractor on his own initiative will not be paid for and shall be removed by the Contractor on completion of the work, at his sole expense. The Contractor, with the approval of the Engineer, will be permitted to use for temporary tracks, without rental charge, such Company material as may be available, but any material so used and lost or damaged, shall be deducted from the Contractor's final estimate.

11. **Cars Furnished by Company.** On request, the Company will furnish to the Contractor without rental charge, such standard flat cars, ballast cars, box cars, outfit cars, or other types of cars as the Engineer may consider necessary for hauling Company material, commercial freight, ballasting and tracklaying. The Contractor shall repair all damage to such equipment furnished for his use and return it in as good condition as when he received it. The value of any equipment lost or destroyed shall be deducted from the Contractor's final estimate.

12. **Tote Roads.** No allowance or compensation whatever shall be due or paid to the Contractor for any tote roads, trails, bridges or trestles incident thereto, that he may construct to facilitate his work.

13. **Protecting Premises.** Previous to, or during the work, the Contractor shall, at his own expense, erect and maintain such temporary fences or take such other action as may be necessary to prevent trespass upon the Company's property or damage to adjoining property.

14. **Highway Crossings.** Whenever existing highways or road crossings are temporarily disturbed or detoured, the Contractor shall, at his own expense, erect and maintain suitable barriers, warning signs and lights.

15. **Protection of Operated Property.** In the prosecution of work under this contract on or near operated trackage of the Company, or any other Railway Company, the safe and uninterrupted operation of said trackage shall take precedence over all contract work, and nothing shall be done or suffered to be done by the Contractor, his agents or employes, which will endanger or delay the trains on the said operated tracks.

16. **Co-ordinating Work.** Wherever work being done by the Company's forces or by other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Engineer, to secure the completion of the various portions of the work in general harmony.

17. **Order of Completion.** The Contractor shall complete any portion or portions of the work in such order of time as the Engineer may require.

18. **Use of Completed Portions.** The Company shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired; but such taking possession and use shall not, unless so agreed, be deemed an acceptance of the work so taken or used, or any part thereof. If such prior use increases the cost of or delays the work, the Contractor shall be entitled to such extra compensation, or extension of time, or both, as the Engineer may determine.

19. **Removal of Equipment.** On the completion of the contract, or its termination from any cause, the Contractor shall, if so directed by the Engineer, immediately remove from the premises of the Company, all equipment, material, supplies or other property of the Contractor.

20. **Cleaning Up.** The contractor shall, on the completion of the work, or any part thereof, remove from the Company's property and from all public and private property, all temporary structures, rubbish and waste materials, resulting from or incident to his operations.

April 1, 1928.

8. **Rehandling Material.** The contract unit prices for hauling and placing material shall be considered as including the cost of unloading material from cars at point where delivered and one rehandling to move it to the point of use. If for any reason an extra handling becomes necessary, it shall be done by the Contractor on written orders from the Engineer, and shall be paid for as extra work.

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April 1, 1923.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Two

CLEARING AND GRUBBING

---

1. **Work Included.** As much ground included in the right of way as the Engineer in charge of the work may direct, shall be cleared of trees, logs, brush and rubbish. The work of clearing and grubbing shall be kept at least one thousand (1000) feet in advance of the grading.

2. **Limits of Clearing.** The clearing shall usually extend fifty (50) feet each side of the center line, or to such width as may be directed by the Engineer. Any trees outside of that limit considered unsafe by the Engineer shall be cut down and disposed of as other clearing.

3. **Height of Stumps.** All trees, snags and old stumps outside the toe of slope but within the clearing limits, must be cut so that tops of same shall not be over three (3) feet above surface of ground. All undergrowth and brush shall be close cut.

4. **Close Cutting.** Where embankments are to be two (2) feet high, or more, and through station grounds, and shop grounds, all trees, stumps and brush shall be cut off even with the surface of the ground and removed.

5. **Grubbing.** Where embankments are to be two (2) feet or less in height, all stumps and large roots shall be grubbed out and removed.

6. **Classification of Clearing.** Clearing of sage brush, grease and other brush two inches or less in diameter, will be classified as light clearing. All other clearing will be classified as heavy clearing.

7. **Merchantable Timber and Waste.** Usable logs and other wood shall, if so directed by the Engineer, be piled or skidded at designated locations. All other logs, limbs, wood, brush and other vegetable matter shall be removed from the ground or burned without injury to or endangering adjacent property. Disposition of waste shall comply with the regulations of the State or other public authorities having jurisdiction of the territory in which the work is located; the Contractor shall inform himself of these regulations and be governed accordingly. No stumps, logs, brush or other refuse shall be placed on adjacent land, except by written directions of the Engineer and after permit from property owner has been secured, nor shall same be dumped into any river or creek.

8. **Removal of Debris.** From ground adjacent to excavation, all logs, loose stumps, roots and brush must be thoroughly cleared so they cannot fall or be washed into cuts or ditches, and so piled as to furnish ample space for any required drains or surface ditches at the side of cuts. From ground to be occupied by embankment, all trees, logs, brush, rubbish and other perishable matter shall be entirely removed.

9. **Measurement of Clearing and Grubbing.** Clearing and grubbing will be measured and paid for by the acre or fraction thereof and only for surface where actually performed. Grubbing will be paid for only when the roadbed excavation is four (4) feet or less in depth, or embankment is two (2) feet or less in height. The cost of grubbing where roadbed excavation is more than four (4) feet deep, shall be considered as included in the price bid per cubic yard for grading. Grubbing in borrow pits will not be paid for. The price per yard bid for excavation shall be considered as including all necessary grubbing in borrow pits.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Three

ROADBED

---

1. **Sub-grade.** The grade line on the profile denotes sub-grade, and this term indicates the tops of the embankments and bottom of excavations ready to receive the ballast.

2. **Finished Roadbed.** When finished, roadbed shall conform to the finishing stakes set for it by the Engineer.

3. **Excavation Cross Section in Earth.** The standard width of the roadbed in earth excavation for Branch Line single track shall be twenty-four (24) feet wide and for Main Line twenty-six (26) feet wide at profile grade, with slopes of one (1) horizontal to one (1) perpendicular, unless otherwise ordered by the Engineer. All cuts shall have side ditches one (1) foot below sub-grade, slopes one (1) to one (1).

4. **Excavation Cross Section in Rock.** The width of the roadbed in solid rock excavation for both Branch and Main Line single track shall be twenty-four (24) feet wide at the profile grade, with slopes of one (1) horizontal to four (4) perpendicular, or otherwise as the Engineer may direct. Solid rock cuts shall be excavated to a depth of one (1) foot below the sub-grade, and backfilled to sub-grade with suitable material. Backfill will be measured and paid for as embankment.

5. **Excavation Cross Section in Composite Earth and Rock Cuts.** Where rock is encountered below the surface, the cut shall immediately be re-cross sectioned to rock slopes as indicated above and a berm of not less than four (4) feet shall be left between edge of rock excavation and toe of slope of overlying earth. Where cut is so shallow it is impossible to leave a four (4) foot berm without changing slopes, the width of berm required may be reduced.

6. **Embankment Cross Section.** The width of roadbed on embankments for Branch Line single track shall be sixteen (16) feet wide and for Main Line twenty (20) feet wide at profile grade. Side slopes shall be one and one-half (1½) horizontal to one (1) perpendicular, unless otherwise ordered by the Engineer.

7. **Widths for Additional Tracks.** For each additional track an additional width of embankment or excavation of fourteen (14) feet, at profile grade, shall be required.

8. **Surface Ditches.** Surface ditches shall be made at the top of the slopes of all earth cuts where the ground falls toward the top of the slopes, and they must diverge from the roadway sufficiently to prevent erosion of the adjoining embankment. The cross-section and location of such ditches shall be designated by the Engineer, and, if required by him, ditches shall be made in advance of opening the cutting.

9. **Berm Ditches Adjacent to Embankments.** Where required by the Engineer, Contractor shall construct ditches along the upper sides of all embankments where no borrow pits have been excavated, in order to carry the surface water to the nearest water course. Material from all ditches shall be deposited in the embankment unless wasting is approved by the Engineer. Excavation of ditches will be paid for at contract grading prices.

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Section Four

GRADING

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1. **Work Included.** Grading shall include all excavations and embankments required for the formation of the roadbed, including sidings, yard tracks and spurs, station and shop grounds, cutting all ditches and drains about or contiguous to the roadbed, all borrow pits, changing of streams, other railways, roads and highways on or off the right of way; foundation pits for culverts, and all other excavations or embankments in any way connected with, required for, or incident to the construction of the roadbed.

2. **Sloping Excavation.** Slopes of all excavations shall be cut straight and true to the plane of the specified prisms; and all loose stones, stumps and debris in the slopes must be removed.

3. **Increasing Width of Cuts.** Where necessary to facilitate operation of excavation by so-called "grader machines," Contractor will be permitted to take out roadbed cuts to a 40-foot base and slopes to be specified by the Engineer, and the volume of material in excess of the specified roadbed cross section will be paid for to the extent it economically displaces embankment material available from other sources.

4. **Extra Excavation.** In cases where an increase in width of excavation is made on orders of the Engineer, the actual volume excavated will be paid for at contract unit prices.

5. **Disposition of Excavation.** All material, except waste taken from excavations, shall be deposited within the roadbed embankment cross section, except when directed otherwise by the Engineer.

6. **Disposition of Waste Material.** When a cut contains material in excess of the amount required to make embankments between the limits of specified haul, such excess must be hauled and used to widen the banks equally on both sides of the center line within the limit of free haul, or as snow breaks, or otherwise wasted as directed by the Engineer.

7. **Slips, Slides and Overbreak.** Material in slips, slides and overbreak, extending beyond the slope lines, or more than one foot below the subgrade in rock, or below subgrade in other classes of material, will not be estimated nor paid for, unless in the judgment of the Engineer, such slips, slides or overbreak were beyond the control of the Contractor and not preventable by the exercise of reasonable care and diligence. If allowed, material will be classified in accordance with its condition at the time of removal regardless of prior conditions.

8. **Use of Powder Limited.** The use or amount of powder in large blasts in seams, pot-holes, shaft or drift shots, may be restricted by the Engineer. Blasts shall not be so located as to disturb substantially the material outside of the roadbed cross section of the cuts, especially in clay, hard pan or materials showing a tendency to slide.

9. **Borrow Pits, Slopes and Drainage.** The slopes of borrow pits alongside of roadbed and right of way shall not be steeper than one (1) horizontal to one (1) perpendicular. If required, borrow pits shall be properly drained.

10. **Berms.** Berms shall be left not less than six feet between the foot of the slope of an embankment and the edge of an adjacent borrow pit, four feet between the edge of every borrow pit and the boundary line of the Railway Company's land, and fifteen feet between the edge of any regular cutting and the base of any spoil bank thereon.

11. **Cross Berms.** Where borrow pits are subject to overflow of high water, and where necessary to carry irrigation ditches across borrow pits, cross berms shall be left and spaced as directed by the Engineer, and no additional allowance shall be made because of same.

12. **Borrow Not Permitted.** No material shall be borrowed from between the line of roadbed and an adjacent stream where the natural surface is below high-water mark; and where it is above high-water mark, no borrow pits shall be excavated to a depth below high-water mark without written authority from the Engineer.

13. **Borrow One Side Only.** Engineer may require borrow pits to be taken from one side of the roadbed only.

14. **Borrowing Below Grade.** Borrowing below profile grade, or wasting above profile grade, shall not be done on station, shop grounds or sidings, except on written orders of the Engineer.

15. **Removal of Deck of Temporary Trestles.** Where fills are made from temporary trestles, top of caps must be kept three (3) feet below subgrade, and all stringers and cross ties must be removed before filling is completed.

16. **Embankments at Bridges, Culverts, etc.** Where embankments are constructed over culverts, or where they are to abut against masonry or trestle bridges, the earth forming such embankments shall be tamped or otherwise made as compact as possible as directed by the Engineer. No embankment or fill shall be placed upon or against any culvert, wall or crib in such manner as to endanger its safety, or over or against any structure of masonry or concrete until the mortar or concrete has properly hardened and set as determined by the Engineer. If any structure be in any way injured or displaced in the construction of the roadbed through negligence or improper methods of grading used by the Contractor, he shall bear the loss and shall make the same good at his sole cost and expense.

17. **Perishable Materials.** Logs, stumps, brush or other perishable material will not be allowed in embankments, and sods will not be put in the central part of embankments less than five (5) feet high, except by permission of the Engineer.

18. **Shrinkage.** Where it is necessary in the judgment of the Engineer to make allowance for future settlement of the embankments, either on account of their height, the character of the material of which they are built, the character of the material on which they are founded, or the manner in which the material is placed, the embankments shall be carried to such a height above subgrade and to such increased width of roadbed as the Engineer shall specify.

19. **Removal of Snow and Ice.** The Contractor shall remove snow or ice from any portion of the work in any of its stages, whenever deemed necessary by the Engineer. Snow and ice removed on written orders of the Engineer shall be paid for as extra work.

20. **Corduroy Mat Foundation.** In grading across bogs or swamps of unstable bottom, a corduroy mat of logs and brushwood shall be furnished and laid by the Contractor, if required by the Engineer; the logs forming this foundation to be not less than six (6) inches in diameter at the small end. If necessary, there shall be two or more layers crossing each other at right angles, the logs of each layer being placed closely together, with broken joints and covered closely with brush; the bottom layer shall be placed transversely to the roadway and project at least five (5) feet beyond the slope-stakes of the embankment. Corduroy mat will be measured and paid for per cubic yard in place.

21. **Classification of Grading Material.** Grading will be classified under the following heads: Solid Rock, Solid Rock Borrow, Loose Rock, Hard Pan, and Common Excavation.

22. **Solid Rock.** Solid Rock shall include all rock occurring in masses of one cubic yard or more which both rings sharply when struck with a steel hand hammer and requires continuity of blasting for economical removal.

23. **Solid Rock Borrow.** Solid rock borrow shall consist of solid rock, as above defined, excavated outside of the specified prism by order of the Engineer.

24. **Loose Rock.** Loose rock shall include slate, hard shale, coal, soft sandstones, shell rock, and all other similar rocks, when they do not have the properties required to qualify under solid rock. Also, all detached rock or boulders containing one cubic foot or more, but less than one cubic yard each, and cemented gravel of unusual hardness.

25. **Hard Pan.** Hard pan shall include shales, indurated clay and other hard materials not loose or solid rock, that, in the opinion of the Engineer, cannot be reasonably plowed by six good horses on account of its own inherent hardness.

26. **Common Excavation.** Common excavation shall include all material of every description not included in the foregoing or special classification.

27. **Isolated Strata.** Isolated strata of classified material occurring in a prism of common excavation will be included in the pay quantities only to the extent of the actual volume of such strata excavated.

28. **Special Classification.** Special classification may be established at the option of the Chief Engineer when material in substantial quantities is encountered of such character that it cannot, in his opinion, be properly classified in any of the above defined classes. Unit prices for specially classified material shall be fixed by the Chief Engineer with due regard to cost of excavating such material as compared with cost of excavating and unit prices stipulated in the contract for materials covered by contract classifications.

29. **Classification of Borrow.** Material borrowed for embankments will be classified strictly in accordance with the foregoing specifications, but no classification higher than Loose Rock will be allowed for such material except on written orders of the Engineer.

30. **Excavation Pay Quantities.** The unit of grading measurements shall be a cubic yard of the material measured in its original position. Grading shall be measured and paid for in excavation only, except that at the option of the Engineer, borrow by dredging operations or borrow pits filled with water, or of extremely irregular cross section, may be measured in embankment with proper allowance for swell or shrinkage, if in the judgment of the Engineer the character of the material is such as to require such adjustment, to produce as nearly as possible excavation measurements. Except as hereinbefore noted, the pay quantities shall be only those within the specified roadbed cross section for excavation and embankment as staked out by the Engineer.

31. **Haul Classes.** Haul of grading materials will be divided into three classes as follows:

Free Haul	0 to	500 ft.
Class A Overhaul	500 to	2500 ft.
Class B Overhaul, Zone one	500 to	2500 ft.
Class B Overhaul, Zone two	2500 to	5500 ft.
Class B Overhaul, Zone three	5500 to	12500 ft.

The classification of haul shall in all cases be based solely on the distance limits specified, regardless of the method used in hauling.

Explanatory Note. It will be noted that the distance between 500 and 2500 feet appears in both Class A and Class B Overhaul; this is for the purpose of permitting unit price differentials in bidding between Class A Overhaul and the first distance zone of Class B Overhaul, made possible by the higher maximum limit of Class B Overhaul.

32. **Free Haul.** The contract unit prices per cubic yard for excavation shall in all cases be considered as including the haul of material for any distance not in excess of 500 feet.

33. **Overhaul Class "A".** Whenever the extreme haul of any specified unit of grading material to a single embankment is not in excess of 2500 feet, the Contractor shall be paid per cubic yard for each 100 feet haul in excess of 500 feet free haul at the contract unit price for Class "A" Overhaul.

34. **Overhaul Class "B".** Whenever the extreme haul of any specified unit of grading material to a single embankment is in excess of 2500 feet, the Contractor shall be paid the contract price for Class "B" Overhaul, for the Zone applicable, per cubic yard for each 100 feet hauled in excess of 500 feet free haul. The overhaul shall be estimated for each Zone separately and shall include the overhaul on material deposited within the Zone and on the material moved through the Zone.

35. **Single Embankment.** The term single embankment as used in Class "A" and Class "B" Overhaul, shall be taken to mean the roadbed prism from grade point of cut to grade point of next adjacent cut irrespective of any divisions by openings through the embankment permanent or otherwise.

36. **Haul Across Permanent Openings in Embankment.** Whenever required by written order of the Engineer, the Contractor shall haul grading material across permanent openings in the embankments, and if temporary bridge is necessary for such purpose, it shall be constructed by the Contractor and shall be paid for as extra work.

37. **Measurement of Haul.** The measurement of haul of material excavated from and deposited within the roadbed prism shall be taken on the center line of profile grade from the point opposite the original location of the unit of material in excavation to the point opposite its location in completed embankment. Where material is obtained from borrow pits other than widened roadbed cuts, the haul shall be measured in horizontal projection along the shortest practical route as determined by the Engineer, from the original location of the unit of material in excavation to its location in completed embankment. In all cases the pay distance on overhaul shall be the total distance hauled, measured as above specified, less 500 feet free haul. Overhaul shall be computed from each cut to each single embankment separately, and for each Zone separately, and the overhaul paid for at the specified contract unit prices for the Class and Zone applicable. No payment will be made for overhaul on material wasted above profile grade except on written orders of the Engineer.

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Section Five

PROTECTION WORK

1. **Work Included.** Protection work shall consist of rip-rap, paving, dry walls, dykes, cribs, revetments and mats; also blind drains, but no part of a fill made from rock excavation shall be classed as protection work of any kind. The ends of all protection work shall be set into the banks and footings or otherwise finished to make a smooth connection between protection work and the foundation, embankment or structure, as directed by the Engineer.

2. **Loose Rip-rap.** Loose rip-rap shall consist of stones of such kind and size as may be approved by the Engineer, and shall be deposited by dumping on the slopes in such location and to such heights and thickness as may be directed, although some rehandling may be necessary for an even distribution. Loose rip-rap shall be paid for per cubic yard measured in excavation.

3. **Hand-Placed Rip-rap.** Hand-placed rip-rap shall consist of selected stones of kind, shape and size approved by the Engineer, and shall be laid by hand on banks trimmed to a uniform slope, designated by the Engineer. Care shall be taken that large stones are placed at the bottom of the slopes and they shall be set in a foundation trench if required. All stones shall be laid in courses with close joints and vertical joints staggered. Each stone shall be so placed that it shall rest on the slope of the embankment and not wholly on the stone below, and wherever so directed by the Engineer, it shall be thoroughly rammed, driven or placed to form a surface as smooth and even as the shape and size of the stone will permit. Hand-placed rip-rap shall be paid for per cubic yard measured in place. Sloping banks shall be paid for as extra work. Trenching for footings as foundation excavation.

4. **Dry Wall.** Dry walls shall be composed of stones of such dimensions as the Engineer may deem suitable for the work. They must be of fair shape and spalled enough so that they will lay with good and even bearings in the wall. In general, these walls shall be built of as large stones as may be available, and stones shall be well bedded upon each other. All vertical joints shall be completely filled with spalls, and particular attention shall be paid to the securing of proper bond by means of long headers. Dry walls shall be paid for per cubic yard measured in place. Excavation for footings as foundation excavation.

5. **Paving.** Paving shall be made of flat stones set upon their edges in such manner as to leave the least possible space between them, and of such size as to reach entirely through the specified depth of the paving. Great care must be taken at the ends of any piece of paving to make it secure so that it cannot be under-mined or cut out by water flowing through or underneath it. The lower end must be finished with a cut-off wall of the depth designated by the Engineer. Paving shall be paid for per cubic yard measured in place.

6. **Blind Drains.** Blind drains shall be made of rough stone of suitable quality and size thrown in without particular order, except that the largest stones should be at the bottom. The top of drain shall be covered with brush or sods. Size and location of blind drains will be designated by the Engineer. Blind drains shall be paid for per cubic yard measured in place.

7. **Embankment Cribs.** The material for embankment cribs, including piles when required, shall be cedar, if available. If cedar is not available, other wood acceptable to the Engineer may be used. The bark must be wholly removed. Logs in cribs may vary from ten to sixteen inches in diameter, but they shall average at least twelve inches throughout the structure. They shall be cut in suitable lengths and notched to crib dimensions in a neat and workmanlike manner. Crib framing shall conform to detail plans furnished by the Company. In estimating pay quantities in cribs, the logs in each course and all ties shall be measured as to length only, the varying thickness not being taken into consideration. Cribs shall be

filled with rock or other material acceptable to the Engineer. Crib filling shall be paid for as grading measured in excavation. Cribs shall be used wherever the Engineer may direct, and may also be used for deflecting or changing the channels of streams.

8. **Piling.** Piling, if required in protection work, shall conform in material and workmanship to specification for piling in pile trestles, and shall be measured and paid for at the contract unit prices for piling in pile trestles.

9. **Revetments and Dykes.** Revetments and dykes, if required, shall be built of brush and rock, piled or woven together, as specified by the Engineer.

10. **Rock for Revetments and Dykes.** The rock for revetments, dykes, etc., shall be native nigger heads, field boulders or other sound durable rock, acceptable to the Engineer, in pieces weighing not less than 25 lbs. nor more than 200 lbs. Rock shall be paid for per cubic yard measured in place.

11. **Brush.** Brush to be live bar growth willow freshly cut, not less than one-half nor more than two inches in diameter at the butt, and not less than fifteen nor more than thirty feet in length. Brush to be neatly bound in bundles of convenient size for one man to handle. Each bundle to be tied with No. 18 annealed wire or stout cord. Brush to be inspected and measured by the Engineer at point of destination and paid for per cord in place.

12. **Mattresses.** When above bundles of brush are required by the Engineer to be woven into mattresses, such work shall be paid for by force account.

13. **Source of Materials.** The Contractor may use for protection work and crib filling, such rock, brush and logs as are available within the limits of the Company's right of way, not required for other purposes; but he shall obtain at his own expense, permits for obtaining materials off the Company's right of way. If available within reasonable hauling distance, rock shall be obtained form the roadbed excavation prism, and if so obtained, the excavated volume of the material taken shall be deducted from the roadbed excavation quantities. If suitable material is not available within the roadbed prism, it shall be obtained by borrow from locations approved by the Engineer.

14. **Haul of Materials for Protection Work.** The haul of all rock or filling material used in protection work for distances not in excess of 500 feet shall be considered as included in the contract unit prices for these items. For haul of these materials in excess of 500 feet free haul, the Contractor shall be paid at the contract unit rates for overhaul of grading material. Haul of logs and brush shall be considered as included in the contract unit price for these items.

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Section Six

PIPE AND TIMBER CULVERTS

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1. **Materials.** Culvert pipe will be of concrete or corrugated iron types, and all pipes and joint material will be furnished by the Company.

2. **Concrete Pipe.** Concrete pipe sections may be either round or oval in shape, eight ft. in length, with bell and spigot ends, as covered by the Standard Plans of the Company. The twenty-four inch diameter sections weigh approximately 3600 lbs. each, and the thirty-six inch sections approximately 5000 lbs. each.

3. **Corrugated Pipe.** Corrugated pipe will be of 12 gauge galvanized metal, riveted or welded into round sections of the specified diameter and cut to convenient lengths for handling. Field joints will be made with bolted collars overlapping approximately two corrugations on each section.

4. **Laying Culvert Pipe.** The pipe in culverts shall in all cases be well and carefully laid to true line and grade, with proper camber to take care of any future settlement, as staked out and directed by the Engineer, and when laid, suitable material, free from stones or other hard substances, shall be carefully rammed under and against the sides of the pipes. Pipe shall be laid with the small or "spigot" ends of the pipe down stream and joints must be well and carefully entered and connected. Oval concrete pipe shall be laid with the long diameter vertical, and round concrete pipe shall be laid with part marked "Top" at top of each section. This is absolutely essential to avoid failure of pipe.

5. **Foundation Pits.** Wherever ground conditions permit, foundation bed for pipe shall be so prepared as to give pipe a firm bearing on stable natural ground for its entire length, rings being cut in the bed to take bell ends. Backfilling depressions to pipe line gradient will not be permitted. When the foundation bed is in rock it shall be excavated one foot below pipe line gradient and backfilled with sand or fine gravel. Hard strata occurring at intervals along the pipe line, but not of sufficient extent to justify lowering the foundation gradient as a whole, shall be cut to fit the contour of the pipe as nearly as possible. Excavation and preparation of foundation beds shall be measured and paid for as grading at the contract grading unit prices applicable to the class of material moved.

6. **Special Foundations.** When pipe lines must be located on soft ground, or ground of unstable character, special foundations of mat, corduroy, piling, etc., may be required by the Engineer, and shall be paid for at the contract unit prices applicable to the classes of work done.

7. **Handling Pipe.** All pipes shall be carefully unloaded and handled into place. It shall not be dropped from car or wagon decks to ground, and shall not be rolled down slopes or inclines without restraint. Particular care shall be taken to avoid any heavy loading or blows on the flat side of concrete pipe, or the diameter opposite the diameter marked "Top" of round concrete pipe.

8. **Measurement.** Pipe culverts will be measured and paid for per lineal foot measured in place end to end of culvert.

9. **Headwalls.** Headwalls, if required, will be concrete, rubble masonry or dry walls and will be measured and paid for at the contract unit prices applicable to the class of work done.

10. **Timber Culverts.** All material for timber culverts will be furnished by the Company. Timber culverts, if required, shall be built in conformity with the Standard and Special Plans of the Company, and shall be measured and paid for at the contract unit price per thousand feet board measure. The lengths of timbers paid for shall be the minimum commercial lengths from which the timber in the finished structure can be cut.

11. **Log Culverts.** Log culverts shall conform to the Standard and Special Plans of the Railway Company and shall be made of sound, straight, green logs, cedar if available, not less than twelve inches in diameter at the small end and of approximately uniform diameter throughout each course. All bark shall be removed and log shall be flatted on two sides. Material in log culverts shall be measured and paid for by the lineal foot, and the length of the logs in the completed structure only will be considered, without regard to varying size or thickness.

12. **Syphons.** If syphons are required of pipe or other material, they shall be constructed to Special Plans to be furnished by the Company, and shall be paid for at the contract unit prices for syphons. Contract unit prices for culverts or bridge masonry will not be construed as applicable to syphon construction.

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Section Seven

PILE AND FRAME TRESTLES

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1. **Work Included.** The Contractors shall build complete all pile and frame trestles to grade and alignment, in strict accordance with the Standard and Special Plans of the Company.

2. **Furnishing Materials.** Unless otherwise specified in the contract, all material entering into the completed structure for pile and frame trestles will be furnished by the Company.

3. **Driving Piles.** Piles shall be driven to a penetration satisfactory to the Engineer. Where the foundation material causes difficult driving, the Engineer may require the use of metal pile points and cap blocks or rings. Piles shall be driven by a steam or drop hammer. The weight of the drop hammer shall not be less than twenty-five hundred (2500) lbs.

4. **Cutting Off Piles.** The Contractor shall cut off piles squarely and true to the elevation given by the Engineer. Tops shall be trimmed so as not to leave any horizontal projection outside the cap.

5. **Measurement of Piles.** Piles shall be measured and paid for at the contract unit prices per lineal foot above cut off and below cut off. The labor of cutting off and trimming shall be considered as included in the price per lineal foot for driving.

6. **Framing and Placing Timber.** All framing shall conform to the plans and shall be accurately fitted and joints brought to a true and uniform bearing throughout. No blocking or shimming will be allowed in making joints. Timbers shall be cut off with a saw. Caps and sills shall be sized and brought to a uniform thickness and even bearing on piles or posts. Posts shall be sawed to proper length for their position in the structure to an even bearing on cap and sill. Sash and sway braces, longitudinal diagonal braces and girts, shall have an even bearing against the main members and where necessary, on account of a variation in size of piles of a bent, filling pieces shall be used or piles dapped to permit proper alignment of the braces. Stringers shall be sized to a uniform depth at supports and shall be bored for packing after being placed in their permanent position. Ties on railway bridges will be sized to a uniform thickness at the mill and shall be placed with the surfaced side upward. They shall be spaced regularly and cut to an even length and line. Guard timbers shall be accurately framed, laid to line and even surface.

7. **Bulkheads.** Bulkheads shall be of sufficient length to keep the embankment clear of the caps, stringers and ties at the end bents of the trestle. The projecting ends of the bulkheads shall be sawed off to conform to the slope of the embankment.

8. **Placing Metal Fastenings and Fire Protection.** All metal fastenings and fire protection shall be placed as called for on the plans. Holes for all bolts and dowels shall be bored. The size of the holes shall be the diameter of bolt or dowel to be placed. For drift bolts the depth of the hole shall be one inch less than the length of the bolt.

9. **Measurement of Timber.** All timber shall be measured and paid for at the contract unit prices per thousand feet board measure. The lengths of timbers paid for shall be the minimum commercial lengths from which the timber in the finished structure can be cut.

10. **Excavation for Foundation Blocking.** Excavation for frame trestle bents will be measured and paid for at the contract unit prices for bridge foundation excavation.

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Section Eight

TRACKLAYING

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1. **Work Included.** Tracklaying shall include all the work of laying the main track, sidings, or other permanent tracks, frogs, switches, rail braces, tie plates, crossings, etc., metal guard rails and points for same on bridges, if required; laying and spiking the plank of road crossings wherever required, and trimming down or filling up the surface of the roadbed to bring it to a true grade. Also setting all track markers and signs.

2. **Furnishing Material.** All material forming a permanent part of the track structure will be furnished by the Company and delivered to the Contractor on cars at the nearest available setout track to the site of the work, on the operated lines of the Company as they existed on date of contract. Contract schedule of prices will indicate whether new or second hand rail and fittings will be furnished.

3. **Distributing Material.** All track laying material shall be handled by the Contractor from the point where delivered by the Company to the site of the work and properly distributed along the roadbed. If second hand rail is furnished, it shall be so distributed as to bring the least worn portion of the head on the inside or gauge side when laid in track. The cost of handling and distributing material, and all work incidental thereto, shall be considered as included in the contract unit price per mile for tracklaying.

4. **Lining and Spacing.** Center stakes for tracklaying shall be set by the Engineer two hundred (200) feet apart on tangents, and one hundred (100) feet or less apart on curves. Cross ties shall be laid to a line with the north or east end four (4) feet from the center of the track. Selected ties shall be used for joints spaced to fit the angle bars. Generally, eighteen (18) ties will be used to a thirty-three (33) foot rail, but this may be modified at the discretion of the Engineer. Whenever the surface of an untreated tie is in wind, it must be adzed so as to give both rails a full bearing across the face of the tie; adzing of creosoted ties, handling creosoted ties with pick or pickaroon, or otherwise damaging the treated surface, is prohibited.

5. **Broken Joints.** Track shall be laid with broken joints; the joints on one side not to be allowed to run more than twelve (12) inches one way or the other from the center of the rail on the opposite side. Rail joints shall not be located nearer than five (5) feet from end of bridges. Rail shall not be cut to accomplish this, but short lengths used.

6. **Expansion Shims.** Proper opening must be allowed for expansion and contraction, iron shims being used and left in the joints until all danger of driving the rail is over. Expansion to be allowed, according to average temperature of the rail, as follows:

Over 100 degrees rails shall be laid close without bumping.
1/16″ for plus 75 degrees to plus 100 degrees.
1/8″ for plus 50 degrees to plus 75 degrees.
3/16″ for plus 25 degrees to plus 50 degrees.
1/4″ for plus 0 degrees to plus 25 degrees.
5/16″ for minus 20 degrees to plus 0 degrees.

Temperature of rail shall be obtained by laying a thermometer on the shady side of the rail and leaving it there long enough to obtain an accurate reading.

7. **Gauging Track Curving Rail—Use of Short Rail.** The rails shall be laid accurately to standard gauge 4′8½″ on tangents, and on curves up to and including eight (8) degrees; for curves sharper than eight (8) degrees, the gauge to be widened at the rate of 1/16″ for each degree of curve above eight (8)

degrees. On curves six (6) degrees and over, the rails shall be correctly curved by rail bending machine by the Contractor so as to fit true to line. Short rails shall be used for the inside of curves, as required, to keep the joints within twelve (12) inches of the center of the opposite rail.

8. **Tie Plates.** Tie plates shall be placed by the Contractor. They shall be placed as the tracklaying progresses in correct position on the tie, true to gauge, square with the rail, and after they have been brought to a full and firm bearing on the tie, the spikes must be gone over again and driven home.

9. **Rail Anchors.** Rail anchors shall be applied by the Contractor at the points and in the quantities specified by the Engineer. Anchors shall be set firmly against the ties in the direction of creeping and care shall be used to avoid over-driving or otherwise damaging the anchors in their application.

10. **Angle Bars.** Angle bars shall be firmly secured in place by the full number of bolts with nuts turned up tight; bolts to be staggered, heads placed inside and outside alternately. Bolts shall be drawn up tight before starting spiking. After the track has been in service and before the acceptance of same, all bolts must be gone over again and have nuts turned up tight.

11. **Spiking.** Rails shall be fully spiked throughout as laid; spikes to be set vertically and driven home. The two inside spikes shall be driven near, but not less than two (2) inches from the west edge of the tie and the two (2) outside spikes shall be driven near, but not less than two (2) inches from the east edge of tie. The angle bars shall be spiked in the slots. Track shall be gauged as spikes are driven at joints, centers and quarters, and gauge shall not be removed until spikes are driven home. No excuse will be taken for inaccurate gauging. On bridges the track shall be accurately lined up before being spiked and spikes shall be driven in every other bridge tie only, except where tie plates are used, in which case all ties shall be spiked. No slot spiking will be permitted on bridges.

12. **Crossings.** Road crossing planks shall be put in at the time track is laid. Track spikes shall not be used in fastening down crossing planks. No extra price shall be paid for putting in road crossing plank, the expense of same being included in the price paid per mile for tracklaying.

13. **Payments.** Tracklaying shall be estimated and paid for by the track mile. Side tracks shall be estimated from headblock to headblock of switch, and paid for at the same price as main track. Only such sidings, spurs, yard tracks as are shown on plans or covered by written orders of the Engineer shall be paid for.

14. **Turnouts.** Turnouts shall be installed by the Contractor in strict accordance with the Standard Plans of the Company as staked out by the Engineer. Switch stands must be fastened securely to headblocks and square with the track, particular attention being given to lining targets and switch lights parallel with the rail. The installation of switches shall include the placing of switch ties, frogs, guard rail, blocking and all parts specified in the plans for turnout complete. Installation of turnouts shall be paid for at the contract unit price specified per turnout.

15. **Miscellaneous Work.** All crossing, flanger, station, tank and other signs, mile posts and extra rail rests, and clearance posts, are to be set by the Contractor as directed by the Engineer and the expense of same shall be considered a part of and included in the contract unit price per mile for track laying and surfacing.

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8. **Tie Plates.** Tie plates shall be placed by the Contractor. They shall be placed as the tracklaying progresses in correct position on the tie, true to gauge, square with the rail, and after they have been brought to a full and firm bearing on the tie, the spikes must be gone over again and driven home.

9. **Rail Anchors.** Rail anchors shall be applied by the Contractor at the points and in the quantities specified by the Engineer. Anchors shall be set firmly against the ties in the direction of creeping and care shall be used to avoid over-driving or otherwise damaging the anchors in their application.

10. **Angle Bars.** Angle bars shall be firmly secured in place by the full number of bolts with nuts turned up tight; bolts to be staggered, heads placed inside and outside alternately. Bolts shall be drawn up tight before starting spiking. After the track has been in service and before the acceptance of same, all bolts must be gone over again and have nuts turned up tight.

11. **Spiking.** Rails shall be fully spiked throughout as laid; spikes to be set vertically and driven home. The two inside spikes shall be driven near, but not less than two (2) inches from the west edge of the tie and the two (2) outside spikes shall be driven near, but not less than two (2) inches from the east edge of tie. The angle bars shall be spiked in the slots. Track shall be gauged as spikes are driven at joints, centers and quarters, and gauge shall not be removed until spikes are driven home. No excuse will be taken for inaccurate gauging. On bridges the track shall be accurately lined up before being spiked and spikes shall be driven in every other bridge tie only, except where tie plates are used, in which case all ties shall be spiked. No slot spiking will be permitted on bridges.

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13. **Payments.** Tracklaying shall be estimated and paid for by the track mile. Side tracks shall be estimated from headblock to headblock of switch, and paid for at the same price as main track. Only such sidings, spurs, yard tracks as are shown on plans or covered by written orders of the Engineer shall be paid for.

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15. **Miscellaneous Work.** All crossing, flanger, station, tank and other signs, mile posts and extra rail rests, and clearance posts, are to be set by the Contractor as directed by the Engineer and the expense of same shall be considered a part of and included in the contract unit price per mile for track laying and surfacing.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Nine

EARTH SURFACING

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1. **Construction Running Surface.** Construction running surface consists of putting track in condition to preserve the rail, fastenings and expansion from injury by the passing of construction or other trains until such time as ballasting is done. Such surfacing of track shall be done by casting material from the sides of cuts or embankments, or by using push cars, as directed by the Engineer. Work of this kind shall be done without injury to the roadbed. Running surface shall be made and maintained by the Contractor without expense to the Company.

2. **Full Earth Surface.** Full earth surfacing, as may be directed by the Engineer shall consist of full tamping, filling between all ties and filling and rounding center of track with material from sides of track or elsewhere as may be provided.

3. **Finishing Grade and Alignment.** Stakes will be set for the finished grade by the Engineer, the tops of the stakes to be the top of the rail after surfacing is completed, and the work of surfacing shall be done in strict accordance with such stakes. The track shall be raised and lined to final grade as indicated by the surfacing stakes, and all ties shall be well bedded and tamped. Particular attention shall be paid to this matter and no track will be accepted that is not thoroughly tamped and true to grade and alignment.

4. **Dressing.** After tamping, the track shall be filled in and roadbed and slopes finished and dressed to standard surface contour of the Company.

5. **Ditches.** All ditches shall be left clear and free, opened and extended so as to allow water at all times to flow freely away from the roadbed, and special care must be taken that side ditches in cuts are left unobstructed.

6. **Curve Elevation.** On curves, the outer rail shall be elevated the amount specified, the elevation to be tapered out on tangents at both ends, where necessary, as directed by the Engineer. On all other portions of tangents, both rails shall be brought to the same level.

7. **Payment.** Full earth surfacing including all work incidental thereto shall be paid for at specified contract unit price per mile for full earth surfacing complete.

8. **Maintenance.** The track shall be maintained by the Contractor at his sole expense in true line and surface until the work is completed and accepted by the Engineer.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Ten

GRAVEL BALLASTING

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1. **Work Included.** Ballasting shall include loading, hauling and distributing of ballast material from pits furnished by the Company (except such portion of the haul as may be on operated lines of the Company), raising, lining and surfacing track to final grade and alignment, full tamping of ties, filling in and dressing surface of ballast and shoulders to the standard ballast contour of the Company.

2. **Hauling Ballast on Operated Lines.** If ballast is obtained from pits on operated lines of the Company, it shall be loaded by the Contractor, and spotting engine at the pit will be furnished and material hauled by and at the expense of the Company from the pit to the junction of the line under construction with the operated lines of the Company.

3. **Pit Operations.** The expense of cutting steam shovel into ballast pit, shifting steam shovel from one pit to another pit and for all shifting of track in ballast pit, shall be borne by the Contractor, the Company to pay for the first laying of track in ballast pits.

4. **Ballast Grade.** Stakes shall be set for the ballasting by the Engineer, the top of the stakes to be the top of the rail after ballasting is completed, and the work of ballasting shall be done in strict accordance with said stakes.

5. **Distribution, Surplus and Waste.** The Contractor shall be responsible for the proper distribution of ballast material, sufficient to lift the track according to stakes, and dress same according to standard plan. The Engineer may require a redistribution of surplus material in cases where the spill is excessive. Care shall be taken by the Contractor that ballast is not wasted on the sides of the roadbed, and in the event that any is so wasted, it will not be paid for by the Company.

6. **Running Surface.** All new track must be brought to running surface and tamped up before it is run over. Rails that are damaged by reason of neglect on the part of the Contractor to comply with these requirements will be replaced at his expense.

7. **Raising Track.** The track level shall be used in surfacing track to insure accurate work. Lifts shall be so regulated as not to bend the rail or strain the joint bars. In surfacing track the low rail on curves and the line rail on tangents shall first be brought to surface; track level being used to determine surface for the other rail.

8. **Curve Elevation.** On curves the outer rail shall be elevated the amount specified, the elevation to be tapered out on tangents at both ends, where necessary, as directed by the Engineer. On all other portions of tangents, both rails must be brought to the same level.

9. **Tamping and Dressing.** All ties shall be well bedded and tamped, the centers loosely tamped. Particular attention must be paid to this matter and no track will be accepted unless thoroughly tamped. After tamping the track shall be filled in and roadbed finished off according to standard plan and all slopes neatly dressed.

10. **Ditches.** All road and surface ditches shall be left clear and free so as to conduct water freely and quickly from the roadbed, and all side ditches must be left unobstructed. The side slopes and ditches shall be left neat and smooth, and free from all rubbish, material and obstructions.

11. **Pay Quantities.** All work covered by this section of specifications shall be classified as "Ballasting" and shall be paid for at the contract unit price per cubic yard for ballast complete in place. Volume of ballast shall be measured in excavation.

12. **Completion, Maintenance, Acceptance.** When the ballasting of any portion of the line is completed, the track shall be put in perfect line, surface and gauge, and shall be so maintained under the Contractor's operations until it is accepted by the Company. If settlement should occur under the Contractor's operations, the Engineer may require him to re-line and re-surface before acceptance. The Chief Engineer may, however, at any time elect to accept and operate any portion of the completed line. Such acceptance will relieve the Contractor of any further liability for maintenance charges under this paragraph.

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N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Eleven

RUBBLE MASONRY AND PIER CRIBS

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1. **Rubble Masonry, Walls, Pedestals and Piers.** Rubble masonry shall be composed of stones of proper size and thickness for the dimensions of the work. They shall be reasonably regular in shape and spalled to provide a good even bearing in the wall. All stones shall be laid with full mortar beds and joints. Mortar shall be mixed in the proportion of one part Portland cement to three parts clean, sharp sand. All exposed faces shall be pointed. They shall be laid with headers properly spaced to make a good substantial wall. No stones less than six inches in thickness shall be used and, generally, not less than eight inches. The tops of walls, pedestals or piers shall be finished to a true level.

2. **Pier Cribs.** Pier cribs shall consist of horizontal headers and stretchers. Piles shall be used if required for a good foundation. The headers and stretchers may be either round logs or sawed timbers. Crib framing shall conform to the detail plans furnished by the Company. Cribs shall be filled with rock acceptable to the Engineer.

3. **Material.** The material for headers, stretchers and piles shall be cedar, if available. Other wood will be permitted on order of the Engineer. The bark on logs shall be removed. Where round logs are used, the size of the logs may vary from ten to sixteen inches in diameter, but they must average at least twelve inches throughout the structure.

4. **Pay Quantities.** Logs in cribs shall be measured and paid for at the contract unit prices per lineal foot of headers and stretchers, without consideration for the varying thickness of logs. Sawed timber in cribs shall be measured and paid for at the contract unit prices per thousand feet board measure. The lengths of timbers paid for shall be the minimum commercial lengths from which the timber in the finished structure can be cut. Rock filling shall be paid for per cubic yard measured in place, including excavation, hauling and placing, provided average haul does not exceed 500 feet. If haul exceeds 500 feet, hauling shall be paid for at the overhaul unit prices specified for grading. If filling material is taken from the roadbed excavation prism, the excavated volume so taken shall be deducted from the roadbed pay quantities.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Twelve

FOUNDATIONS FOR PIERS, ABUTMENTS AND WALLS

1. **Work Included.** The Contractor shall make the excavation and complete the foundations in strict accordance with the plans of the Company.

2. **Furnishing Materials.** Unless otherwise specified in the contract, all material for the construction of the foundation pits shall be furnished by the Contractor. The Contractor shall, at his own expense, furnish, erect and, on completion of the work, remove all temporary structures necessary for the work covered by this contract.

3. **Depth of Foundation.** Excavation shall be made to such depths as will, in the judgment of the Engineer, insure a safe and permanent foundation.

4. **Classification.** Excavation shall be classified as Dry Excavation and Wet Excavation.

5. **Dry Excavation Defined.** All material which can be taken out without running a pump in the pit and which has not been included in the wet excavation prism, shall be classified as Dry Excavation.

5. **Measurement of Dry Excavation, Pit Method.** The volume of dry excavation shall be the volume of an area one foot larger all around than the outside dimension of the footing course, times the average depth of the sides of the pit. If wet excavation is made in the same pit, the area defined under wet excavation shall be used in measuring dry excavation.

7. **Measurement of Dry Excavation, Slope Excavation.** All material removed in slope excavation outside of the prism defined by pit method shall be actual material removed.

8. **Wet Excavation Defined.** All material, the removal of which requires the use of a pump in the pit in order to make the excavation in a practical, economical manner, shall be classified as wet excavation.

9. **Measurement of Wet Excavation.** The volume of wet excavation for depths ten (10) feet or less shall be the volume of an area one foot larger all around than the outside dimensions of the footing course, times a depth equal to the average head of water pumped against in the pit during the time work in the pit is being done. For each increase of five feet or fraction thereof in excess of the first ten (10) feet of depth, one (1) foot shall be added to the total length and one (1) foot shall be added to the total width of the base of the wet excavation prism as above specified, and the area of the base so obtained shall be considered as the area of the base of the prism for the total wet and dry excavation.

10. **Backfilling.** All foundation pits shall be properly backfilled to the original ground line, unless otherwise directed by the Engineer.

11. **Surplus Material.** Surplus excavated material, if suitable, shall be used for backfilling foundation pits and the balance shall be disposed of as the Engineer may direct.

12. **Sheet Piling.** Sheet piling may be left in place at the option of the Contractor, but if so left, it shall be cut off at low water mark without extra cost to the Company.

13. **Basis of Payment.** In both dry and wet excavation, the price bid per cubic yard of excavation shall include all material and labor, such as sheeting, cofferdams, pumping, etc., necessary for carrying on the work and shall also include backfilling of foundation pits.

14. **Foundation Piles.** Foundation piles shall be driven to support the structure if, in the judgment of the Engineer, a good foundation cannot be secured in a reasonable depth.

15. **Driving Foundation Piles.** Piles shall be driven to a penetration satisfactory to the Engineer. Where the foundation material causes difficult driving, the Engineer may require the use of metal pile points and cap blocks or rings. Piles shall be driven by a steam or drop hammer. The weight of the drop hammer shall not be less than twenty-five hundred (2,500) pounds.

16. **Cutting Off Foundation Piles.** The Contractor shall cut off piles squarely and true to the elevation given by the Engineer.

17. **Measurement of Piles.** Piles shall be measured and paid for at the contract unit prices per lineal foot above cut off and below cut off. The labor of cutting off and trimming shall be considered as included in the price per lineal foot for driving.

April 1, 1928.

N. P. RY. CO. CONSTRUCTION SPECIFICATIONS E-114

Section Thirteen

CONCRETE MASONRY

1. **Work Included.** The Contractor shall build complete all concrete structures in strict accordance with the plans of the Company.

2. **Furnishing Materials.** Unless otherwise specified in the contract, all material entering into the completed concrete structures will be furnished by the Contractor, except Portland Cement and Reinforcing Steel, which will be furnished by the Company. The Contractor shall, at his own expense, furnish, erect and on completion of the work, remove all forms, falsework and other temporary structures necessary for the work covered by his contract.

3. **Storage of Portland Cement.** Cement shall be stored in a weather tight structure with the floor raised not less than one foot from the ground. Cement that has hardened or partially set shall not be used.

4. **Sand.** Sand shall consist of coarse and sharp grains of approximately uniform grading from the finest to the largest grains and passing, when dry, a screen having holes one fourth (¼) inch in diameter. When screened dry, not more than 25 percent by weight shall pass a No. 50 sieve, nor more than 6 percent a No. 100 sieve. When washed on a sieve with a stream of water, not more than 10 percent dry weight shall pass a No. 100 sieve. The sand shall be clean, free from soft particles and vegetable matter and shall not contain more than 5 percent of clay or loam. Samples of sand shall be submitted to the Engineer for test and acceptance before being used in the work.

5. **Broken Stone or Gravel.** Broken stone or gravel shall consist of hard, sound, durable rocks of approximately uniform grading from the smallest to the largest particles and shall for plain mass concrete, pass a screen having holes two and one-half (2½) inches in diameter, and, for reinforced concrete, pass a screen having holes one (1) inch in diameter and be retained on a screen having holes one-quarter (¼) inch in diameter. The stone shall be clean and free from clay, loam, flat chips, fine sand and other impurities.

6. **Boulders or "Nigger Heads".** When Cyclopean concrete is specified on the plans, "Nigger Heads" or boulders shall be used. They shall not exceed one cubic foot in size and shall be clean, hard, rough and free from cracks or other unsoundness. In volume they shall not exceed twenty (20) percent of the masonry in which they are used. They shall be kept back at least one (1) foot from any exposed surface of concrete and at least one (1) foot above tops of foundation piles. They shall be thoroughly embedded in the concrete by ramming.

7. **Water.** The water shall be free from oil, acid, alkalies or other salts and all impurities liable to be injurious to concrete.

8. **Proportions of Concrete Materials.** The proportions of concrete mixtures to be used on the various parts of the work shall be as specified on the detail plans and will in general be as follows:—

Reinforced Concrete. One (1) part Portland cement, two (2) parts sand, four (4) parts broken stone or gravel and approximately seven and one-half (7½) gallons of water per sack of cement.

Mass Concrete. One (1) part Portland cement, three (3) parts sand, five (5) parts broken stone or gravel and approximately six and one-half (6½) gallons of water per sack of cement.

Cyclopean Concrete. Same mixture as Mass Concrete with boulders or "Nigger Heads" thrown in.

Ornamental or Moulded Concrete. One (1) part Portland Cement, three (3) parts sand and approximately eight and one-half (8½) gallons of water per sack of cement.

Early Strength Concrete. One (1) part Portland Cement, one and one-half (1½) parts sand, two (2) parts broken stone or gravel and approximately four and one-half (4½) gallons of water per sack of cement.

9. **Measuring Proportions.** The various ingredients, including water, shall be measured separately and the methods of measurement shall be such as to secure invariably the proper proportions. The unit of measure shall be the cubic foot. One sack of cement or ninety-four (94) pounds shall be assumed as one cubic foot. The sand and broken stone or gravel shall be measured loosely as thrown into the measuring receptacle. Tests of voids in sand and gravel being used in the work shall be made from time to time by

the Engineer and should these tests develop that the specified proportion of sand to gravel does not give maximum density, the amount of gravel shall be increased or decreased sufficiently to give maximum density, but for any given class of concrete, the relative proportion of cement to sand shall not be reduced.

10. **Consistency.** The quantity of water specified in various mixtures is approximate and the actual quantity used shall be the least amount that will produce a plastic or workable mixture which can be worked into forms and around the reinforcement. If a workable mixture cannot be obtained for any particular sand and gravel using the mixtures specified, the amount of water and cement shall be increased until a workable mixture is obtained, but the ratio of the water and cement for that particular class of concrete shall remain constant. Under no circumstances shall the consistency of the concrete be such as to permit a separation of the stone from the mortar in handling. An excess of water shall not be used and any batch containing such an excess shall be rejected.

11. **Sheet Piling Used as Forms.** Sheet Piling may be used as forms for footing courses of concrete structures, but the volume of concrete to be paid for shall be figured from dimensions given on the plans.

12. **Form Material.** The forms shall be of wood or metal and shall conform to the shape, lines and dimensions of the concrete as called for on the plans. Where concrete will show in the finished work, forms shall be made of select lumber, sized one side and two edges, free from knot holes or other defects which will show in the finished work. Square corners shall be avoided and shall in general be broken, if no other shape is provided, by corner strips one and one-half (1½) inches on the diagonal face.

13. **Workmanship.** Forms for concrete shall be tight and substantial and preserve their accurate shape until the concrete has set. Forms which are warped or distorted shall be immediately replaced. Joints shall be neatly fitted and special care used to have lining plank present an even surface.

14. **Inspection of Forms.** Where necessary temporary openings shall be provided at the base of the forms to facilitate cleaning and inspection in advance of placing concrete. All debris shall be removed from the space to be occupied by the concrete.

15. **Oiling Forms.** Effective means shall be used to prevent adhesion of mortar to forms. The inside surface shall generally be coated with raw paraffine or other non-staining mineral oil, or, if not coated with oil, all newly built forms shall be kept wet.

16. **Removal of Forms.** Forms shall be removed from mass concrete as soon as setting of concrete will safely permit. Falsework supporting forms and concrete for beam and slab construction shall not be removed until authorized by the Engineer.

17. **Mixing Concrete.** Unless permitted by special authority from the Engineer, all concrete shall be machine mixed. A rotary batch mixer permitting a definite measurement of the materials, including water, for each batch shall be used. The ingredients of the concrete shall be mixed to the required consistency and the mixing continued not less than one and one-half (1½) minutes after all the materials are in the mixer, and before any part of the batch is discharged. The mixer shall be completely emptied before receiving materials for the succeeding batch. The volume of the mixed material used per batch shall not exceed the manufacturer's rated capacity of the drum. Concrete deposited under water shall be machine mixed. If hand mixing is resorted to, it shall be done under the direct supervision of the Engineer. When it is permitted, the mixing shall be done on a water tight platform of sufficient size to accommodate men and materials for the progressive and rapid mixing of at least two batches of concrete at the same time. The batches shall not exceed one-half (½) cubic yard each. The materials shall be mixed dry until the mixture is of a uniform color, the required amount of water added, and the mixing continued until the batch is of a uniform consistency and character throughout. Mortar or concrete which has partially hardened shall not be retempered; that is, remixed with additional materials or water. Before beginning a run of concrete, all hardened concrete or foreign materials shall be removed from the inner surfaces of all concrete mixing and conveying equipment.

18. **Depositing Concrete.** Concrete shall be handled from the mixer to the place of final deposit as rapidly as possible, and by methods of transporting which will prevent the separation of the ingredients. The concrete shall be deposited directly into the forms as nearly as possible in its final position so as to avoid rehandling. Concrete shall not be piled up in the forms in such manner as to permit the escape of mortar from the stone. Concrete that has partially set shall not be deposited in the work. Wherever practicable, concrete shall be deposited continuously for each monolithic section of the work. Throughout the placing of concrete in the forms, the mass shall be puddled and the stone carefully worked back from the forms

into the mass of the concrete with spades, fine stone forks, bars or other suitable tools, so as to bring the water to the surface and make perfect contact with the forms and reinforcing steel. Care shall be taken to remove all air pockets and to prevent voids in the surface.

19. **Depositing Concrete in Cold Weather.** Whenever concrete is deposited in freezing weather, special precautions shall be taken to avoid the use of materials containing frost and effective means shall be taken to prevent the mixture from chilling or freezing. The concrete at the time it is mixed and deposited in the work shall have a temperature not lower than forty (40) degrees Fahrenheit, and suitable means shall be provided to maintain this temperature for at least 72 hours thereafter, and until the concrete has thoroughly set. Any concrete which has been frozen or frost bitten, shall be promptly removed from the work. Placing of concrete in freezing weather shall be carried on continuously to insure a monolithic mass. In general, light reinforced sections shall not be placed in freezing weather.

20. **Depositing On or Against Set Concrete.** Before depositing new concrete on or against concrete which has set, the surfaces of the set concrete shall be thoroughly roughened, brushed and washed down with a hose until perfectly cleaned of dirt, dust, laitance, loose chips, etc., then slushed over with a grout of neat cement, to be immediately followed up by the deposit of new concrete. Where good steam pressure is available, it is to be preferred for cleaning and blowing off the dirt and loose material from the set concrete.

21. **Depositing Concrete Under Water.** The Contractor shall obtain special authority from the Engineer before depositing concrete through water, and the volume so placed shall not exceed such part of the pier base as may be necessary to effectively seal the cofferdam or overcome buoyancy. Cofferdams or cribs shall be sufficiently tight to prevent any current through the space in which the concrete is to be deposited. Pumping will not be permitted while the concrete is being deposited, nor until it has fully set. The cofferdam or crib shall then be pumped out, forms placed and balance of concreting completed in the dry Where possible, the concrete shall be deposited continuously from the time the work is started until it is brought above the water level or to the finished surface. The work shall be carried on with sufficient rapidity to insure bonding of the successive layers. The surface of the deposited concrete shall be kept as level as possible. In no case shall the concrete be allowed to fall through the water. Care shall be exercised to disturb the concrete as little as possible while it is being deposited to avoid the formation of laitance. On completing a section, the laitance shall be entirely removed after the concrete has thoroughly set and before the work is resumed.

22. **Method of Placing Concrete Under Water.** The concrete shall be deposited by such method as will prevent the washing of the cement from the mixture. The special equipment for lowering the concrete into the water shall be a drop bottom bucket or tremie. Preference shall be given to the drop bottom bucket. While being lowered into the water, the bucket shall be completely filled and lowered slowly to avoid unnecessary back wash. When discharged, the bucket shall be withdrawn slowly until clear of the concrete. If the tremie is used, care shall be taken that the intial filling of the tremie shall be done in such a manner as not to permit the concrete to drop through the water. It shall be kept filled at all times, and the discharge end raised a few inches at a time as the filling progresses. The greatest care shall be used to prevent the charge being lost in moving the tremie about on the surface of the deposited concrete. In case the charge is lost, the tremie must be withdrawn and refilled.

23. **Drop Bottom Bucket.** The bucket, where used, shall be of a type satisfactory to the Engineer. The capacity of the bucket shall not be less than one cubic yard. The bucket shall have a bottom trap arrangement which cannot be dumped until it rests on the surface upon which the concrete is to be deposited. A frame shall extend below the closed bottom doors so they may be opened freely downward and outward when tripped. The top of the bucket shall be open.

24. **Tremie.** The tremie shall be eight (8) or ten (10) inches in diameter, made of flanged pipe and put together with gaskets. A valve shall be provided for closing the bottom which can be opened from above the water.

25. **Monolithic Construction.** When the structures, or portions of the structures are designed to be monolithic, they shall be cast integrally, except as hereinafter modified.

26. **Construction Joints.** When necessary to provide construction joints not indicated or specified, such joints shall be located and formed so as to least impair the strength and appearance of the structure. Where conditions require, the joints shall be reinforced as directed by the Engineer, in order to secure

the necessary bond strength. Horizontal construction joints shall be prepared at the time the work is interrupted by thoroughly roughening the surface and providing keys by imbedding rods which project above the surface, or mortises by imbedding timbers which shall be removed before the work of placing concrete is resumed. At all horizontal or vertical construction joints, the previously deposited surface shall be roughened and cleaned of all laitance and foreign material before depositing new concrete.

27. **Expansion Joints.** At all expansion joints, the break in the bond between two sections shall be complete. No reinforcement shall extend across an expansion joint. Triangular or trough shaped grooves shall be formed in the exposed surface of the concrete at all expansion joints in walls or abutments. Where expansion joints are formed between two distinct concrete members, and said joint is exposed, it shall be filled with an elastic joint filler of approved quality.

28. **Surfacing and Finishing.** All adjoining concrete surfaces which will show in finished work shall be as nearly as practicable of uniform color and appearance. Plastering or any other practice tending to develop planes of demarcation shall not be used. Any defective concrete occurring in the finished work shall be removed immediately and replaced by concrete of such mixture and in such manner as the Engineer shall direct. After the removal of the forms, any holes or voids in the surface of the concrete shall be filled with mortar made of the same proportions of sand and cement as those of the concrete and rubbed smooth and even with the surface using a wooden float. A metal trowel will not be permitted for this purpose. Top surfaces shall generally be "struck" with a straight edge or "floated" after the stones have been forced below the surface. Where "sidewalk" finish is called for on the plans, it shall be made by the spreading of a 1 - 2 mortar at least three-quarters (¾) inch thick, and floating this to a smooth surface. This finishing coat shall be put on before the concrete has taken its initial set. For a walk, the surface shall be slightly roughered with a special tool or by sweeping with a coarse broom. The surfaces of the concrete exposed to premature drying shall be kept thoroughly wetted for a period of at least three days.

29. **Cement Wash.** Where concrete structures are located in cities or at locations where a uniform color and smooth surfaces of concrete are desirable, the Contractor shall wash thoroughly the exposed surface of the concrete with water and apply immediately with a brush, a cement wash consisting of one part cement and one part sand which will pass a fifty (50) mesh sieve. Where old concrete is joined by new concrete, the old concrete shall be cleared thoroughly by an acid wash before washing with water to provide a clear surface for the application of the cement wash.

30. **Measurement of Concrete.** The concrete shall be measured and paid for per cubic yard at the unit price in the contract, as determined from the dimensions given on the plans.

31. **Storage of Reinforcing Steel.** Reinforcing steel shall be stored under cover in a dry place.

32. **Placing Reinforcing Steel.** The reinforcing steel shall be cleaned of all mill and rust scales with steel brushes before being placed in the forms. All reinforcing steel shall be placed carefully, exactly as called for on the detail plans and secured effectively in this position before concreting is begun. Care shall be taken to see that outer face of the steel is kept at least one and one-half (1½) inches from any exposed surface of the concrete. The location and cross sectional areas of all reinforcing steel shall be checked by the Engineer after it is placed in the forms and before any concrete is deposited.

33. **Splicing and Fastening Reinforcing Steel.** All intersecting of joining reinforcing steel shall be securely wired together with No. 16 annealed steel wire. If necessary to splice, the location and design of splice shall be as directed by the Engineer. Care shall be taken to see that the lap is not less than thirty (30) diameters of the bars spliced. Splices shall not be made at points of maximum stress.

34. **Measurement of Reinforcing Steel.** The placing of reinforcing steel shall be paid for per pound at the unit price in the contract, as determined from the invoice weights of the steel furnished by the manufacturer.

35. **Waterproof Paint.** The inner surfaces of all reinforced walls, and tops of concrete slabs, shall be given two thick coats of a heavy asphaltum paint, or its equivalent, particular attention being given to the corners. All concrete shall be set and thoroughly dry before the application of waterproofing materials.

36. **Measurement of Painted Surface.** The painting of concrete surfaces shall be paid for at the unit price per square yard as determined from the dimensions given on the plans.

April 1, 1928.

the necessary bond strength. Horizontal construction joints shall be prepared at the time the work is interrupted by thoroughly roughening the surface and providing keys by imbedding rods which project above the surface, or mortises by imbedding timbers which shall be removed before the work of placing concrete is resumed. At all horizontal or vertical construction joints, the previously deposited surface shall be roughened and cleaned of all laitance and foreign material before depositing new concrete.

27. **Expansion Joints.** At all expansion joints, the break in the bond between two sections shall be complete. No reinforcement shall extend across an expansion joint. Triangular or trough shaped grooves shall be formed in the exposed surface of the concrete at all expansion joints in walls or abutments. Where expansion joints are formed between two distinct concrete members, and said joint is exposed, it shall be filled with an elastic joint filler of approved quality.

28. **Surfacing and Finishing.** All adjoining concrete surfaces which will show in finished work shall be as nearly as practicable of uniform color and appearance. Plastering or any other practice tending to develop planes of demarcation shall not be used. Any defective concrete occurring in the finished work shall be removed immediately and replaced by concrete of such mixture and in such manner as the Engineer shall direct. After the removal of the forms, any holes or voids in the surface of the concrete shall be filled with mortar made of the same proportions of sand and cement as those of the concrete and rubbed smooth and even with the surface using a wooden float. A metal trowel will not be permitted for this purpose. Top surfaces shall generally be "struck" with a straight edge or "floated" after the stones have been forced below the surface. Where "sidewalk" finish is called for on the plans, it shall be made by the spreading of a 1 - 2 mortar at least three-quarters (¾) inch thick, and floating this to a smooth surface. This finishing coat shall be put on before the concrete has taken its initial set. For a walk, the surface shall be slightly roughened with a special tool or by sweeping with a coarse broom. The surfaces of the concrete exposed to premature drying shall be kept thoroughly wetted for a period of at least three days.

29. **Cement Wash.** Where concrete structures are located in cities or at locations where a uniform color and smooth surfaces of concrete are desirable, the Contractor shall wash thoroughly the exposed surface of the concrete with water and apply immediately with a brush, a cement wash consisting of one part cement and one part sand which will pass a fifty (50) mesh sieve. Where old concrete is joined by new concrete, the old concrete shall be cleared thoroughly by an acid wash before washing with water to provide a clear surface for the application of the cement wash.

30. **Measurement of Concrete.** The concrete shall be measured and paid for per cubic yard at the unit price in the contract, as determined from the dimensions given on the plans.

31. **Storage of Reinforcing Steel.** Reinforcing steel shall be stored under cover in a dry place.

32. **Placing Reinforcing Steel.** The reinforcing steel shall be cleaned of all mill and rust scales with steel brushes before being placed in the forms. All reinforcing steel shall be placed carefully, exactly as called for on the detail plans and secured effectively in this position before concreting is begun. Care shall be taken to see that outer face of the steel is kept at least one and one-half (1½) inches from any exposed surface of the concrete. The location and cross sectional areas of all reinforcing steel shall be checked by the Engineer after it is placed in the forms and before any concrete is deposited.

33. **Splicing and Fastening Reinforcing Steel.** All intersecting of joining reinforcing steel shall be securely wired together with No. 16 annealed steel wire. If necessary to splice, the location and design of splice shall be as directed by the Engineer. Care shall be taken to see that the lap is not less than thirty (30) diameters of the bars spliced. Splices shall not be made at points of maximum stress.

34. **Measurement of Reinforcing Steel.** The placing of reinforcing steel shall be paid for per pound at the unit price in the contract, as determined from the invoice weights of the steel furnished by the manufacturer.

35. **Waterproof Paint.** The inner surfaces of all reinforced walls, and tops of concrete slabs, shall be given two thick coats of a heavy asphaltum paint, or its equivalent, particular attention being given to the corners. All concrete shall be set and thoroughly dry before the application of waterproofing materials.

36. **Measurement of Painted Surface.** The painting of concrete surfaces shall be paid for at the unit price per square yard as determined from the dimensions given on the plans.

N. P. RY. CO. CONSTRUCTION SPECIFICATION E-114

Section Fourteen

ERECTION OF STEEL BRIDGES AND VIADUCTS

1. **Work Included.** The Contractor shall handle and erect the metal work, make all connections and adjustments, remove the old structures and falsework, and do all the work required to complete the structure or structures ready for the passage of trains. The Company will furnish complete detail plans for the structure or structures to be erected, including shop details, camber diagram, erection diagrams, match marking diagrams, list of field rivets and bolts, and copy of shipping statements showing a full list of parts and weights.

2. **Plant.** The Contractor shall provide all tools, machinery and appliances, including drift pins and fitting up bolts, necessary for the expeditious handling of the work.

3. **Overhaul of Materials.** Materials furnished by the Company shall be handled from the point where it is unloaded to the site of the work by the Contractor, without additional cost to the Company, provided the distance such material is to be moved does not exceed 2500 feet, measured to the nearest end of the bridge. For distance in excess of 2500 feet, the Contractor shall be paid overhaul at the unit price specified in the contract.

4. **Falsework.** Unless otherwise agreed in the contract, the Company will furnish and install the necessary falsework, except for viaducts. Such falsework will be installed in accordance with detail plans of the Company and maintained by the Contractor, and, should the Contractor desire to make changes in same, he shall do so at his own expense.

5. **Substructure.** The Company will construct the timber or masonry supports.

6. **Bearings.** Bed plates, bolsters, and shoes shall be set level in exact position. They shall be given full and even bearing by setting them on a layer of Portland cement mortar or dry cement, or by tightly ramming in rust cement after blocking them accurately in position, as directed by the Engineer. Sub-castings shall be set well in advance of the other work and no weight shall be put upon them until approved by the Engineer. Castings shall be set with extreme accuracy as to lines and levels given by the Engineer. Castings shall be brought to exact height by rust cement joint of requisite thickness. The rust cement shall be mixed in small quantities in accordance with the instructions of the Engineer and rammed under the bed plates in a most thorough and careful manner.

7. **Anchorage.** The Contractor shall drill the holes and set the anchor bolts, except on viaduct piers where the center bolts are built into the masonry. The bolts shall be set accurately and fixed with Portland cement grout completely filling the holes.

8. **Assembling Steel.** All parts shall be accurately assembled as shown on the plans and any match marks carefully followed. The material shall be carefully handled so that no parts will be broken or damaged. Hammering which will injure or distort the work will not be permitted. Bearing surfaces and surfaces to be in permanent contact shall be cleaned just before the members are assembled. Unless erected by the cantilever method, truss spans shall be erected on blocking so placed as to give the trusses proper camber until all tension chord splices are fully riveted and all other truss connections pinned and bolted. Rivets in splices of butt joints in compression members shall not be driven until the span has been swung. Splices and field connections shall have one-half of the holes filled with bolts and cylindrical erection pins (half bolts and half pins) before riveting. Splices and connections carrying traffic during erection and viaduct tower bracing, shall have three-fourths of the holes so filled. Fitting up bolts shall be of the same nominal diameter as the rivets, and the cylindrical erection pins shall be $\frac{1}{32}$ inch larger.

9. **Riveting.** Riveting preferably shall be done with pneumatic riveters and buckers. Rivets larger than ⅞ inch in diameter shall not be driven by hand. Connections shall be accurately and securely fitted up before the rivets are driven. Light drifting will be permitted to draw the parts together, but drifting to match unfair holes will not be permitted. Unfair holes shall be reamed or drilled. Rivets shall be heated to a light cherry color in an oil forge and in driving shall be upset to completely fill the holes. Heads shall be full and symmetrical, concentric with the shank, and shall have full bearing all around. They shall be the same shape and size as the heads of the shop rivets. Rivets shall be tight and shall grip the connected parts securely together. No recupping or caulking will be permitted. Rivets shall not be overheated or burned. In removing rivets, the surrounding metal shall not be injured; if necessary, such rivets shall be drilled out. Cup faced dollies, fitting the heads closely to insure good bearing, shall be used.

10. **Bolted Connections.** In bolted connections, bolts shall be drawn up tight and threads burred so that nuts cannot become loose.

11. **Pin Connections.** Pilot and driving nuts shall be used in driving pins. They will be furnished by the Company and shall be returned to the Company on completion of the work. Pin nuts shall be screwed up tight and threads burred so that the nuts cannot become loose.

12. **Misfits.** Corrections or minor misfits and a reasonable amount of reaming will be considered as a legitimate part of the erection. Any error in shop work which prevents the proper assembling and fitting of parts by the moderate use of drift pins, and a moderate amount of reaming and slight chipping or cutting shall immediately be reported to the Inspector, and his approval of the method of correction obtained. The correction shall be made in the presence of the Engineer, who will check the time expended.

13. **Painting.** Heads of field rivets shall be painted by the Contractor. This painting shall not be done until the Engineer has examined the rivets and found them satisfactory. The tops of stringers and girders which are to carry ties shall be given one coat of field paint. If specified in the contract, the Contractor shall paint the steel work complete.

14. **Railroad Deck.** Where so specified, the ties, guard timbers, inside metal guard rails, fire decking, concrete decking, waterproofing, ballast and deck planking, and the track rails and tie plates, shall be placed by the Contractor. The timber deck, if untreated, shall be framed and placed in accordance with the Company's plans. The ties shall be framed to give a full and even bearing on the girders and under the rails. Unnecessary spiking or prying about of ties for temporary track will not be permitted. The guard timbers shall be dapped and framed to a snug fit over the ties and fastened as shown on the plans. If treated timber is used, the Company will deliver it properly framed to the Contractor. If necessary to do any framing or cutting of treated timber, the resulting surfaces shall be given a brush treatment with wood preservative, as directed by the Engineer. Where concrete decking is used, or waterproofing is required, the specifications therefor will be furnished by the Company.

15. **Removing Old Structure and Falsework.** The Contractor shall dismantle the old structures and falsework and load the material on cars for shipment, or pile it neatly at a site immediately adjacent to the tracks, at a convenient elevation for future handling, as directed by the Engineer. When the old structure is of iron or steel and is to be used again, it shall be dismantled without unnecessary damage. Rivets will be cut out. Burning out of rivets will not be permitted. Before the work of dismantling is commenced, all parts of the old structure shall be carefully marked for reerection in accordance with diagram to be furnished by the Engineer. The Contractor shall remove the piling to the surface of the ground and all debris and refuse resulting from his work, leaving the site in good condition.

16. **Measurement of Quantities.** The weight of structural steel shall be obtained from the shipping statements based on actual shop weights of the steel. Timber shall be estimated on the basis of the minimum commercial lengths from which the actual timber in the structure can be cut.

June 12, 1928.

9. **Riveting.** Riveting preferably shall be done with pneumatic riveters and buckers. Rivets larger than ⅞ inch in diameter shall not be driven by hand. Connections shall be accurately and securely fitted up before the rivets are driven. Light drifting will be permitted to draw the parts together, but drifting to match unfair holes will not be permitted. Unfair holes shall be reamed or drilled. Rivets shall be heated to a light cherry color in an oil forge and in driving shall be upset to completely fill the holes. Heads shall be full and symmetrical, concentric with the shank, and shall have full bearing all around. They shall be the same shape and size as the heads of the shop rivets. Rivets shall be tight and shall grip the connected parts securely together. No recupping or caulking will be permitted. Rivets shall not be overheated or burned. In removing rivets, the surrounding metal shall not be injured; if necessary, such rivets shall be drilled out. Cup faced dollies, fitting the heads closely to insure good bearing, shall be used.

10. **Bolted Connections.** In bolted connections, bolts shall be drawn up tight and threads burred so that nuts cannot become loose.

11. **Pin Connections.** Pilot and driving nuts shall be used in driving pins. They will be furnished by the Company and shall be returned to the Company on completion of the work. Pin nuts shall be screwed up tight and threads burred so that the nuts cannot become loose.

12. **Misfits.** Corrections or minor misfits and a reasonable amount of reaming will be considered as a legitimate part of the erection. Any error in shop work which prevents the proper assembling and fitting of parts by the moderate use of drift pins, and a moderate amount of reaming and slight chipping or cutting shall immediately be reported to the Inspector, and his approval of the method of correction obtained. The correction shall be made in the presence of the Engineer, who will check the time expended.

13. **Painting.** Heads of field rivets shall be painted by the Contractor. This painting shall not be done until the Engineer has examined the rivets and found them satisfactory. The tops of stringers and girders which are to carry ties shall be given one coat of field paint. If specified in the contract, the Contractor shall paint the steel work complete.

14. **Railroad Deck.** Where so specified, the ties, guard timbers, inside metal guard rails, fire decking, concrete decking, waterproofing, ballast and deck planking, and the track rails and tie plates, shall be placed by the Contractor. The timber deck, if untreated, shall be framed and placed in accordance with the Company's plans. The ties shall be framed to give a full and even bearing on the girders and under the rails. Unnecessary spiking or prying about of ties for temporary track will not be permitted. The guard timbers shall be dapped and framed to a snug fit over the ties and fastened as shown on the plans. If treated timber is used, the Company will deliver it properly framed to the Contractor. If necessary to do any framing or cutting of treated timber, the resulting surfaces shall be given a brush treatment with wood preservative, as directed by the Engineer. Where concrete decking is used, or waterproofing is required, the specifications therefor will be furnished by the Company.

15. **Removing Old Structure and Falsework.** The Contractor shall dismantle the old structures and falsework and load the material on cars for shipment, or pile it neatly at a site immediately adjacent to the tracks, at a convenient elevation for future handling, as directed by the Engineer. When the old structure is of iron or steel and is to be used again, it shall be dismantled without unnecessary damage. Rivets will be cut out. Burning out of rivets will not be permitted. Before the work of dismantling is commenced, all parts of the old structure shall be carefully marked for reerection in accordance with diagram to be furnished by the Engineer. The Contractor shall remove the piling to the surface of the ground and all debris and refuse resulting from his work, leaving the site in good condition.

16. **Measurement of Quantities.** The weight of structural steel shall be obtained from the shipping statements based on actual shop weights of the steel. Timber shall be estimated on the basis of the minimum commercial lengths from which the actual timber in the structure can be cut.

June 12, 1925.

N. P. RY. CO. CONSTRUCTION SPECIFICATION E-114

Section Fifteen

PAINTING STEEL STRUCTURES

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1. **Work Included.** All parts of the structure shall be given two field coats of paint.

2. **Plant.** The Contractor will furnish all tools and equipment necessary to clean and paint the structural steel.

3. **Paint Materials.** The Company will furnish all paint and oil necessary for the work and will deliver the same to the Contractor at a station in the vicinity of the structure or structures to be painted. The paint will be delivered mixed and ready to apply. The contents of barrels or cans must be thoroughly stirred before any paint is removed. The Contractor will not be permitted to use any dryer or thinner, or any adulterant in the paint. In case the paint as delivered to the Contractor should prove too thick for applying in a workmanlike manner, pure boiled linseed oil shall be added in such amounts as may be directed by the Engineer, in order to reduce paint to proper consistency. Any additions of oil must be thoroughly stirred into the paint by the Contractor before any paint is removed from the barrels.

4. **Cleaning.** Before paint is applied, all oil and grease spots must be removed and all dirt, cinders, blisters, scale and other foreign matter must be scraped off and the entire surface swept perfectly clean.

5. **Applying Paint.** All surfaces shall be perfectly dry when paint is applied. The paint shall be applied with a stiff bristle brush and must be uniformly spread and thoroughly rubbed over the entire surface. The first coat of paint must be dry and hard when the second coat is applied. If a fresh coat of paint is washed off or damaged by rain during the progress of the work, an extra coat of paint shall be applied.

6. **Workmanship.** All work must be done in a neat workmanlike manner, by competent workmen and must be in every way satisfactory to the Engineer.

7. **Returning Paint Containers.** The barrels or cans in which the paint was shipped shall not be destroyed or damaged any more than is necessary to remove their contents. Empty barrels and cans and material left over after work is finished shall be delivered by the Contractor to the Agent of the Company at the nearest station, or shall be shipped as instructed by the Engineer or Inspector representing the Company.

8. **Measurement of Quantities.** The work shall be paid for at a unit price per net ton of steel. The weight of steel shall be determined from the records of the Company and, if practical, shall be obtained from the actual shipping weights of the steel.

June 12, 1928.

N. P. RY. CO. CONSTRUCTION SPECIFICATION E-114

Section Sixteen

APPLYING MEMBRANE WATERPROOFING

1. **Work Included.** The Contractor shall apply the membrane waterproofing to the structure in strict accordance with the plans of the Company.

2. **Furnishing Materials.** The Contractor shall furnish tools, staging and equipment, concrete aggregate and forms necessary to complete the work under the contract. The Company will furnish the waterproofing materials, Portland cement and metal reinforcement.

3. **Preparation of the Surfaces.** The Contractor shall remove any projections on the surface which would injure the waterproofing membrane. The surface shall be cleaned of dust, dirt, grease and loose particles, giving special attention to corners and joints. Slight depressions may be filled with asphalt mastic and the surface made smooth. The surface shall be dry when waterproofing is applied.

4. **Type of Waterproofing Membrane.** Unless otherwise provided in the agreement, the membrane shall consist of a priming coat, three layers of waterproofing asphalt, reinforced with two layers of saturated cotton fabric and protected with a two and one-half inch layer of concrete reinforced with wire mesh or expanded metal.

5. **Priming Coat.** Surfaces of concrete or steel coming in contact with asphalt waterproofing shall be given one coat of asphaltic primer. It shall be applied immediately before the application of waterproofing membrane.

6. **Applying Membrane.** The priming coat shall be dry before the membrane is applied. The fabric shall be laid shingle fashion, beginning at the lowest elevation of the surface to be waterproofed. The first strip of fabric shall be one half the width of a roll, and the second or full width strip shall have its lower edge directly over the lower edge of the first strip. Ends of strips shall be lapped twelve (12) inches. In laying the membrane, a mopping of hot asphalt slightly greater in width than the strip of fabric shall be applied to the concrete or steel surface, on top of the priming coat. The mopping shall be applied in a manner that will eliminate air bubbles and pockets. The surface shall be fully covered and shall be of sufficient thickness to fill the open meshes in the fabric. The fabric shall be placed on the hot asphalt, creases smoothed out and pressed down until the asphalt comes to the surface. The third strip of fabric shall be full width and shall extend over the second strip one half its width and this method of laying continued until the surface is covered with three moppings of asphalt and two layers of fabric. The waterproofing membrane shall be continuous and unbroken except at drainage openings. There shall not be less than 25 square yards of fabric and 13 gallons of waterproofing asphalt per 100 square feet of surface.

7. **Flashings.** All flashings, as against girders, stiffeners, gussets, concrete parapets, etc., shall be done with separate sheets, lapping the main membrane not less than twelve (12) inches. The membrane shall be turned down into the drainage castings without a break. Particular care shall be taken to seal flashings closely to all surfaces. At the ends of the bridge, the membrane shall be carried well down on the abutments and special provision made, as shown on the plans, to take up movement at the free end.

8. **Floating Membrane.** If a bond between the membrane and the surface to be waterproofed is not desired, the surface shall be covered with a paraffin coated insulating paper and the membrane laid on top of the insulating paper.

9. **Workmanship.** The fabric shall be stored in a dry protected place. Care shall be taken to avoid overheating of the asphalt. The temperature of the asphalt in the kettle shall not be above 350 degrees Fahrenheit and not below 250 degrees Fahrenheit, just before the asphalt is placed in the work. Kettles shall be equipped with thermometers. The membrane shall be protected against mechanical injury, high temperature and chemical action as soon as possible after completion. Work shall be done by competent workmen, skilled in the kinds of work specified. Waterproofing shall not be done in wet weather nor at a temperature below 50 degrees Fahrenheit without permission from the Engineer.

10. **Concrete Protection Course.** The waterproofing membrane shall be protected by a reinforced concrete mat, as shown on the plans. Special care shall be taken to prevent damage to the waterproofing membrane while placing the concrete protection course.

11. **Measurement of Quantities.** The waterproofing membrane, including the concrete protection course, shall be measured and paid for per square yard on the finished structure, at the unit prices in the contract.

June 12, 1928.

8. **Floating Membrane.** If a bond between the membrane and the surface to be waterproofed is not desired, the surface shall be covered with a paraffin coated insulating paper and the membrane laid on top of the insulating paper.

9. **Workmanship.** The fabric shall be stored in a dry protected place. Care shall be taken to avoid overheating of the asphalt. The temperature of the asphalt in the kettle shall not be above 350 degrees Fahrenheit and not below 250 degrees Fahrenheit, just before the asphalt is placed in the work. Kettles shall be equipped with thermometers. The membrane shall be protected against mechanical injury, high temperature and chemical action as soon as possible after completion. Work shall be done by competent workmen, skilled in the kinds of work specified. Waterproofing shall not be done in wet weather nor at a temperature below 50 degrees Fahrenheit without permission from the Engineer.

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11. **Measurement of Quantities.** The waterproofing membrane, including the concrete protection course, shall be measured and paid for per square yard on the finished structure, at the unit prices in the contract.

June 12, 1928.

Spokane, Nov. 13, 1933.

Mr. Bernard Blum:- Coulee dam.

Herewith one clipping from the Spokesman Review of November 13th covering Mr. Donnelly's interview and trip to Coulee dam.

Herewith clipping from the same paper, same date, on the question of money. You will note the statement is made that so far, the only money spent on this project has come from the State's present allocation of $377,000 which money was advanced for engineering and preliminary work. This is news to most of us, as we had thought the Two Million Dollars mentioned was in hand.

H. M. Tremaine

District Engineer.

HMT-T

Encl.

8731

Saint Paul, November 13, 1933.

Mr. E. E. Nelson:

Your notation on attached message:
Article in Grand Coulee Record dated Nov. 1st indicates transport permission for bus line would be made from Wenatchee. This appears to be some propotion paper printed in S pokane. Copy was forwarded to Mr. Blum on the line on November 9th.

Asst. to Chief Engineer.

JTD-w

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8731

St.Paul, Minn., November 11, 1933.

Mr. J. T. Derrig,
Asst. to Chief Engineer.

Thank you for your letter of November 9 about movement of contractor's material in connection with the Grand Coulee dam construction work.

5

12

8731

Saint Paul, Nov. 9, 1933.

Mr. Bernard Blum:

I am attaching hereto copy of the Grand Coulee Record of November 1st, which may be of interest to you.

J. T. Dunning
Asst. to Chief Engineer.

JTD-W

5 8731

Saint Paul, November 9, 1933.

Mr. R. W. Clark:

Mr. Claude Seims stopped in the office this morning and stated that the bids that are to be received by the Government for two million yards of excavation on proposed Coulee Dam are to be opened in public at Spokane on November 20th. There will be a considerable amount of equipment coming in immediately after this contract is awarded, and I believe it would be well to keep in close touch with the successful contractor.

JTD

Asst. to Chief Engineer.

JTD-w

cc Mr. Blum

8731

Nov 9th 1933

88 CF G ST PAUL NOV 9-33 BERNARD BLUM CAR 9 PORTLAND
DISCUSSED WITH CLAUDE SEIMS GOVERNMENT SPECIFICATIONS
FOR MOVING TWO MILLION CUBIC YARDS MATERIAL GRAND COULEE
DAM BIDS RETURNABLE AT SPOKANE NOVEMBER TWENTIETH
.SPECIFICATIONS CONTEMPLATE MOVING THIS YARDAGE IN ONE
HUNDRED FIFTY DAYS WORK TO BEGIN TWENTY DAYS AFTER
CONTRACT IS AWARDED.THIS WILL MEAN AN AVERAGE MOVEMENT
APPROXIMATELY THIRTEEN THOUSAND FIVE HUNDRED YARDS PER
DAY AND REQUIRE FROM SIX TO TEN SHOVELS PERHAPS DIESEL
OR GAS 50-B TYPE TOGETHER WITH TRUCKS AND DINKY EQUIPMENT
D 116

J T DERRIG 341 PM

B

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

8731

25 NSF G ST PAUL NOV 9-33 B BLUM PORTLAND

HAVE ADVICE SPECIFICATIONS ARE OUT FOR HANDLING TWO MILLION YARDS EXCAVATION FOR GRAND COULEE DAM BIDS RETURNABLE AT SPOKANE NOVEMBER TWENTIETH UNDERSTAND STATE HIGHWAY DEPARTMENT WILL HAVE SPECIFICATIONS OUT FOR BRIDGE EXCAVATION JANUARY FIRST . SEIMS & COMPANY HAVE RECEIVED SPECIFICATIONS THROUGH THEIR SPOKANE OFFICE . OTHER ST PAUL CONTRACTORS MAKING INQUIRIES D 114

J T DERRIG 1030 AM

NOV 9 1933

J.T.D.

I saw the proposal 2000,000 yds Earth
40,000 Rock
1,000,000 Overhaul

11/9 B.B

8731

Saint Paul, Nov. 9, 1933.

Mr. Bernard Blum:

I am attaching hereto copy of the Grand Coulee Record of November 1st, which may be of interest to you.

Asst. to Chief Engineer.

JTD-r

8731

Saint Paul, November 9, 1933.

Mr. R. W. Clark:

Mr. Claude Seims stopped in the office this morning and stated that the bids that are to be received by the Government for two million yards of excavation on proposed Coulee Dam are to be opened in public at Spokane on November 20th. There will be a considerable amount of equipment coming in immediately after this contract is awarded, and I believe it would be well to keep in close touch with the successful contractor.

Asst. to Chief Engineer.

JTD-w

cc Mr. Blum

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED 5731 M.

St. Paul, Nov. 9, 1933

Bernard Blum
Car 9 - Portland, Ore.

Have advice specifications are out for handling two million yards excavation for Grand Coulee Dam bids returnable at

Spokane November twentieth. Understand State Highway department will have specifications out for bridge excavation January

first. Seims & Company have received specifications through their Spokane office. Other St.Paul contractors making

inquiries. D-114

J T Derrig

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, Nov. 9, 1933

Bernard Blum
Car 9 - Portland, Ore.

Discussed with Claude S eims proposed Government specifications for moving two million cubic yards material Grand Coulee Dam

bids returnable at Spokane November twentieth. Specifications contemplate moving this yardage in one hundred fifty days work to begin twenty days after contract is awarded. This will mean

an average movement approximately thirteen thousand five hundred yards per day and require from six to ten shovels perhaps Diesel

or Gas 50-B type together with trucks and dinky equipment. D-116

J T Derrig

8731

St. Paul, November 9, 1933.

Mr. A. C. Terrell:

Your inquiry of November 3rd for information to be used in questionnaire from I.C.C. justifying the construction of the Grand Coulee Line:

The following information will apply to paragraphs referred to in your letter of above date.

16. Proposed new road will be constructed on the floor of what is known as Grand Coulee Canyon, width of floor approximately two miles, with vertical walls varying from 600 to 1200 feet. There is practically no vegetation except for a small irrigated tract near Coulee. Proposed road is not underlaid with any known minerals.

17. The area to be served is confined exclusively to the Grand Coulee Dam. Present population 100; temporary population, when and if dam is constructed estimated at 4000.

18. There is no existing industry, and no prospect for future industry, such as farming, dairying, grazing, coal mining manufacturing, lumbering, etc.

19. None.

21. The only source of return for the proposed line is revenue accruing from the construction of the proposed Grand Coulee Dam.

33. No permanent mining, lumbering or manufacturing enterprises contemplated or considered justified.

I am also attaching two prints of detail estimate, (Estimate B) and N.P.A. sketch.

JTD-w

Asst. to Chief Engineer.

St. Paul, November 9, 1933.

Mr. A. C. Terrell:

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33. No permanent mining, lumbering or manufacturing enterprises contemplated or considered justified.

I am also attaching two prints of detail estimate, (Estimate B) and R.F.A. sketch.

JTD-w

Asst. to Chief Engineer.

8231

MILDRED H. POPE
LIBRARIAN

STATE OF WASHINGTON
STATE LIBRARY
TEMPLE OF JUSTICE
OLYMPIA

November 7, 1933

Mr. J. T. Derrig
Engineering Department
Northern Pacific Railway Company
St. Paul, Minnesota

Dear Mr. Derrig:

The Pacific Northwest Americana lists but one book by Sir David Douglas, and that is entitled "Journals kept during David Douglas' travels in North America, 1823-1827".

As our library does not possess a copy, we cannot say whether it contains data pertaining to the Grand Coulee Canyon. However, there are several libraries which do have the book, and among them are: Portland Public Library, Seattle Public Library, Spokane Public Library, University of Washington Library, Seattle, Oregon State Library, etc. Any one of these libraries will be glad to write you about the contents of the volume.

No doubt, the book has long been out of print, and the only possible source would be a second hand book store. S. F. Shorey, Seattle, and Fred Lockley, 1243 East Starke Street, Portland, Ore. are reliable.

Very truly,
Mrs. Alta Grim.
Assistant.

Miss Rugg -
St Paul Public Library
Hill Reference — Wash
Copy on hand at Hill Library
11/14

QK 110

8231

On Yellowstone Division,

November 6, 1933.

MR. BERNARD BLUM:

I referred the notice you received from the Columbia Basin Commission to Mr. Donnelly and am attaching for your files copy of his reply to the Commission dated November sixth.

J. T. D.

Note B.B.

11/9

JTD 11/9

On line in North Dakota,
November 6, 1933. Pl

Columbia Basin Commission,
Civic Building,
Spokane, Washington.

Gentlemen:

Your letter of October 14 addressed to the Northern Pacific Railway Company, "Attention: Engineering Division", has come into my hands.

The Northern Pacific Railway Company is filing with the Interstate Commerce Commission an application for a certificate of public convenience and necessity to build a branch line of railroad from Odair to the head of the Grand Coulee for the purpose of moving materials necessary in the construction of a low-level dam. If that application is granted and the proposed line is built, our position will be like that of any other owner of property; and if at any subsequent time the railroad thus built, or any portion of it, is damaged by any governmental authority, or by anyone else, proper compensation must be made.

I do not understand that Chapter 81 of the Laws of Washington, 1933, creating Columbia Basin Commission, professes to give, or that it could give, to the Commission any preferred status; but if you feel differently, I wish you would kindly advise me what law confers such a status upon you, as I am sure we are both anxious to have a clear understanding of all matters connected with the construction of the railroad and the building of the dam.

Very truly yours,

(Signed) Charles Donnelly

cc-Mr. D. F. Lyons:
Mr. H. E. Stevens:

St. Paul, Nov. 6, 1933. 8731

Mr. R. W. Clark -

Anticipating receipt of questionnaire from the I. C. C. in connection with our application for permission to construct line at Coulee, Washington, will you kindly furnish replies to the following:

9. Whether the proposed line will receive material revenue from the territory traversed, or serve any material public convenience and necessity of the local territory. If the answer is "No", the applicant may elect to omit answers to questions 10 to 21, inclusive.

18. The kinds of industry carried on in the area to be served, such for example, as farming, dairying, grazing, coal mining, manufacturing, lumbering, etc., and the relative importance of each.

19. The main facts as to the age, growth and extent of such industries, their probable future growth and permanence and the reasons therefor.

21. Whether the chief support of the proposed new line of railroad will come from the general community or from some particular industry or industries, located or to be located. In the latter case give facts concerning such particular industry or industries and the applicant's contractual or financial relation thereto.

30. An estimate, in detail, of the character and volume of traffic expected and the gross revenue to be derived therefrom, covering each of the first five years following the completion of the proposed new line of railroad, together with an estimate of the annual revenues expected after the first five years. The detailed estimate required for the first five years should show the amount of each class of traffic, the mean length of haul, the rate per unit, and the revenue to be derived. Chief points or territories of origin and chief points or territories of destination of traffic.

32. The part of the estimated traffic which will constitute net additional business developed or created by the construction of the proposed new line of railroad, and the part that will be diverted from existing railroads.

33. The particular mining, timbering, manufacturing or other enterprises to be established contingent on the construction of the proposed new line of railroad and applicant's contractual or financial relation thereto. The tonnage or number of cars of freight expected from such enterprise.

Chief Engineer

PMM:PJ

St. Paul, November 4, 1933

Mr. R. W. Clark:

Referring to my letter of the third transmitting to you our estimated tonnage of freight to move in connection with the construction of the Grand Coulee dam:

I am advised that negotiations will be had with the Great Northern leading towards the construction of a new branch the cost of which will be borne equally by each company and according the Great Northern trackage rights over our Connell Line from Adrian to Odair. It is probable that if that goes through an operating agreement will be entered into with the Great Northern whereby we will haul their cars at actual cost.

I have been instructed to make a study of the probable effect to the Northern Pacific if such a deal is consummated as compared with our building a line at our sole cost and solicit business on a competitive basis.

In order that this set up may be made as quickly as possible I will be very glad if you would hurry your estimate of the freight, dividing the information as follows:

1. Estimate of earnings accruing to the Northern Pacific on the basis of our bearing the entire cost of the line as a Northern Pacific facility.

2. Estimate of freight and earnings to accrue to the Northern Pacific and Great Northern on the basis of joint operation.

In both cases I presume it will be necessary to allow for certain tonnage moving over the Milwaukee and possibly the OWRR. N.

BB:h

cc Mr. A. C. Terrell

St. Paul, November 4, 1933

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BB:h

cc Mr. A. C. Terrell

St. Paul, November 4, 1933

Mr. H. E. Stevens:

Your letter of the second about contract with the Great Northern for joint operation to the proposed Grand Coulee dam:

We are making up estimates of the new line on the basis of joint facility prices, which I assume would be the basis for billing the Great Northern for half the cost of the new line.

We have also made up valuation of the Connell Line from Adrian to Odair, and for the purpose of this study I think we better use the original cost rather than the reproduction so as to be on the safe side.

I have written to Mr. Clark asking him for estimate of division and amount of freight to move in connection with the new dam, furnishing him quantities of probable contractors' equipment, supplies, subsistance, camps, etc., as in his former estimate of the freight, which I believe was approximately $3,500,000., he included only the materials actually to enter into the dam itself.

If the joint line goes through, I think that all of the business can be handled by one train on our Connell Line from Pasco handling such cars as may come over the OW, Milwaukee and Great Northern - and one train from Cheney. It is probable that an additional train will be required to handle the cars between Odair and the dam site. There will not be enough business for each railroad to run its individual train and we will draft up an arrangement providing for handling Great Northern cars at actual cost.

BB:h

#49

St. Paul, November 4, 1933

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BB:h

Mr. Bernard Blum
Chief Engineer
From Spokane Spokesman-Review
October 31, 1933
C D Blanchard
11/3/33

B

SEE NEW COULEE PROJECT ANGLES

Meeting at Olympia Today Will Consider Federal and State Positions.

U. S. MAY BE BUILDER

Commonwealth May Get Option to Buy—Dill and Martin Attend.

When the Columbia Basin commission meets at Olympia today several proposals for an agreement between the state and federal government for construction of the Grand Coulee project will be considered. Among these are:

1. That the federal government build the dam and power plant and own and operate them, but that the state have an option to purchase the power for a period of years at cost, plus an amount necessary to amortize the expense of construction; and an option to purchase the power after the project is paid for, at cost, plus a small amount of profit for the reclamation bureau.

2. That a tentative contract be entered into between the state and federal government, subject to revision when a contracting authority with full power to act has been created. This authority could be a power and reclamation district, a state water power authority, or the Columbia basin commission when its powers have been enlarged.

May Link Plan to Reclamation.

3. That a tentative contract be drawn, subject to later revision, providing that the federal reclamation bureau build the project and that the state operate it, paying over to the federal government all profit until the project is paid for; and then paying the federal government half the profit annually, to go into a fund for developing northwest reclamation projects.

SEEK TO SPEED DAM SPAN PLANS

Ready in Three Weeks, Murrow Tells Banks—Rivets May Fly by January 1.

ROAD PROBLEM IS EYED

Low Funds Make State Work Uncertain—Winter Use Wanted —Almira Loses Offices.

COULEE DAM SITE, Wash., Oct. 30.—Frank A. Banks, back in his office from a conference with state highway officials at Wenatchee, stated today that he had asked Lacey Murrow, director, to expedite his plans for the bridge across the Columbia river here, in view of the expected letting of the contract for excavation work December 1.

He was told that Mr. Murrow would double his force of draftsmen and that the plans would be ready to submit to Mr. Banks in three weeks. From here they will go to Washington, D. C., for approval by the department of public works, then to the Denver offices of the reclamation department for final inspection. Three weeks will then be needed for advertising and acceptance of the bids.

Bridge Work by January 1.

Mr. Banks said he believed that construction can be started on the bridge by January 1. A separate contract will be let for the abutments and 200 men will be used on that work, besides the 300 Mr. Banks estimates will be used on the preliminary excavation.

Mr. Murrow could offer nothing definite as to when the state could start construction of the roads to the dam, as state road funds are at low ebb, he said.

Mr. Banks, however, is hopeful that the east and west entrances to the dam site, from Spokane through Wilbur and from Seattle through Coulee, can be kept open during the winter, so there may be no interruption of the work when once it starts.

The meeting will be attended by Senator C. C. Dill, Governor Martin, Frank A. Banks, reclamation bureau engineer in charge of Grand coulee construction; and B. E. Stoutemeyer of Portland, attorney for the reclamation service.

Dill Wants Work to Speed.

Senator Dill and the commission want to establish the federal nature of the project so there will be no delay in going ahead with work this winter. Landowners might be able to block the state in its attempts to use dam site land; but will be unable to block the reclamation bureau, which has wide powers under federal statutues.

The whole subject of the relation of the state and federal government to this project comes up today and the action taken may lay the groundwork for important developments in this relationship. The commission will try to settle upon a policy and leave details for later decision.

Appraisers Finish Work.

The commission's appraisers have completed valuation of dam site lands. The commission will ask the reclamation bureau to proceed to purchase the lands necessary for construction of the dam and for dumping dirt excavated at the dam site.

Offices to Dam Site.

The field offices of the reclamation service will be moved from Almira to the dam site this week, according to Grant P. Gordon of the field staff.

Lynch Brothers, diamond drillers, and Rumsey Brothers, test-pit contractors, today opened a first aid station on the river bank, where minor injuries of workmen may be taken care of quickly by a young doctor.

The new building bears a sign: "First Aid Station of the Contract Employers' Association."

S.-R. Headquarters Established.

Spokesman-Review headquarters have been established in the New Deal building, managed by Louis Corilla.

Among the many visitors to the dam site yesterday were Mr. and Mrs. W. H. Cowles and Mr. and Mrs. G. W. Dodds of The Spokesman-Review, Chief of Police Ira J. Martin and Commissioner and Mrs. A. B. Colburn, all of Spokane, and G. F. McDonald, member of parliament, Ottawa, Canada, and Mrs. McDonald.

St Paul, November 3, 1933

Mr. J. T. Derrig

You have copy of Mr. Clark's letter of the second about estimate of revenue on materials entering the Grand Coulee dam:

As soon as you advise the tonnage figures on miscellaneous material other than the construction items entering the dam itself, we will take up with Mr. Clark for revenue on same.

Bernard Blum

8731

Saint Paul, Nov. 3, 1933.

Mr. F. W. Sweney:

Your letter of November 3rd with reference to joint facility prices for proposed use when and if the Grand Coulee Line is constructed:

In order to complete this estimate I would like to have joint facility rental rates for the following equipment:

	Daily rate Each
Standard Ballast car, 100,000-ton capacity	_____
W-3 Locomotive	_____
Standard gauge water car and 90-ton Bucyrus steam shovel	_____
McCann S preader	_____
Boarding cars	_____

Asst. to Chief Engineer.

JTD-w

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McCann S preader	_____
Boarding cars	_____

Asst. to Chief Engineer.

JTD-w

M E M O R A N D U M

Mr. P. J. Pentin:

It is probable we will want to use about 30 miles of third calss 90# rail providing the Grand Coulee line is constructed.

For the purpose of preparing a joint facility estimate, will you please let me have your idea where this rail would originate from, and likewise give me an indication where the available second hand track fastenings would originate from.

Asst. to Chief Engineer.

JTD-w

St.Paul, Minn.
Nov. 3, 1933

8231

St Paul, November 3, 1933

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RB h

8731

St. Paul, Minn., Nov. 3, 1933

Mr. R. W. Clark:

Your letter of the 2nd about tonnage of contractors material, etc., that will probably move to the Grand Coulee Dam:

You state that you have made up an estimate of revenues covering materials which will enter into the construction of the proposed low dam. In order to have my statement to you complete we have shown the construction materials which were furnished by the Chief Engineer of the Reclamation Service at Denver in a letter to Mr. Thian dated August 5th. This shows a total of 773,865 tons of construction material.

In accordance with your request we have shown in the lower half of page one of the attached estimate, our best judgment as to the tonnage of contractors equipment, supplies including fuels, material for housing, subsistance, etc., totaling 145,750 tons. It is estimated that 50% of the excavation material will be handled by electric shovels requiring no fuel.

At the top of page two there is shown the construction materials required for the proposed highway suspension bridge which is to be hung across the gorge. This totals 12,050 tons.

Total of all tonnage is 931,665.

The contractors equipment, supplies, tools, subsistance, etc., is estimated conservatively as to the total requirements. Whether or not some of this will move by truck it is difficult to say, except that in the application which is being made to the I.C.C. to construct the railroad we are stipulating that all materials must move by rail, including contractors equipment, etc.

This statement shows no rail movement for gravel and sand to be required in the construction of the dam. In talk I had with Engineer Banks of the Reclamation Service, he was hopefull of obtaining all the needed aggregate from the river excavation to be made for the dam. There are large deposits of gravel on the floor of the dry coulee. There is a possibility that some gravel will move over our proposed railroad line, but I do not think that we are justified in figuring very much on that.

No passenger transportation has been included in our statement. Undoubtedly we will enjoy an increase in passenger traffic in connection with the construction of the dam, altho none of which will move over the proposed new line. In connection therewith supply men, manufacturers agents, etc., will have occasion to visit the work moving from eastern points as well as from Seattle and Portland. However, as I do not imagine we will run passenger trains over the proposed branch it hardly seems proper for you to take credit for such increased passenger business for the new branch line, and after all this estimate is to show the earnings that we hope to enjoy if we build the railroad.

It is my understanding this material will be for contractors, etc., and therefore will not move under the land grant rates.

BB:wp
cc Mr. H.E.Stevens
Mr. A.C.Terrell

P. 1386
12-24

TELEGRAM—BE B...

8-731

t. Paul, Oct. 16, 1933

P R Gibson

Coulee, Wash.

Arrange to come to St.Paul soon as you have completed topography shipping instruments and taking remaining field data with you. Also arrange to return Henry to former location at Spokane returning Kugler to St.Paul. I am Sending transportation for Breedlove and wife Seattle to St.Paul and return care Tremaine number one tonight. Advise if Breedlove wishes time check sent to Spokane and date you will release him. D-98

C D Blanchard

cc J T Derrig

I. P. 1386
12-24

TELEGRAM—BL[illegible]

FOG

COULEE OCT 16-33 CDBLANCHARD
COULEE

ASST NGR STPAUL

FINISHED TODAY LEAVING HERE TUESDAY BREEDLOVE RELEASED OCT 17

SEND CHECK FOR BREEDLOVE TO SPOKANE CARE H M TREMAINE .

P R GIBSON

554P

NORTHERN PACIFIC RAILWAY COMPANY

ESTIMATE OF PROBABLE TONNAGE REQUIRED IN CONNECTION WITH CONSTRUCTION OF PROPOSED GRAND COULEE DAM.

ITEM	LOW DAM
Cement	570,000
Reinforcing steel	17,250
Miscellaneous metal	825
Sluice Gate Metal	4,093
Structural steel	4,081
Steel penstocks, cars, etc	12,715
Turbines, valves, etc	7,500
Electrical equipment	17,600
Form Lumber	67,006
Timber cribbing	49,203
Steel sheet piling etc	23,592
Total	773,865 Tons

The above quantites furnished by R F Walter, Chief Engineer Reclamation Service.

- - - - - - - - -

Following is an estimate of contractors tonnage required in connection with constructing dam, including estimate of miscellaneous material shipped in incidental to the construction of the proposed low dam

Explosives	2,000
10 steam shovels	1,200 #
(10 miles std track matl) Metal	1,600 #
Ties	2,000
(5 miles dinky track matl) Metal	300 #
Ties	150
50 motor trucks	750 #
Coal for shovels handling 25% of yardage	10,500
Coal for contractors locomotives (5 for 1500 da)	40,000
Other Eqptg Camp and Miscl use	30,000
Deisel Fuel Oil 25% of yardage	4,050
Gasoline for 50 trucks 750 da each 50 Mi per trk per da	6,500
50 Std gauge dump cars 30 tons each	1,500 #
Hoists cranes etc	1,000 #
Piping drill steel, drills, pumps, elec motor Eqpt etc	1,200 #
Miscellaneous equipment	500 #
Lumber, camps for 2000 men	3,000
Lumber for housing etc for 3000 dependents	4,500
Millwork, roofing etc	1,000
Brick, hardware, tile, plumbing piping wiring etc	1,000
Subsistance 3# per man for 5 yr period	7,500
LCL other supplies, clothing, beverage, incidentals etc	10,000
Automobiles - 500 autos in 5 yr period	1,000
Gas (1500 gal per da for 5 yrs)	9,500
LCL Repairs, replacements and other incidentals	5,000
TONS TOTAL FOR CONTRACTORS MERCHANTS ETC	145,750 Tons

NOTE -
(#) 50% of this tonnage to be salvaged and shipped out by contractors on completion of work.

NOTE -
Gravel and sand not included

TONS MATERIAL FOR HIGHWAY BRIDGE

ITEM	TONS
Bridge structural steel	4,000
Cement for bridge	5,000
Reinfor. steel	500
Piling	350
Lumber (Forms & Camp)	500
Hardware	100
Contractors Eqptg	300
Fuel	300
MISCELLANEOUS	1,000
Total for bridge work	12,050 Tons

Note - Bridge tonnage same for high or low dam.
Gravel or sand not included

Coal - 5# per cu yd

Fuel oil - 250 gal per 1000 cu yd

Gas for truck 3,500,000 move 2 mi, 4 mi per truck, 20 yds per trip, 2,100,000 T Mi

SUMMARY TONNAGE FOR LOW DAM

	TONS
For dam proper	773865
For contractors and others	145750
For highway bridge	12050
Total all tonnage	931665

Office of Chief Engineer
Nov 3 1933

4148

APPROXIMATE QUANTITIES OF MATERIAL FOR LOW DAM 145 Ft.
AND HIGH DAM 430 FT. AT GRAND COULEE

- - - - - -

Note: Low Dam figures are given first and high dam figures are given second.

Cement - 2,850,000 barrels; 12,630,000 barrels.

Reenforcing Steel - 34,500,000 pounds; 27,000,000 pounds.

Miscellaneous Steel - 1,650,000 pounds, 18,970,000 pounds.

Sluice gate metal - 8,136,000 pounds; 15,682,000 pounds.

Structural Steel - 8,162,000 pounds; 38,307,000 pounds.

Steel Penstocks - 25,430,000 pounds; 25,430,000 pounds.

Turbines, valves - 15,000,000 pounds; 28,546,000 pounds.

Electrical Equipment - 35,200,000 pounds; 58,751,000 pounds.

Steel Sheet Piling - 47,182,000 pounds; 47,182,000 pounds

Form lumber - 40,160,000 feet; 95,674,000 feet.

Timber Cribbing - 29,820,000 feet; 28,820,000 feet.

No estimate is included for gravel in the dam, because engineers feel certain the large gravel bed on the ranch of Sam J. Seaton will provide a sufficient quantity.

4144

Saint Paul, Minn.,

November 2, 1933

MR. BERNARD BLUM:

Referring to our conversations about working up agreement with the Great Northern for joint use of our line Adrian to Odair, and joint ownership of the proposed branch Odair to head of the Grand Coulee.

I wish you would draft up your ideas of the basis of a fair contract to cover such an arrangement.

Dict. by Mr.Stevens

H E Stevens
3

St.Paul, Minn., November 2, 1933.

Mr. Bernard Blum,
Chief Engineer.

Referring to your letter of November first about revenue estimate of materials entering into the new Grand Coulee low dam:

I have already made an estimate based on tonnage of materials heretofore furnished us by Mr. Stevens. If you can give me tonnage figures of miscellaneous material that will enter into the construction work, apart from those included in the statement, I will be glad to supplement the estimate we have already made with this additional revenue.

I would like to have you advise whether it should be on a land grant or commercial rate basis.

cc-Mr. J. T. Derrig.

St.Paul, Minn.,

November 2, 1933.

MR. BERNARD BLUM:

Regarding application for construction of branch to the Grand Coulee Damsite.

As I have advised you verbally, I think this estimate should be made up on the basis of a strictly branch line plan. I do not think we need at the start four miles of secondary trackage, and as I have previously advised you, we should use 90# second hand track material throughout, with tie plates only to the extent they are available second-hand.

It seems to me very possible that this line will be taken up on the completion of the low dam. I think this possibility makes a decided difference in the type of construction which we are justified in using, and I would not sacrifice second-hand tie plates which we could use to advantage elsewhere for the purpose of installing them in the Coulee line.

J. T. D.

11/3


CHIEF ENGINEER'S OFFICE
NOV 3 1933
ST. PAUL, MINN.

November 2, 1933.

Messrs. Foley Bros. Inc.,
New York Building.
St. Paul, Minnesota.

Attention: Mr. F.W. Anderson

Gentlemen:

I am handing you herewith set up of contractor's bid on the Boulder Dam which you so kindly loaned me yesterday. I made a print of this statement and am attaching one additional copy for your files.

Thanking you for the above information, I remain.

Yours truly,

Asst. to Chief Engineer.

JTD-w

cc - Mr. Blum

November 2, 1933.

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New York Building.
St. Paul, Minnesota.

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JTD-w

cc - Mr. Blum

(Copied from) DAILY CONSTRUCTION NEWS SERVICE
MARCH 4 1931
SUPPLEMENTARY ISSUE

HOOVER DAM, POWER HOUSE AND TUNNELS - BOULDER CANYON PROJECT
IRRIGATION AND POWER DEVELOPMENT

3-4-31(HOOVER DAM,POWERHOUSE, AND TUNNELS-GOVT-NEVADA)

DENVER,COLORADO(UNIT AND TOTAL BIDS SUBMITTED,TAKEN UNDER ADVISEMENT)

The Six Companies,Inc.,consisting of Utah Construction Co.,Phelan Bdg.,San Francisco & Ogden, Utah; Bechtel-Kaiser Co.,Inc.,155 Sansome St.,San Francisco: MacDonald & Kahn,Financial Center Bdg.,San Francisco; Morrison-Knudsen Co.,Boise,Idaho; J F Shea Co.,Henry Bdg.,Portland,Ore: and Pacific Bridge Co.,East Water & Salmon St.,Portland,Oregon,who bid $48,890,995 submitted the low bid to the U.S.Bureau of Reclamation,Denver,Colorado for the construction of the Hoover Dam,Tunnels and Power House, in connection with the Boulder Canyon Project,Nevada-Arizona-California. The officers of the Six Companies are as follows ; W.H.Wattis, President: W.A.Bechtel, First Vice-President; E.O.Wattis,Second Vice-President; Felix Kahn,Treasurer; and Chas.A.Shea, Secretary. Bids received from the following concerns:

(1)The Six Companies,Inc.,San Francisco(Low bidder) $48,890,995.
(2)The Arundel Corp.,Baltimore,Maryland $53,893,878.
(3)Woods Bros.Corporation,Lincoln,Nebraska $58,653,107.

		(1)	(2)	(3)
	EXCAVATION			
150,000	cu.yd.stripping canyon walls of loose rock,all classes	4.50	3.00	3.50
59,000	cu.yd.in open cut for diversion tunnels,common	4.00	3.50	3.50
344,000	cy.yd.in open cut for diversion tunnels,rock	4.50	3.50	3.25
1,563,000	cu.yd.in diversion tunnels all classes	8.50	8.50	8.00
500	cu.yd.in open trench for conc.cut-off&upstr.cofferdam,common	3.75	2.11	20.00
125	cu.yd.in open trench for conc.cut-off&upstr.cofferdam,rock	10.00	5.82	25.00
230,000	cu.yd.removal of earth fill in downstream cofferdam	.25	1.20	1.25
191,000	cu.yd.removal of rock fill in downstream cofferdam & rock barrier	.50	1.66	1.70
857,000	cu.yd.for foundation of dam,powerhouse&cofferdams,common	2.20	1.26	2.50
400,000	cu.yd.for foundation of dam,rock	4.40	3.40	4.00
35,000	cu.yd.for upstream cutoff trench for foundation of dam, all classes	12.00	4.79	5.00
1,012,000	cu.yd.for spillways in open cut,all classes	2.60	2.30	3.00
144,000	cu.yd.in incline spillway tunnels,all classes	8.20	8.50	10.00
255,000	cu.yd.for canyon wall valve houses,all classes	2.20	3.00	2.00
300,000	cu.yd.for intake towers,all classes	2.20	3.00	3.00
29.000	cu.yd.in shafts for outlet works&connect.galleries,all classes	8.00	8.50	10.00
176,000	cu.yd.in 30-ft penstock tunnels,outlet tunnels and power penstocks,all classes	8.00	8.50	8.00
122,000	cuyyd.for power house,rock	2.20	3.25	4.00
16,500	cu.yd.for switching station,all classes	1.75	2.11	2.00
40,000	cu.yd.for incline freight elevator structures,all classes	3.00	3.00	4.00
3,700	cu.yd.for highway,common	.50	2.39	2.00
109,000	cu.yd.for highway,rock	2.00	2.39	2.00
1,000	cu.yd.for highway structures,all classes	3.75	2.68	3.00

Common 920 200 cu yds
Rock 1166 125
All Classes 3951500
Total Exc. 6037825

		(1)	(2)	(3)
	BACKFILL			
1,300	cu.yd. for power house	2.00	.74	2.50
4,400	cu.yd. for switching station	1.00	.37	1.00
35,000	cu.yd. on roofs	1.00	1.71	2.50
	ROCK FILL			
151,000	cu.yd. in upstream cofferdam	1.00	1.19	2.00
63,000	cu.yd. in downstream cofferdam	1.00	1.34	2.00
84,000	cu.yd. rock protection in river channel&elsewhere	.75	1.34	2.00
13,000	cu.yd. rock blanket on upstream cofferdam	2.00	2.60	2.50
127,000	cu.yd. rock barrier below downstream cofferdam	1.35	.37	1.50
	EARTH FILL			
568,000	cu.yd. in upstream cofferdam	1.00	.98	2.00
230,000	cu.yd. in downstream cofferdam	1.00	.98	2.00
7,500	cu.yd. rubble masonry walls	12.00	7.40	9.00
	DRILL GROUT HOLES			
232,000	lin.ft. in tunnels, adits and shafts	1.00	.70	2.00
6,500	lin.ft. in foundations for dam and spillw. crest, not more than 50-ft. deep	3.00	2.20	3.00
26,000	lin.ft. in found. for dam&spillway crest, 50-100 ft. deep	4.00	2.75	3.00
17,000	lin.ft. in found. for dam&spillway crest, 100-150 ft. deep	4.00	3.30	3.00
23,500	lin.ft. for anchor bars&grouting bars in place	1.00	.55	2.00
	DRILL DRAINAGE HOLES			
5,600	lin.ft. in found. for dam, not more than 50-ft. deep	3.00	2.20	4.00
28,000	lin.ft. in found. for dam, 50-100 ft. deep	4.00	2.40	4.00
500	lin.ft. in found. for dam, 100-150 ft. deep	6.00	3.30	4.00
	PRESSURE GROUTING			
376,000	cu.ft. in tunnels, adits and shafts	1.00	.45	2.00
12,000	cu.ft. in found. for dam&spillway crest	1.00	.45	2.00
34,000	cu.ft. contraction joints in dam	1.00	.80	2.00
38,400	lin.ft. furnish&place porous conc. drain tile in dam	2.00	2.20	2.50
10,000	sq.ft. placing tile roofs	.25	.11	.30
120,000	sq.ft. placing asphalt saturated roofing&flashing	.15	.06	.08
	CONCRETE			
5,600	cu.yd. in inlet structures for inner diversion tunnels	20.00	20.40	15.00
13,400	cu.yd. in inlet structures for outer diver. tunnels&bulk. gates	20.	6.59	10.00
5,800	cu.yd. in outlet structures for diversion tunnels	20.00	10.28	11.00
312,000	cu.yd. in lining of diversion tunnels	11.00	8.00	15.00
3,500	cu.yd. in paving for upstream cofferdam	10.00	8.13	7.00
3,400,000	cu.yd. in dam	2.70	4.15	3.40
6,600	cu.yd. in parapets	5.00	27.00	16.00
51,000	cu.yd. in spillway structures	10.00	12.84	11.00
29,000	cu.yd. in lining of incline spillway tunnels	10.00	15.20	15.50
121,000	cu.yd. in diversion tunnel plugs	4.00	8.00	5.00
26,000	cu.yd. in lining of outlet&30ft. penstock tunnels	10.00	10.00	12.00
10,200	cu.yd. in lining of shafts for outlet wks&connect. galleries	10.00	10.00	11.00
51,000	cu.yd. in canyon wall outlet works	6.00	8.59	10.00
108,000	cu.yd. in intake towers, foundation&superstructures	6.00	8.34	10.50
1,000	cu.yd. in bridges to intake towers	20.00	38.80	19.00
28,000	cu.yd. in power house above generator floor	10.00	15.00	15.00
115,000	cu.yd. in power house below generator floor&penstocks	6.50	8.49	8.00
600	cu.yd. in switching station & steel tower footings	12.00	9.26	17.00
4,800	cu.yd. in incline freight elevator structures	10.00	9.04	12.00
900	cu.yd. in highway structures	20.00	25.75	17.00
	GUNITING AND FINISHING			
50,000	sq.yd. gunite surface on concrete, 1-in. thick	.75	1.64	2.50
250,000	sq.ft. special finishing of walls, powerhouse, parapets and other concrete surfaces	.754	.104	.08
50,000	sq.yd. placing 3/4" finish on concrete floors	.50	1.26	.85
4,000	sq.yd. thin walls of metal lath and plaster	1.00	4.75	4.00

-CONTINUED ON THE NEXT PAGE-

	(1)	(2)	(3)
STEEL WORK			
35,000,000 lb reinf. bars and rails, placing	.0075	.022	.02
168,000 lb. placing anchor bars in rock	.02	.02	.12
6,600,000 lb. install stand. steel&cast iron pipe, fittings&valves	.025	.042	.08
51,700 lb. install control piping for high-pressure gates	.05	.065	.17
10,000 lb. laying metal pipe for highway drains and culverts	.10	.05	.03
9,570,000 lb. install conduit lining castings	.01	.012	.035
6,435,000 lb. install plate steel conduit lining for outl. works	.01	.013	.025
13,915,000 lb. install plate steel cond. lining for power penst.	.01	.0165	.025
17,875,000 lb. install structural steel, except bridges to towers	.01	.013	.02
577,500 lb. install structural steel in bridges to intake towers	.025	.013	.025
2,340,800 lb. install trash rack metal work	.01	.0165	.02
704,000 lb. driving steel sheet piling for upstream cofferdam	.05	.04	.025
413,000 lb. install track rails	.01	.013	.02
330,000 lb. install metalwork in incline fr. elevator guide struct.	.01	.02	.025
132,000 lb. install metal floor plates	.01	.02	.02
303,000 lb. install metal stairways	.01	.04	.035
3,170,000 lb. furnish&erect steel ribs, steel liner plates, in tunnels, adits and shafts	.075	.12	.20
2,600,000 lb. install 50x50ft. Stoney gates and hoists	.02	.021	.025
10,340,000 lb. install high pressure hydraulically operated gates	.01	.014	.03
4,620,000 lb. install cylinder gates&hoists in intake towers	.01	.016	.03
4,070,000 lb. install needle valves	.01	.014	.025
295,000 lb. install traveling cranes	.01	.02	.018
Furnish, install, operate cooling plant	$360,000	$400,000	$300,000
ELECTRICAL EQUIPMENT			
20,000 lin. ft. install electr. cable for thermometer embed. in concr.	.08	.26	.05
75,000 lin. ft. install elect. metal conduit, not larger than 1-in.	.10	.13	.15
60,000 lin. ft. install elect. metal conduit, 1-2½-in.	.13	.20	.35
2,000 lin. ft. install elect. metal conduit, 2½-4-in.	.18	.80	.60
500 lin. ft. install elect. metal conduit, 4-6-in.	.25	1.30	1.00
2,000 lin. ft. install fibre conduit	.13	.26	.20
MISCELLANEOUS			
75,000 sq. ft. install metal sash windows and partitions	.18	.30	.25
120,000 lb. install metal sash window operators	.10	.13	.08
3,200 sq. ft. install metal swing doors	.35	.70	.70
500 sq. ft. install metal rolling doors	.35	.65	.70
800 sq. ft. install wooden doors	.20	.65	.50
2,000 sq. yd. placing hollow clay tile, walls & ceilings	2.00	2.50	1.75
250 sq. yd. placing ceramic tile walls and floors	4.00	4.70	6.00
10,000 lb. install fixtures for plumbing&hardware	.20	.30	.20
10,000 lb. install steel partitions	.12	.07	.15
33,000 lb. install sheet metal work	.20	.20	.25
150,000 lin. ft. placing copper expan. strips&contraction joints	.25	.30	.15
231,000 lb. install miscellaneous items of metal work	.10	.05	.10
HANDLE FREIGHT			
60,000 cwt. transport freight on the construction railroad for the Govt. or its agents other than the contractor in less than car-load lots between delivery yard&end of construction railroad	.10	.10	.12
1,000 cars transport freight on the const. railroad for Govt. or agents, other than contractor in car lots from deliv. yard to const. RR	$25	$10	$20
60,000 cwt. unload freight for Govt. or agents other than contractor at end of constr. railroad&place in Govt. Warehouse	.25	.13	.25
60,000 cwt. transport freight for Govt. or its agents, other than contractor from end of Const. RR, in less than car lots or between Govt. Warehouse in any amount and power-house	.50	.13	.40
600 cars tranport freight for Govt. or its agents other than contractor, between end of const. RR&power house in car lots	$50	$60	$300

BIDS HAVE BEEN REFERRED TO WASHINGTON, D.C. FOR THE AWARD OF CONTRACT

8731

St.Paul, Minn., November 2, 1933.

Mr. Bernard Blum,
Chief Engineer.

Referring to your letter of November first about revenue estimate of materials entering into the new Grand Coulee low dam:

I have already made an estimate based on tonnage of materials heretofore furnished us by Mr. Stevens. If you can give me tonnage figures of miscellaneous material that will enter into the construction work, apart from those included in the statement, I will be glad to supplement the estimate we have already made with this additional revenue.

I would like to have you advise whether it should be on a land grant or commercial rate basis.

cc-Mr. J. T. Derrig.

St. Paul, November 1, 1933

Mr. R. W. Clark:

As you undoubtedly know, application is being made to the I.C.C. for permission to build the Grand Coulee dam branch. In a short time we will be called upon to answer the usual questionnaire which includes estimate of the probable traffic.

About two months ago we received an estimate of the construction materials that would enter the work from the Denver office of the Reclamation Service. In my opinion that is but a part of the possible traffic and there will be a considerable tonnage of other items, such as explosives, contractors' equipment, lumber and other building material for camps, gasoline for operation of construction equipment, such as shovels, cranes, trucks, etc. There will also be a considerable tonnage of fuel for heating purposes and possibly for steam shovels. Camp supplies will not b e an inconsequential matter.

In order to avoid the delay that frequently occurs in working up answers to questionnaires I would suggest that your department arrange to prepare at once its best estimate of the total tonnage that will have to be moved over the new line. Mr. Derrig will be glad to give you any assistance you may request in the matter.

BERNARD BLUM

cc Mr. J. T. Derrig

St. Paul, November 1, 1933

8731

4446

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BB:h

cc Mr. J. T. Derrig

8731

Saint Paul, Nov. 1, 1933.

Mr. R. W. Clark:

In compliance with Mr. Simonton's request, I am attaching hereto two additional white prints showing present, and possible connections for handling business to the proposed Grand Coulee Dam.

Asst. to Chief Engineer.

JTD-w

8731

Saint Paul, Nov. 1, 1933.

Mr. F. W. Sweney:

I am attaching hereto copy of an estimate which I prepared covering proposed construction of a railroad from Coulee to the Grand Coulee Dam site. The estimate as prepared is made up on our usual A.F.E. basis and covers what is known as inside prices.

I have been requested to prepare an alternate estimate showing the cost of construction of this line predicated on figures used in joint facility contracts.

I would thank you to indicate on the attached estimate in pencil, prices which are currently used for joint facility valuation for trackage in this vicinity. I have discussed this feature with your Mr. Carter and he is familiar with what I desire, and if consistent I would like to have prices which we should use for a joint facility, with as little delay as possible.

Asst. to Chief Engineer.

JTD-W

SPEAKING OF COCKLE-BURS

RALPH Nichols, publicity seeking member of the Seattle Council, is loose again! He is waving his arms and tearing his hair over the "mistake" of building the Grand Coulee project, even though it means employment for thousands of jobless men and millions of dollars of new money for Washington and his home city, Seattle. He is flooding the mails with bales of mimeographed protests and railing at Senator Dill, the reclamation service engineers and other earnest men, who are working day and night to rush this vital part of the National Recovery program so that a stream of federal money may begin to flow into the channels of stagnant trade.

While Seattle's street car system sinks into the mire of insolvency, this councilman who was elected to give his talents to the solution of Seattle's municipal worries, goes afield and takes on the problems confronting the Federal Power authorities. After qualifying himself as an "expert" on power sites, production of electrical energy and reclamation, he espouses the cause of the Zee Canyon, Lake Pend d' Orielle and numerous other schemes that he insists are the pure quill.

Signing himself as a member of the King County Welfare board, he writes to Olympia and threatens prosecution for embezzlement because part of the ten million dollar state unemployment fund was used to provide the necessary engineering groundwork to take some ten thousand Washingtonians off the relief rolls and put them on pay rolls.

Nichols drags his various super power and super reclamation schemes across the horizon now to embarrass the Columbia Basin Commission and Senator Dill. He doesn't oppose the Grand Coulee project because it might interfere with the plans of Seattle City light program—he knows that he would be nailed on that—and quickly. He just wants to raise a stink.

His stuff may be swell copy for the newspapers. Some of the members of the Legislature may "fall" for the bunk he is peddling. Interested private interests may be delighted with his antics, but the majority of substantial men in Seattle and all over the state who have been putting up the money during the past twenty years to bring about this Grand Coulee program look upon his palaver with as much favor and enthusiasm as they would a pain in the neck.

Right now there is a resolution before the judiciary committee of Mr. Nichols' own Council condemning his activities in opposing the Grand Coulee project. It would seem that he is just another prophet without honor at home.

Nichols is roiled because the Columbia Basin commission doesn't waste time listening to his schemes to develop this or that canyon or lake. They are too busy developing a project which has been thoroughly investigated and favorably reported upon by a wholly disinterested group of the nation's most competent engineers, the Engineering Corps of the United States Army. The Commission is working overtime to get this project in a position to provide jobs for men in the bread lines.

Nichols is circulating a so-called "report" on the Grand Coulee project which he says was made by "a Seattle engineer" but he neglects to name the engineer. If Mr. Nichols is sincere, he should give the engineer credit for his investigation. Surely, this latest Nichols blast needs the moral support of a name that stands for something in the engineering profession.

If Washington's senior Senator knows that Ralph is in circulation he is apparently not losing much sleep over him. The reclamation engineers on the job at the damsite are working right along and the State Commission seems to be doing its stuff serenely, realizing that quick action means JOBS for hungry men and that is what the President and the people want.

Nichols as an irritant is contributing to the speed of the project. We all have heard of the philosopher who accepted his trials with the reflection that "even knats have nits—ad infinitum".

And, I am reminded of a burro that we had when I was a kid. He was ornery and stubborn, wouldn't move when we asked for speed and wouldn't stop when once started. He always went the opposite direction required of him and just generally was cussed. One day he balked and we were in a hurry. A member of the gang inserted a cockle-bur neatly under the donkey's tail and, whambang! He went off like a firecracker.

All of which goes to prove the efficiency of cockle-burs and irritants generally.

Well, Mr. Nichols' latest outburst made at least one back page. We hope he likes it.—The Publisher.

Grand Coulee Record
GRAND COULEE PUB. CO.

Published every Tuesday, temporarily, at 5011 Wallingford Avenue, Seattle, Washington. Editorial offices in Seattle, Spokane and Almira.

ARTHUR H. ALLEN.....Publisher

Subscription Price, $5.00 Per Year.
All communications should be sent to the Seattle address.
PHONE MELROSE 8106

Wednesday, November 1, 1933

Excursion Meets With Enthusiastic Response

Eastern Washington cities are sparing no effort to get in on the ground floor of Grand Coulee business. Spokane, Yakima and Wenatchee business men apparently sense the importance of quick action, not unlike the proverbial early bird. Good-will excursions to the damsite are already a part of their programs. They evidently believe that personal acquaintance goes a long way when it comes to garnering a share of the $63,000,000 to be expended on the mammoth power project.

Here is what Mayor John S. Mooney of Wenatchee has to say to the good people of his city in urging support of a Chamber of Commerce excursion to the damsite:

"This community as a whole, particularly the business element, should fully comprehend the immensity of the project, and the opportunities it presents. The Grand Coulee and the Bonneville dams together form a power balance wheel for the four Northwestern states that will mean a saving of hundreds of millions of dollars within the next few years and will open up tremendous possibilities."

The Spokane Chronicle remarks editorially:

"The time to begin developing this Grand Coulee Market is NOW. And one way to develop it is for Spokane business executives to get well acquainted with the leaders in the Big Bend communities . . . Every forward-loking executive owes it to his business and to his city to join with his neighbors and get acquainted—lay the foundations for tomorrow's flow of trade."

Seattle business leaders, always alive to potential trade expansion, will not overlook this opportunity to help themselves. This fact is evidenced by the fine response to THE RECORD'S invitation to join in the motor bus caravan from Seattle next Friday. However, there is still room for others as accommodations have been provided for sixty. The entire cost of this two-day trip is only $10.50—meals, hotel room and transportation—and opportunity will be afforded to meet influential business heads at Wenatchee, Almira, Wilbur, Coulee City, and the damsite. Senator Dill and members of the Columbia Basin Commission are expected to meet the party at the latter point.

If YOU would care to go and have not yet made reservation, better call up either MElrose 8106 or MAin 9383 RIGHT NOW. Rest assured you will be in good company.

Let's Cash In On Past Effort and Expense

For the past fifteen or twenty years citizens of Washington have been digging down in their jeans and spending much time and effort to bring about the development of the Columbia Basin project. By reason of this continuous campaign the eyes of the nation have been focused on the greatest power and reclamation undertaking ever conceived.

Hundreds of thousands of dollars have been put up by the State Legislature, the Seattle and Spokane Chambers of Commerce and various organizations and individuals in order to keep the proposition alive. Even when the fight seemed almost hopeless, staunch friends took another hitch in their belts, rolled up their sleeves and moved into the fray with renewed determination and with their faith unshaken.

Many of the old stand-bys in the parent group—Columbia Basin Reclamation Association—have passed on to their reward for conscientious effort in behalf of the public welfare, In later years the Columbia River Development League joined in the struggle and, while favoring different plans than those advocated by the older association, nevertheless supplied much added strength to the main objective.

When the great Boulder Dam project received the stamp of Federal approval and the government agreed to finance that vast enterprise, those on the firing line never wavered, but continued to press their claims for federal recognition and support.

Finally, with unified public opinion at home and with able leadership in the United States Congress, this mammoth power plan has been made a part of the national public works program and the sum of $63,000,000 has been allocated for the building of the first units of the great Grand Coulee dam, $2,000,000 of which have already been made available for necessary preliminary work. The remainder of this huge sum will be forthcoming as needed and the state may not be required to enter into an agreement with the United States government to repay 70 per cent of the principal sum FROM THE SALE OF POWER if and when sold. Of the $63,000,000 the sum of $18,000,000 is an outright gift from Uncle Sam.

This means that the national administration realizes the economic importance of the project and the desirability of providing work for the unemployed, by carrying on with full speed ahead worthy self-liquidating enterprises.

With these facts before us it is inconceivable that any opposition to the plan should be voiced, especially by any resident of this state. Of course there are always those who look a gift horse in the mouth. But in the present emergency when every loyal citizen is trying to aid the government in the war on depression, and when the only solution to this nation's ills is more jobs and more purchasing power on the part of consumers, it is indeed difficult to understand why perfect amity and accord should not exist here and elsewhere on this Grand Coulee power development.

THE RECORD believes it furnishes the one great opportunity to place Washington in the forefront of agricultural and manufacturing states. After bucking the line for almost two decades the goal is at last within reach. So, suppose we all go into a huddle and resolve to put over the great Grand Coulee project.

THE HOOK
Line and Sinker

TWO MEN

MARYVILLE, MO.—Jeff Monroe, a digger of ditches, who used his meager earnings to make brighter the lives of others poorer than himself, was buried amid pomp and ceremony that befitted a king. Maryville turned out en masse yesterday for the rites. Leading the mourners was Mayor P. L. Roby, who ordered the courthouse closed for two hours and who acted as a pallbearer.

There lived two men in our pretty town
And one with boodle was loaded down;
The other possessed not much longgreen—
Just a humble cog in a big machine.
Now, just last week on the self-same day,
Each was summoned to go the way
Of all mortal flesh when Gabriel calls
To heavenly strands and marble halls.

TO MONEYBAGS

No wonder that you had lots of dough,
For you never spent a cent, although
You boasted giving and spread the salve,
The town has made you what you have.
Of what avail was your golden rocks?
They'll nail you down in a costly box,
But not a mourner will be real sad—
The eyes may weep when the heart is glad.

TO DITCH DIGGER

When things worth while were wanted here
Your motto has been to help and cheer,
To boost the town, soothe others' pains
You dug right down in your old blue jeans;
To the public good you gave much time.
They may nail you down in a box of pine,
But when they do the people will grieve,
And shed real tears—not the make-believe.

* * *

A reader writes in to advise us that he "wouldn't mind" going on the motor bus excursion to the Grand Coulee damsite next Friday if THE RECORD will pay his expenses. Sorry, brother, but Mr. Rockefeller says that new dimes are getting scarce and he must have money for his gasoline, and the welfare board refuses to provide free food for business and pleasure jaunts.

* * *

A shiftless negro stood outside a church where the colored minister was loudly exhorting the congregation. "My," he said to a passerby, "that ge'man must be a big man, 'cause he sho' do recommend hisself highly." Which reminds The Hook editor that Seattle's lone but loud opponent to the building of the Grand Coulee project must likewise be a "big man". In a letter to Hon. E. F. Banker, chairman of the Columbia Basin Commission, he states: "I have the fundamental knowledge of basic facts straight in my mind. I have spent several years in studying this matter and furthermore, know the subject."

* * *

"How many of youse down in the hole?" shouted a straw boss at the Grand Coulee excavation work. "Three of us," came the reply. "Well, half of youse come out!" ordered the boss.

* * *

THE FLAPPER GIRL

Blessings on thee, little dame—
Bareback girl with knees the same.
Why thy rolled-down silken hose
And thy short, transparent clothes,
With thy red lips, reddened more,
Smeared with lipstick from the store,
With thy makeup on thy face,
And thy bobbed hair's jaunty grace
From my heart I give thee joy—
Glad that I was born a boy.

* * *

Zeke Scroggins, philosopher, sage and poet of the Coulee damsite, says that because a woman takes a joke at the altar it's no sign she enjoys humor.

* * *

When a man sits down to wait for his ship to come in, it is usually the receivership that arrives.

* * *

Some of the boys at the damsite report a splendid party at Almira a few nights ago, where they were introduced to Tim Buctoo, Seven-Toed Pete and several lesser lights. A good time was had by all—who quit whiter.

* * *

THERE WAS A MAN

There was a man who fancied
By driving good and fast,
He could get his car across the track
Before the train came past.
He would miss the engine by an inch
And make the train crew sore.
There was a man who fancied this,
But—there isn't any more.

Investigate Before You Speculate

Several companies are offering sagebrush lands in the Big Bend district of Washington on the assurance, at least implied, that these lands will be irrigated from the Grand Coulee project.

Prospective buyers should by all means make a thorough investigation before closing any deal. True, eventually there will be about 1,300,000 acres brought under water from the big dam and reservoir. However, it is practically certain that no irrigation will be possible for the next fifteen years. Then, too, one should make sure that the lands offered will come within the area to be reclaimed.

When in doubt about this or other phases of investment in the Grand Coulee dam district, write or call THE RECORD. Perhaps we can help you. To find out about labor conditions, address a letter to The Columbia Basin Commission, Civic building, Spokane, Washington.

There is no charge for these services.

Here Are Important Features Of Grand Coulee Development

(The following salient points in connection with the $63,000,000 Grand Coulee Power Project are furnished by Ellsworth C. French, director Research and Organization for the State of Washington Columbia Basin Commission, Civic building, Spokane, Wash.:)

Employment. Work, directly or indirectly, for between 3,500 and 10,000 men is expected to be provided during the actual, construction of the dam, which will be about four years. No work is available at the damsite at this time, both Engineer Banks and the contracting companies already on the project, having recruited full crews.

Power, Not Irrigation. In authorizing development of the project, President Roosevelt directed an expenditure of $63,000,000 for the "Grand Coulee Power Project." Until power is developed at Grand Coulee there can be no reclamation of the arid lands in central and eastern Washington, which will eventually be irrigated by the Grand Coulee Power Dam.

The Columbia Basin Commission is fully aware of the necessity for reclaiming the arid lands, and is therefore proceeding on a course that will mean completion of the Grand Coulee Power Dam to its full height at the earliest practical date.

Camp or Townsite. There will be a camp or town of considerable size at the damsite during the construction period. Location of the camp or townsite will be by the Bureau of Reclamation and the Columbia Basin Commission.

Development of the campsite and construction of a bridge at the dam site are the next immediate work. Both of these projects will be under the direction of the Reclamation Bureau and the Columbia Basin Commission. $1,000,000 of the $63,000,000 allocated to the Grand Coulee Power Dam has been authorized by President Roosevelt for construction of a bridge and camp or townsite. An additional $1,000,000 has been authorized for excavations at the damsite.

Management of the Town or Camp. At present neither the Columbia Basin Commission, nor the Reclamation Bureau, have reached a decision as to the management and control of the camp or town at the damsite.

Concessions. No grants of concession privileges at the damsite are being made now by any authorized agencies. No such grants will be made for several months as the grants depend upon the location of the camp or townsite and a policy for its management.

Flood Water Damages. All property damages resulting from the huge lake to be created by construction of the Grand Coulee dam will be compensated as the work progresses and the funds become available.

Finance. Costs of construction of railroad extensions and highways to the damsite are not expected to be paid from the $63,000,000 allocated by the Federal Government for the "Grand Coulee Power Dam."

It is assumed that the railroads will pay for their own construction of extensions, and the State of Washington will finance all highway work.

Within a short time it is anticipated that a contract will be signed between the Federal Government and the State of Washington, or its authorized agency, for construction of the power dam, under the supervision of the Reclamation Bureau, Department of the Interior.

It is necessary for Washington to repay only 70 per cent of the $63,000,000 allocated to the project. The remaining 30 per cent, or about $18,000,000 is a gift to Washington.

There is no intention on the part of the Federal Government, Department of the Interior, Columbia Basin Commission, or State of Washington to bond residents of Washington to repay the 70 per cent construction money to the Federal Government.

Repayment of this money will be by the sale throughout the Northwest, of cheap power developed at the Grand Coulee power dam.

Columbia Basin Commission. Created by the last legislature, the Columbia Basin Commission was directed to secure early authorization for immediate construction of the Grand Coulee Project.

What the Columbia Basin Commission expected would take two years to accomplish has been accomplished in six months. This splendid progress is the result of the untiring efforts of Senator C. C. Dill, Governor Clarence D. Martin, the State Unemployed Relief Commission and the Columbia Basin Commission.

However, confronting the Columbia Basin Commission today are a vast amount of important details demanding the immediate attention of the Commission, if the project Is to go forward without delay.

RECORD AT LEADING NEWS STANDS

The Grand Coulee Record may be secured every Wednesday morning at the following newsstands, or address the Seattle office, 5011 Wallingford Ave.

Almira—
P. T. Evers

Wenatchee—
The Midget, Phipps Bldg.
Cascadian Hotel Cigar Stand

Tacoma—
Coale & Coale,
900 Pacific Ave.

Lewiston, Idaho—
Paramount News Stand,
505 Main St.

Boulder City, Nevada—
Boulder City Co.

Olympia—
Olympian Hotel Cigar Stand

Spokane—
Dope Smith's
Peter M. Jacoy
Davenport Hotel Stand
Hotel Spokane Stand
Dessert Hotel Stand

Boise, Idaho—
Up-to-Date News Stand,
1010 Main St.

Portland, Oregon—
Rich's Cigar and News Stand, Sixth at Wash.

West Side Joins Hands With Builders Of Inland Empire At Damsite On Saturday-- Leaders Cross Mountains To Pledge Faith In West's Greatest Power Project-- Are You Going To Help Convince East Side That Western Washington Backs Efforts To Relieve Unemployment And Revive Industry?

The Truth About The Grand Coulee District Is Good Enough

Grand Coulee Record

Vol. I., No. 2 Spokane, Almira, Seattle, Wednesday, November 1 10 Cents

For Information About the Big Power Project—Ask The Record

ALMIRA HURLS BOMBSHELL INTO STATE BUS HEARING

Great Coulee Dam May Be Built As Federal Project

ALL FREIGHT VIA HIGHWAY IS PROPOSED

Northern Pacific Subsidiary Withdraws Application for Passenger Franchise in Favor of Washington Motor Coach.

WENATCHEE—Throwing a bombshell into the tangled snarl of applications for passenger and freight permits to the Grand Coulee damsite, a large delegation of Almira business men appeared before the State Department of Public Works hearing here Monday and demanded that their city be made the railhead for all freight shipments to the big power project.

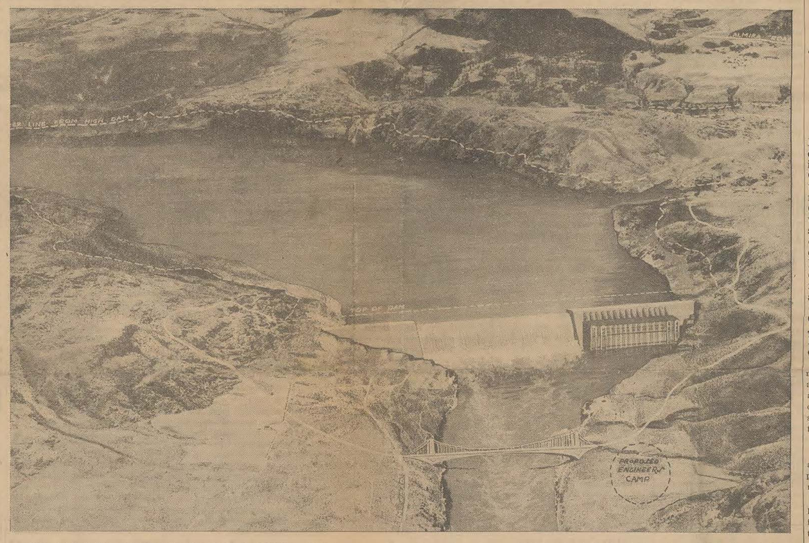
The Almira delegation contended that their plan would eliminate the necessity of a railroad to the damsite and submitted evidence to bear out their claim that, with slight expense, existing roads could be put into condition quickly to permit the hauling of the largest pieces of machinery necessary and all materials needed for the construction job. The Coordinated Transport company made formal application for the freight permit for the route from Almira to the damsite, and it was this application that the Almira group solidly backed.

All Freight From Almira

The plan to center all movement of materials through Almira was bitterly fought by the Northern Pacific Transport, a subsidiary of the Northern Pacific Railway, the Con-

(Continued on Page Two)

Here Is World's Greatest Power Project As It Will Appear



AIRPLANE VIEW OF GRAND COULEE DAMSITE—Artist's conception of the low dam, and the bridge to be built this winter. White lines indicate route of proposed highway and white dotted line shows where the high dam will reach and backwater level when the project is completed.

OLYMPIA MEET MAY END ALL UNCERTAINTY

Two Major Issues Face Commission — Appraisers' Land Values and Contract Between State and Government.

"Members of the Columbia Basin commission are confident that the Tuesday meeting of the commission at Olympia will end all uncertainty regarding ways and means of construction of the Grand Coulee project," Ellsworth French, director of research and organization, declared in Spokane Monday evening, as the "Basin" party left for Olympia. In the party, either members of the commission or intimately associated with the Grand Coulee development were: Senator C. C. Dill, J. E. McGovern, James O'Sullivan, Frank A. Banks, reclamation bureau engineer, and French.

Two major issues face the commission. One is the approval of the appraisers' reports on land values at the damsite. The other is the contract to be made between the state and the federal government for the project's construction.

Appraisers' Reports O.K.

It was held likely here that the appraisers' reports will be approved, probably with but slight modifications.

In the event of the principal landowners at the damsite refusing to accept the valuations set by the appraisers and the commission

(Continued on Page Two)

15 Millions For Coulee

The big news of the week so far as this state is concerned, came from Washington D. C., to the effect that the Federal Board of Public Works had ordered the vast sum of $15,000,000 earmarked for expenditure on the Grand Coulee dam as needed and that a second million dollars had been made available immediately for excavation work on the dam abutments. This will probably mean an early increase in the payroll at the damsite of from 300 to 500 men.

Senator C. C. Dill has held that the federal government needs no contract to begin immediate construction, that it has full power to proceed without an agreement with the state.

If the reclamation service takes over construction of the dam, legal obstacles confronting the work as a state project will be cleared away, and main construction can be started as soon as engineering work is completed and contracts let. Members of the commission, however, explained that this work cannot be completed before next May 1, the date originally set for commencement of construction.

Commenting on a report that the federal government may take over construction of the proposed Grand Coulee power dam in the Columbia river, J. E. McGovern, a member of the Columbia Basin commission, said last week that "such a move may be necessary to go ahead with the project at maximum speed."

Tacoma Paper Raps Nichols

(Ryan's Weekly)

The Seattle City Council has at last taken cognizance of Ralph Nichols' fight on Senator Dill and the Coulee Dam. A resolution censuring Ralph for his fight on the Coulee project has been introduced in the Council by Councilman Roy B. Misener, and doubtless Nichols will receive a deserved slap . . .

Seattle has more to gain than any city in the Northwest in the matter of this very Coulee development, and Seattle is too smart to let Nichols play politics with any chance that the city might have to do business with the great Columbia Basin region. Wenatchee, Almira, Ephrata, Coulee City, Soap Lake, Quincy and all of that great country is loyal to Seattle; buy their goods from the Queen City, and they will not stand for any foolishness from Ralph Nichols or any other guy of his type. Seattle is for Seattle,—get this straight. . . .

What possessed Ralph Nichols to take up such a foolish fight, only Ralph knows. We believe that Nichols will find that if he is a candidate to succeed himself to the Seattle City Council in the spring of '34, that he will himself be on the outside looking in when the votes are counted. Seattle is smart enough to know that a state development of the size of the Coulee Dam will redound to the benefit of the entire state and Seattle and its contiguous area comprising about 40 per cent of the population of the state, and Seattle will benefit in that same proportion.

1,200 VISIT DRY FALLS IN 20 DAYS THROUGH WILBUR

WILBUR—According to reports received here, for the first 20 days of this month nearly 1,200 signatures have been added to the guest registry at the Dry Falls vista house, and it is estimated that barely half of the visitors take time to sign the register.

Hotels, restaurants and leading merchants in Wilbur, Almira and Coulee City report a continuing influx of visitors each day, mainly to visit the site of the Grand Coulee dam, although many come in connection with the construction of the new road from Wilbur.

An impressive story of the interest in the Dry Falls wonder is revealed in the widespread cities represented in the registry book. In the last few days visitors have signed from Washington, D. C., New York City, Philadelphia, Los Angeles, Alexandria, Va., Chicago, Detroit and Minneapolis, besides hundreds from the vicinity.

As soon as the formal contract has been entered into between the federal government and a state agency the Northern Pacific jointly with the Great Northern will doubtless begin the building of a rail extension from Coulee City. This line will follow closely the rim of the Grand Coulee and will furnish work to three hundred or more men.

All Set For Motor Bus Excursion To Grand Coulee Damsite Friday

All aboard for America's super power project!

Fifty or more of Seattle's best known business executives will be ready to board the commodious buses of the Washington Motor Coach company when the call comes next Friday at 12:45.

Departure will be from the station at Eighth and Stewart streets. From present indications all reservations will be taken by Thursday evening.

Since first announcement of the excursion unusual interest has been manifested by local manufacturers, wholesalers and merchants who desire to contact the trade in the Grand Coulee district and the Big Bend country and familiarize themselves with what is actually going on where the federal government is starting to spend $63,000,000.

The low cost of the trip has of course proven alluring in these depression times. By special arrangement THE RECORD is able to make a rate of $10.50, which includes comfortable transportation, the best of hotel accommodations and all meals.

Following is the tentative schedule:

Leave Seattle at 12:45 p.m.
Arrive Wenatchee at 7:00
Dinner at Cascadian hotel at 7:15
Breakfast at Cascadian hotel at 7:15 a.m.
Leave Wenatchee at 8:00
Arrive at Dry Falls at 10:00
Arrive at Coulee City at 10:20
Leave Coulee City at 10:50
Arrive at damsite at 11:45
Luncheon at the damsite at 12:30 p.m.
Leave damsite at 2:00
Arrive at Wilbur at 2:45
Leave Wilbur at 3:15
Arrive Almira at 3:30
Leave Almira at 4:40
Thence by way of Hartline, Wilson Creek and Soap Lake to Ephrata, arriving at 6:30
Leave Ephrata at 7:30, arriving back in Seattle about midnight.

Among those who have already signed up for the trip are:

Senator George A. Lovejoy, Insurance Broker; George Albers, Alber Bros. Milling Co.; John A. Shaw, Commercial Importing Co.; Alvin Hemrich, Pres. Hemrich Brewing Co.; L. T. Carroll, Pres. Pacific Car & Foundry Co.; W. T. Johnson, Gen'l Mgr., Fox River Butter Co.; Horace P. Champion, Commissioner, Port of Seattle, Grain Merchant; Douglas Shelor, Manager Automobile Club of Washington; E. Rex Smith, Vice-president, Crescent Mfg. Co.; John Gallagher, Pres. Pacific Fruit & Produce Co.; Walter Averill, Editor, Pacific Builder & Engineer; Max Harrison, Pres., McKesson, Stewart & Holmes Drug Co.; Monte Brown, Editor, Daily Journal of Commerce; W. L. Strand, General Mgr., Ballou & Wright; G. W. Klinefelter, Wallace Bridge & Structural Steel Co.; A. D. Marshall, Mgr. Wm. J. Burns International Detective Agency; John Upthagrove, The Reardon Company; A. M. Andresen, Northwest Branch Manager, Chicago Pneumatic Tool Co.; J. L. Overman, Pecnaught Machine Co.; Sam G. Lamping, Manager, City Department, General Insurance Company of America; Geo. Heiser, Pres., Heiser's, Inc.; C. J. O'Shea, W. P. Fuller & Company; Robert Shearer, Schorn Paint Co.; William Pripp, Pres., Federal Pipe & Tank Co.; L. H. Spaulding, Federal Pipe & Tank Co.; John Hudson, Pres., Cascade Tunnel Association; Van C. Griffin, member of the legal firm of Dykeman, Monheimer & Griffin; representatives of the Seattle Chamber of Commerce and daily newspapers.

JOHNSON SAYS WANTS ONLY FAIR PRICE FOR LAND

ALMIRA—"I positively deny reports being circulated that I have asked the Columbia Basin commission $1,000,000 for my land holdings at the damsite," Julius C. Johnson, local banker, declared in a statement given the press today.

Johnson and the Continental Land Co. of Spokane own a one-mile strip of land on the west bank of the Columbia river, running north and south from the damsite. S. J. Seaton, ferry proprietor, owns a 1¼ mile strip of land on the opposite side of the river. It is reported that valuable deposits of merchantable sand and gravel have been found on the Johnson and Seaton lands worth millions of dollars to the Columbia Basin commission in the construction of the dam.

"I expect only a fair price for my land holdings that are absolutely necessary for the damsite," Johnson said. "However, I do not believe there is any law that will permit the commission to take other lands without due regard to their market value as a source of valuable materials. As to the million dollar price I am reported to have set, 'that's hot air', I expect to be reasonable and will talk actual purchase price when the commission is ready to buy," the banker concluded.

Live News Of Almira And Coulee Dam District

By Record Staff Correspondent

Prediction Made That Government Will Take Over Huge Dam Project

SPOKANE.—The Chronicle said Saturday it has learned from "unimpeachable authority" that construction of the $63,000,000 Grand Coulee dam would be taken over immediately by the general reclamation bureau.

Only the approval by the state Columbia Basin commission of a contract drawn by reclamation service attorneys is necessary, the the paper said, before the work will be taken over. The Columbia Basin commission will meet Saturday or the first of next week to consider the contract.

"Issuance of bonds by the state or a special Grand Coulee power authority for the 70 per cent of the $63,000,000 cost of the dam," the paper said, "would be required under the contract, but these bonds would be secured only by revenue from the sale of power generated at the dam. They would not be a general obligation of the state in any way."

While it is held doubtful by the Columbia Basin commission that engineering work on the structure can be completed in time to start work before May 1, 1934, approval of the reclamation bureau contract would eliminate all worry over immediate availability of federal funds, or legal technicalities.

The public works board already is reported to have earmarked $15,000,000 for construction costs during 1934, and has advanced $2,000,000 of this sum for excavation work, erection of a bridge across the river below the dam site and construction of an engineers' town.

"Under the terms of the contract," the paper continued, "the financial arrangement between the government and the state, boiled down, is about like this: the government will build the project, let the state operate it, and finally turn it over to the state when the project shall have paid for the 70 per cent of the cost, which must be repaid under terms of the public works board allotment. In other words, the state will not put up any money and will obligate itself only to the extent of the receipts from the project itself, but eventually will own the project when it is an established success."

300 At Dam Get Mail Via Almira

More than 300 persons now receive mail by indirect delivery from the Almira postoffice to the damsite. The star route runs on the east side of the river, whereas nearly all of the campers are located on the west side. This makes it necessary to either go to the Almira office for mail or take indirect delivery through a third party on the other side of the river. Better postoffice facilities are the wish of many of the day. The situation will become acute when 800 or 900 more men go to work excavating for the dam's abutments about December 1st.

Postoffice On West Bank

Postmaster J. B. Milner of Almira, has suggested that the logical place for a permanent postoffice would be at the government campsite, on the Chas. Osborne place, west side of the river, ½ mile below the damsite. This location could supply the entire district, being within walking distance of the damsite and other settlements.

An appeal will be made to the postoffice department to establish a postoffice somewhere near the damsite before the heavy snows of winter begin to fall. It is said that P. D. Donaldson, promoter of the Grand Coulee townsite which is the 1½ miles south of the damsite, has made application for a postoffice to be opened there.

Expect City of Ten Thousand

ALMIRA, Wash.—A visitor to the damsite finds the activities of Rumsey & Company, Seattle, tentpit contractors, very interesting. This concern started operations on September 10 and now has a payroll of more than 75 men. The muckers are paid 60c an hour and the skilled workmen 90c. Board and room cost a workman $1.20 daily, it was stated. Chief McGee presides over the dining room and kitchen and he is popular with the well-fed men. A lunch counter recently read as follows: Coney Island clam chowder, pickled beets, mashed potatoes, creamed carrots and peas, spaghetti Italienne, roast beef, brown gravy, boiled custard pudding, apple pie, coffee, milk, buttermilk, doughnuts, cake, two kinds of bread. The portions are liberal, and appetizing.

No wonder jobs ar at premium at the damsite.

Word comes from Olympia that the state highway department expects to have arrangements made so that the contract for the construction for the few remaining miles of the Soap Lake to Coulee City road will be let on November 13.

Another project that is being sought by business interests of Soap Lake and Ephrata is a road Soap Lake and Ephrata is a road site. County officials urge an early start of highway construction to relieve unemployment.

900 MORE MEN TO GET WORK BY DECEMBER 1

ALMIRA, Wash.—Plans for the United States government camp have not yet been perfected, Frank A. Banks, reclamation bureau engineer in charge of construction of the Grand Coulee dam, stated today.

The camp will be located on the Chas. Osborne 87-acre tract of land, ½ mile below the damsite. Present plans call for platting 15 acres for the campsite. Mr. Banks said. The 15 buildings, including dwellings for the families of engineers and business and office buildings, would probably be constructed. An application may be filed for a postoffice at this campsite.

It is customary to let a limited number of concessions for businesses near the campsite, and applications must be filed with the Columbia Basin Commission, Civic Building, Spokane, Mr. Banks stated. All applications are carefully considered and an applicant's business history weighed before concessions are let. Hospital facilities will be provided by the contractors, the engineer declared.

Test Pits 80 Way Down

Two test pits have been completed on the east side of the Columbia River. One was sunk to a depth of 32 feet and the other 79 feet, before reaching bedrock. The pits are 6x6 feet in size and are sunk vertically. The primary object of the test pits is to determine the quality of the sand and gravel, and whether it is suitable for use in construction of the dam.

Test Pit A, above the damsite road on the west side of the river, was reported down to a depth of 184 feet with the probability that it would go at least 200 feet before reaching bedrock. It is said that enough timber to build two six-room houses is used in line one of these deep pits.

Core Drillers Rushing Work

Lynch Bros., also of Seattle, are the core drilling contractors. They employ a total of 65 men and the same favorable conditions exist in the camps. Wages are similar, it was stated. This concern has completed seven of the 58 holes called for in the contract, striking solid granite. It was stated they had completed 2469 linear feet up to last Thursday. Souvenir-hunting tourists have found the granite core specimens so popular it was found necessary to keep them under cover, it was stated. Inscribed specimens of the granite core were sent to President Roosevelt and Dr. Elwood Mead, commissioner of the reclamation bureau.

Along The River Front

About two weeks ago Mike Carr opened Mike's Damsite Shoe Shop. This store is located in an old cabin near the river, 1-8 mile above Seaton's Ferry. Besides repairing shoes, Mr. Carr sells men's wear, chiefly working clothing, blankets, stoves, and other items needed by campers and workers. He is doing an excellent business.

* * *

Al Meyers, pioneer damsite merchant, came here and opened a lunch counter and cold drink stand July 8. At that time the only other residents at the damsite were Chas. Osborne, ½ mile below, and Sam J. Seaton, ferry proprietor, directly across the river. C. L. McNoun and Hank Berger were Mr. Meyer's first employees. The natives, white and red, came from miles around to eat hamburgers, drink pop (no beer yet), and ridicule Al's faith in the dam project. Three weeks ago he brought in the first real house on wheels and Mrs. Meyers came to help him in the business. A frame addition has now been built to the original tent shanty and the cooking department is equipped with a Flamo gas stove. He has an excellent business in lunches, draught and bottled beer, etc.

Johnson Asks Approval Of New Townsite

ALMIRA, Wash.—Julius C. Johnson, Almira banker and pioneer backer of the Grand Coulee dam project, announced this week that he has platted Franklin townsite, located on his land, three miles southwest of the damsite. The Grant county commissioners will be asked to approve the townsite at their meeting November 6.

Mr. Johnson owns 280 acres of land adjoining sections 16 and 21, township 28, range 30. Forty acres of the tract have been platted into blocks of 24 lots each, he said. As soon as the townsite plans are approved, street and alley work will be done and the lots offered for sale.

Many Want To Buy

The promoter has had many inquiries from persons interested in buying both business and residence lots in the proposed townsite. He believes that on account of its excellent location near the damsite highway and proposed railroad spur, and because the land is comparatively level, lots will sell readily and a town quickly spring up. Good water can be obtained at a very reasonable depth, he said. This townsite would adjoin the one recently proposed by Spokane capitalists, who have, up to this date, failed to file townsite plans.

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SCIENTISTS DISAGREE ON COULEE GEOLOGY

As one who took a very small part in the government's survey of Grand Coulee, and who was present during the visit of the foreign scientists, may I explain some facts which Acting President Winkenwerder, not being in the science faculty of the University of Washington, cannot be expected to know.

Some years ago Professor Bretz of Illinois, a former instructor of the University, made a study of Grand Coulee and published a monograph on the subject. Later this monograph was presented and read by him before the Washington, D. C., meeting of the American Geological Society. There the professor's rather sensational theories on the origin of the coulees, involving rivers 400 feet deep and one or more miles wide sweeping down steep gradients, met with general disapprobation. Among other things, it was pointed out that to feed these huge swift rivers demanded a stupendous volume of water. In fact, these rivers would exhaust all the water stored up in ice and snow in the Columbia Basin in, if I remember right, less than fifteen days. In such short periods the floods, even if renewed several times, could hardly excavate thru several hundred feet of solid basalt and move several cubic miles of rock. The Spokane flood theory might be a very original one, but not necessarily a sound one. For this and other good reasons it was fairly unanimously discarded by the Geological Society.

While I was in the Columbia Basin Professor Bretz made a short visit in the region which apparently did not lead to his modifying his theories to any appreciable extent.

Now I do not claim to be specially competent to judge the merits of the theory. But as in his monograph the professor informs us that to investigate the different coulees, an area involving thousands of square miles to study, he had spent only ten weeks, and as he was opposed by some of the most brilliant and renowned geologists in the country, one had to conclude that the professor's theories were pretty shaky.

It sems strange, therefore, that the geologists of our two universities should have requested the author of these, if not exploded, at least very debatable theories, to act as leader in their own territory to fifty keen engineers, including several from Washington, D. C.

But the Illinois professor did not appear, as he went to Greenland instead. He was replaced by Professor Allison. At the coulee the Oregon professor, who, by the way, created a splendid impression on everybody, frankly explained that previous to this he had only spent a few days on the Grand Coulee, and that having lately been requested to replace Professor Bretz, he had been obliged to employ the latter's monograph to explain the geology of the Grand Coulee. He also frankly added that he felt rather doubtful about a number of points in the Spokane flood theory.

As might be expected, during the two-day visit, the apparently officially sanctioned geology of the coulee came under fire of searching criticism by the visiting experts. In an open-air forum held in the evening on the grounds of the Coulee Dam Hotel, at which all the geologists attended, the geology and the origin of the coulees was thoroughly debated and the Spokane flood theory pretty well shot to pieces. Later, at the Spokane banquet, the muddle led to numerous comments.—A. N. Johnson in the Seattle Times.

According to Frank A. Banks, chief engineer of the U. S. Reclamation Service, 200 men will get jobs on the excavation work for the bridge as soon as the state specifications are completed.

* * *

Clay Frank has a neat, well arranged cabin on wheels that houses The Columbia Basin Lunch Box. He is parked at the foot of the hill near the ferry. He blocked up the corners to make the building stationary and is doing a nice business. His nephew, Elmer McDonald, is assisting him. Mr. Frank expects to bring his family here from Coulee City as soon as suitable accommodations can be obtained.

(Continued on Page Three)

Spokane Sends Delegation To Coulee Works

ALMIRA, Wash. — Twenty-five members of the Spokane Chamber of Commerce visited this city Wednesday afternoon, Oct. 25, while on a good-will tour of the damsite and neighboring towns along the Sunset highway. The party went direct from Spokane to Coulee City, then looped back via the damsite. They made stops at Davenport, Wilbur, Almira, and Coulee City.

The Spokane business men in the party were: A. W. Lindsay, G. L. Adams, O. E. Anderson, John Anderson, H. T. Anthony, Major George S. Clarke, commandant of Fort George Wright, B. Gard Ewing, C. Gotsian, E. Vaughn Klein, P. H. Landon, C. R. Longfellow, Lee S. Libby, R. J. McAlpin, S. S. McClintock, C. W. Moore, O. K. Moody, James L. Paine, R. Price, John H. Rohrbert, W. P. Roman, W. F. Sandgren, Otto Schneider, George Silliman, Jr., Clarence Smith, and Guy R. Toombes.

Business Activities in Elmore - Fleischman Townsite Near Dam

Mr. and Mrs. Ivan Lewis, and son Ivan, Jr., arrived from Spokane last week and have leased Ivan's Dog House, No. 2, across from Elmore's Service Station. They have bought their own place and intend to stay. Mrs. Lewis and son will operate the restaurant.

* * *

A few days ago Fred E. Largent opened the first grocery store at the damsite. It is located next to Ivan's Dog House. Mr. Largent comes from Colfax. He built his own store building and expected to bring his family here in a few weeks. The new concern is called the Pioneer Grocery and Market and handles fresh, cured meats, as well as groceries.

* * *

A. J. Tanner and J. C. Bissell and their wives recently came here from Texas. They have built a 24×24 building just west of the Pioneer Grocery, and expect to deal in dry goods, work clothing, carpenter's tools, candy, cigars, cigarettes and stationery. Four living rooms have been built at the rear of the store building. The firm will operate under the name of the Damsite General Store.

* * *

The Fender Lumber Company, Allen Wetzel, of Twisp, president, and J. H. Space, manager, is doing a rushing business in lumber, shingles, sash, and other building supplies. The yard is located just west of the Damsite General Store. They expect to put in coal bunkers soon, it was stated. Mr. and Mrs. Space will occupy a cabin fronting the road and another cabin will be used as an office. A private office will be built later for use of Mr. Wetzel, when he is here on business.

* * *

The Grand Coulee Service Station, located at the top of the hill, is the first to be established on the west side of the river. They do a fine business in gasoline, oils, and accessories. It is commonly known as the "Elmore Service Station," and is the nucleus of a thriving little village.

News Briefs From Grand Coulee Townsite

"It's real pioneering here, so far," said Miss Elizabeth Johnson, proprietress of the Dam Tavern that "serves meals and beer at all hours for reasonable prices." Miss Johnson comes from Seattle, where she was engaged in the restaurant business. Her associate, Mrs. B. G. Raymond, will come out from Seattle next spring. The Dam Tavern fronts on Main street.

* * *

J. D. Lael, a resident of the district for fifteen years, has fine sand and gravel deposits on his land adjoining the northeast corner of the Grand Coulee townsite. The sand is suitable for plaster and is now in demand by contractors and builders. The gravel uncovered when the sand is removed is said to be suitable for use in concrete.

Result Of Conference Important To Success Of Coulee Power Dam

(Continued from Page One)

it was pointed out that condemnation proceedings can be started.

Approval of the reports will immediately start the flow of money from the $1,000,000 now available for construction of the engineers' quarters and excavation at the dam.

It will mean that from 350 to 400 men will get jobs in the near future, and will put a new hum of achievement in the Coulee sector.

"The men will be engaged in the task of moving 2,225,000 yards of rock and earth from the location of the damsite," French stated.

"In the near future, probably on or before Nov. 20, contracts for the excavation work will be called for by the reclamation bureau.

"The lands appraised on the west bank are largely owned by Julius Johnson, Almira banker, and the Continental Land company. Mr. Johnson owns about a mile of river frontage. Sam Seaton owns about a mile and a half of river frontage on the east side of the river."

Work Will Start Soon

The excavation work will clear the way for abutments of the dam and for approaches and piers below the proposed site of the dam.

"It is the purpose of the meeting to rush the signing of the contract between the basin commission and the bureau of reclamation with all possible speed," French stated.

"Senator Dill is very desirous of the speedy signing of this contract. The tentative agreement reached at the meeting will be rushed to Washington for the approval of Secretary of the Interior Harold Ickes and Dr. Elwood Mead, commissioner of reclamation.

"In the contract to be approved at the basin meeting will be embodied the best ideas of the bureau of reclamation and the commission," French said.

Almira Throws Bomb Into Bus Hearing

(Continued from Page One)

solidated Auto Freight; and United Freight Lines.

Backers of the motor truck plan pointed out that the prime opposition was speed in geting the work going and cited the reluctance of the railroads to proceed with construction of a branch line until guaranteed all freight and the assurance that contracts had been signed between the state and federal governments as evidence that such delays could not be depended upon to give the required service quickly enough to fit into the plan of providing work for many hundred men this winter.

N. P. Wants no Passengers

Equally sensational was the sudden withdrawal of the application of the Northern Pacific Transport for a passenger permit in favor of the application of the Washington Motor Coach company. This permit has been the bone of bitter contention in all of the Big Bend communities, with sub centers as Wenatchee favoring the Washington Motor Coach application, while Almira has solidly backed the application of the Northern Pacific's subsidiary.

Under the plan of operation submitted by the Washington Motor Coach company, service would be provided from Soap Lake via the coulee to Coulee City and the damsite, thence to Almira, making connections with their busses running from Spokane to Wenatchee. This tentative schedule would give the damsite and the towns of Coulee City and Almira direct connections with all through busses of the Washington Motor Coach company between Spokane and Seattle.

The general impression of informed transportation men attending the hearings was that the department would undoubtedly issue the permit for passenger service to the Washington Motor Coach system. Hearings will continue on Tuesday.

About seventy-five small homes, a water works and a sewage system will be constructed on the west or Coulee side of the river for the government's construction town. For this work 150 men will be required.

"The reclamation bureau has submitted ideas for the contract to the commission, and individual members of the state body have studied them at length."

French branded as loose talk the rumor and statements of misinformed persons to the effect that a general obligation bond against taxpayers will be used to build the project.

"Thirty per cent of the $63,000,000 allotted for the Coulee dam and power project is a direct gift from the federal government to the state," French emphatically stated.

"The remaining cost of the dam will eventually be repaid the federal government out of the profits from the power revenues, according to present plans."

Olympia Meet Vital

The Tuesday Olympia meeting of the commission with Governor Martin will be the last vital spark needed to flare the Coulee project into the start of a constant forward development.

Rushing of the contract will release the flow of federal funds without further action on the part of the state, until the next session of the legislature.

All of general interest to the Grand Coulee project's friends is the strong rumor prevalent in Spokane that the reclamation service may take over the project at once, with the consent of the basin commission.

The Spokane Chronicle published a report on "unimpeachable authority" to this effect, but members of the basin group declined to be quoted on it prior to their meeting.

While at the meeting Mr. Banks will consult with state engineers concerning plans for the new bridge that is to span the Columbia river just below the line of the Coulee dam.

FRANK A. BANKS, ENGINEER, IS VERY BUSY MAN

ALMIRA, Wash. — Frank A. Banks, United States reclamation bureau engineer in charge of the construction of the Grand Coulee dam, whose headquarters are located here, is a very busy man these days. Added to his many duties in connection with the big development program is the fact that he is one of the most-interviewed men in the state. Representatives of newspapers and magazines come from far and near to get personal audience with this man whose fame as an engineer is nation-wide, and whose genius in harnessing the Columbia has already written chapters of history of three states.

Frank A. Banks was born in Saco, Maine, December 4, 1883. He received grade and high school in the neighboring town of Bideford, Maine, graduated from the University of Maine in 1906 and in September of the same year secured an appointment to the staff of bureau of reclamation engineers.

First Big Job in Idaho

Mr. Banks' first assignment of responsibility was directing the preliminary plans for the Arrowrock dam at Boise, Idaho. He was next given full charge of the construction of the Jackson Lake dam in Wyoming. Following this he built the American Falls dam at the city of the same name in Idaho, going from there to Ontario, Oregon, where he built the famous Owyhee dam, highest in the world.

There was little wonder when Chief Engineer Walters of the reclamation bureau wanted a man capable of building the world's largest dam across the mighty Columbia river in Washington that he again selected Frank A. Banks.

Mr. Banks was united in marriage to Miss Theodora Drummond at Boise, Idaho, March 2, 1911. Two children were born to the couple, a daughter and a son. The daughter, Miss Laurina, is now a sophomore at the University of Washington, and the son, John, is a senior at Lewis and Clark high school, Spokane. The family residence is in Spokane.

Appointment To Commission Still Held Up

As yet no one has been named by Governor Martin to take the place of the late Harvey Smith of Neppel on the Columbia Basin Commission.

There are a number of candidates, most of whom are from Grant county. At least twenty men and one woman have applied for the position. The latter is Mrs. Lucy Schoenrock of Spokane.

The people of North Central Washington, who believe they should have a voice in the selection, view the appointment of someone who is in favor of public ownership and operation of electric utilities. This may account for the delay.

Seattle Council Asked to Censure Ralph D. Nichols

A resolution censuring Councilman Ralph D. Nichols for his personal efforts to hold back the Coulee Dam project, was introduced Monday into the City Council by Councilman Roy B. Misener. Nichols had sent a series of sharp criticisms and protests to state and federal officials opposing the release of any federal money for the Coulee project.

Misener's resolution contends that only Nichols' personal opinions are given in his criticism and not those of the Council as a whole.

Business Begins To Hum In Big Bend Country

GRAND COULEE DAMSITE.—Everything is humming in the Big Bend country where for many years the going has been hard. Here in the so-called dry belt, wheat is the principal crop, but with the low price of wheat combined with drouth and poor crops about four years out of every five, the result has been the abandonment of countless farms. Crumbling farm buildings, many of them representing substantial investments, now stand as spectral monuments to blasted hopes.

But now, thanks to the Grand Coulee development, the situation is undergoing rapid changes. Unusual activity is seen in all of the towns within a radius of 50 miles of the damsite.

Coulee City Booming

At Coulee City a new bakery has just been completed, a pool hall opened and several of the stores have enlarged their facilities. Good business is reported and the hotels are filled nearly every night. Here the sentiment seems to favor building of the Coulee dam railroad by the Northern Pacific. The railroad branch line already comes into Coulee City from Spokane and the east and up from the south by way of Adrian.

As stated in THE RECORD last week, Almira is enjoying nothing short of a business and building boom due largely to the establishment there of temporary headquarters for the U.S. engineers employed at the dam. Hotel rooms are in big demand, two new restaurants and a pool hall have recently opened and 18 or more three and four-room cabins mark some of the expansion enjoyed by Almira. These comprise what is known as Engineers' Court, owned by the First Coulee Improvement company. Several permanent business buildings including a modern hotel, are planned and each day prospective business men visit Almira seeking locations.

Wilbur and Hartline Profit

According to the Wenatchee World both Wilbur and Hartline are noting increased business, with tourists and new settlers swelling local trade.

Wenatchee also is beginning to feel the beneficial effects of the big Coulee project. Business leaders there are making a strong bid for the new money that is bound to come into the west when the work is under way. The Cascadian and other hotels, as well as restaurants of the city, report distinct increases during the past month. Wenatchee is sponsoring a publicity campaign to tell the world that the "Apple Capitol" is the western gateway to the damsite and many miles can be saved by passing through that beautiful city either via Snoqualmie and Blewitt, or Stevens passes, also via the Great Northern railway.

Veterans Get Preferance On Big Coulee Job

It is announced that veterans of American wars will be given preference in the relief work on the dam abutments at Grand Coulee for which funds were made available last week.

Veterans are requested to register without delay at the Veterans' Unemployment Relief Bureau, Federal office building, Seattle. Non-veterans must register with their local federal re-employment bureaus, located in every county.

ALMIRA TO VOTE ON WATER BONDS

ALMIRA.—Almira City council has passed an ordinance creating a water bond fund. This was the first step toward a municipal water system. The next act of the council was to consider an ordinance creating a municipal water department, granting authority to build a system and sell water, etc., and providing for the issuance of bonds in the sum of $15,000 to pay one-half the cost of the system. The remaining one-half of an estimated cost of $25,000 will be obtainable from the federal and state governments under the unemployment relief act. The ordinance, which set the date of the proposed election as November 21, was given its first and second readings. Final passage of the ordinance will take place at an adjourned meeting of the council Thursday evening, after which time it will be published in full so all voters may read it.

Attorney John E. Blair, of Spokane, has been engaged as special counsel to direct the technical and legal steps of creating the water department and drafting the ordinances for the special elections. Otto Wiley, Spokane engineer, will be in charge of construction of the system if voters approve the bond issue. So far as is now known, there will be no oppositions to the issue, since by installing the system at this time the federal and state governments will pay one-half the cost. The mayor and council are unanimous in all steps to provide the municipal water system.—Almira Herald

Misinformation Condemned By Almira Club

It is alleged that some concerns and individuals are disseminating misinformation and circulating inaccurate maps of the Grand Coulee damsite and the adjacent territory. The matter has been brought to the attention of the Almira Commercial Club and that body has issued a strong criticism of the private agencies said to be responsible.

Almira people are calling upon the general public to assist in suppressing this evil.

* * *

Familiarity breeds attempt.—Cornell Widow.

She doesn't kiss or neck or anything—she is nobody's fuel.— Colgate Banter.

* * *

Visitor: "Well, Joe, how do you like your new little sister?"

Joe: "Oh, she's all right, I guess, but there are lots of things we needed worse."—Pathfinder.

* * *

We can't understand how the ant acquired such a reputation for being industrious. Nearly all we ever saw were on a picnic.—Thomaston (G.) Times.

* * *

Modern Youth

Mother: You know, Geoffrey, Norma is nearly 17 years old, so today I had a frank discussion with her about the facts of life.

Father: Ah! Did you learn anything new?—Everybody's.

BETTER HOMES FROM BIG PROJECT SEEN BY DR. SHOLWALTER

Dr. N. D. Showalter, State Superintendent of Public Instruction, at a recent Chamber of Commerce meeting in Wenatchee, as reported by the Daily World of that city, said:

"It is not the monetary value of the $63,000,000 to be expended in constructing the dam that will bring the most lasting benefit to the state of Washington, but rather the enduring and more substantial worth of better homes and finer communities which will follow.

"The time has come to shift your attention from the transient benefits which will accrue from the expenditure of such a stupendous sum in our midst, to the more permanent effects which will ultimately bring in the development of a better civilization and the building of more substantial homes."

ELMORE TOWNSITE SURVEY COMPLETE

GRAND COULEE DAMSITE—Ernest Ferguson, engineer, is completing his survey of the Elmore-Fleischmann townsite, 320 acres, known as the Noble ranch. The promoters have secured a four-year lease with an option to buy, it was stated. Purchase next spring is contemplated. Plans call for platting the entire tract and selling the lots. The site is advertising is yet being done and no special sales effort made, requests for locations along the highway are frequent.

This townsite lies west of the newly platted Grand Coulee townsite and is crossed by the Almira damsite highway. The promoters are now awaiting word as to exactly where the permanent damsite road will run before perfecting their plans of the townsite. Carl A. Johnson has sub-leased several acres of land from the Elmore-Fleischmann interests, overlooking Rattlesnake Canyon and just below the bench. He is constructing business buildings and dwellings.

Purchase Water System

A. A. Elmore, Ernest Ferguson and Carl A. Johnson went to Spokane Monday where the purchase of the water system on this townsite. The water supply will be pumped from a large spring on the cliff wall in Rattlesnake Canyon, near the Elmore Service Station, it was stated. It will be stored in the tank to be built on the bench above and piped to the business places and homes. There are fourteen fine springs on this townsite. The water which flows from the fossil bearing claybank back of the service station at a depth of only two feet below the ground level has been approved by the state health authorities for domestic use, it was stated.

Home, Business Construction

H. P. Welsterwold, an employe of Rumsey & Co., is erecting a substantial residential structure on the bench across from the Elmore Service station. He has leased the ground and expects to buy as soon as the townsite is platted and placed on sale. He is the first to build on this part of the Elmore-Fleischmann townsite.

A quarter of a mile from the service station, on the rim of Rattlesnake Canyon, a small home is being erected by Howard Bolen, of Wenatchee. He expects to move his family here in the spring.

Montana Man Will Open General Store

J. C. McCue, who has been operating a general merchandise store at Vananda, Mont., will bring his stock here as soon as a building can be constructed near the Elmore service station, on the west. The claybank containing the fossil beds is being cut back to make room for the new building. The store room will be 20×40 feet in size. He expects to have it ready for business by November 10, it was stated. Mrs. McCue will then join her husband here. Charles Gibbs is the contractor who will build the new store house.

Whenever I see this ill-assorted conglomeration of hopeful youth (a class of incoming College freshmen), they call to my mind the young lady who said to her physician, "How soon will I know anything, after I come out of the anesthetic?"

"Well," replied the doctor, "that's expecting a good deal from an anesthetic."—Albert Edward Wiggam in Marks of an Educated Man.

POWER MAGNET WILL DEVELOP NORTHWEST

With the second million dollars made available by the federal Public Works board for immediate work on the Grand Coulee project it would appear that the U.S. government intends to proceed with the building of this great power dam regardless of whether the state of Washington participates.

It is therefore evident that Senator Dill knows what he is talking about when he says that construction will go forward until the first unit, or so-called low dam is a reality.

As originally planned the $63,000,000 cost of the Grand Coulee would be divided between the state and the federal government on a 70-30 basis respectively. The Bonneville dam, on the other hand, is a rivers and harbors project and will be paid for by the federal government at a cost of $31,000,000.

Projects Cost Hundred Million

The two projects, to cost close to $100,000,000 as authorized at present, are expected to cost double that amount when completed to engineers' designs and to full capacity, which combined will total approximately 3,000,000 horsepower.

Other projects contemplated for ultimate development on the Columbia river and designed primarily for flood control and reclamation and for the movement of freight by barges in a continual 15-foot channel, are the Umatilla dam about forty miles west of Pendleton, the John Day dam near Maryhill, Wash., and still another dam at The Dalles, Ore. Engineers drawing plans for construction of the Grand Coulee dam have made provision for future building of locks for navigation.

Cheap Transport to Tide Water

A correspondent at Washington, D.C., is quoted as saying that the Bonneville dam is the first step in this comprehensive plan, which President Roosevelt is said to approve, to open the Columbia and Snake rivers for navigation and provide cheap transportation from the rich wheat and farm lands of Eastern Washington, Idaho and Eastern Oregon to tidewater on the lower Columbia at Portland or Astoria, Ore., Vancouver or Longview, Wash.

That is the picture which it is declared the President violoned when he gave approval to the Grand Coulee and Bonneville projects. In other words, it is the future after construction that he sees with such hope.

The power which will flow from these two major dams to sell at less than half a cent a kilowatt, is expected to be the magnet to draw industries into the Pacific Northwest with their permanent payrolls, increased population and commercial and agricultural development.

The magnificent Grand Coulee State Park is destined to become one of the most popular attractions of the State, and indeed of the whole Northwest, and its easy accessibility from both the coast cities and Spokane will make it the object of a wonder week-end for thousands of visitors.

Films Advertise Coulee Project

SPOKANE.—The publicity tourist bureau of the Chamber of Commerce is collecting data of general interest on Grand Coulee geology and topography for use in a tourist information folder to be printed this spring.

W. G. Ores, secretary of the bureau, and Frank W. Gulbert, manager of the Inland Automobile association, are planning to obtain panoramic pictures and close-ups of lava formations, fossil beds and bizarre rock cuts for use in tourist promotion work.

Motion pictures of core drilling and other activities at the dam site, Mr. Ores reported, were taken recently by Ray Paulsen and will be used in Pathe newsreels. Stills in color photography have been taken by Asahel Curtis, Seattle artist, and some of the finished pictures will be sent to the tourist-bureau soon.

DIFFERENCE BETWEEN HIGH AND LOW DAMS AT GRAND COULEE

The cost of the first or low dams at Grand Coulee will be $63,000,000. Nearly three times that amount, or $170,000,000 will be needed to finish the job. The first unit will be 145 feet above low water. The completed structure, or high dam, will rise 370 feet. The low dam will be 3,430 feet long and the finished barrier will be 4,290 feet long.

A lake 50 miles long will be created when the first unit is completed. That lake will be lengthened to 100 or more miles when the 370-foot dam is erected, and will reach the Canadian boundary.

Power will be generated for the same cost from the low dam, as from the high—approximately 1.14 mills. The capacity of the plant, however, will be trebled with the added height.

No irrigation will be provided from the first unit, but more than 1,200,000 acres will be supplied with water when the project is completed.

From the sale of power the first $63,000,000 unit will pay for itself 24 years after completion. It is believed that in 40 years the ultimate development will have been paid for from power revenues besides a surplus equal to almost the entire first cost of the project.

Along the River Front

(Continued from Page Two)

commodations can be obtained, he said.

* * *

Mr. and Mrs. H. W. Hayes and their son, Henry, came here from Clarkston, Wash., three months ago. Mrs. Hayes operates a laundry business, serving the ever-growing community at the damsite. Mr. Hayes and son work, the latter being a sweeper in the employ of Lynch Bros.

* * *

Ferd Wagner of Walla Walla, opened the first barber shop here. The portable shop is built on a trailer and is now located just above the Rumsey camp, opposite the old log cabin. Mrs. Ferd, too, has her laundry. He is doing well and expects to bring his family here as soon as the school term is out next spring.

* * *

On the top of the bench beyond Rumsey & Company's camp, and overlooking the damsite proper, is a large structure with the mammoth sign, "New Deal," on the end. The proprietors, Steve T. Dalton and Louis Crillo, have a well equipped amusement parlor, offering draught beer, fountain service, drugs, magazines and groceries. Mr. Crillo was formerly in the show business in Seattle. Mr. Dalton also comes from Seattle. Mrs. Crillo, who assists in operating the New Deal, also furnishes an expert stenographic service. This firm enjoys a liberal patronage.

* * *

McCaslin's Camp accommodates the men employed by Lynch Bros., core drilling contractors, in four large bunkhouses located near The New Deal. One of these rooms has a space partitioned off and equipped with a water heater and shower baths. Mrs. McCaslin is kept very busy with her part of the enterprise, operating a dining room which occupies the greater part of the huge building that houses The New Deal. About sixty-five workmen are served each meal, besides numerous transients and tourists. The roomy kitchen must put out six he-man meals every day. Near here a small cabin is provided for the use of two workers who core for the diamonds in the diamond-bits of the drills.

* * *

Lee Clayter, of Yakima, operates "Lee's Sanitary Barber Shop" in his own building near to the McCaslin dining room. He has been here about three weeks, Mrs. Clayter arrived last week.

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Twenty years ago, Sam J. Seaton, proprietor of Seaton's Grand Coulee Ferry at the damsite, had the vision to see the possibilities ahead, and located on the east side of the Columbia River. The dam and steel bridge will both be on his land, which runs nearly 1¾ miles north and south from the damsite. It is also reported that valuable deposits of sand and gravel, useable in construction of the dam, have been discovered on his lands. He operates a filling station at his home, near the east ferry landing a carpenter in the employ of Lynch Bros.

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St. Paul, November 3, 1933.

Mr. J. T. Derrig:

Anticipating receipt of questionnaire from the I. C. C. in connection with our application for permission to construct line at Coulee, Washington, will you kindly furnish replies to the following:

16. The general topography of the country through which the proposed new line of railroad will extend, indicating whether level, rolling, mountainous, cultivated, pasture, prairie, desert, rocky, timbered, or underlaid with minerals.

17. The approximate area of the territory to be served, an estimate of the population therein, and of the area, (1) in timber, (2) in pasture, and (3) under cultivation.

18. The kinds of industry carried on in the area to be served, such for example, as farming, dairying, grazing, coal mining, manufacturing, lumbering, etc., and the relative importance of each.

19. The main facts as to the age, growth and extent of such industries, their probable future growth and permanence and the reasons therefor

21. Whether the chief support of the proposed new line of railroad will come from the general community or from some particular industry or industries, located or to be located. In the latter case give facts concerning such particular industry or industries and the applicant's contractual or financial relation thereto.

33. The particular mining, timbering, manufacturing or other enterprises to be established contingent on the construction of the proposed new line of railroad and applicant's contractual or financial relation thereto. The tonnage or number of cars of freight expected from such enterprise.

Also, please furnish estimate based on completed survey to construct the line.

H. Burns.
Valuation Engineer.

8731

(Copied from) DAILY CONSTRUCTION NEWS SERVICE
MARCH 4 1931
SUPPLEMENTARY ISSUE

HOOVER DAM, POWER HOUSE AND TUNNELS - BOULDER CANYON PROJECT
IRRIGATION AND POWER DEVELOPMENT

3-4-31(HOOVER DAM,POWERHOUSE, AND TUNNELS-GOVT-NEVADA)
DENVER,COLORADO(UNIT AND TOTAL BIDS SUBMITTED,TAKEN UNDER ADVISEMENT)

The Six Companies,Inc.,consisting of Utah Construction Co.,Phelan Bdg.,San Francisco & Ogden, Utah; Bechtel-Kaiser Co.,Inc.,155 Sansome St.,San Francisco: MacDonald & Kahn,Financial Center Bdg.,San Francisco; Morrison-Knudsen Co.,Boise,Idaho; J F Shea Co.,Henry Bdg.,Portland,Ore: and Pacific Bridge Co.,East Water & Salmon St.,Portland,Oregon,who bid $48,890,995 submitted the low bid to the U.S.Bureau of Reclamation,Denver,Colorado for the construction of the Hoover Dam,Tunnels and Power House, in connection with the Boulder Canyon Project,Nevada-Arizona-California. The officers of the Six Companies are as follows ; W.H.Wattis, President: W.A.Bechtel, First Vice-President; E.O.Wattis,Second Vice-President; Felix Kahn,Treasurer; and Chas.A.Shea, Secretary. Bids received from the following concerns:

(1)The Six Companies,Inc.,San Francisco(Low bidder) $48,890,995.
(2)The Arundel Corp.,Baltimore,Maryland $53,893,878.
(3)Woods Bros.Corporation,Lincoln,Nebraska $58,653,107.

		(1)	(2)	(3)
	EXCAVATION			
150,000	cu.yd.stripping canyon walls of loose rock,all classes	4.50	3.00	3.50
59,000	cu.yd.in open cut for diversion tunnels,common	4.00	3.50	3.50
344,000	cy.yd.in open cut for diversion tunnels,rock	4.50	3.50	3.25
1,563,000	cu.yd.in diversion tunnels all classes	8.50	8.50	8.00
500	cu.yd.in open trench for conc.cut-off&upstr.cofferdam,common	3.75	2.11	20.00
125	cu.yd.in open trench for onc.cut-off&upstr.cofferdam,rock	10.00	5.82	25.00
230,000	cu.yd.removal of earth fill in downstream cofferdam	.25	1.20	1.25
191,000	cu.yd.removal of rock fill in downstream cofferdam & rock barrier	.50	1.66	1.70
857,000	cu.yd.for foundation of dam,powerhouse&cofferdams,common	2.20	1.26	2.50
400,000	cu.yd.for foundation of dam,rock	4.40	3.40	4.00
35,000	cu.yd.for upstream cutoff trench for foundation of dam, all classes	12.00	4.79	5.00
1,012,000	cu.yd.for spillways in open cut,all classes	2.60	2.30	3.00
144,000	cu.yd.in incline spillway tunnels,all classes	8.20	8.50	10.00
255,000	cu.yd.for canyon wall valve houses,all classes	2.20	3.00	2.00
300,000	cu.yd.for intake towers,all classes	2.20	3.00	3.00
29.000	cu.yd.in shafts for outlet works&connect.galleries,all classes	8.00	8.50	10.00
176,000	cu.yd.in 30-ft penstock tunnels,outlet tunnels and power penstocks,all classes	8.00	8.50	8.00
122,000	cuyyd.for power house,rock	2.20	3.25	4.00
16,500	cu.yd.for switching station,all classes	1.75	2.11	2.00
40,000	cu.yd.for incline freight elevator structures,all classes	3.00	3.00	4.00
3,700	cu.yd.for highway,common	.50	2.39	2.00
109,000	cu.yd.for highway,rock	2.00	2.39	2.00
1,000	cu.yd.for highway structures,all classes	3.75	2.68	3.00

Common 920 200 cu yds
Rock 1166 125 "
all Classes 3951 500 "
Total Etc 6,037,825 cu yds.

HOOVER DAM, POWER HOUSE AND TUNNELS, CONTINUED — SHEET NO. TWO

		(1)	(2)	(3)
	BACKFILL			
1,300	cu.yd. for power house	2.00	.74	2.50
4,400	cu.yd. for switching station	1.00	.37	1.00
35,000	cu.yd. on roofs	1.00	1.71	2.50
	ROCK FILL			
151,000	cu.yd. in upstream cofferdam	1.00	1.19	2.00
63,000	cu.yd. in downstream cofferdam	1.00	1.64	2.00
84,000	cu.yd. rock protection in river channel&elsewhere	.75	1.34	2.00
13,000	cu.yd. rock blanket on upstream cofferdam	2.00	2.60	2.50
127,000	cu.yd. rock barrier below downstream cofferdam	1.35	.37	1.50
	EARTH FILL			
568,000	cu.yd. in upstream cofferdam	1.00	.98	2.00
230,000	cu.yd. in downstream cofferdam	1.00	.98	2.00
7,500	cu.yd. rubble masonry walls	12.00	7.40	9.00
	DRILL GROUT HOLES			
232,000	lin.ft. in tunnels, adits and shafts	1.00	.70	2.00
6,500	lin.ft. in foundations for dam and spillw. crest, not more than 50-ft. deep	3.00	2.20	3.00
25,000	lin.ft. in found. for dam&spillway crest, 50-100 ft. deep	4.00	2.75	3.00
17,000	lin.ft. in found. for dam&spillway crest, 100-150 ft. deep	4.00	3.30	3.00
23,500	lin.ft. for anchor bars&grouting bars in place	1.00	.55	2.00
	DRILL DRAINAGE HOLES			
5,600	lin.ft. in found. for dam, not more than 50-ft. deep	3.00	2.20	4.00
28,000	lin.ft. in found. for dam, 50-100 ft. deep	4.00	2.40	4.00
500	lin.ft. in found. for dam, 100-150 ft. deep	6.00	3.30	4.00
	PRESSURE GROUTING			
376,000	cu.ft. in tunnels, adits and shafts	1.00	.45	2.00
12,000	cu.ft. in found. for dam&spillway crest	1.00	.45	2.00
34,000	cu.ft. contraction joints in dam	1.00	.80	2.00
38,400	lin.ft. furnish&place porous conc. drain tile in dam	2.00	2.20	2.50
10,000	sq.ft. placing tile roofs	.25	.11	.30
120,000	sq.ft. placing asphalt saturated roofing&flashing	.15	.06	.08
	CONCRETE			
5,600	cu.yd. in inlet structures for inner diversion tunnels	20.00	20.40	15.00
13,400	cu.yd. in inlet structures for outer diver. tunnels&bulk. gates	$20.	6.59	10.00
5,800	cu.yd. in outlet structures for diversion tunnels	20.00	10.28	11.00
312,000	cu.yd. in lining of diversion tunnels	11.00	8.00	15.00
3,500	cu.yd. in paving for upstream cofferdam	10.00	8.13	7.00
3,400,000	cu.yd. in dam	2.70	4.15	3.40
6,600	cu.yd. in parapets	5.00	27.00	16.00
51,000	cu.yd. in spillway structures	10.00	12.84	11.00
29,000	cu.yd. in lining of incline spillway tunnels	10.00	15.20	15.50
121,000	cu.yd. in diversion tunnel plugs	4.00	8.00	5.00
26,000	cu.yd. in lining of outlet&30ft. penstock tunnels	10.00	10.00	12.00
10,200	cu.yd. in lining of shafts for outlet wks&connect. galleries	10.00	10.00	11.00
51,000	cu.yd. in canyon wall outlet works	6.00	8.59	10.00
108,000	cu.yd. in intake towers, foundation&superstructures	6.00	8.34	10.50
1,000	cu.yd. in bridges to intake towers	20.00	38.60	19.00
28,000	cu.yd. in power house above generator floor	10.00	15.00	15.00
115,000	cu.yd. in power house below generator floor&penstocks	6.50	8.49	8.00
600	cu.yd. in switching station & steel tower footings	12.00	9.26	17.00
4,800	cu.yd. in incline freight elevator structures	10.00	9.04	12.00
900	cu.yd. in highway structures	20.00	25.75	17.00
	GUNITING AND FINISHING			
50,000	sq.yd. gunite surface on concrete, 1-in. thick	.75	1.64	2.50
250,000	sq.ft. special finishing of walls, powerhouse, parapets and other concrete surfaces	.754	.104	.08
50,000	sq.yd. placing 3/4" finish on concrete floors	.50	1.26	.55
4,000	sq.yd. thin walls of metal lath and plaster	1.00	4.75	4.00

-CONTINUED ON THE NEXT PAGE-

		(1)	(2)	(3)
	STEEL WORK			
35,000,000 lb	reinf. bars and rails, placing	.0075	.022	.02
168,000 lb.	placing anchor bars in rock	.02	.02	.12
6,600,000 lb.	install stand. steel&cast iron pipe, fittings&valves	.025	.042	.08
51,700 lb.	install control piping for high-pressure gates	.05	.065	.17
10,000 lb.	laying metal pipe for highway drains and culverts	.10	.05	.03
9,570,000 lb.	install conduit lining castings	.01	.012	.035
6,435,000 lb.	install plate steel conduit lining for outl. works	.01	.013	.025
13,915,000 lb.	install plate steel cond. lining for power penst.	.01	.0165	.025
17,875,000 lb.	install structural steel, except bridges to towers	.01	.013	.02
577,500 lb.	install structural steel in bridges to intake towers	.025	.013	.025
2,340,800 lb.	install trash rack metal work	.01	.0165	.02
704,000 lb.	driving steel sheet piling for upstream cofferdam	.05	.04	.025
413,000 lb.	install track rails	.01	.013	.02
330,000 lb.	install metalwork in incline fr. elevator guide struct.	.01	.02	.025
132,000 lb.	install metal floor plates	.01	.02	.02
303,000 lb.	install metal stairways	.01	.04	.035
3,170,000 lb.	furnish&erect steel ribs, steel liner plates, in tunnels, adits and shafts	.075	.12	.20
2,600,000 lb.	install 50x50ft. Stoney gates and hoists	.02	.021	.025
10,340,000 lb.	install high pressure hydraulically operated gates	.01	.014	.03
4,620,000 lb.	install cylinder gates&hoists in intake towers	.01	.016	.03
4,070,000 lb.	install needle valves	.01	.014	.025
295,000 lb.	install traveling cranes	.01	.02	.018
Furnish, install, operate cooling plant		$360,000	$400,000	
		$300,000		
	ELECTRICAL EQUIPMENT			
20,000 lin. ft.	install electr. cable for thermometer embed. in concr.	.08	.26	.05
75,000 lin. ft.	install elect. metal conduit, not larger than 1-in.	.10	.13	.15
60,000 lin. ft.	install elect. metal conduit, 1-2½-in.	.13	.20	.35
2,000 lin. ft.	install elect. metal conduit, 2½-4-in.	.18	.80	.60
500 lin. ft.	install elect. metal conduit, 4-6-in.	.25	1.30	1.00
2,000 lin. ft.	install fibre conduit	.13	.26	.20
	MISCELLANEOUS			
75,000 sq. ft.	install metal sash windows and partitions	.18	.30	.25
120,000 lb.	install metal sash window operators	.10	.13	.08
3,200 sq. ft.	install metal swing doors	.35	.70	.70
500 sq. ft.	install metal rolling doors	.35	.65	.70
800 sq. ft.	install wooden doors	.20	.65	.50
2,000 sq. yd.	placing hollow clay tile, walls & ceilings	2.00	2.50	1.75
250 sq. yd.	placing ceramic tile walls and floors	4.00	1.70	6.00
10,000 lb.	install fixtures for plumbing&hardware	.20	.30	.20
10,000 lb.	install steel partitions	.12	.07	.15
33,000 lb.	install sheet metal work	.20	.20	.25
150,000 lin. ft.	placing copper expan. strips&contraction joints	.25	.30	.15
231,000 lb.	install miscellaneous items of metal work	.10	.05	.10
	HANDLE FREIGHT			
60,000 cwt.	transport freight on the construction railroad for the Govt. or its agents other than the contractor in less than car-load lots between delivery yard&end of construction railroad	.10	.10	.12
1,000 cars	transport freight on the const. railroad for Govt. or agents, other than contractor in car lots from deliv. yard to const. RR	$25	$10	$20
60,000 cwt.	unload freight for Govt. or agents other than contractor at end of constr. railroad&place in Govt. Warehouse	.25	.13	.25
60,000 cwt.	transport freight for Govt. or its agents, other than contractor from end of Const. RR, in less than car lots or between Govt. Warehouse in any amount and power-house	.50	.13	.40
600 cars	tranport freight for Govt. or its agents other than contractor, between end of const. RR&power house in car lots	$50	$60	$300

BIDS HAVE BEEN REFERRED TO WASHINGTON, D.C. FOR THE AWARD OF CONTRACT

Excavation Hoover Dam

Common	920,200	
Rock	1,166,125	
All Classes (not Concrete)	3,951,500	Total Exc. 6037825
Backfill	40,700	
Rockfill	438,000	
Earthfill	805,500	
total		

NORTHERN PACIFIC RAILWAY CO
IDAHO DIVISION WASH CENTRAL BR

EST COST OF PROPOSED GRAND COULEE DAM TRACKAGE - LOW LINE - ODAIR JCT TO DAM SITE INCLUDING 3 ADDL YARD TRACKS AT ODAIR JCT - 1 PASSING TRACK AT MP 15 AND 4 YARD TRACKS AT DAM SITE AS PER PROFILE (#5) DATED OCT 2 1933 AND SKETCH DATED OCT 24 1933

STATE OF WASHINGTON VAL SEC # 12

MAIN TRACK	28.5 MI
OTHER TRACKS	4.0
Total	32.5 Mi

	LABOR	MATERIAL	TOTALS
ACCT # 1 ENGINEERING 5% of $781,110			39056
ACCT # 2 LAND			
370 Acres of R/W (incl Severance etc)			50000
ACCT # 3 GRADING			
Sage brush clearing 155 Ac @ $50	7750		
Exc. Comm.(Yd trks etd) 80000 cy @ 25¢	20000		
Exc. Comm. 335650 cy @ 25¢	83913		
Exc. Hard pan 16850 cy @ 55¢	9268		
Exc. Loose rock 29100 cy @ 65¢	18915		
Exd. Solid rock 51000 cy @ 1.15	58650		
Overhaul (Class A) 900,000 @ 0.015	13500		
do on yd trks 100,000 @ 0.015	1500		
Riprap - hand placed 1040 @ 2.50/2	2600	2080	
Transportation of men & supplies (10%)	21590		
	237486	2080	239,566
ACCT # 6 BRIDGES, TRESTLES & CULVERTS			
6 pile and frame trestles (25 spans or 369 LFt)			
Piling 5000 LFt @ .35/.25	1750	1250	
Stringers 35000 FBM @ 20/20	700	700	
Other timber 20000 FBM @ 20/20	400	400	
Iron 4000 lbs @ 7¢		280	
Galv iron 3500 lbs @ 7¢		245	
Exc for end bents etc 150 cy @ 75¢	112		
Haul on piling 72100 LFt Mi @ 0.015	1082		
Haul on timber 686,000 MFBM Mi @ 75¢	515		
24" corr pipe 48 LFt @ 1/2	48	96	
36" corr pipe 1912 LFt @ 1.25/2.50	2390	4780	
48" corr pipe 1488 LFt @ 1.50/5.00	2232	7440	
Haul on pipe 4000 T Mi @ 80¢	3200		
Trans of men and supplies	680		
Frt on material		1500	
	13109	16691	29800
ACCT # 8 TIES			
Crossing ties untr 7x8x8 93600 pc @ 65¢		60840	
Sw ties untr 17 sets #9 50000 FBM @ 17		850	
Br ties untr 20000 FBM @ 17		550	
Frt on material		13000	75240
ACCT # 9 RAIL			
100# 3rd (10 mi) 105600 LFt 1571.429 T @ 20		31430	
90# 3rd (22.5 Mi) 237600 LFt 3182.17 T @ 20		63643	
Frt on rail from St Paul		53235	148308

ACCT # 10 OTHER TRACK MATERIAL

Angle bars 100# SH 3300 pr @ 1.93		6369	
do 90# SH 7500 pr @ 1.40		10500	
Offset angle bars 90/100 20 pr @ 6.50		130	
Trk bolts 13240 pc 100# @ 9.7¢		1284	
do 30040 pc 90# @ .09		2704	
Nut locks 13240 pc 100# @ 3¢		397	
do 30040 pc 90# @ 3¢		901	
Track spikes 1300 kegs @ 5.78 ea		7514	
Tie plates for 90# 134,500 pc SH 90# 6x8½ @ 10¢		13450	
Split sw 90# 16.5 pts 17 @126.00		2142	
#9 "R" 90# frog 13.6 lg 17 @ 94		1598	
90# G R 8.3 lg 17 @ 46		782	
Sw Std to Conn rod "H" 17 @ 23		391	
Sw lamp & lock 5 @ 10		50	
GR on Br 3000 LFt 56# - 25 T @ 20		500	
Angle bars 100 pr SH @ 78¢		78	
Bolts 400 pc 56# @ 4¢		16	
Frt on Material from St Paul		19000	67806

ACCT # 11 BALLAST

32.5 Mi @ 1000 cy pit run - 32500 @ 35¢	11375		
Trans men and supplies	3000		
Rent of equipment	4000		
Work train	2000	2000	
	20375	2000	22375

ACCT # 12 TRACKLAYING & SURFACING

Tracklaying & surfacing 32.5 Mi @ 800	26000		
Placing turnouts 17 @ 125	2125		
Placing br ties 20000 FBM @ 20	400		
Placing tie plates 134500 pc @ 3¢	4035		
Placing ballast 50000 cy @ 45¢	22500		
Handling rail 4753 T @ 50¢	2377		
Place inner GR on Br 0.6 Mi @ 700	420		
Trans men and supplies	15000		
Rent of equipment	3000		
Work train	2000	2000	
	77857	2000	79857

ACCT # 13 RIGHT OF WAY FENCE

Stand stock fc 36 Mi @ 165/135	5940	4860	
Sheep tight fc 20 Mi 200/300	4000	6000	
16' gates 20 @ 3/5	60	100	
Trans men and supplies	300		
Frt		2600 T	
	10300	13560	23860

ACCT # 15 CROSSINGS AND SIGNS

Exc comm 4000 cy @ 25¢	1000		
Exc hard pan 1000 cy @ 55¢	550		
Crossing Plank 20,000 FBM @ 10/18	200	360	
Iron 100 lbs @ 7¢		7	
24" corr pipe 480 LFt @ 1/2	480	960	
Crossing signs etc	200	400	
Haul on pipe 126 T Mi @ 80¢	101		
Crossing protection Sig etc acct State Highway #10 Mile 1	1500	1500	
Trans of men and supplies	400		
Frt		200	
	4431	3427	7858

ACCT # 16 STATION AND OFFICE BLDGS

1 Combination depot 20x48 @ 1800/1400	1800	1400	
1 Depot platform @ 200/200	200	200	

ACCT # 16 STATION & OFFICE BLDGS CONT

1 Furniture & fixtures @ 50/400	50	400	
1 Loading platform @ 400/400	400	400	
1 Depot privy @ 100/78	100	78	
1 Coal shed @ 100/80	100	80	
1 Driven well @ 100/100	100	100	
Trans men and supplies	275		
Frt		600	
	3025	3258	6283

ACCT # 17 ROADWAY BLDGS

1 Section house 22x36 @ 1400/1100	1400	1100	
1 Bunk ho 11x24 @ 250/200	250	200	
1 Tool house 10/12 @ 60/50	60	50	
1 Privy 6x7 @ 55/40	55	40	
1 Driven well @ 100/100	100	100	
1 Ice house 12x24 @ 250/200	250	200	
Trans of men and supplies	212		
Frt		200	
	2327	1890	4217

ACCT # 18 WATER STATIONS

1 Water station complete @ 4500/5500	4500	5500	
Trans of men and supplies	450		
Frt		550	
	4950	6050	11000

ACCT # 19 FUEL STATIONS

1 coaling platform 16x80 Plan #197 @ 400/300	400	300	
Trans of men and supplies	50		
Frt		50	
	450	350	800

ACCT # 26 TELEGRAPH & TEL LINES

30 Mi of pole structure @ 120/150	3600	4500	
30 Mi of wire structure @ 40/76	1200	2280	
30 Mi of tel equip @ 50ø/2	15	60	
Outfit car rental		225	
Work train service	300	300	
Frt		1000	
	5115	8365	13480

ACCT # 27 SIG & INTERLOCKERS

Train order signal @ 25/35	25	35	60

ACCT # 37 ROADWAY MACHINES

Section car 1 @ 300		300	
Push car 1 @ 75		75	
Frt		25	
		400	400

ACCT # 38 ROADWAY SMALL TOOLS

Section tools		200	200

CONTINGENCIES AND GENERAL EXPENSE

5% of $820,166	41008

ACCT # 76 INT DURING CONSTRUCTION

6% of $861,174 for 9 Mo	$38753

(FOR OUT OF POCKET COST SEE PAGE 4)

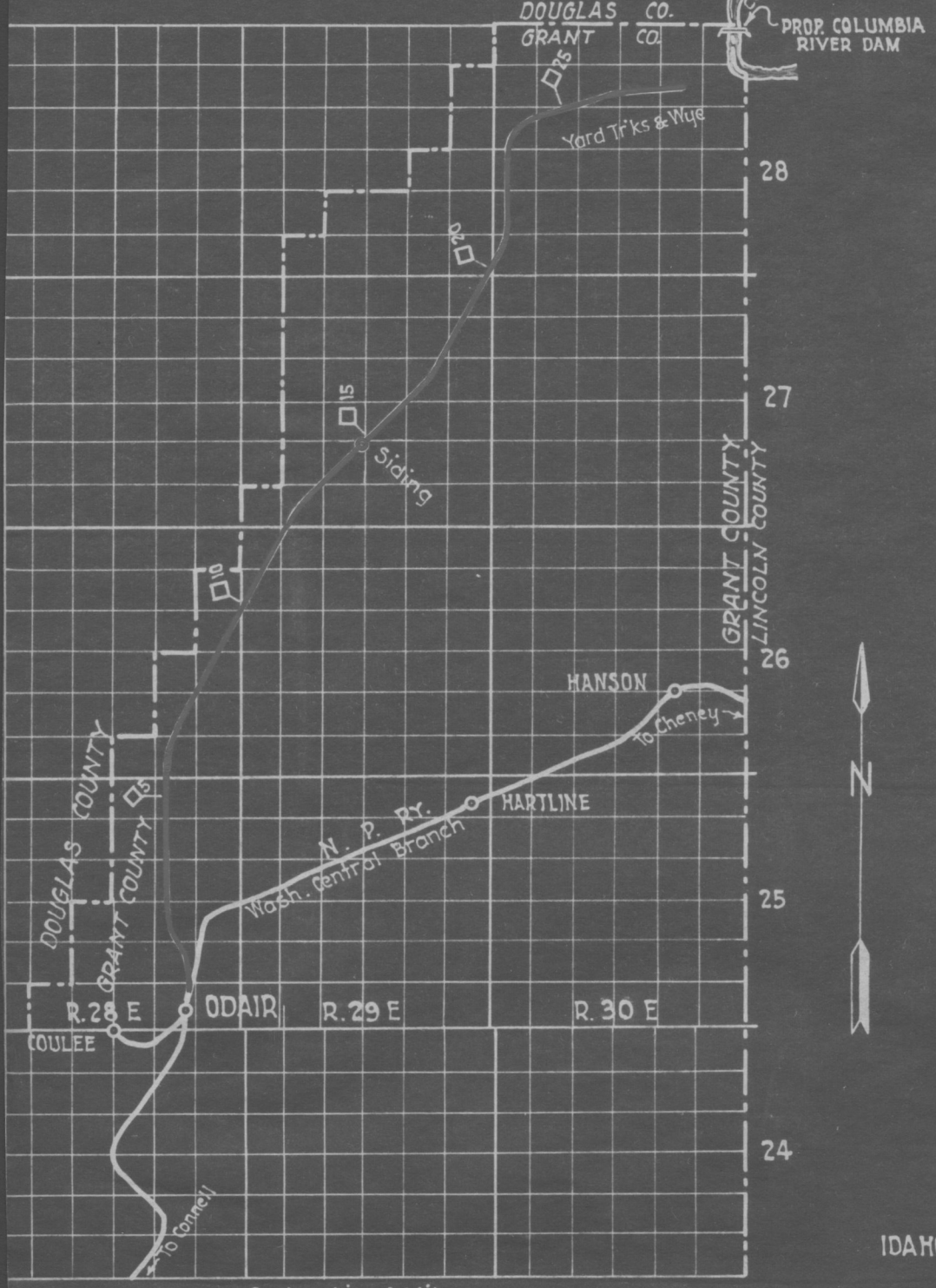
TOTAL COST $ 899,927.00

GRAND COULEE DAM TRACKAGE

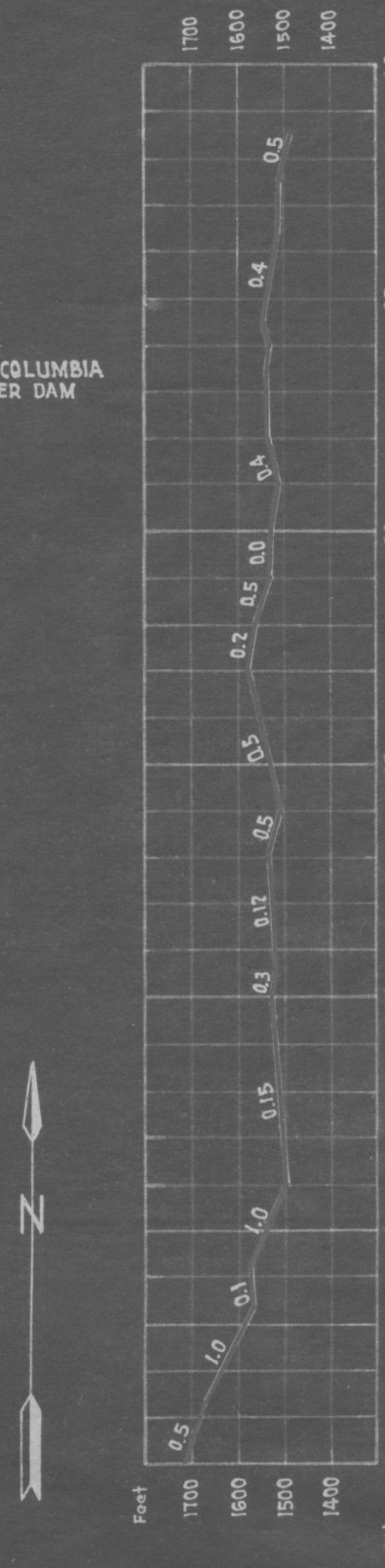
OUT OF POCKET COST

1	Engineering	39056
2	Land	50000
3	Grading	217976
6	Br Tr & Culverts	27620
8	Ties	62240
9	Rail	
10	Other track material	17909
11	Ballast	15375
12	Tracklaying & surfacing	61857
13	Right of way fence	20960
15	Crossings & signs	7258
16	Sta & Office bldgs	5408
17	Roadway Bldgs	3805
18	Water stations	10000
19	Fuel Stations	700
26	Tel & Tel lines	12255
27	Sig & interlockers	60
37	Roadway Mach	375
38	Roadway small tools	
	Contingencies & Gen Exp (3%)	24606
76	Int during const	
	Total Out of Pocket Expense	$577,460

Office of Chief Engineer
Oct 24 1933



Scale:- 1 in.= 4 Miles.



PROFILE

Scale:- HOR. 1 in.= 4 Mi.
VERT 1 in.=400 Ft.

NOTE:-

2 - 3000 ft. Yard Tracks at Odair
1 - 3000 ft. Siding " M.P. 15
4 - 3000 ft. Yard Tracks " End, incl. Wye

Main Track 28.5 Miles long.

N.P.RY.
IDAHO DIV. WASH. CENTRAL BR.
SKETCH SHOWING

PROPOSED TRACK
ODAIR TO GRAND COULEE DAM SITE
WASH.

Scale:- as shown
Office of Chief Engr., St. Paul. Oct. 24 1933

ESTIMATE "B"

NORTHERN PACIFIC RAILWAY COMPANY

IDAHO DIVISION — WASH CENTRAL BRANCH

STATE OF WASHINGTON — VAL SEC # 12

Estimated cost of proposed Grand Coulee Dam trackage low line Odair Jct to Dam Site, including 1 - siding at Odair, 2 yard tracks and Wye Track at Dam Site, as per profile (Low Line) dated Oct 2, 1933 and sketch dated Oct 24th 1933.

Main track	28.5 Mi
Other tracks	1.6 Mi
Total	30.1 Mi

	LABOR	MATERIAL	TOTALS
ACCT # 1 Engineering 5% of $665,051			33252
ACCT # 2 Land			
370 acres of R/W (Inc severance etc)			50000
ACCT #3 Grading			
Sage brush clearing 155 acres @ 50	7750		
Exc comm (yard tracks etc) 80,000 cy @ 25¢	20000		
Exc comm 335650 cy @ 25¢	83913		
Exc hard pan 16850 cy @ 55¢	9268		
Exc loose rock 29100 cy @ 65¢	18915		
Exc solid rock 51000 cy @ 1.15	58650		
Overhaul (Class A) 900,000 @ 1½¢	13500		
" on yard tracks 100,000 @ 1½¢	1500		
Riprap - hand placed 1040 cy @ 2.50/2	2600	2080	
Transportation of men and supplies 10%	21610		
	237706	2080	239,786
ACCT # 6 Bridges, Trestles & Culverts			
6 pile & frame trestles (25 spans or 369 ft)			
Piling 5000 LFt @ 35¢/25¢	1750	1250	
Stringers 35000 FBM @ 20/20	700	700	
Other timber 20,000 FBM 20/20	400	400	
Iron 4000# @ 7¢		280	
Gal iron 3500# @ 7¢		245	
Exc for end bents etc 150 cy @ 75¢	112		
Haul on piling 72100 LFT @ 1½¢	1082		
Haul on timber 686,000 FBM Miles @ 75¢	515		
24" cor pipe 48 LFt @ 1/2	48	96	
36" cor pipe 1912 LFt @ 1.25/2.50	2390	4780	
48" cor pipe 1488 LFt @ 1.50/5	2232	7440	
Haul on pipe 4000 ton miles @ 80¢	3200		
Trans of men and supplies	680		
Frt on material		500	
	13109	15691	28,800
ACCT # 8 Ties			
Cross ties unt 7x8 - 8 86400 pcs @ 65¢		56160	
Switch ties unt 9 set 27000 FBM @ 17		459	
Bridge ties unt 20,000 FBM @ 17		340	
Frt on material		5000	61,959
ACCT # 9 Rail			
90# 3rd Cl 30.1 Miles 317,856 LFt 4257 T @ 20		85140	
Frt on rail from St Paul		17350	102,490

ACCT # 10 Other track material

Angle bars 90# SH 9750 pr @ 1.40	13650	
Track bolts 90# 39000 pcs @ 9¢	3510	
Nut locks 90# 39000 pcs @ 3¢	870	
Track spikes 1110 kegs @ 5.78	6415	
Tie plates for curves 3½ miles 90# SH 20,160 pcs @ 10¢	2016	
Split switch complete 90# 10 @ 126	1260	
No 9 rigid frog 90# 10 @ 94	940	
90# guard rail 10 @ 46	460	
Switch stand & connecting rod 10 @ 23	230	
Switch lamps & locks 5 @ 10	50	
Guard rail on bridge 3000 LFt 25 T @ 20	500	
Angle bars 100 pr SH @ 78¢	78	
Bolts 400 pcs @ 4¢	16	
Frt on material for St Paul	2500	
		32495

ACCT # 11 Ballast

30 Miles @ 1000 cy - 30,000 cy @ 35¢	10500		
Trans men and supplies	3000		
Rental of equipment	4000		
Work train	2000	2000	
	19500	2000	21500

ACCT # 12 Tracklaying & surfacing

Tracklaying & surfacing 30.1 Mi @ 800	24080		
Placing turnout 10 @ 125	1250		
Placing bridge ties 20,000 FBM @ 20	400		
Placing tie plates 20,160 pcs @ 3¢	605		
Placing ballast 30,000 cy @ 45¢	13500		
Handling rail 4257 ton @ 50¢	2128		
Place inner guard rail 0.6 Mi @ 700	420		
Trans men and supplies	13800		
Rental of equipment	2800		
Work train	1800	1800	
	60783	1800	62583

ACCT # 13 Right of Way fence

Stand. stock fence 36 Mi @ 165/135	5940	4860	
Sheep tight fence 20 Mi @ 200/300	4000	6000	
16' gates 20 @ 3/5	60	100	
Transportation men and supplies	300		
Frt		900	
	10300	11860	22160

ACCT # 15 Crossings & Signs

Exc comm 4000 cy @ 25¢	1000		
Exc hard pan 1000 cy @ 55¢	550		
Crossing plank 20,000 FBM @ 10/18	200	360	
Iron 100# @ 7¢		7	
24" cor pipe 480 LFt @ 1/2	480	960	
Crossing signs etc	200	400	
Haul on pipe 126 T Mi @ 80¢	101		
Crossing protection Sig etc acct of state highway #10 at MP 1	1500	1500	
Transportation of men and supplies	400		
Frt		200	
	4431	3427	7858

ACCT # 16 Station & office bldgs

1 combination depot 20x48	1800	1400	
1 depot platform	200	200	
1 furniture & fixture	50	400	
1 loading platform	400	400	
1 depot privy	100	78	
1 coal shed	100	80	
1 driven well	100	100	
Transportation of men and supplies	275		
Frt		300	
	3025	2958	5983

ACCT # 17 Roadway buildings

1 section house 22x36	1400	1100	
1 bunk house 11x24	250	200	
1 tool house 10x12	60	50	
1 privy 6x7	55	40	
1 driven well	100	100	
1 ice house 12x24	250	200	
Trans of men and supplies	212		
Frt		200	
	2327	1890	4217

ACCT # 18 Water station

1 water station complete	4500	5500	
Trans of men and supplies	450		
Frt		550	
	4950	6050	11000

ACCT # 19 Fuel stations

1 coaling platform 16x80 Plan #197	400	300	
Trans of men and supplies	50		
Frt		50	
	450	350	800

ACCT # 26 Telegraph to Tel lines

30 Mi of pole structure @ 120/150	3600	4500	
30 Mi of wire structure @ 40/76	1200	2280	
30 Mi of tel equip @ 50¢/2	15	60	
Outfit car rental		225	
Work train service	300	300	
Frt		500	
	5115	7865	12980

ACCT # 27 Signal and interlockers

Train order signal	25	35	60

ACCT # 37 Roadway machines

Section motor car		300	
Push car		75	
Frt		25	400

ACCT # 38 Roadway small tool

Section tools		200	200

CONTINGENCIES & GENERAL EXPENSE

4% of 698303	27932

ACCT # 76 Int During construction

6% of 726235 for 9 months — 32680

Total cost — $ 759135

Office of Chief Engineer

Oct 31 1933

Note - Estimate predicated on using 90# 3rd Cl rail SH tie plates on curves only. 1 siding and at Odair, 2 yard tracks and wye at end. Untreated ties in all tracks. All Frt @ 2½ mills per TM.

Note of forest facility forms are used on this Estimate. Ref. Cost was for # 607.700

GRAND COULEE DAM TRACKAGE

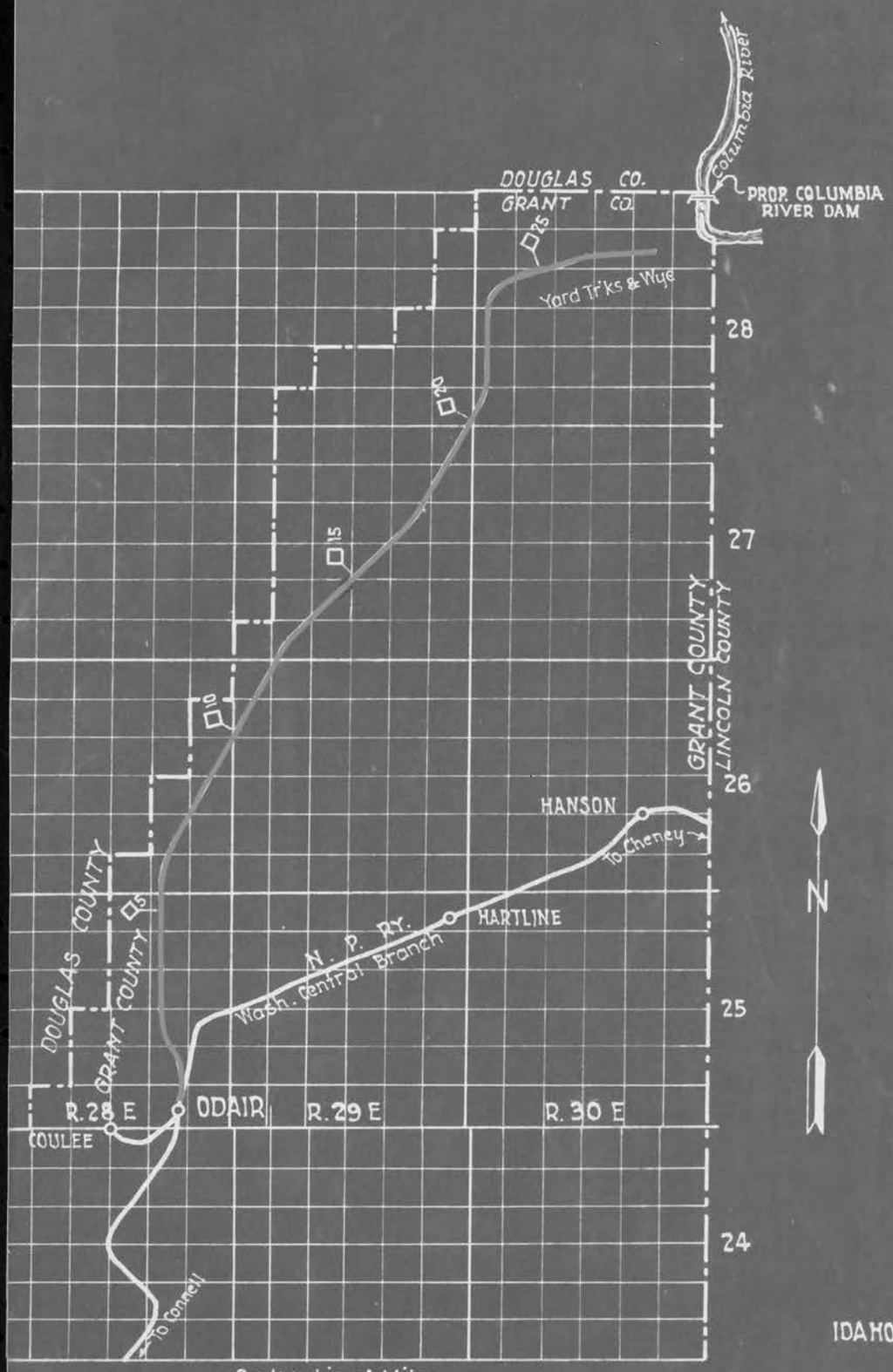
TOTAL TRACKAGE 30.1 MILES

OUT OF POCKET COST

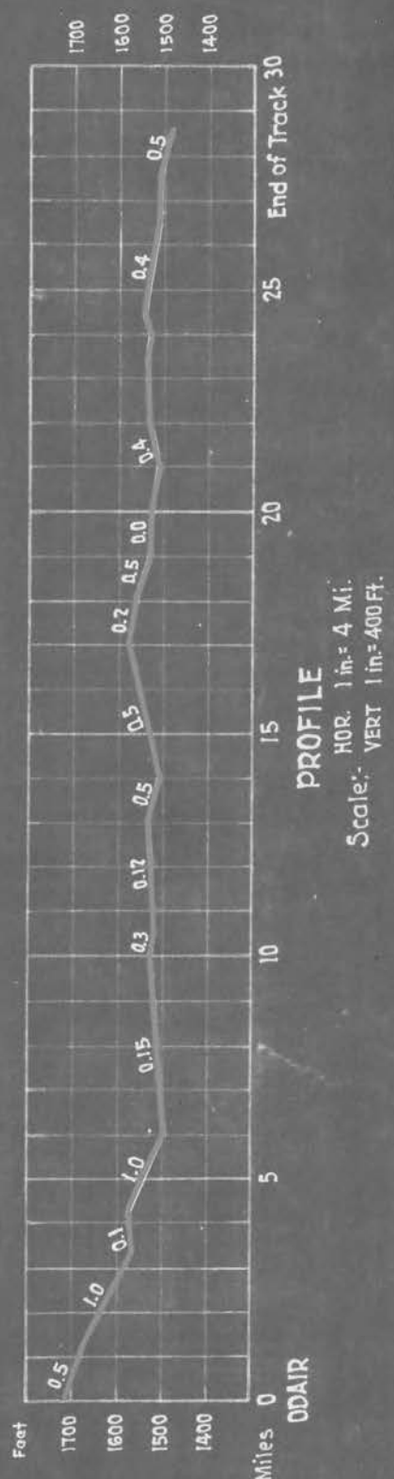
1 - Engineering	33252
2 - Land	50000
3 - Grading	218176
6 - Br Tr & Culverts	27620
8 - Ties	56959
9 - Rail	
10 - Other Track Material	13735
11 - Ballast	14500
12 - Tracklaying & surfacing	45983
13 - Right of way fence	20960
15 - Crossings & signs	7258
16 - Station & Office Bldgs	5408
17 - Roadway Bldgs	3805
18 - Water stations	10000
19 - Fuel stations	700
26 - Tel & Tel line	12255
27 - Sig & Interlockers	60
37 - Roadway machines	375
38 - Roadway small tool	
Contingencies & General Exp 3%	20949
76 - Interest during construction	
TOTAL OUT OF POCKET EXPENSE	$ 541995

Office of Chief Engineer

Oct 31 1933



Scale:- 1 in.= 4 Miles.



NOTE:-

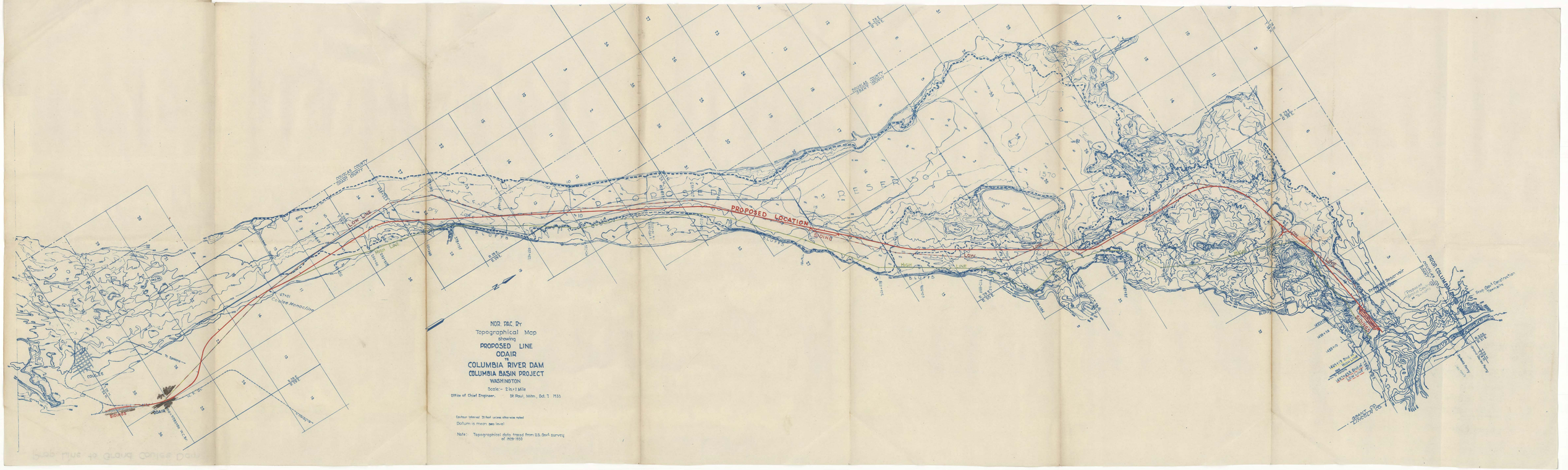
1 - 3000 ft. Siding at Odair
2 - 3000 ft. Yard Tracks " End
1 - 2500 ft. Wye " End

Main Track 28.5 Miles long.

N.P.RY.
IDAHO DIV. WASH. CENTRAL BR.
SKETCH SHOWING

PROPOSED TRACK
ODAIR TO GRAND COULEE DAM SITE
WASH.

Scale:- as shown
Office of Chief Engr., St. Paul. Oct. 24 1933



NOR. PAC. Ry

Topographical Map

showing

PROPOSED LINE

ODAIR

to

COLUMBIA RIVER DAM

COLUMBIA BASIN PROJECT

WASHINGTON

Scale — 2 In = 1 Mile

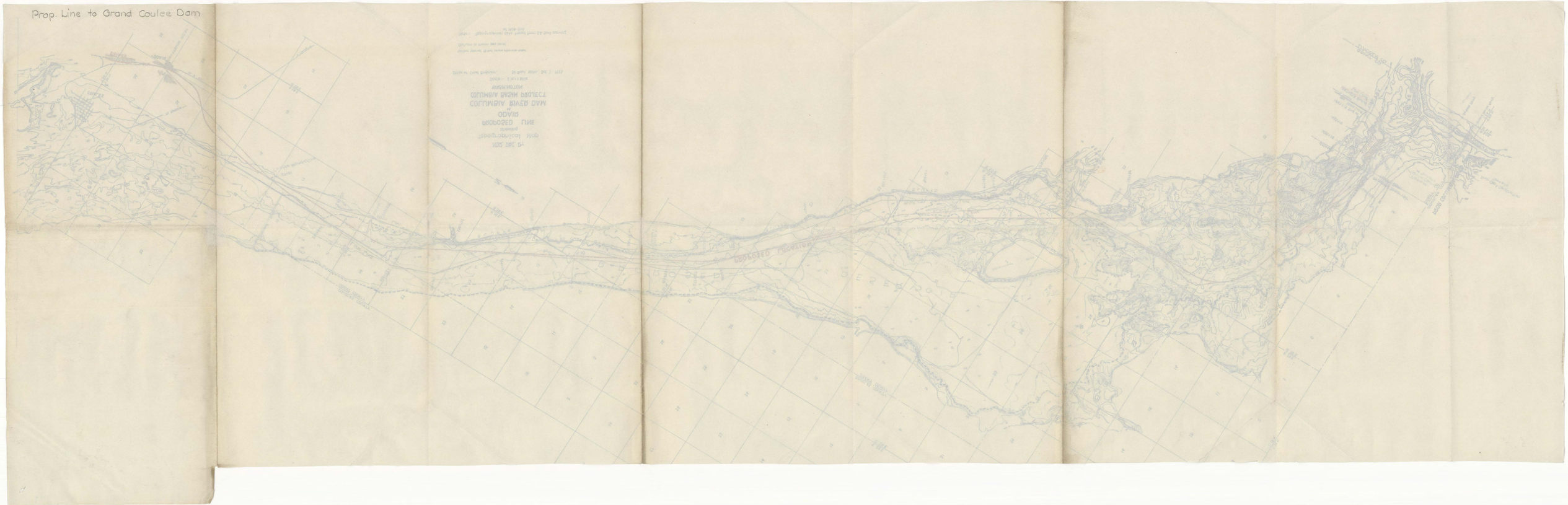
Office of Chief Engineer, St Paul, Minn., Oct. 7 1933

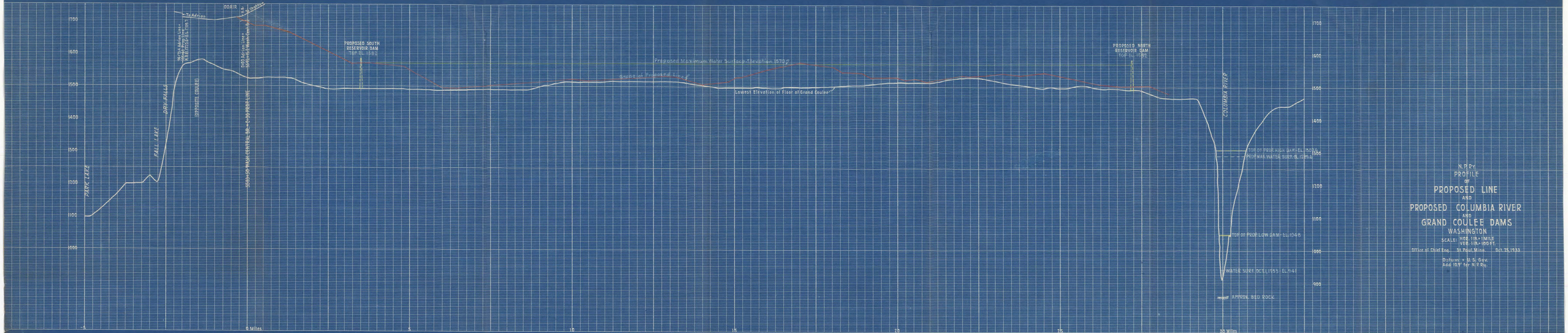
Contour Interval 25 feet unless otherwise noted

Datum is mean sea level

Note: Topographical data traced from U.S. Gov't surveys of 1929-1933

Prop. Line to Grand Coulee Dam





N.P.R.Y.

PROFILE

OF

PROPOSED LINE

AND

PROPOSED COLUMBIA RIVER

AND

GRAND COULEE DAMS

WASHINGTON

SCALE: HOR. 1 IN. = 1 MILE

VER. 1 IN. = 100 FT.

Office of Chief Eng. St. Paul, Minn. Oct. 25, 1933

Datum = U. S. Geo. Surv.

Add 18.9' for N.P.Ry.

8731

St. Paul, Minn., Oct. 31, 1933

Mr. D. F. Lyons:

In accordance with your verbal request I hand you herewith tracing of Exhibit to accompany application to the I.C.C. for proposed branch to the Coulee Dam, together with fourteen white prints of same, which with the white print already handed to you makes 15 copies.

REC:wp

enc

Chief Engineer

8731

October 30, 1933.

State Historical Society,

Olympia, Wash.

Gentlemen:

I am advised there was a publication by Sir David Douglas about the year 1825, covering report on the geology of the Grand Coulee Canyon in the state of Washington.

I will thank you to advise if you have such a book in your library at Olympia. If not, I would thank you to kindly advise if you know where copy of this book can be obtained and the approximate cost.

Yours truly,

Asst. to Chief Engineer.

JTD-y

8731

St. Paul, October 30, 1933

Mr. J. T. Derrig:

Will you please have figured up the estimated cost of the Grand Coulee Branch for main line only, excluding the 4½ miles of yard tracks. It will not be necessary to have it typewritten.

BB.h

St. Paul, Minn., Oct. 30, 1933

Mr. H. E. Stevens:

Your letter of October 3rd about proposed branch to the Coulee Dam:

In accordance with request in the last paragraph of your letter I hand you herewith valuation of the Connell Northern from connection with the Great Northern at Adrian to point on the Washington Central Branch where the Coulee Dam Branch leaves the main track.

The estimate is made up on the basis of quantities allowed in the basic engineering report to which is added A. & B. quantities, all priced at average five year period reproduction prices. The estimate totals $1,071,154 for about 20½ miles of track.

For your information, an estimate on the basis of ICC allowances plus A. & B. costs, which we may say is the best setup for original costs, the total would amount to $809,323. However, it seems to me we should start with the reproduction estimate.

For that portion of the Connell Northern that the Milwaukee would use, being a connection at West Warden south of Bassett Jct., the reproduction estimate is $2,251,172. Corresponding estimate for ICC allowances at the time of valuation plus A. & B. to date would be $1,650,004.

Two copies of each estimate are attached

For the Milwaukee, connection is shown at West Warden rather than Bassett Jct. as it is easier to make the connection there but it does involve the use of about six miles additional NP track.

BD:vp
enc

St. Paul, Minn., Oct. 30, 1933

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HH:vp
enc

Mr. Bernard Blum
Chief Engineer

10/30 8731

From Spokane Spokesman-Review
October 27, 1933
D.D. Blanchard
10/30/33

DILL IS HOME TO STUDY BASIN

Will Meet With Coulee Dam Board Monday.

Senator C. C. Dill returned last night from Boulder dam to meet here with the Columbia basin commission Monday to consider a tentative contract between the state and the federal government for the construction of the $63,000,000 Grand Coulee project. The entire financial plan for construction of the project has changed within the last few days, at least insofar as the public has been given any intimation.

The latest plan is to make the project a 100 per cent federal project instead of a state project. Senator Dill said his understanding is that a contract is proposed whereby the state will enter into a leasing arrangement with the government. He said he does not know just what the proposal is, but will go into it in detail today.

State Not Bound to Pay.

He said the state should have a direct interest in the project. The state will not be bound to pay for it, in any case, in his opinion.

Senator Dill suggested more than a month ago the possibility that it may not be necessary to have any kind of contract between the state and the federal government. The United States has full power to build the Grand Coulee project without any agreement with the state.

Commission's Powers Limited.

On the other hand, the powers of the Columbia basin commission are limited. The project probably could not proceed were it not for the powers given to the reclamation service by federal statutes, according to information obtained by The Spokesman-Review.

It was learned that the only reason for having any kind of contract between the federal and state government is to give the state the option to buy or lease the project. A contract containing such an option has been drawn. This draft is merely a framework for discussion. Its terms are reported to be vague.

State Wants Title.

The Columbia basin commission would like to find some way by which the state can obtain title to the project after it is built, and get the revenue from it. However, it is not clear to any one yet how this can be accomplished. There appears no way by which the state can be obligated to pay the government millions of dollars for the dam, except by vote of the people.

There is a proposal that the government, after building the dam, turn it over to the state and let the state pay for it out of power revenues. Under this plan there would be no federal lien against state tax revenues; but it does not appear what inducement can be offered to the federal government for handing the plant over to the state.

Government Wants Free Hand.

The Spokesman-Review announced October 25 that the public works administration was planning to eliminate the state from the control of the Grand Coulee project. The reclamation bureau wants a free hand in building the dam and power plant.

The government is building the Bonneville dam and power plant in the lower Columbia without any participation by Oregon or Washington. No guarantee of repayment of any part of the $31,000,000 to be expended has been asked.

SALES BEGUN AT TOWN SITE

Julius C. Johnson, Almira Banker, Offering Lots at "Franklin"—Lumber Yard In.

DRILLS TO CROSS RIVER

Lynch Brothers to Take Cores on East Side of Dam Site—Pits Seek Bedrock.

COULEE DAM SITE, Wash., Oct. 27.—Among the towns springing up like mushrooms near here must be numbered that of Julius C. Johnson, Almira banker, who has his real estate shingle up at "Franklin," three miles away, on the floor of Grand coulee.

Mr. Johnson has platted 40 acres in town lots, which he is selling at $70 to $100. Water for domestic purposes has been found at a shallow level and the promoter said that the reservoir to be established later under the reclamation plans will be just 100 yards from the "city limits." A lumber yard is going in on the plot.

Drills Dig Down.

At the dam site proper today, Field Engineer C. M. Cole said he was well satisfied with the showings of the core drillers and test pit contractors.

Lynch brothers, diamond drill contractors, Seattle, will move their equipment to the east bank of the Columbia river next week, said "Dusty" Rhodes, foreman.

Set-ups for two 800-foot 45-degree angle holes and one straight hole in the river will be the next operations.

The diamond drills have completed or are at work on nine holes of a total of 58 to be sunk. Hole No. 71 is the deepest to date, 798 feet, with bedrock reached at 129 feet on a 45 degree angle. That hole, near the shore line, is far below the bed of the river.

The field report, other than on that hole, today showed:

Figures on Holes.

Hole No.	Total depth.	Bedrock at
B5	170	104
B4 (45 degrees)	650	129
B6 (45 degrees)	629	89
60	165	118
57	210	*
50	165	81
19	258	191
B0	170	**

*Not complete.
**No bedrock yet.

All of the holes sunk so far are on the west side of the river. Surveys of the holes to determine whether they are adhering to the angle are accomplished through the hydro-fluoric acid method.

A small glass tube containing the fluid is lowered into the hole and left at a measured depth 25 minutes. By that time it has etched itself into the glass sufficiently to be read by the engineers. The precision of the drillers is shown by the fact that none of the holes has been off more than a degree or two.

Pits Seek Bedrock.

Test pit hole A, far up the side of the mountain above the road leading away from the dam, is down 205 feet with no bedrock, according to Rumsey Brothers, contractors.

Hole B is down 120 feet, with no bedrock, but it also is high up above the river on the west side.

Two holes have reached bedrock at shallow depths on the east side. A third hole, D, is being started.

Beer Licenses Needed.

Al Meyers and L. Corilla were visited by the Grant county commissioners today, the latter declaring that neither had a county license to sell beer.

Mr. Corilla, at the New Deal, took out a Douglas county license, only to learn from the commissioners that his building was on the line of both counties. Both men agreed to take out proper licenses at once.

Mr. Bernard Blum
Chief Engineer

8731 D 10/30

Editorial from Spokane Spokesman-Review
October 27, 1933
O R Blanchard
10/30/33.

Clinch It, Governor.

Allocation by the public works board of another million dollars for the Grand Coulee dam is cheering news for the Inland Empire. It indicates that the federal government stands ready to build the project, if the state of Washington wants it built that way. The Washington correspondent of The Spokesman-Review finds "a growing tendency in the public works board to change this from a state to a federal project. But the board is not yet ready to announce this change, and in fact it is allowing Washington state the authority to proceed, to see how far it can get with the plan of guaranteeing repayment of 70 per cent of the cost."

If that is the spirit of the federal authorities, Governor Martin and the state commission should welcome it and clinch it.

There are too many obstacles to state liability. Before it could be legally assumed and a contract drawn with the federal government, delays might put the enterprise in jeopardy. President Roosevelt does not want delays in spending that $3,300,000,000 fund under the public works administration. Speed is of the essence of that part of his recovery program.

It is to be considered, too, that under the plan of joint payment—70 per cent by the state, 30 by the United States—the 30 per cent donation by the federal government would be nominal. The federal government lays down the conditions under which labor would be employed, and they entail high wages and short work days, so that the 30 per cent would be absorbed in those high standards.

Another consideration (it should be controlling if there were no others) is that the federal government is building outright the Bonneville dam on the Columbia near Portland, and would market the power there, in direct competition with the power at Grand coulee. The building of both projects, with probable joint building of the Skagit project by Seattle and the federal government, will create a surplus of power for several years.

A state can not safely compete with the more powerful federal government in that difficult field.

Mr. Bernard Blum
Chief Engineer

10/30

8731

From Spokane Spokesman-Review
October 27, 1933

10/30/33

OKESMAN-REVIEW.

ING. OCTOBER 27, 1933. PRICE FIVE CENTS. * * SPOKANE, WASH.

NEW $1,000,000 FOR DAM TO GET PROMPT BIDS

Hope for Contract by December 1 to Excavate Site for Foundation.

By a Special Correspondent.

WASHINGTON, Oct. 26.—On the strength of the allocation today by the public works board of another $1,000,000 for the Grand Coulee dam project, for the excavation and removal of materials overlying the foundation of the dam, Reclamation Commissioner Mead will instruct Engineer F. A. Banks to call for bids for this open work excavation and to let the contract promptly.

Commissioner Mead recommended this allocation and this work, which can go forward during the winter, will afford jobs for several hundred men.

Use Men and Teams.

It is intended, as far as possible, that this excavation shall be by men and teams, rather than by heavy machinery, so as to give maximum employment.

Commissioner Mead said that the work of excavation is simple, and consists merely in removing debris and dirt that has been washed down over granite bedrock. By having this

ASK EARLY BIDS ON DAM PROJECT

(Continued from page one.)

settlement of the ownership problem. He does not anticipate any difficulty in reaching an agreement with landowners to allow use of their land pending final purchase.

The reclamation bureau now has $2,377,000 available for work this winter. Of this amount $377,000 is state money to be used for engineering, diamond drilling, test pit digging, appraising lands that must be purchased and for other general purposes.

Appraisers will be ready to report on dam site valuations this week. The appraisals must be approved by the Columbia basin commission and the secretary of interior.

Prospects are that the commission will be called together soon to consider the many new developments, including the tendency to federalize the project. Senator C. C. Dill is expected home Sunday. The commission will not meet until he returns.

work done during the winter, actual construction of the dam itself can be expedited several months.

Plans for the dam will not be completed until after the first of the year, and it will be January or February before bids can be invited on that major contract. It is estimated the foundation can be cleared before the contract can be let for the dam.

Change Seen Coming.

This second $1,000,000 allocation for the Grand coulee, for expenditure by the reclamation bureau, evidences a growing tendency in the public works board to change this from a state to a federal project. But the board is not yet ready to announce this change; in fact, it is allowing Washington state the authority to proceed to see how far it can get with the plan of guaranteeing repayment of 70 per cent of the cost.

There is strong reason to believe that before bids for the dam construction are invited the board will announce a change of policy, unless the state, in the meantime, is prepared to go ahead on the original 70-30 plan.

This second $1,000,000 allotment, like the first, will be spent under the direction of Engineer Banks and the reclamation bureau.

Of the first $1,000,000 allotted, about $450,000 will go to build the bridge. The remainder can be used for excavation, building of a camp site for the engineers, purchasing lands and doing any other work necessary.

U. S. WILL HASTEN CONTRACTS

Bids May Be Opened as Early as November 20.

Following receipt of the news from Washington about the allocation of $1,000,000 more for the Grand Coulee dam work, Frank A. Banks, federal engineer in charge of construction, said bids for the excavation work can be opened by November 20 and the contract let by December 1. The first contract will provide for 2,400,000 yards excavation. The total excavation for the 140-foot dam will be 10,000,000 cubic yards.

"The first contract can not employ more than 300 men," he said. "A large influx of workmen to the dam site will hamper the work."

Go to Wenatchee.

Mr. Banks will go to Wenatchee today to go over plans for the steel bridge that will be constructed north of the dam site. The plans have been completed by the state department of highways. Lacey Murrow, highway director, will meet Mr. Banks at Wenatchee.

The $1,000,000 allotted for excavation is enough to take out 2,400,000 cubic yards of earth and rock, provided heavy machinery is used, said James O'Sullivan, secretary of the Columbia basin commission. The plan of the bureau of reclamation is to take out 1,200,000 yards on either side of the river.

Mr. O'Sullivan interprets the Washington dispatch referring to use of men and teams as meaning that hand labor will be used to supplement the work of heavy machinery. He says that to do the whole job with hand labor and teams would greatly increase the cost and would delay the work.

Hand Work Too Slow.

It would be impossible, he believes, to put enough men and teams on the work to get the job done by spring.

He explained that it would take 40 or 50 10-yard trucks and several five-yard shovels, operating 24 hours a day, to get the job done within five or six months.

He estimated if heavy machinery is used, 300 men would be employed on the excavation job, in addition to 150 now employed at the dam site in diamond drilling and test pit digging.

More Men for Bridge.

Additional men will be employed putting in the abutments for the steel bridge that will cross the river north of the dam site.

Mr. O'Sullivan is hopeful that construction of a railroad to the dam site will also begin this winter and that money for construction of a power line from Coulee to the dam site may be allotted by the United States board of public works.

There is a possibility that 1000 men will be employed at the dam site and on the railroad and power line. However, there should be no rush of workmen to the dam site. There will be no advantage in being on the ground, Mr. O'Sullivan said. Contractors will be required to select employees from lists provided by the United States reemployment service.

The bureau of reclamation has plans and specifications for the excavation work drawn. Contracts can be let quickly for this sort of work.

The main bar to speedy progress is the ownership of dam site lands by private parties. Mr. O'Sullivan said the reclamation bureau can go ahead with advertising for bids in advance of

(Continued on page two, column three.)

Mr. Bernard Blum
Chief Engineer

From Spokane Spokesman Review
October 25, 1933

C.D. Blanchard
10/28/33.

OKESMAN-REVIEW.

MORNING. OCTOBER 25, 1933. PRICE FIVE CENTS. SPOKANE, WASH.

MIGHT MAKE GRAND COULEE WORK ALL FEDERAL

That Course Given Serious Thought by Public Works Administration.

By a Special Correspondent.

WASHINGTON, Oct. 24.—It is learned the public works administration is giving serious thought to making the Grand Coulee a purely federal project the same as reclamation projects, rather than requiring the state to go to the trouble and expense of collecting and repaying 70 per cent of the cost. Decision will depend largely on the showing made by the state.

At the time the president directed adoption of the Grand Coulee project, the public works board, which did not then favor the project, insisted it be built under the 70-30 plan, and maintained if it could pay for itself as claimed, the state should be willing to underwrite the investment.

New Face to Situation.

However, later adoption of the Bonneville project as a federal project, the fact that power from the two dams will compete, and the fact that the government is to advance the whole cost of Boulder dam and the all-American canal, made the board's


OFFICE OF
CHIEF ENGINEER
OCT
1933
LIBR. C.M.St.P. RY.
St. PAUL, MINN.

stand on the Grand Coulee inconsistent, especially since it acknowledged the Grand Coulee dam later had been enlarged to irrigate the vast Columbia basin area.

Decision on the policy is expected to be announced well in advance of the time when bids for construction can be advertised.

Allot Cash as Required.

In accord with the new policy announced today by the public works administration, past allocations for large public works, including the Grand Coulee dam, the Bonneville dam and the Casper-Alcova project all are to be pared down to the amount estimated to be required for expenditure between now and January 1, 1935.

Based on estimates furnished by Reclamation Commissioner Mead, the Grand Coulee allocation probably will be cut from $63,000,000 to $15,000,000 and the Casper-Alcova from $22,700,000 to $12,000,000.

The Bonneville estimate, which was already cut at the time of approval, may be further reduced if the war department revises its figures to what can be used during the ensuing 14 months.

Don't Want Money Idle.

In announcing slicing of big allocations on projects that require more than a year to complete, the public works administration made it plain such reductions do not indicate withdrawal of support of the project, but mean large amounts that can not be used before January 1, 1935, will not lie idle in the treasury, instead of being spread over other works that are ready.

This change of policy anticipates that congress next session will make another large appropriation for public works, for otherwise projects such as the Grand Coulee with reduced allocation would be carried one-third of the way toward completion and there is no other source from which sufficient funds could be derived to complete them and make them productive.

Saint Paul, October 28, 1933.

Mr. R. W. Clark:

Referring to your letter of Oct. 26th with reference to map showing possible rail connections to serve the proposed Grand Coulee Dam:

Tracing has been revised to show location of cement plant at Grotto on the Great Northern line, and two prints of revised tracing are attached for your information. I suggest that the map as now revised be checked to make certain that all such changes are correctly shown. If you have any additional data to place on the map will be glad to have any revisions made as you may suggest.

Chief Engineer.

JTD-w

8731

Saint Paul, October 27, 1933.

Mr. H. B. Stevens:

In compliance with your request of Oct. 22nd, I am attaching hereto three revised prints of condensed map showing possible development of rail service to the Coulee Dam.

Tracing has been corrected to show location of the dement plant on the Great Northern located at Grotto, and have also shown possible line from Great Northern leading from Brewster. Comparative distances of proposed lines are shown in table at lower right hand corner of map.

The proposed Northern Pacific low line yard elevation at the end of the line will be approximately 1480 ft., Government data. The yard of Great Northern line extending from Mansfield would be approximately the same elevation. It would be possible to raise the elevation of either yard approximately 30 ft. without materially increasing the cost.

Proposed development contemplates placing Northern Pacific yard at the head of the floor in Dry Canyon, which location is approximately 1½ miles from the dam site measured on the contour line. If the contractor constructed the railroad from this yard to the dam site he would have to increase the length of the line, predicated on the grade he would use for such track. If the Great Northern line was extended from

Brewster the distance would be approximately 55 miles, and while it would be possible for the Great Northern on this line to reach the dam site at the low elevation they would be confronted with the fact that traffic would have to be handled over a section of the River where a channel change is required, and from my discussion of this feature with Mr. Banks, I do not believe that the Government Engineers would look with favor on interference that might develop from a rail line on the opposite side of the river which in all probability would interfere with their development and construction work.

I am adding to the attached exhibit one print each of condensed profile on which is shown in light lines the ground line elevation of our proposed line Coulee to the dam site, elevation of proposed high and low dam, together with elevations of possible future dams to be used as a reservoir when, and if, irrigation development is carried out.

Chief Engineer.

JTD-W

Saint Paul, October 27, 1933.

Mr. H. E. Stevens:

In compliance with your request of Oct. 22nd, I am attaching hereto three revised prints of condensed map showing possible development of rail service to the Coulee Dam.

Tracing has been corrected to show location of the dement plant on the Great Northern located at Grotto, and have also shown possible line from Great Northern leading from Brewster. Comparative distances of proposed lines are shown in table at lower right hand corner of map.

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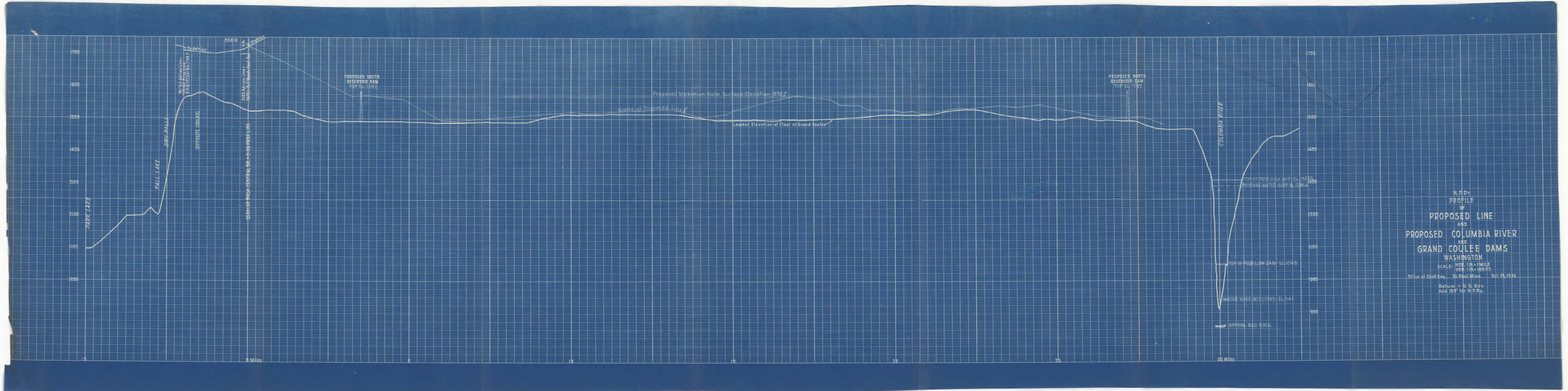
H. Bleam

Chief Engineer.

JTD-w

Corrected print attached

J.T.D. 10/27



N.P.R'Y.
PROFILE
OF
PROPOSED LINE
AND
PROPOSED COLUMBIA RIVER
AND
GRAND COULEE DAMS
WASHINGTON

SCALE: HOR. 1 IN. = 1 MILE
VER. 1 IN. = 100 FT

Office of Chief Eng. St. Paul, Minn. Oct. 25, 1933

Datum = U.S. Gov.
Add 10 ft. for N.P.R'y.

note - how much for the 4½ mi of yd tracks
How much per mile for M/C excl of yd Tracks.

Saint Paul, October 26, 1933.

Mr. BernardBlum:

I am attaching hereto three prints of R.F.A. sketch together with three prints of detailed estimate covering the construction of proposed railroad from Odair to Grand Coulee Dam showing a total cost of approximately $900,000 of which $577,500 is out of pocket expense. The out of pocket expense is detailed on sheet 4 of attached estimate.

This estimate covers the construction of what is known as the low line. There will be approximately 2½ miles on one percent grade with traffic between MP 1 and 3½, and the balance of the line will have an approximate five tenths percent grade. The estimate provides two 3,000 ft. tracks at Odair, one 3000 ft. siding near MP 15, and four 3000 ft. yard tracks at the end. It is possible the contractor might want more trackage at the end, but I believe the total yard trackage will be sufficient to take care of the business at the end of the track. The estimate provides for trackage extending to the top of the floor at MP 28½ as it is contemplated the contractor will wish to use his own trackage from this yard layout to the site of the dam over a distance of approximately 1½ miles. I am forwarding three prints of map scale two inches equal one mile

Mr. Blum - #2

(traced from government map) and also three prints of profile showing the railroad elevation floor line to the canyon, elevation of the ground line along the proposed location and elevation of the high and low dam. I did not show the elevation of the dam on the A.F.E. sketch as I believe this would be somewhat confusing. I will have estimate for the combined high and low line completed within the next couple of days. The attached estimate and sketch can be used for the A.F.E. when and if you approve.

J. T. Dewing

Asst. to Chief Engineer.

JTD-w

enc

St. Paul, Minnesota
October 26, 1933

8731

Mr Bernard Blum,
Chief Engineer,
Northern Pacific Ry.
St. Paul, Minnesota,

Dear sir:

A letter from my wife, which I received from Coulee this morning, advises me that she learned, from one of the family of a member of the Columbia Basin Commission, that Senator Dill was much displeased with Washington's lack of action on the Columbia River Dam project, and that it was the Commission's intention to bring the matter up at the coming session of the state legislature, in an effort to start work on the dam this winter.

I am enclosing some clippings from the Spokane papers.

Yours very truly

J. T. D.

O. B. Blanchard

note B.B. 10/27

10/28

Mr Bernard Blum
Chief Engineer

From Spokane- Spokesman-Review
October 22, 1933

D D Blanchard
10/26/33

Sample of Granite Underlying Dam Site

Fred. K. Jones. Frank A. Banks.

This photo was taken Wednesday at Grand Coulee dam site, when a group of Spokane business men visited it under the auspices of the Chamber of Commerce. Mr. Jones, president of the chamber, and Mr. Banks, federal engineer in charge of Grand Coulee dam construction, are holding a five-foot piece of granite ore brought up by one of the diamond drills testing the dam foundations.

This piece came from several hundred feet beneath the surface. It is pure, fine grained and unusually hard granite.

Mr. Banks has stated that the dam site foundation material is the best he has seen anywhere.

TEST PITS SINK TO DAM BEDROCK

Rumsey & Co. Use Enough Lumber in One to Build Two Six-Room Houses.

"NEW DEAL" IS CENTER

Has News Stand, Drug Accessories, Barber Shop—Idle Men Warned "Work Is Not."

COULEE DAM SITE, Oct. 21.—Enough lumber to build two six-room houses is required to line one of the deeper test pits being dug here by Rumsey & Co., who have the contract for the preliminary engineering work for the Coulee dam.

The pits are 6x6 feet and the "A" pit, some distance above the road, is down 146 feet. It probably will be continued to a depth of 200 feet before bedrock is reached. Thirty thousand feet of 4x6 studding and 2x12 lagging will be required for the role. The lumber alone costs $630.

The pits are sunk in an effort to determine the quality of the sand and rock, whether any of it can be used in construction of the dam, and the quantity of it that will have to be removed.

In one of the holes, below the "A" pit and nearer the river, 15,000 gallons of water are being pumped out daily.

One can think of more pleasant things than going down into one of these holes in a bucket and then being asked to climb up again on vertical ladders reaching to the top.

Two Holes "Shallow."

Bedrock was found at lesser depths on the east, or Okanogan side of the river, where one hole was completed at a depth of 32 feet and another at 79 feet.

Besides the pits, Mr. Rumsey is digging two 300-foot trenches four feet wide, following the bedrock down from the top markings of the dam toward the river.

The firm employs 75 men on four shifts of five hours each a day. Muckers are paid 60 cents an hour, skilled workmen 80 cents. The men are housed and fed by the company at $1.05 a day for board and 15 cents a night for lodging.

The bill of fare would do credit to one of Spokane's best hotels, as prepared by Chef McGee, and the firm is buying $1500 worth of provisions monthly, mainly from Spokane concerns at present. Electric lights for the dining room and bunkhouses are supplied by a 2000-watt portable system.

Farther north, down the river, is the Lynch Brothers' camp, where, in the dining room, meals may be obtained by the public, as well as the crew of 65 men.

"New Deal" Has Services.

Louie Corilla and Steve Dalton are in charge of the "New Deal," and in the commissary department may be found an up-to-date news stand with drug accessories and barber shop, with laundry service.

Lynch Brothers also are erecting a first-aid station, to care for minor injuries to any of the men at work.

On the Okanogan side of the river may be found "squatters' village," where six houses were recently erected and all rented at $12 a month each.

Three hot dog stands, a grocery store, a lumber yard and a service station "grace" the side of the hill a mile and a half up the canyon, in the town site being promoted by the Elmore-Fleischman interests.

On the hill above it, P. D. Donaldson and his associates from Wenatchee are putting up a half dozen substantial buildings and assert that the "Grand Coulee" is the coming town.

No Work for Jobless.

C. M. Cole, field engineer in charge of the preliminary work, today again warned those seeking work at the dam to stay away.

"There is no place for idle men here," he said, "and no provision for taking care of them. Before the bridge can be started or excavation work begun the state highway department at Olympia must complete its plans, which probably will require six weeks. Then bids must be asked and advertised, requiring another month.

"We have every reason to believe that there will be more work when that is all done, but it can be seen that the work can not possibly start until perhaps February 1. We are doing everything possible to expedite the development, but it takes time to work out all these details."

Mr. Cole was confined to his home by influenza today.

Mr Bernard Blum
Chief Engineer

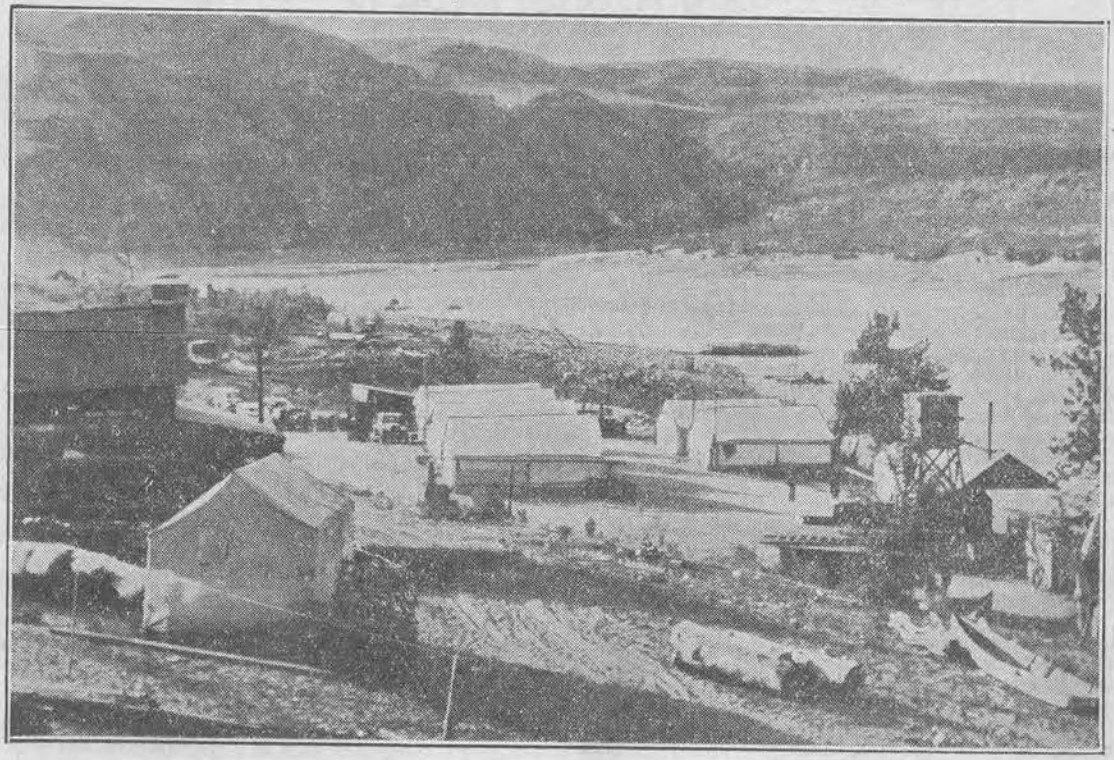
From Spokane Spokesman-Review
October 23, 1933

O D Blanchard
10/26/33.

This is Rumsey & Co Camp.

THE SPOKESMAN-REVIEW, SPOKANE, WASH.

One of Numerous Tent Towns on West Side of Dam Site



Ground photo by Wallace Aerial Surveys.

People attracted by prospects that a good-sized town will develop at Grand Coulee dam site are getting on the ground early. This photo shows tents of a few of the newcomers who have established temporary quarters on level ground near where the big dam will go up. The Grant county ferry, seen in about the center of the picture, is almost on the line on which the dam will cross the river.

N. P. File 8731-2

DEFENDANT'S EXHIBIT 4144

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16, at Odair, Washington, and the Adrian Branch from H.B. Station 0-01 at Odair to Station 1072+80.8 near Adrian.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	20.483 Miles
Other Tracks	1.147 Miles
Total	21.630 Miles

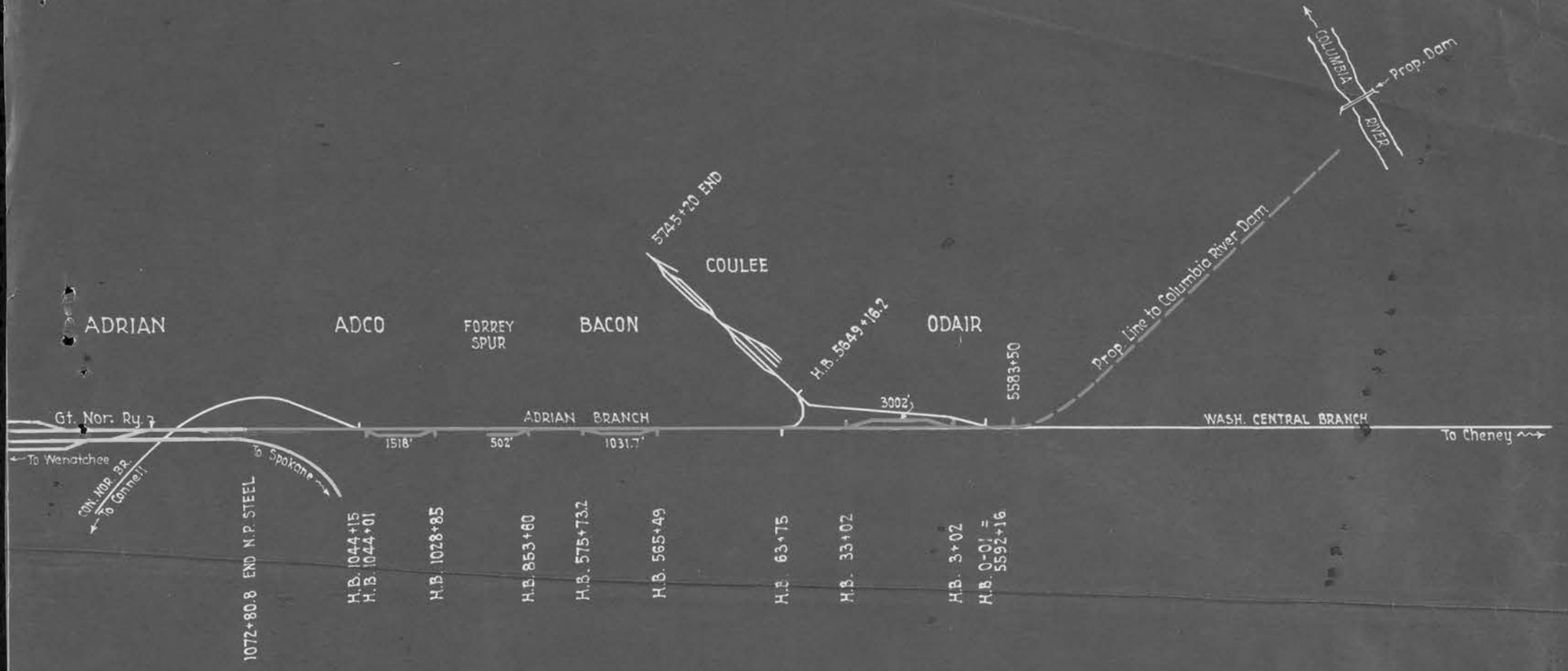
	Units	No. of Units	Unit Price $	Total $	
Acct. 1 - Engineering					$ 40790
Acct. 2 - Land					28000
Acct. 3 - Grading					
Clearing sage brush	Acre	15.0	12.75	191	
Common	Cu.Yd.	153482	.29	44510	
Hard pan	"	66646	.50	33323	
Loose rock	"	194879	.55	107183	
Solid rock	"	280193	1.12	313816	
Team haul, over 500'	CY-100'	1101000	.015	16515	
Train haul, Cl. B, 10000 to 25000'	CY-1000'	54356	.012	652	
Riprap, loose, 56 Mile haul	Cu.Yd.	24	1.57	38	
" hand placed, 56 mile haul	"	1605	2.32	3724	
Cribs - timber	M.B.M.	2.302	31.00	71	
" - iron	Lb.	10	.07	1	$520024
Acct. 6 - Bridges, Trestles & Culverts					
10 Timber trestles, 3009 L.ft.					
Stringers	M.B.M.	245.729	54.50	13283	
Other timber	"	999.705	51.00	50985	
Iron	Lb.	72216	.065	4694	
Galv. iron	"	14336	.07	1004	
Excavation, common	Cu.Yd.	389	.64	249	
" , loose rock	"	1296	.75	972	
" , solid rock	"	61	1.15	70	
Riprap, hand placed	"	439	2.32	1018	
Water barrels	Each	27	1.25	34	
Bridge signs	"	10	1.25	13	
Pipe and Timber Culverts					
Culvert - timber	M.B.M.	4.724	53.00	250	
24" Vitrified tile pipe	L.Ft.	794	4.00	3176	
24" Reinforced concrete pipe	"	235	6.00	1410	
36" " " "	"	39	10.00	390	
Blind drains, L. rock	Cu.Yd.	21	2.50	53	
Rubble in mortar	"	34	10.00	340	
Cobble paving	"	1	5.25	5	
Riprap, loose	"	10	1.57	16	
" , hand placed	"	38	2.32	88	
Excavation, loose rock	"	6	.75	5	78055

	Units	No. of Units	Unit Price $	Total $	
Acct. 8 - Ties					
Cross ties, treated	Each	44170	1.58	69789	
" " untreated	"	14723	.90	13251	
Switch " "	M.B.M.	22.049	26.70	589	
Bridge " "	"	174.059	35.20	6127	$ 89756
Acct. 9 - Rail					
85# rail, relay, 1901 L.ft.	Gr.Tons	24.045	40.50	974	
66# " " 225188 "	"	2211.668	40.50	89573	
56# " " 876 "	"	7.300	40.50	296	90843
Acct. 10 - Other Track Material					
85# angle bars, relay, 64 pr., 48#	Cwt.	30.72	2.50	77	
66# " " " 7872 " 34.72#	"	2733.16	2.50	6833	
56# " " " 28 " 31#	"	8.68	2.50	22	
85/66# compr. joint, 2 " 36.84#	Each	2	4.00	8	
Track bolts, 13/16"x4½", 255 pc., 1.303#	Cwt.	3.32	4.74	16	
" " 3/4"x3-3/8", 31265 " , 0.77#	"	240.88	4.74	1142	
" spikes, 9/16"x6", 258169 ", 0.63#	"	1500.46	3.83	5747	
" " 9/16"x5½", 14025 ", 0.555#	"	77.84	3.83	298	
85# Tie plates, 6"x8½", 886 ", 6.60#	"	58.48	3.10	181	
85 " " 6"x8½" jt. 108 ", 6.47#	"	6.99	3.10	22	
66# " " 6"x8" 69457 ", 6.37#	"	4424.41	3.10	13716	
66# " " 6"x8" jt.11023 ", 6.18#	"	681.22	3.10	2112	
66# " " Sellar 6"x8", 2488 ", 6.93#	"	172.42	3.10	535	
66# rail braces, casted, 13 ", 7.75#	"	1.01	9.70	10	
66# " " P.& M., 2355 ", 3.60#	"	84.78	8.30	704	
56# " " " 67 ", 3.65#	"	2.45	8.30	20	
85# split switch, reinf., 15', 1105#	Each	1	73.40	73	
66# " " " 15', 952#	"	7	62.10	435	
85# rigid frog, #9, 11½', 1002#	"	1	72.90	73	
66# " " #9, 11½', 785#	"	5	60.60	303	
66# spr. rail frog, #9, 15', 1384#	"	2	106.50	213	
85# guard rail, spiked, 15', 1 set, 882#	Cwt.	8.82	3.54	31	
66# " " " 15', 7 " 679#	"	47.53	3.54	168	
66# spl. sw. pt. derail, 15', 478#	Each	1	15.60	16	
Switch stand, High Banner, 321#	"	9	27.75	250	
Switch lock 1#	"	9	.86	8	
Rail rack	"	22	1.50	33	
Cobble paving	Sq.Yd.	5	.75	4	
Bumping post, timber	M.B.M.	0.250	47.00	12	
" " , earth	Cu.Yd.	4	.64	3	33065
Acct. 11 - Ballast					
Gravel, 9 Mi. avg.haul	Cu.Yd.	35346	.57	20147	
Cinders, 10 " " "	"	1659	.45	747	20894
Acct. 12 - Tracklaying and Surfacing					
Main Track					
Lay & initial surf. 90/61# rail	Miles	20.485	1718.00	35190	
Extra for full earth surfacing	"	1.659	390.00	647	
Other Tracks					
Lay & initial surf. 90/61# rail	Miles	1.064	1503.00	1599	
" " " " 60/0# "	"	.083	1460.00	121	
All Tracks					
Placing ballast gravel	Cu.Yd.	35346	.45	15906	
" " cinders	"	1659	.37	614	

	Units	No. of Units	Unit Price $	Total $	
Acct. 12 - Tracklaying & Surfacing (Cont'd)					
All Tracks - (Cont'd)					
Placing turnouts	Each	8	72.00	576	
" spl. sw. derail with stand	"	1	20.00	20	
" tie plates	"	83962	.024	2015	
" rail braces	"	2435	.028	68	
Frame and place bridge ties	"	174059	19.10	3325	$ 60081
Acct. 13 - Right of Way Fence					
Post, split cedar, 6"x7'	Each	545	.26	142	
" " " 5"x6'	"	604	.26	157	
Setting posts	"	1149	.195	224	
Post, round cedar, 6"x8', with auger hole for sharpened 4" dia. x 6' brace, price in place	"	1234	1.00	1234	
Barbed wire	Cwt.	95.74	4.20	402	
Woven " , 48" 18 G. 3" mesh	"	16.78	4.33	73	
" " McMullen 48"	"	73.53	4.33	318	
Labor stringing barbed wire over 12'	W.Mi.	26.551	6.80	181	
" " 48" woven " " 12'	F.Mi.	2.034	50.00	102	
Stays, 4'	Each	244	.04	10	
Staples	Cwt.	2.09	4.20	9	
Nails	"	3.65	4.00	15	
Rustic rail, 4" dia.	L.Ft.	21139	.08	1691	
Bracing - Timber in place	M.B.M.	0.512	41.80	21	
Gates, Eureka 16'	Each	1	10.40	10	
Cattle guard, wood surface	"	3	24.80	74	4665
Acct. 15 - Crossings and Signs					
Common	Cu.Yd.	1089	.29	316	
Loose rock	"	60	.55	33	
Planking	M.B.M.	3.024	35.00	106	
Iron	Lb.	71	.07	5	
Signs:					
Warning	Each	8	6.00	48	
Mile Board	"	20	2.25	45	
Section	"	1	1.88	2	
1 Mile to Water	"	3	4.13	13	
Whistle Post	"	19	3.00	57	
Yard Limit	"	1	4.50	5	
Flanger	"	16	1.88	30	
1 Mile to Station	"	2	4.13	8	
Dump Cinders	"	2	4.13	8	
Cobble paving	Cu.Yd.	13	5.25	68	
Riprap, hand placed	"	1	2.32	2	745
Acct. 16 - Station and Office Buildings					
Loading platform, enclosed, 16'x96'					
Timber	M.B.M.	16.339	45.40	742.00	
Hardware	Lb.	564	.065	37.00	779
Acct. 26 - Telegraph & Telephone Lines					7188
Acct. 37 - Roadway Machines					141

	Units	No. of Units	Unit Price $	Total $	
Acct. 38 - Roadway Small Tools					$ 200
Acct. 71-75 and 76 - General Expenses					14208
Acct. 78 - Interest During Construction					81722
			GRAND TOTAL		$1071154

Office of Valuation Engineer
St. Paul, October 4, 1933.



N.P. RY.

SKETCH

ADRIAN to ODAIR, WASH.

TO ACCOMPANY

ESTIMATE DATED OCT. 4th 1933

OFFICE OF VALUATION ENGINEER. ST. PAUL, MINN.

NO SCALE

NORTHERN PACIFIC RAILWAY COMPANY

Estimate covering that portion of the Northern Pacific Railway Company's Washington Central Branch between Stations 5583+50 and 5592+16 at Odair, Washington, The Adrian Branch from H.B. Station 0-01 to Station 1044+15 at Adco and the Connell-Northern Branch from H.B. Station 1+57 at Adco to Station 1854+20 at West Warden, Washington.

Estimate is based on I.C.C. Revised Engineering Report quantities plus A. & B. quantities to October 1, 1933, priced at an average five-year period reproduction price.

Main Track	55.027 Miles
Other Tracks	2.975 Miles
Total	58.002 Miles

	Units	No. of Units	Unit Price $	Total $	$
Acct. 1 - Engineering					85387
Acct. 2 - Land for Transportation Purposes					67475
Acct. 3 - Grading					
Clearing sage brush	Acre	51.14	12.75	652	
Common	Cu.Yd.	622519	.29	180531	
Hard pan	"	290574	.50	145287	
Loose rock	"	308912	.55	169902	
Solid rock	"	333722	1.12	373769	
Team haul over 500'	CY-100'	3402693	.015	51040	
Cinders, av. haul 80 miles	Cu.Yd.	190	.74	141	
Gravel blanket, av. haul 8.6 miles	"	47306	.45	21288	
Riprap, loose	"	142	1.57	223	
" hand placed	"	206	2.32	478	
Cribs, timber	M.B.M.	2.302	31.00	71	
" iron	Lb.	10	.07	1	943383
Acct. 6 - Bridges, Trestles & Culverts					
Combination Bridge 62 ft. long					
Substructure - 2 Frame abutments, east abutment on mud sills and west abutment on concrete footing.					
Concrete	Cu.Yd.	112	13.60	1523	
Timber	M.B.M.	20.300	51.00	1035	
Iron	Lb.	3900	0.065	254	
Excavation, solid rock	Cu.Yd.	75	1.15	86	
Superstructure - One 62 ft. deck Howe truss span					
Timber	M.B.M.	21.400	120.00	2568	
Iron	Lb.	26400	.07	1848	
Bridge sign	Each	1	1.85	1	
17 Pile & Frame Trestles, 4333 ft. long					
Piling, cedar	Lin.ft.	7650	.92	7038	
" fir	"	3460	.92	3183	
Stringers	M.B.M.	352.453	54.50	19209	
Other timber	"	1305.021	51.00	66556	
Iron	Lb.	106699	.065	6935	
Galv. iron	"	20807	.07	1456	
Excavation, common	Cu.Yd.	1085.	.64	694	
" loose rock	"	1296	.75	972	
" solid rock	"	61	1.15	70	

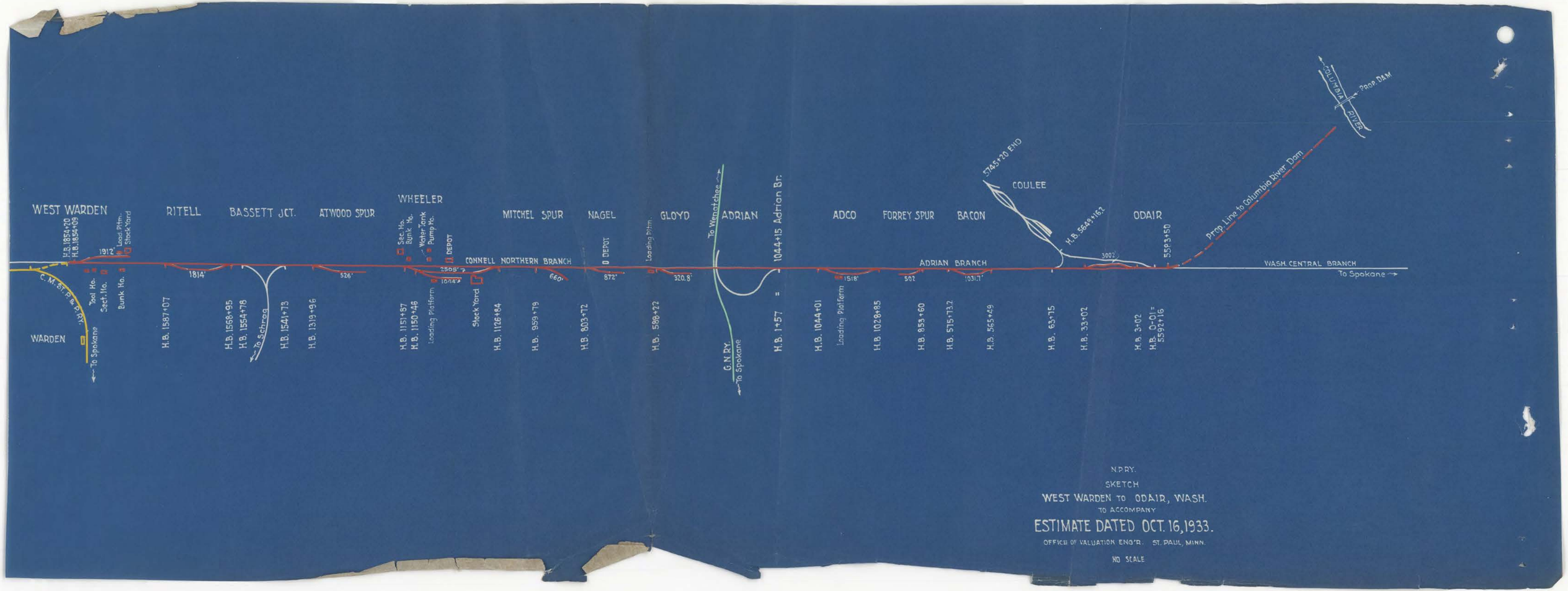
	Units	No. of Units	Unit Price $	Total $	$
Acct. 6 - Bridges, Trestles & Culverts (Cont'd)					
17 Pile & Frame Trestles, 4333' long (Cont'd)					
Riprap, derrick	Cu.Yd.	88	2.90	255	
" hand placed	"	405	2.32	940	
" loose	"	369	1.57	579	
Water barrels	Each	44	1.25	55	
Bridge signs	"	17	1.25	21	
Dyke, timber	M.B.M.	27.138	31.00	841	
" iron	Lb.	760	.07	53	
Pipe & Timber Culverts -					
Culvert, timber	M.B.M.	4.724	53.00	250	
24" Cast iron pipe, 1086 L.Ft.	N.Tons	92.853	73.30	6806	
36" " " " 954 "	"	144.054	73.30	10559	
24" Vitr.tile "	L.Ft.	1402	4.00	5608	
24" Reinf. Conc. "	"	235	6.00	1410	
36" " " "	"	87	10.00	870	
Riprap, hand placed	Cu. Yd.	38	2.32	88	
" loose	"	10	1.57	16	
Rubble in mortar	"	34	10.00	340	
Blind drain, loose rock	"	21	2.50	53	
Excavation, " "	"	6	.75	5	
Cobble paving	"	1	5.25	5	142182
Acct. 8 - Ties					
Cross ties, treated	Each	126254	1.58	199481	
" " Untreated	"	31564	.90	28408	
Switch " "	M.B.M.	51.669	26.70	1380	
Bridge " "	"	233.480	35.20	8218	257487
Acct. 9 - Rail					
85# Rail, relay, 1901.0 L.Ft.	Gr.Tons	24.045	40.50	974	
72# " " , 382975.6 "	"	4103.310	40.50	166184	
66# " " , 225724.4 "	"	2216.956	40.50	89786	
56# " " , 876.0 "	"	7.300	40.50	296	257240
Acct. 10 - Other Track Material					
85# Angle bars, relay, 64 pr.	Cwt.	30.72	2.50	77	
72# " " " 13388 "	"	4819.68	2.50	12049	
66# " " " 7890 "	"	2739.41	2.50	6849	
56# " " " 28 "	"	8.68	2.50	22	
85/66# Offset " " 2 "	Each	2	4.00	8	
Track bolts, 13/16"x4¼", 255 pc.	Cwt.	3.32	4.74	16	
" " 3/4"x3-3/8", 84415 "	"	650.00	4.74	3081	
" spikes, 9/16"x6", 641991 "	"	4044.54	3.85	15491	
" " 9/16"x5½", 36536 "	"	202.77	3.85	777	
72# Rail braces, Cast, 30 "	"	1.80	9.70	17	
66# " " " 13 "	"	1.01	9.70	10	
66# " " P.& M., 2113 "	"	76.07	8.30	631	
56# " " " 67 "	"	2.45	8.30	20	
85# Tie plates, 7"x9" int., 196 pc.	"	17.05	5.10	55	
85# " " 6"x8½" " 886 "	"	58.48	5.10	181	
85# " " 6"x8½"Jt., 118 "	"	7.63	3.10	24	
72# " " 6"x8" int., 113100 "	"	7193.16	3.10	22299	
72# " " 6"x8" Goldie, 633 "	"	41.02	3.66	150	
72# " " 3¾"x8" Walh., 124 "	"	3.50	3.10	11	
66# " " 6"x8" int., 67737 "	#	4314.85	3.10	13376	
66# " " 6"x8" Jt., 10743 "	"	663.92	3.10	2058	
66# " " 6"x8" Sellar, 2264 "	"	156.90	3.10	486	

	Units	No. of Units	Unit Price $	Total $	$
Acct. 10 - Other Track Material - (Cont'd)					
85# Split switch, 15', Reinf.	Each	1	73.40	73	
72# " " 15' "	"	11	65.64	722	
66# " " 15' "	"	7	62.10	435	
85# Rigid frog, #9, 11½'	"	1	72.90	73	
72# " " #9, 11½'	"	10	63.60	636	
66# " " #9, 11½'	"	5	60.60	303	
72# Spr. rail " #9, 15'	"	1	106.50	107	
66# " " " #9, 15'	"	2	106.50	213	
85# Guard rails, spiked, 15', 1 set	Cwt.	8.820	3.54	31	
72# " " " 15',11 "	"	81.18	3.54	287	
66# " " " 15', 7 "	"	47.53	3.54	168	
66# Spl. sw. point derail	Each	1	15.60	16	
Hobart derail All free, size L. 7	"	1	16.85	17	
Switch stands, High Banner	"	19	27.75	527	
" " Low "	"	1	22.70	23	
Switch lamps	"	1	10.00	10	
" locks	"	20	0.86	17	
Rail rack	"	55	1.50	83	
Cobble paving	Sq.Yd.	5	0.75	4	
Bumping post, timber	M.B.M.	0.250	47.00	12	
" " earth	Cu.Yd.	24	0.64	15	81458
Acct. 11 - Ballast					
Gravel, av. haul 9 miles	Cu.Yd.	34369	0.57	19590	
" " " 64 "	"	5834	0.98	5717	
Cinders, " " 10 "	"	1659	0.45	747	26054
Acct. 12 - Tracklaying & Surfacing					
Main Track					
Lay & initial surf., 90/61# rail	Miles	55.027	1718.00	94536	
Extra for full earth surfacing	"	35.261	390.00	13752	
Other Tracks					
Lay & initial surf., 90/61# rail	"	2.892	1503.00	4347	
" " " " 60/0# "	"	.083	1460.00	121	
All Tracks					
Placing ballast, gravel	Cu.Yd.	40203	0.45	18091	
" " cinders	"	1659	0.37	614	
" turnouts	Each	19	72.00	1368	
" spl. sw. derail with stand	"	1	20.00	20	
" derail, block type	"	1	5.25	5	
" tie plates	"	195801	0.024	4699	
" rail braces	"	2225	0.028	62	
Framing and placing bridge ties	M.B.M.	233.480	19.10	4459	142074
Acct. 13 - Right of Way Fences					
Post, split cedar, 6"x7'	Each	1699	0.26	442	
" " " 5"x6'	"	5858	0.26	1523	
Labor setting posts	"	7557	0.195	1474	
Post, rd. cedar, 6"x8', with auger hole for sharpened 4" dia. x 6' brace, price in place	"	1234	1.00	1234	
Barbed wire	Cwt.	423.550	4.20	1779	
48" Woven wire	"	114.72	4.33	497	
Labor stringing barbed wire over 12'	Wi.Mi.	121.421	6.80	826	
" " woven " " 12'	Fc.Mi.	2.107	50.00	105	
Stays, 4'	Each	19917	0.04	797	
Staples	Cwt.	6.38	4.20	27	
Nails	"	5.16	4.00	21	
Rustic rail, 4" dia.	L.Ft.	21139	0.08	1691	
Bracing in place	M.B.M.	5.344	41.80	223	
Gates, Eureka	Each	10	10.40	104	
Cattle guards, wood surface	"	33	24.80	818	11561

	Units	No. of Units	Unit Price $	Total $	$
Acct. 14 - Snow and Sand Fences					
Post, cedar, 10" dia. x 24', in place	Each	154	8.75	1348	
Plank in place	M.B.M.	4.704	41.80	197	
Barbed wire guys	Cwt.	2.05	4.20	9	
Ties, 7 x 8 - 8	Each	77	.90	69	
Iron	Lb.	16	.05	1	
Labor, guy wires and deadman	Each	77	6.75	520	2144
Acct. 15 - Crossings and Signs					
Common	Cu.Yd.	6891	.29	1998	
Hard pan	"	574	.50	287	
Loose rock	"	60	.55	33	
Planking	M.B.M.	15.039	35.00	526	
Iron	Lb.	491	.07	34	
Riprap, hand placed	Cu.Yd.	1	2.32	2	
Signs -					
Warning	Each	32	6.00	192	
Mile Boards	"	54	2.25	122	
Section	"	1	1.88	2	
1 Mile to Water	"	5	4.13	21	
1 Mile to Station	"	8	4.13	33	
Whistle Post	"	48	3.00	144	
Flanger	"	14	1.88	26	
Yard Limit	"	1	4.50	5	
Dump Cinders	"	2	4.13	8	
Station	"	6	6.00	36	
Cobble paving	Cu.Yd.	26.50	5.25	139	3608
Acct. 16 - Station and Office Buildings					
Adco					
Loading platform, frame, 16'x96'	Each	1		779	
Gloyd					
Shelter shed, 8'x34' carbody	"	1		459	
" " furniture	"	1		64	
" " platform	"	1		33	
Nagel					
Depot, 8'x34', carbody	"	1		449	
Wheeler					
Depot, 1 story, 30'x68', frame	"	1		4846	
" furniture	"	1		367	
" platform, 1376 sq.ft., frame	"	1		370	
" grading, cinders, 20 cu.yd.cinders	"	1		19	
" outside piping	"	1		581	
Cellar	"	1		60	
Outhouse	"	1		77	
Stockyard, 48'x141'	"	1		1714	
Portable ice house, 10.3'x25.3'	"	1		311	
Loading platform, 12'x40' & 6'x16'	"	1		154	
West Warden					
Depot, 8'x33'9", carbody	"	1		461	
" furniture	"	1		41	
" platform, 46 cu.yd. cinders	"	1		70	
Stockyard, 4494 FBM	"	1		308	
Loading platform, 30'x40' & 11'x58'	"	1		625	
Station Signs					
At Adco, Gloyd, Nagel, Bassett Jct., Ritell, and West Warden	"	6		77	11865

	Units	No. of Units	Unit Price $	Total $	$
Acct. 17 - Roadway Buildings					
Wheeler					
Sec. Ho. 1½ sty 16'x24' and 1 sty 6'x11'	Each	1		1843	
Bunk house, 1 story 16'x24', frame	"	1		759	
Water in section house & bunk house	"	1		326	
Tool house, 10 x 12, frame	"	1		174	
Gas cellar	"	1		113	
Outhouse	"	1		62	
Gas cellar	"	1		21	
Root "	"	1		25	
Outhouse	"	1		74	
Gas. storage tank, 100 gal.	"	1		31	
West Warden					
Sec. Ho. 1½ story 16'x24' and one story 6'x11'	"	1		1843	
Bunk Ho. 1 story 16'x24' and 8'x8' and 6'x8'	"	1		840	
Cistern, 10' dia. x 8', concrete	"	1		365	
Tool house, 10'x12', frame	"	1		208	
Outhouse	"	1		69	
Gas cellar	"	1		121	
Root "	"	1		218	
Shed	"	1		194	
Outhouse	"	1		62	
Fence	"	1		60	
Embankment	"	1		47	
Portable ice house, 10.3'x25.3'	"	1		298	
Gas. storage tank, 100 gal.	"	1		29	7782
Acct. 18 - Water Stations					
Wheeler					
Pump house, 12'x15' and 11 x 24.4'	Each	1		1582	
Equipment	"	1		1637	
Gas. tank & cellar, one 500 & one 200 G.	"	1		201	
Pipe lines	"	1		65	
Water tank, 24' dia., 16' high on concrete foundation	"	1		5344	
Well, 10" dia. x 386' deep	"	1		5956	12785
Acct. 26 - Telegraph & Telephone Lines					16433
Acct. 37 - Roadway Machines					838
Acct. 38 - Roadway Small Tools	Sets	3	200.00		600
Acct. 71 to 75 & 77 - General Expenditures					29743
Acct. 76 - Interest During Construction					171073
GRAND TOTAL - - - -					$2251172

Office of Valuation Engineer
St. Paul, Minn., Oct. 18, 1933



N.P.RY.

SKETCH

WEST WARDEN TO ODAIR, WASH.

TO ACCOMPANY

ESTIMATE DATED OCT. 16, 1933.

OFFICE OF VALUATION ENG'R. ST. PAUL, MINN.

NO SCALE

St. Paul, October 26, 1933

4143

Mr. Bernard Blum:

As requested in your letters of October 5th and October 18th, I hand you herewith three copies each of two estimates; one for that portion of our Washington Central Branch and Adrian Branch between Odair and a point near Adrian, distance about 20½ miles; the second for a portion of our Washington Central Branch and Adrian Branch from Odair to a point near West Warden, Washington, distance about 55 miles. The first being the portion of our line which the Great Northern Railway may desire to use in order to reach our proposed line to the Columbia River dam site, and the second that portion of our line that the Milwaukee may desire to use to reach our proposed line to the Columbia River dam site.

These estimates are made up on our usual reproduction principles, that is, to the quantities allowed us in the basic engineering report there is added total quantities added since on A. & B. work; all priced out at average 5-year period reproduction prices. For that portion of the line between Odair and Adrian proposed to be used by the Great Northern Railway, amounting to about 20½ miles of track, the estimate amounts to $1,071,154. For that portion proposed to be used by the Milwaukee between Odair and West Warden, a dis-

tance of approximately 55 miles, the total estimate is $2,251,172. I have not completed the portion of the line that the O.W.R.R.& N. may desire to use but will have that in shortly.

I have also made an estimate up for these lines on the basis of ICC allowances plus A. & B. costs, which is the best known estimate of original cost. For the portion proposed to be used by the Great Northern same would amount to $809,323. and for that portion proposed to be used by the Milwaukee would amount to $1,650,004. I made these estimates for the reason I thought that maybe some discussion about what the line may have cost may come up.

On the Sunday Mr. Stevens went into conference with the Great Northern he asked me for a quick estimate of about what was the value of the property proposed to be used by the Great Northern would amount to, that is, the cost per mile. I gave him a quick estimate, based on the average value of the Washington Central Branch, of about $33,000 per mile. This was a very bad estimate as it actually works out to be $52,295. I was unable to secure a profile of the line and was not sufficiently familiar with the line to know that the heavy part of the line was concentrated between the two points on which an estimate was desired.

The ICC allowed us a very good classification on the Washington Central Branch, and in fact they allowed us more classification of grading than we paid for, therefore the estimates are full.

ACT-s

A. T. Terrell
Valuation Engineer.

8731

St. Paul, Minn., October 26, 1933.

Mr. Bernard Blum,
Chief Engineer.

Referring to your letter of October 18 enclosing copies of blueprint which you had prepared in connection with the construction of the proposed Grand Coulee dam:

My attention has just been called to the fact that you did not show thereon the cement plant at Grotto, located on the Great Northern.

O W Tuve

M Blum

8731

Saint Paul, October 26, 1933.

Mr. BernardBlum:

I am attaching hereto three prints of R.F.A. sketch together with three prints of detailed estimate covering the construction of proposed railroad from Odair to Grand Coulee Dam showing a total cost of approximately $900,000 of which $577,500 is out of pocket expense. The out of pocket expense is detailed on sheet 4 of attached estimate.

This estimate covers the construction of what is known as the low line. There will be approximately 2½ miles on one percent grade with traffic between MP 1 and 3½, and the balance of the line will have an approximate five tenths percent grade. The estimate provides two 3,000 ft. tracks at Odair, one 3000 ft. siding near MP 15, and four 3000 ft. yard tracks at the end. It is possible the contractor might want more trackage at the end, but I believe the total yard trackage will be sufficient to take care of the business at the end of the track. The estimate provides for trackage extending to the top of the floor at MP 28½ as it is contemplated the contractor will wish to use his own trackage from this yard layout to the site of the dam over a distance of approximately 1½ miles. I am forwarding three prints of map scale two inches equal one mile

(traced from government map) and also three prints of profile showing the railroad elevation floor line to the canyon, elevation of the ground line along the proposed location and elevation of the high and low dam. I did not show the elevation of the dam on the A.F.E. sketch as I believe this would be somewhat confusing. I will have estimate for the combined high and low line completed within the next couple of days. The attached estimate and sketch can be used for the A.F.E. when and if you approve.

Asst. to Chief Engineer.

JTD-w

enc

8781

Saint Paul, October 26, 1933.

Mr. BernardBlum:

I am attaching hereto three prints of R.F.A. sketch together with three prints of detailed estimate covering the construction of proposed railroad from Odair to Grand Coulee Dam showing a total cost of approximately $900,000 of which $577,500 is out of pocket expense. The out of pocket expense is detailed on sheet 4 of attached estimate.

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Asst. to Chief Engineer.

JTD-w

enc

EXHIBIT A

OKANOGAN

FERRY

STEVENS

DOUGLAS

LINCOLN

GRANT

ADAMS

BREWSTER

G. N. Ry.

COLUMBIA

Sanpoil River

GRAY

CLAYTON

RIVER

MILES

Spokane River

MANSFIELD

WITHROW

PROPOSED G. N. LINE

NORTHERN PACIFIC Ry.

HARTLINE

ALMIRA

GOVAN

WILBUR

CRESTON

DAVENPORT

ELEANOR

ESPANOLA

SPOKANE

BLUESTEM

CHENEY

COULEE

ODAIR

Moses Coulee

Blue Lake

Lenore Lake

BACON

Wilson Creek

Connawai Lake

Creek

WILSON CREEK

Soap Lake

Crab Lake

Crab Creek

ADRIAN

GREAT NORTHERN

ODESSA

Coal Creek

Sylvan Lake

EPHRATA

SPRAGUE

QUINCY

GLOYD

Rocky Coulee

C. M. ST. P. & P. R. R.

PACKARD

MARCELLUS

Moses Lake

NEPPEL

RITZVILLE

NORTHERN PACIFIC

BASSETT JCT.

TIFLIS

SCHRAG

N

SCALE: 1 IN. = 8 MI.

8731 Expenses Oct 8 to Oct 17 inclusive

St. Paul, October 25, 1933

Mr. J. T. Derrig:

Your letter of the 24th in regard to bill submitted by Mr. Breedlove for meals during the time he was working on the Grand Coulee survey:

You will recall that when we were at Coulee the day the camp opened Mr. Blanchard was advised that if necessary Mr. Breedlove could have his wife eat at our camp so I do not think we are under any obligation to make allowance for meals which he did not eat with the others. He is, of course, entitled to expenses for his meals after the camp closed which I understand was October 7th.

For his lodging subsequent to October 7th, you advise we have paid the landlord direct.

While theoretically Mr. Breedlove may be entitled to the value of the food at camp which he did not eat, I think as a matter of discipline we should insist on all the employees being accorded the same treatment and we should not permit individual deviations.

I will be glad to approve voucher for his meals after camp closed. It is my understanding that he has been paid his expenses for the time he was out there prior to the opening of the camp.

Bernard Bloom

Dictated -

Voucher for Vail pays 10/26

B. Bloom

Voucher, Lenewith

10/25

Voucher per

10/25

8231

St. Paul, October 25, 1933

Mr. J. T. Derrig:

Your letter of the 24th in regard to bill submitted by Mr. Breedlove for meals during the time he was working on the Grand Coulee survey:

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I will be glad to approve voucher for his meals after camp closed. It is my understanding that he has been paid his expenses for the time he was out there prior to the opening of the camp.

MB h

8731

The Spokane Daily Chronicle

October 24th 1933

GRANT 15 MILLIONS FOR COULEE DAM

B

Fifteen million dollars was allocated today to be spent in 1934 on construction of the Grand Coulee dam and power plant on the Columbia river by the federal board of public works.

Additional treasury advances will be made as needed until the entire $63,000,000 has been turned over for construction of the project.

This is the report to the Chronicle today from its correspondent at Washington, D. C., who quoted Dr. Elwood Mead, director of reclamation.

Additional confirmation that the administration will build the Grand coulee project as planned was given by Secretary Ickes, head of the public works board, in a statement to the Associated Press.

Twelve-Month Period.

The $15,000,000 sum authorized for next year's expenditures was set after Dr. Mead had been asked what amount he believed would take care of the development for the 12-month period. Dr. Mead told the correspondent.

Secretary Ickes said money would be advanced for the project only as needed, "so the remainder of the large allocation would not lie idle in the treasury."

James O'Sullivan, secretary of the state Columbia basin commission, hailed the news with enthusiasm.

"With $15,000,000 available for 1934, the commission can now outline a definite program of procedure, much of which we hope to have in operation before January 1," said Mr. O'Sullivan.

Assures Speed.

"Up until now, we have not known exactly how fast our money would become available. Senator Dill secured $1,000,000 for us, which is now on deposit in the Denver office of the federal reclamation bureau for construction of a bridge across the river and an engineers' town.

"Designing of the bridge is under way by the state highway department, and reclamation bureau engineers are working on plans for the town.

"We interpret Dr. Mead's statement to mean we can go ahead with letting the general contract as planned, and still believe it will be possible to award the contract about May 1."

B Blum

11/3/33

8731

Saint Paul, Oct. 24, 1933.

Mr. Bernard Blum:

With reference to Mr. Blanchard's letter of Oct. 21st with file attached covering bill submitted by John C. Breedlove, covering expenses for meals incurred during the period he was working on the Grand Coulee survey:

Mr. Breedlove, for some personal reasons did not elect to take his meals at the camp provided for the party and took his breakfast and evening meal at his home. He also rented a cottage at his own expense while on the job. In handling this job it was our decision to put in a camp and it was anticipated that all of the men on the party would board at the camp. I believe that Mr. Gibson and Mr. Darling rented tourist cottages and used these for sleeping quarters but they were not allowed expenses for same as long as sleeping quarters were provided in the box car camp.

I do not see that we can consistently allow Mr. Breedlove expenses for meals during the period the camp was in operation and be fair to the other members of the party. He is however, entitled to meals and lodging after the camp closed and until the work was completed. The total cost incurred for meals by Mr. Breedlove from Sept. 1st to Oct. 7th, date on whichthe camp closed was $27.65, and the cost of meals Oct. 7th to 17th

inclusive, date camp closed until date he was released was $7.70, total #35.35.

In this connection I wish to call attention to the fact that a bill for $10 has been submitted by the City Garage, J.L. Tucker, Manager, and passed covering lodging expense incurred by Mr. Breedlove Oct. 7th to 17th. This bill covers lodging for the period after abandonment of the camp to completion of the work.

It is my recommendation that voucher be prepared for Mr. Breedlove for the cost of meals Oct. 7th to 17th inclusive, disallowing his bill for meals Sept. 1st to Oct. 7th. Kindly advise on which basis you wish the voucher prepared.

Asst. to Chief Engineer.

JTD-w

8731

M E M O R A N D U M

Mr. H. F. Brown:

I have asked Mr. Gibson to prepare an alternate estimate for the combined high and low line Grand Coulee Survey.

This will take a day or two and wish you would please arrange to have one of your party assist him on this work.

Asst. to Chief Engineer.

S t. Paul, Minn.
Oct. 24, 1933.

8731

The proposed line of railroad will extend from a connection with Applicant's existing line of railroad at Odair, Washington, in the NE¼ of Sec. 35, T25N, R28E, and will run in a northeasterly direction to a point near the proposed Columbia River dam, near the head of the Grand Coulee, in the NE¼ of Sec. 11, T28N, R30E, in Grant County Washington. The general route and the termini of the line are shown on the map attached hereto, and marked Exhibit "A".

description for resolution
of Board furnished
on Lyons - Oct 23 - 1930

8231

October 24, 1933.

Mr. J. T. Derrig:

Replying to your memorandum of the 23rd instant and confirming our discussion about estimate of cost of right of way for proposed Grand Coulee Line:

I do not believe it advisable to go to the expense of making a field investigation and suggest you include an item of $50,000.00 for right of way in your estimate of cost for the line.

J. L. Watson

JET-p

Saint Paul, Oct. 24, 1933.

Mr. Bernard Blum:

With reference to Mr. Blanchard's letter of Oct. 21st with file attached covering bill submitted by John C. Breedlove, covering expenses for meals incurred during the period he was working on the Grand Coulee survey:

Mr. Breedlove, for some personal reasons did not elect to take his meals at the camp provided for the party and took his breakfast and evening meal at his home. He also rented a cottage at his own expense while on the job. In handling this job it was our decision to put in a camp and it was anticipated that all of the men on the party would board at the camp. I believe that Mr. Gibson and Mr. Darling rented tourist cottages and used these for sleeping quarters but they were not allowed expenses for same as long as sleeping quarters were provided in the box car camp.

I do not see that we can consistently allow Mr. Breedlove expenses for meals during the period the camp was in operation and be fair to the other members of the party. He is however, entitled to meals and lodging after the camp closed and until the work was completed. The total cost incurred for meals by Mr. Breedlove from Sept. 1st to Oct. 7th, date on whichthe camp closed was $27.65, and the cost of meals Oct. 7th to 17th

inclusive, date camp closed until date he was released was $7.70, total #35.35.

In this connection I wish to call attention to the fact that a bill for $10 has been submitted by the City Garage, J.L. Tucker, Manager, and passed covering lodging expense incurred by Mr. Breedlove Oct. 7th to 17th. This bill covers lodging for the period after abandonment of the camp to completion of the work.

It is my recommendation that voucher be prepared for Mr. Breedlove for the cost of meals Oct. 7th to 17th inclusive, disallowing his bill for meals Sept. 1st to Oct. 7th. Kindly advise on which basis you wish the voucher prepared.

J T Thomas

Asst. to Chief Engineer.

JTD-w

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED M.

St. Paul, Oct. 23, 1933 8731

J. L. Watson
St. Paul,

Confirming discussion about right of way for proposed Grand Coulee line, I am making a detailed estimate along the lines of my discussion with you and am arranging to include an item of $50,000 for right of way. It is my understanding that you do not wish to go to the expense of making a field investigation, and if the figure above quoted is satisfactory to you will you please confirm.

J T Derrig

Mr Bernard Blum
Chief Engineer

8731

From Spokane Spokesman-Review
October 19, 1933

10/23/33

WORK STARTED ON CAMP SITE

Two Buildings Going Up at Coulee Dam to House Engineers.

DRILLS GO INTO EARTH

45-Degree Angle Hole Is Down 403 Feet—One Core Is Taken at 622 Feet.

COULEE DAM SITE, Oct. 18.—Engineer C. M. Cole today started construction on the government engineers' camp site, two duplicate buildings, each 18x30 feet, designed to provide field offices, storage for the cores from the drill holes and a two-car garage. Sleeping quarters also will be provided, for a limited number of engineers who are doing inspection work at night.

The problem of taking care of the growing number of cores necessitates safe housing, as the hordes of visitors show an inclination to "lift" them as souvenirs of their visit to the dam. To overcome their disappointment over not seeing the diamond drills at work, however, R. T. Lynch of Lynch Brothers, contractors, plans to keep one drill close to the ferry in operation on Sundays.

Angles Bring Difficulties.

Hole No. 34 was down 402 feet 11 inches this afternoon, the core showing better than at first, when boulders were encountered, aggravating the drillers of a 45-degree hole. It has been the toughest assignment so far. In a vertical hole the boulders are pushed to one side by the drill but on an angle they drop down ahead of the drill and give constant trouble until granite is reached.

A total depth of 622 feet was reached at 45 degrees far under the river bed, before the engineers were satisfied with hole No. 4. That rig has been moved to higher ground and another is being placed aboard a raft, for borings a few feet out in the river which is nearing its low stage of the year.

"Grand Coulee" Hums.

Most of the recent construction activity is centered at the townsite of "Grand Coulee," on the former Putrie ranch, two miles up the hill from the river at the junction of the road leading down the coulee and the Grant county highway.

Two grocery stores and a lunchroom are perched on the edge of the road, which is being widened, while a bakery is being built on the opposite side, destroying the fossil beds there. The townsite is being promoted by Wenatchee interests.

A dance, well attended, was held at the dam Saturday night and a wrestling match was put on tonight to provide entertainment for the workmen.

Several parties of surveyors are still running lines between here and Wilbur, the road to which is in excellent condition.

B


OFFICE OF
CHIEF ENGINEER
OCT
24
1933
G. N. RY.
ST. PAUL, MINN.

At Seattle, Wash.,

October 22, 1933.

MR. BERNARD BLUM:

The map which you forwarded to Mr. Clark with your letter of October 18th showing the various possibilities of developing rail service to the Coulee Damsite should I think be useful to the traffic department in their study of the situation.

I note, however, you have omitted the cement plant located on the Great Northern at Grotto. This should be added as it is an exclusive G.N. plant, cited as giving them an advantage in the cement handling item.

Grotto-G.N. 158 miles
Irvin-N.P. 130 "

I think you should also show the approximate distance of branches projected to the damsite from Coulee, Mansfield and Brewster. It would also be well to add a notation showing the elevation above the damsite and the approximate distance from the damsite to the point where the lines from Mansfield and from Coulee will terminate.

out

My final tracing per comment from Revised white print

St. Paul, Minnesota
October 21, 1933.

Mr. J. T. Darrig,
Asst. to the Chief Engineer,
Northern Pacific Ry.
St. Paul, Minnesota.

Dear Sir:

In accordance with our conversation of October 20, 1933, I am attaching for your handling, the expense account which John C. Breedlove sent me under personal cover.

As you will note, this expense account is made up on the basis of 35¢ a meal for all meals which Mr Breedlove did not have furnished him by the company from September 1st ~~&~~ 1933 to October 17, 1933 both inclusive. Mr Breedlove is without doubt entitled to reimbursement of money spent by him on sustenance subsequent to October 7, 1933, the date on which the camp at Coulee was closed. But; while on account of Mr. Breedlove's very satisfactory performance of his duties, and the fact that his account as rendered probably does not exceed the amount which it would have been necessary to expend to furnish him the same number of meals at camp, I should, personally, be pleased to see

Mr J.T. Derrig:
Re: John C. Bradlove - Sheet #2 - 10-21-33.

the full allowance made him; the fact that the Company maintained a camp at Coulee for the purpose of feeding members of the survey party during the period from September 15th 1933 to October 7th, 1933 would seem to preclude the possibility of the allowance being made him for that period.

Mr Bradlove advises me that he is going to remain at Coulee for some time, and asks that the transportation which he recently requested be sent to him in care of Mr H.M. Tremaine, at Spokane.

Yours very truly,

C.B. Bouchard

N. P. 650 5-24

September 30 1933

I HAVE EXPENDED THE FOLLOWING AMOUNTS FOR NECESSARY EXPENSES WHILE TRAVELING IN THE SERVICE OF THE RAILWAY DURING THE MONTH OF September

HEADQUARTERS St. Paul. TERRITORY Grand Coulee Dam Survey.

DATE	PLACE	BREAKFAST	DINNER	SUPPER	LODGING	HOTEL	SLEEPING CAR	TELE-GRAMS		TOTAL	
9/1/33	Coulee Wash	.35		.35							70
9/2/33	"	.35		.35							70
9/3/33	"	.35	.35	.35						1.	05
9/4/33	"	.35		.35							70
9/5/33	"	.35		.35							70
9/6/33	"	.35		.35							70
9/7/33	"	.35		.35							70
9/8/33	"	.35		.35							70
9/9/33	"	.35		.35							70
9/10/33	"	.35	.35	.35						1.	05
9/11/33	"	.35		.35							70
9/12/33	"	.35		.35							70
9/13/33	"	.35		.35							70
9/14/33	"	.35		.35							70
9/15/33	"	.35		.35							70
9/16/33	"	.35		.35							70
9/17/33	"	.35	.35	.35						1.	05
9/18/33	"	.35		.35							70
9/19/33	"	.35		.35							70
9/20/33	"	.35		.35							70
9/21/33	"	.35		.35							70
9/22/33	"	.35		.35							70
9/23/33	"	.35		.35							70
9/24/33	"	.35	.35	.35						1.	05
9/25/33	"	.35		.35							70
9/26/33	"	.35		.35							70
9/27/33	"	.35		.35							70
9/28/33	"	.35		.35							70
Carried Forward.	TOTAL	9.80	1.40	9.80						21.	00

ATTACH HERETO COPIES OF ALL WESTERN UNION MESSAGES PAID FOR, AND RECEIPTS FOR SLEEPING CARS OR RY. FARES.

APPROVED:

J. A. Burdick

TITLE

OCCUPATION Rodman

N. P. 650/5-24

Sept 30 1933

I HAVE EXPENDED THE FOLLOWING AMOUNTS FOR NECESSARY EXPENSES WHILE TRAVELING IN THE SERVICE OF THE RAILWAY DURING THE MONTH OF September

HEADQUARTERS St Paul TERRITORY Grand Coulee Dam Survey

DATE	PLACE	BREAKFAST	DINNER	SUPPER	LODGING	HOTEL	SLEEPING CAR	TELE-GRAMS		TOTAL	
	Brought Forward	9.80	1.40	9.80						21	00
9/29/33	Coulee Work	35		35							70
9/30/33	"	35		35							70
	TOTAL	10.50	1.40	10.50						22	40

ATTACH HERETO COPIES OF ALL WESTERN UNION MESSAGES PAID FOR, AND RECEIPTS FOR SLEEPING CARS OR RY. FARES.

APPROVED:

J. A. Burdlow

TITLE

OCCUPATION Rodman

8731

At Seattle, Wash.,

October 21, 1933.

MR. D. F. LYONS:

Referring to Mr. Blum's letter to me of October 17th with copy to you, and copy of notice issued by the Columbia Basin Commission to the effect that they plan to use the Grand Coulee for a reservoir site and warning us that any location of a railroad below the proposed elevation of the storage reservoir will be at our own risk.

Do you think any reply should be made to this notice?

It is not my understanding that the Commission have acquired any property rights as yet in the canyon. I am therefore interested to know on what authority they claim the right to relieve themselves of damages which they may do to property which may be improved in advance of their acquiring ownership or start of construction.

Copy Mr. B. Blum

H. E. STEVENS

B


OFFICE OF
CITY ENGINEER
OCT
1933
CITY HALL
ST. PAUL, MINN.

M E M O R A N D U M

Mr. P. A. Larson:

I am attaching hereto list of maps and profiles which have been indexed, covering survey of the Grand Coulee preliminary line. The statement shows 27 separate exhibits and the data is now temporarily in Mr. P.R. Gibson's charge. He will turn this data over to you for filing as soon as he has completed his estimates.

J T Derrig
Asst. to Chief Engineer.

JTD-w

St. Paul, Minn.
Oct. 21, 1933.

cc - Mr. P.R. Gibson

NORTHERN PACIFIC RAILWAY COMPANY

GRAND COULEE DAM SURVEY

INDEX OF MAPS, PROFILES AND RECORDS.

Item No.

1 Detail Map of Preliminary lines, topography etc. 400' = 1"

2 " " " " " scale 2000' = 1"

3 Tracing" " " " " 2000' = 1"

4 " Profile of Preliminary Combined High & Low Line P^1-P-$P^1$$P^2$

5 " " " " Low Line P^1- P^4

6 " " " Various Alternate Preliminary Lines(Incomplete)

7 Incomplete Tracing Condensed Profile P preliminary 1 Mile-Horizontal 50 ft. Vert. to 1"

8 Hard Copy Profile P Line Mile Post 0 to 20

9 " " " P " Mile Post 20 to End M.P. 27.91

10 " " " P^1 & P^4 Lines (Low Line) M.P.0 to End MP 28.33

11 " " " P^1 Line M.P. o to M.P. 3.45

12 " " " P^1 Line M.P. 5.49 to M.P. 11.46

13 " " " P^1 Lines- MP 18.42 to MP 20.38 and MP 24.34 to MP 27.80

14 " " " P^2 Lines-MP 19.02 to MP 21.18 and MP 26.93 to MP 27.83

15 " " " P^3 Line MP 19.63 to MP 26.81

16 Preliminary Transit Note Book All Lines Sec.Ties Highway Ties, Etc.

17 " Topography Note Book Various Lines Book #1

18 " " " " " " " #2

19 " " " " " " " #3

20 " " " " " " " #4

21 " " " " " " " #5

22 " " " " " " " #6

23 " " " " " " " #7

24 " Office Note Book Computations, etc.

25 " Level Note Book Various Lines Book #1

26 " " " " " " " #2

27 " " " " " " " #3

R L
Return when filing is completed
JTD 10/30

M E M O R A N D U M

Mr. P. A. Larson:

I am attaching hereto list of maps and profiles which have been indexed, covering survey of the Grand Coulee preliminary line. The statement shows 27 separate exhibits and the data is now temporarily in Mr. P.R. Gibson's charge. He will turn this data over to you for filing as soon as he has completed his estimates.

JTD-w

Asst. to Chief Engineer.

St. Paul, Minn.
Oct. 21, 1933.

cc - Mr. P.R. Gibson:- This refers to the attached file. Will you please complete your estimates along the lines of my discussion with you yesterday with as little delay as possible turning notes over to Mr. Larson for file, advising when done.

J.T.D.

Saint Paul, October 18, 1933.

MR. J. T. DERRIG:

In accordance with our conversation of October 17th, I have indexed the maps, profiles and records of the preliminary work on the Grand Coulee Dam Survey, and am herewith delivering these to your charge.

Each item is marked with an index number as shown on the index which is attached hereto. This index covers only those records which I now have in St.Paul.

It was necessary for Mr. Gibson to retain some records at Coulee while completing the topography. These records, Mr. Gibson will mark for index and deliver to your charge upon his return to St.Paul.

A D Blanchard
Ass't. Engineer.

CC-P R Gibson
CDB-vml
enc

Mr Gibson
per completed index
Return file PRG 10/18

J.T.D. Have added one book #27 - Level Book #3 To list PR Gibson

Saint Paul, October 18, 1933.

MR. P. R. GIBSON:

You will please mark for index and deliver to the charge of Mr. J. T. Derrig such level note books and other Grand Coulee Survey records as you may have in your possession.

In assigning these records, index numbers, please make these ~~records~~ numbers continuous from the last number shown on the index list attached to my letter to Mr. Derrig on this subject, copy of which you have.

Ass't. Engineer.

CC-J T Derrig

CDB-vml

NORTHERN PACIFIC RAILWAY COMPANY

GRAND COULEE DAM SURVEY

INDEX OF MAPS, PROFILES AND RECORDS.

Item No.

1 Detail Map of Preliminary lines, topography etc. 400' = 1" Tracing 382-21

2 " " " " " scale 2000' = 1" 743-23

3 Tracing " " " " " 2000' = 1" 743-23

4 " Profile of Preliminary Combined High & Low Line P^1-P-P^{1p}-P^2

5 " " " " Low Line P^1- P^4

6 " " " Various Alternate Preliminary Lines(Incomplete)

7 Incomplete Tracing Condensed Profile P preliminary 1 Mile-Horizontal 50 ft. Vert. to 1"

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12 " #4 " " " P^1 Line M.P. 5.49 to M.P. 11.46 See Item 4

13 " #6 " " " P^1 Lines- MP 18.42 to MP 20.38 and MP 24.34 to MP 27.80 See Item 6

14 " #4 " " " P^2 Lines-MP 19.02 to MP 21.18 and MP 26.93 to MP 27.83

15 " " " P^3 Line MP 19.63 to MP 26.81

16 Preliminary Transit Note Book All Lines Sec.Ties Highway Ties, Etc. 16695

17 " Topography Note Book Various Lines Book #1 16696

18 " " " " " " " #2 16697

19 " " " " " " " #3 — #16698 Combined

20 " " " " " " " #4 —

21 " " " " " " " #5 —

22 " " " " " " " #6 16699

23 " " " " " " " #7 16698 2

24 " Office Note Book Computations, etc. 16700

25 " Level Note Book Various Lines Book #1 16701

26 " " " " " " " #2 16702

27 " " " " " " " #3 16703

28 Tracing of Item #1 - Prel. Line Topography with Projected line Showing detail of prop. conn. at Odair 400'=1" #382-21

29 " Proposed line scale: 2"=1 mile Topographic data from U.L. Grove, Survey 1929-1930

MEMORANDUM

8731

Mr. P. A. Larson:

I am attaching hereto list of maps and profiles which have been indexed, covering survey of the Grand Coulee preliminary line. The statement shows 27 separate exhibits and the data is now temporarily in Mr. P.R. Gibson's charge. He will turn this data over to you for filing as soon as he has completed his estimates.

JTD-W

Asst. to Chief Engineer.

St. Paul, Minn.
Oct. 21, 1933.

cc - Mr. P.R. Gibson:-

enc

This refers to the attached file. Will you please complete your estimates along the lines of my discussion with you yesterday with as little delay as possible turning notes over to Mr. Larson for file, advising when done.

J.T.D.

8231

St. Paul, Minn., Oct. 20, 1933

Mr. J. T. Derrig:

In accordance with our discussion this afternoon I wish you would see that the detailed estimate and sketches for the Grand Coulee Branch be completed as promptly as possible, and also arrange with Mr. Terrell to have maps, etc., made necessary to make an application to the I.C.C. for certificate of convenience and necessity.

BB:wp

cc Mr. A.C.Terrell

N.P. File 8731-2

DEFENDANT'S EXHIBIT 4142

8731

October 18 1933

Mr Bernard Blum:
Chief Engineer

Attached hereto is a preliminary cost estimate of the low line from Odair Junction to a point above the Columbia River dam site near the head of Grand Coulee.

I have seen the preliminary estimate which was partially based upon the quantities contained in my A-15 wire to you of September 29th and since the attached estimate shows an increase of $97000.00 over that estimate the following comments upon this difference are perhaps in order:

ACCT # 1 - Engineering

This increase is, of course, due to the general increase.

ACCT #2 - Land

This increase is due to a difference of opinion concerning assumed land values. My opinion is that $74000 will be none too large since the line cuts through what undoubtedly is considered the most valuable land from an agicultural viewpoint, in the coulee.

ACCT #3 - Grading

Since my wire report of Sept 29th I have refigured the quantities and added 155 acres of sage brush clearing. This, together with a difference in pricing effects the increase in this account.

ACCT #6 - Bridges, Trestles, and Culverts

The addition of $15000 for a possible grade separation of State Highway #10 together with some revision of culvert pipe quantities accounts for this increase.

ACCT #8 - Ties

This increase is due to the addition of three sets of switch ties.

ACCT #10 - Other track material

The increase in this account is due to the addition of three turnouts. I estimated an additional track at Odair; a passing and loading track near MP 15, which is where the Barker Canyon road joins the Coulee road; and two tracks at the end of line.

ACCT #12 - Tracklaying and Surfacing

Increase due to the addition of three turnouts.

ACCT #13 - Right of Way fence

No allowance in previous estimate.

ACCT #16 - Station & Office Building

Buildings estimated for both MP 15 and end of line

ACCT #76 - Interest during construction

Increase due to general increase

This estimate completes my work on the Grand Coulee Dam Preliminary Survey. A summary of the grading quantities has been shown on the tracing of the low line profile and all maps, profiles and records have been indexed and delivered to Mr J T Derrig.

This summary removed Oct 23, 33 from profile and placed on separate sheet PRS

C D Blanchard

Asst Engineer

CDB J

J T Derrig

enc

N. P. File 8731-2

DEFENDANT'S EXHIBIT 4141

NORTHERN PACIFIC RAILWAY - GRAND COULEE DAM SURVEY

PRELIMINARY ESTIMATED COST OF BRANCH LINE FROM ODAIR JCT TO PROPOSED COLUMBIA RIVER DAM SITE BASED ON LOW LINE FOLLOWING, GENERALLY, THE FLOOR OF GRAND COULEE.

Main track 28.5 mi
Other track ~~1.5 mi~~ 4.0 32.5
Total 30.0 Mi

ACCOUNT NO	ITEM	UNIT	NO OF UNITS	UNIT PRICE	AMT	TOTALS
1	Engineering 6%				42315	42315
2	Land (including severance etc)	Acres	370	200.00	74000	74000
3	Grading					
	Sage brush clearing	"	155	50.00	7750	
	Common excavation	CY	303250	0.25	75813	
	Hard pan "	"	16850	0.55	9268	
	Loose rock "	"	29100	0.65	18915	
	Solid rock "	"	51000	1.15	58650	
	Hand placed riprap	"	1040	4.50	4680	
	Overhaul Class A	Sta CY	300000	0.015	4500	
	" " B Zone 1	" "	427000	0.015	6405	
	" " B " 2	" "	1201000	0.01	12010	
	" " B " 3	" "	1177000	0.0075	8828	
	Contingencies 3%				6205	213024
6	Bridges, trestles & culverts					
	Pile and frame trestles (6 pile trestles 25 spans 369 ft)					
	Piling below cutoff	LFt	4300	.55	2365	
	" above "	"	850	.45	383	
	Stringers	MFBM	30000	36.00	1080	
	Other timber	"	19000	33.00	627	
	Iron	Lbs	3150	.07	221	
	Galv iron	"	3000	.07	210	
	Excavation for end bents	CY	150	.75	112	
	Haul on piling	LFtMi	72100	.015	1082	
	" timber	MFBM Mi	686000	.75	515	
	Add for possible grade separation of State Highway #10 on Mile 1				15000	
	Pipe and timber culverts					
	24" corrugated iron pipe	LFt	48	3.00	144	
	36" " " "	"	1912	4.00	7648	
	48" " " "	"	1488	6.00	8928	
	Culvert excavation	CY	700	1.00	700	
	Haul on pipe	Ton Mi	4000	.80	3200	
	Transportation of men and Mail				2000	44215
8	Ties					
	Cross ties untreated 7x8x8	Ea	86400	.65	56160	
	Switch ties " 11 sets	MFBM	32.516	17.00	553	
	Bridge ties	"	20.000	27.50	550	
	Transportation of material				16000	73263
9	Rail					
	100# rail 3rd Cl 105600 ft	GT	1571.429	20.75	32607	
	90# " " " 195360 ft	"	2616.429	20.75	54291	
	90# do 15360 ft	"	205.714	20.75	4269	
	Frt from St Paul				36423	127590
10	Other track material					
	100# angle bars SH	Cwt	2503.68	2.60	6510	
	90# do SH	"	3352.20	2.60	8716	
	90# do SH	"	271.95	2.60	707	
	100/90 compromise joints	Pr	2	6.50	13	
	100# bolts	Cwt	312.96	4.10	1283	
	90# bolts	"	538.77	4.10	2209	
	90# "	"	43.71	4.10	179	
	100# nut locks	M	13.040	28.50	372	

See Russell Estimate 1937 28 Jan 37 for Report of 15 Feb

10	Other Track Matl cont					
	90# nut locks	M	24.160	28.50	689	
	90# do	M	1.960	28.50	56	
	Track spikes 6"	Cwt	2271.00	2.95	6710	
	90# rigid forg #9 13'6"	Ea	11	95.00	1045	
	90# Guard rail 8'3"	Set	11	39.00	429	
	90# split switch 16'6"	Ea	11	127.50	1403	
	Switch stands Hi Ban Incl Con Rd SH	Ea	11	18.00	198	
	Switch lamps	Ea	11	9.00	99	
	" locks	Ea	11	1.00	11	
	Frt on matl				5700	
						36329
11	Ballast					
	Gravel ballast for surfacing	CY	30000	.65	19500	
						19500
12	Tracklaying & surfacing					
	Lay and initial surface 100# rail	Mi	10.00	1600.00	16000	
	do 90#	Mi	20.00	1570.00	31400	
	Place turnouts	Ea	11	110.00	1210	
	Place and frame bridge ties	MFBM	20.00	16.00	320	
	Place gravel ballast	CY	30000	.45	13500	
						62430
13	Right of Way fence					
	Standard stock fence	Mi	36	300	10800	
	Sheep tight	Mi	20	550	11000	
	16 ft gates	Ea	110	10	1100	
						22900
15	Crossings & signs					
	Excavation common	CY	2500	.25	.625	
	" Hard Pan	CY	500	.55	275	
	Crossing plank	MFBM	5000	35.00	175	
	Iron	Lbs	250	.07	18	
	Transportation of man & Matl				27	
	Signs				600	
						1720
16	Station & office building					
	Combination depot 20x48	Ea	2	3200	6400	
	Depot platform	Ea	2	300	600	
	Furniture & fixtures	Ea	2	350	700	
	Loading platform 12x51 Plan 218A	Ea	2	835	1670	
	Depot privy	Ea	2	170	340	
	Coal shed 9x9' frame	Ea	2	80	160	
	Transportation men & Matl				2310	
						12180
17	Roadway bldgs					
	Section house 22x36	Ea	1		2500	
	Bunk house		1		450	
	Tool house	Ea	1		125	
	Privy	Ea	2	115.00	230	
	Transportation men & Matl				400	
						3705
18	Water stations					
	Water station complete		1		10000	
	Freight				800	
						10800
19	Fuel stations					
	Coaling platform 16x80 plan 197		1		600	
	Freight				50	
						650
26	Telegraph & telephone Lines					
	2 wire telegraph line #9 copper				9500	
	Transportation mean & materials				1200	
						10700
37	Roadway machines					
	Sections cars				250	250
38	Roadway Small tools					
	Section tools				200	
						200

71 to 75 & 77	General Expense	2500	2500
76	Interest during construction 6% for nine months	30374	30374
	GRAND TOAL		788,645
	Estimated cost per main line Mi		27,672

8731

St. Paul, October 18, 1933

Mr. A. C. Terrell:

Can you let me have, without checking additions and betterments that may have been done recently, statements of valuation of the Connell Northern line as follows:

Connell to Bassett Junction
Bassett Junction to Adrian
Adrian to Odair

There has been some discussion about the Great Northern, for example, taking rights on the Connell Northern from Adrian to Odair in connection with the Grand Coulee Dam work and we may be asked for approximate figures as to what is involved.

MB h

St. Paul, October 18, 1933

Mr. R. W. Clark:

There have been several discussions about possible movement of traffic anticipated in connection with the construction of the proposed Grand Coulee Dam. Map has been prepared showing the tracks of various railroads. There is also shown condensed profile from Seattle and Portland via the various roads through suitable connections as far as Odair, from where we have tentatively laid out a line of railroad to the dam site. Track connections between the Great Northern, Milwaukee, SP&S and Northern Pacific are shown.

The location of cement and lumber shipping points with railroad service to same is shown on the plat. There is also a table of distances from the principal shipping points to Odair via the several railroads.

This map may be of some value to you in working out routing, etc. and for other purposes which may arise in connection with this work. Two prints are attached.

BB:h

cc Mr. H. E. Stevens

St. Paul, October 17, 1933

8731

Mr. H. E. Stevens:

I am attaching copy of letter from the Secretary of the Columbia Basin Commission, serving notice that any construction by us of proposed Coulee Dam Branch at a level below the proposed reservoir, namely elevation 1570 above sea level, will be at our own risk.

I don't know how much legal value this notice has although I think that in our discussion we have assumed that where our line might be built below the above stated elevation it would be necessary for us to reconstruct same in case it was decided that a railroad should serve the dam site after the high dam had been completed.

There is, of course, considerable question as to what value a railroad would have serving the dam after such date, although I am of the opinion that the Government would desire it. This, of course, leads to the question as to negotiations with the Government or the State on the cost of raising certain portion of our line above the water level of the reservoir.

At any rate I think there is no question that the time before the water could be impounded in such storage reservoir would be more than ten years from now and due consideration to this question will be given in our estimates of the various lines.

I presume it is not necessary to acknowledge this letter, for the reason that if we do so without protest, it may serve as an acknowledgment of their rights in the matter, and it hardly seems necessary at this time to acknowledge it under protest as I do not believe anything would be gained by such position.

BB:h

cc Mr. D. F. Lyons
Mr. J. L. Watson

On Idaho Division,

October 17, 1933.

MR. BERNARD BLUM:

Drove over the proposed location of a railroad from Coulee City to the Grand Coulee Damsite yesterday and I will want to talk with you about this matter on my return.

Meanwhile I wish you would proceed promptly to get out the detailed estimate, sketches, maps, etc., necessary to make an application for a certificate of convenience and necessity.

8731

Saint Paul, Oct. 17, 1933.

Mr. Bernard Blum:

In compliance with your verbal instructions, I am arranging to close out the Grand Coulee location party as outlined in my letter of this date to Mr. Blanchard attached. I have requested Mr. Blanchard to index his notes and maps and turn same over tomorrow for filing in the drafting room. Mr. Gibson will return to St.Paul Thursday night and I will carry him on the Grand Coulee payroll until Saturday having him supervise the placing of the balance of the topography notes on the hardshell map. This should all be completed by Saturday night the 21st.

I have furnished Mr. Blanchard transportation to Seattle and return to St.Paul so that he will be in a position to get his family from Coulee at his convenience.

If the arrangement as above outlined meets with your approval will you please arrange to issue time check to Mr. Blanchard up to and including October 18th, arranging for refund adjustment of advance expenses which you have allowed him. ($200.00)

Cash to Accounts 10/19/33. JTD 10/19

JTD-w
cc - C.D. Blanchard

Asst. to Chief Engineer.

8731

Saint Paul, Oct. 17, 1933.

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JTD-w

Asst. to Chief Engineer.

cc - C.D. Blanchard

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul Oct. 17 , 1933

P R Gibson

Coulee, Wash.

Mr. Blum is wiring Tremaine today to issue time check to Breedlove to the 17th inclusive charging Grand Coulee Survey. D-101

J T Derrig

N. P. 1386 12-24

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TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul, Oct. 17, 1933

P. R. Gibson
Coulee, Wash

H. M. Tremaine
S pokane, Wash.

Sending check number one tenight for Breedlove care

Tremaine, Spokane. D-100

J T Derrig

cc C D Blanchard

8731

St Paul, October 17, 1933

Mr. H. E. Stevens:

Referring to the Grand Coulee dam survey party which is being laid off:

We set up Paul Gibson from Maintenance Instrumentman to Transitman at an increase of pay of $25 and likewise set up F. B. Darling from Maintenance Rodman to Levelman with an increase of $42.50 per month. This made it necessary to drop their authorities on the regular maintenance parties and I am transmitting herewith Form 202 restoring them to their former positions at rates less than they were obtaining under the survey authority.

BB h

Saint Paul, Oct. 17, 1933.

Mr. C. D. Blanchard:

Confirming our discussion today about closing out payroll for the Coulee Survey:

Please prepare time return on basis of carrying your time to October 18th, inclusive. Carry Breedlove on your payroll until 17th, inclusive. I will arrange to have Mr. Tremaine issue time check in Spokane on his arrival there tonight. Kugler will be released on his arrival in St. Paul the 20th. Henry's time should be charged to the Grand Coulee Survey until he returns to Spokane today, the 17th inclusive.

I figure on carrying Gibson on this payroll until the 21st, inclusive, which will give him sufficient time to turn in his notes and records when he arrives on St. Paul. Mr. Rochon is handling the Form 202 on the above basis, and you should close out your payroll as of the above dates.

In submitting your payroll, please indicate if you have any outstanding board orders or obligations against the payroll.

Asst. to Chief Engineer.

JTD-w

cc - J.H. Rochon.- Please arrange to wire Mr. Tremaine to issue time check in favor of J.C. Breedlove for the amount of payroll as submitted by Mr. Blanchard.

J.T.D.

The Seattle Daily Journal Of Commerce

October 17th 1933

Excavation Work at Grand Coulee Damsite Will Start About Dec. 1, Employing 900 Men, Board Reports

ALMIRA—Excavation work, giving employment to about 900 men, probably will start December 1 at Grand Coulee damsite, 20 miles north of Almira, it is announced by the branch office of the Columbia Basin commission here.

Plans were rushed to furnish work for excavating for the dam abutments as a relief measure, but so much preliminary work remained that it cannot be started under six weeks, according to the commission.

War veterans will be given preference on relief work and were instructed to register with the veterans unemployment relief bureau, federal building, Seattle. Others should register with the federal reemployment bureaus, located in all counties of the state.

Plans for the cantilever steel bridge to span the Columbia a half mile below the damsite, were being hurried by the state highway department. Work on the structure probably will start in two weeks. The bridge will cost about $650,000.

Blue prints neared completion for construction of a government camp for reclamation bureau engineers on the 87-acre Charles Osborne place, a half mile below the damsite. Seventy-five dwellings and office buildings were included in plans. Work will start in 10 days and will be handled by contractors. A branch office of the Columbia Basin commission will be located at the government camp, where all applications for employment will be passed on next spring.

It was expected that 3,000 men will be at work at the dam, March 1, 1934. About 1200 will be at work this winter.

B

B Blum

10/19/33

8731

2