Northern Pacific Railway Company. Engineering Department Records.

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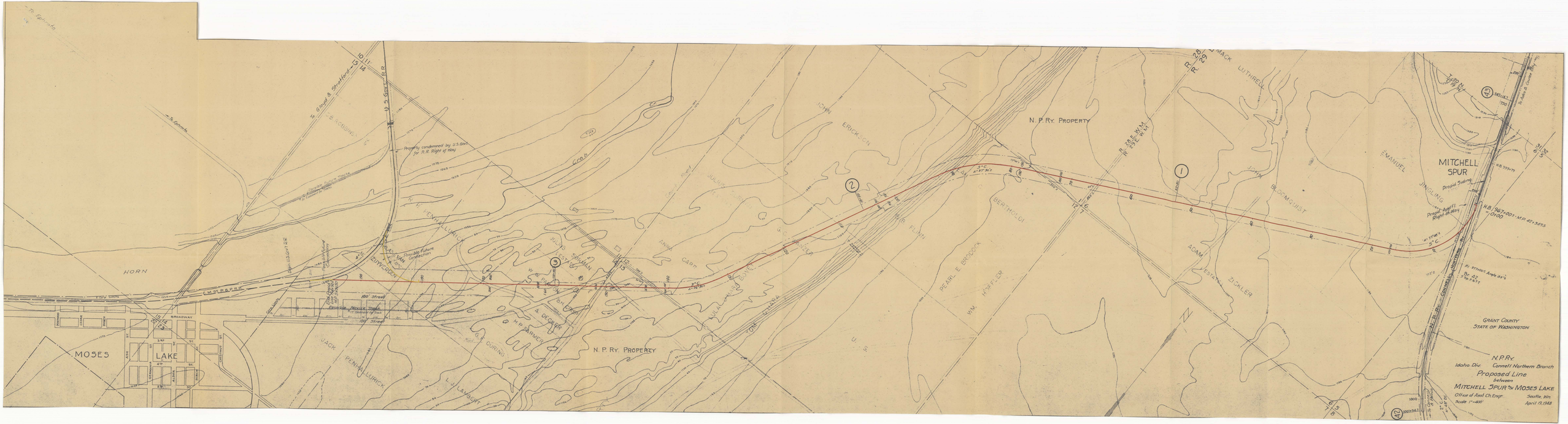
Version 3
August 20, 2018


MOSES LAKE
BROADWAY
C.M.St.P.&P.R.R.
N. P. Ry. Property
N. P. Ry. PROPERTY
MITCHELL SPUR
Proposed Siding
Proposed Right of Way
Grant County
State of Washington
N.P.Ry.
Idaho Div. Connell Northern Branch
Proposed Line
between
MITCHELL SPUR & MOSES LAKE
Office of Asst. Ch. Engr. Seattle, Wn.
Scale 1"=800' April 19, 1948

10774

Saint Paul, April 21, 1948

MR. J. T. DERRIG:

Herewith for your information and file is print of Exhibit A prepared to accompany our application to the I.C.C. for permission to construct a line from Mitchell Spur on the Connell Northern to Moses Lake.

bb/s

att.

Saint Paul, April 21, 1948

MR. L. B. daPONTE:

In accordance with verbal request we have prepared exhibit map to accompany application to the I.C.C. for certificate of public convenience and necessity, authorizing the construction of a line of railway from Mitchell Spur on our Connell Northern Line to MOSES LAKE, Washington.

Twelve prints are enclosed for transmittal to the Commission and an additional copy for your file.

bb/s

att.-B3

Saint Paul, April 21, 1948

MR. W. W. JUDSON:

A few days ago Mr. Conrad Olson telephoned me asking that I have prepared the usual exhibit map to accompany application for construction of a railroad from the Washington Central Branch to Moses Lake in the COLUMBIA BASIN.

I am attaching print of the exhibit map which we have had prepared.

There is now a large irrigation district at Moses Lake which has been very prolific in crops and with the construction of the Columbia Basin irrigation district there will be considerably more production and this line should prove of considerable benefit to the Northern Pacific. Moses Lake as you know is now served by the Milwaukee.

I was advised some months ago that Mr. Denney in company with Mr. Macfarlane and Mr. Berry looked over the ground. Last year when in Seattle I found that the Industrial Department were working on the matter of right of way.

Mr. Derrig has prepared maps based on topographical maps prepared by the Bureau of Reclamation. The line itself has not been run out, as it was considered that it might serve to increase the land values for right of way purposes.

bb/s

att.
2x

BERNARD BLUM

Select
Fidelity Onion Skin
MADE IN U.S.A.

Saint Paul, April 21, 1948

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bb/s

att.
2x

St. Paul, Minnesota
April 21, 1948

Mr. Bernard Blum:

Your letter of April 6th with reference to application to the Interstate Commerce Commission for certificate of public convenience and necessity authorizing construction of line from Mitchell Spur to Moses Lake, Washington.

Herewith sixteen prints of sketch showing proposed line to accompany the application being prepared by the Law Department, twelve copies for transmission to the Interstate Commerce Commission with application and four extra copies.

W. H. JAHN

FMM:K
Enc.

To Cheney

T. 22 N.
T. 21 N.

FIRST UNIT OF EAST COLUMBIA BASIN IRRIGATION DISTRICT

GLOYD SPUR

T. 21 N.
T. 20 N.

R. 28 E.
R. 29 E.

R. 28 E.

NORTHERN PACIFIC RY.

East Low Canal

GRANT COUNTY

R. 29 E.
R. 30 E.

T. 20 N.
T. 19 N.

MITCHELL SPUR

U.S. GOV. R.R.

PROPOSED LINE

MOSES LAKE IRRIGATION DISTRICT

MOSES LAKE

WHEELER

MOSES LAKE

ATWOOD SPUR

T. 19 N.
T. 18 N.

C. M. ST. P. & P. R. R.

SIELER

To Connell

N

EXHIBIT "A"
N.P.Ry.
Proposed Line
between
MITCHELL SPUR AND MOSES LAKE
WASH.
Scale: 1" = 1 Mile
Office of Chief Eng. St. Paul, Minn. April 8, 1948

St. Paul, Minn., April 21, 1948

Mr. Bernard Blum:

Mr. Alsip has sent me copy of Mr. Derrig's letter of the 14th to you about the Moses Lake industrial development, in which it is implied that we are to make an application for building a branch line, etc.

What is going on? The last thing appearing in our file is a letter from Mr. Bartles of August 26, 1946, transmitting copy of a letter from Mr. Derrig to him, about the Columbia Basin Project in general. It included a print which does show the so-called Moses Lake project.

W C Gudson

OFFICE OF
CHIEF ENGINEER
APR
21
1948
NOR. PAC. RY.
ST. PAUL, MINN.

Seattle, Washington
April 14, 1948

717-1

Mr. Bernard Blum:

Moses Lake - Industrial Development

In reference to your letter of April 6 to Mr. Jahn requesting compilation of data for application to the I.C.C. in connection with the construction of a 4-mile spur track to Moses Lake and with particular reference to your footnote making inquiry as to whether this line was run out on the ground:

Please be referred to my letter of June 9 to Mr. Williams, copy of which was forwarded you with separate letter on the same date, calling attention to the fact that the map was made from a government topographical map upon which was shown contours 2' intervals and that the alignment and projection is the best that can be accomplished without actually running out the alignment on the ground.

I have discussed the projection as shown on this map with Messrs. Williams and Macfarlane, and only recently with Mr. Moore, and it was the opinion of both Messrs. Williams and Macfarlane that it would not be advisable to do any survey work on the ground, as it would materially affect right of way values. I have accordingly purposely kept away from Moses Lake in order that there would be no indication of activity development in the way of a survey.

Vault File 397-24

The government maps are platted very accurately, and for your information I am forwarding you four prints of the government topog maps, together with index reference shown on separate sheet attached. This map covers the entire area in the vicinity of the spur, and you will observe that the maps are apparently very accurately platted. Certainly, this information could not be obtained without very exacting work. Accordingly, I feel that our map is sufficiently correct for buying the required right of way.

It might be that we would want to make some slight adjustment on the alignment just below the long cut, but with modern equipment, I think that our grading price would justify the haul and balance the quantities. This part of the line which, if found necessary, is over a portion of the right of way which is not expensive and any minor adjustment could be made when and if the alignment is run out and cross sectioning completed.

It is my understanding Mr. Williams encountered some right of way difficulties in dealing with local property owners on the basis of the plan dated June 4, 1947 and accompanying my letter of June 9, and requested a revised print showing the leg of the wye and the proposed spur track leading from the government spur to be deleted, also that the alignment for the 400' right of way strip for station development be revised to permit the development of business blocks along Broadway. I have accordingly arranged to revise the map in the vicinity of the station grounds as requested by Mr. Williams, calling his attention to the fact that it would seem advisable to obtain right of way for a future wye. I am now attaching print of the revised map along the lines desired by the Industrial Department.

While the revised map does not provide as good a layout as that shown on the sketch accompanying my letter of June 9, it is, I understand, the best that can be obtained from negotiations with the property owners, and I see no engineering objection to the arrangement as proposed on the revised map.

It is my understanding the local community have in mind retaining about 75 acres for future development, and expression has been made that it is the desire of the community to have both railroads serve the property. It is evident that the Milwaukee have become aware of the fact that we are considering this extension and have possibly approached these property owners.

In order that the Northern Pacific Railway Company's interests may be fully protected for tonnage originating along its main track on the so-called Wheeler Bench, I think it might be advisable for the Railway Company to obtain some property outside of the 400' strip that would preclude the Milwaukee extending their track in the future beyond the present corporate limits as shown on the attached map.

I am forwarding you print of the projected spur on right of way, revised February 1948, indicating property that might be required for industrial protection leading from a possible extension of the Milwaukee trackage. I have discussed this alignment and map with Mr. Moore, and he states that the alignment and ties shown thereon are sufficient for his requirements in obtaining option for the property.

JTD:dl
Encs.
cc RSM
JFA
JTM

Asst. Chief Engineer

OFFICE OF CHIEF ENGINEER
APR 19 1948
NOR. PAC. RY.
ST. PAUL, MINN.

Seattle, Washington
April 14, 1948

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J. T. DERRIG
Asst. Chief Engineer

JTD:dl
Encs.
cc RSM
JFA
JTM

Index of data forwarded to BB with JTD letter 4/14/48

U. S. DEPT. OF THE INTERIOR

BUREAU OF RECLAMATION

COLUMBIA BASIN PROJECT - WASH.

TOPOGRAPHY & RETRACEMENT

T. 19N. R. 29E. W.M.

Scale 1" = 1000' - Contour Interval 2'

EPHRATA, WASH. 5-29-41

U. S. DEPT. OF THE INTERIOR

BUREAU OF RECLAMATION

COLUMBIA BASIN PROJECT - WASH.

TOPOGRAPHY & RETRACEMENT

T. 20N. R. 28E. W.M.

Scale 1" = 1000' - Contour Interval 2'

EPHRATA, WASH. 5-29-41

U. S. DEPT. OF THE INTERIOR

BUREAU OF RECLAMATION

COLUMBIA BASIN PROJECT - WASH.

TOPOGRAPHY & RETRACEMENT

T. 19N. R. 28E. W.M.

Scale 1" = 1000' - Contour Interval 2'

EPHRATA, WASH. 5-29-41

Additional Print

U. S. DEPT. OF THE INTERIOR
BUREAU OF RECLAMATION
COLUMBIA BASIN PROJECT - WASH.

MAIN CANAL LAYOUT

BETWEEN TRAIL LAKE AND
LONG LAKE RESERVOIRS

Ephrata, Wn. May 1941
Scale 1" = 400'

St. Paul, Minnesota
April 13, 1948

Mr. F. W. Stetekluh:

It has been decided to make application to the Interstate Commerce Commission to construct a branch line from a point known as Mitchell Spur on the Connell Northern Branch, a distance of approximately four miles to Moses Lake, Washington.

Anticipating questionnaire in connection with this application, will you please furnish the following:

Exhibit F

If the applicant is a going concern, copies of the income account for the five preceding calendar years and for the months of the current year for which the figures are available; also copies of the latest profit and loss account and general balance sheet.

St. Paul, Minnesota
April 13, 1948

Mr. J. T. Derrig:

It has been decided to make application to the Interstate Commerce Commission to construct a branch line from a point known as Mitchell Spur on the Connell Northern Branch, a distance of approximately four miles to Moses Lake, Washington, as shown on the attached map.

Anticipating questionnaire in connection with this application, will you please furnish answers to the following questions:

(14) The names of common carrier railroads with which the line would connect, and the proposed points of track connection.

(32) The dates on which it is expected to begin and to complete the construction of the proposed new line of railroad.

(33) The engineering work in full detail which has been done with respect to the proposed new line at the time of filing the return.

(34) The following details concerning the line to be constructed:

(a) The gage and number of main line tracks.

(b) Weight of rail for main line track.

(c) Rate of maximum grade in each direction, and whether and how compensated for curvature.

(d) Rate of limiting grade that will fix train loading in each direction, and whether and how compensated for curvature.

(e) If helper grades are to be used, the location, length, rate, and direction of ascent for each.

(f) The maximum rate of curve.

(g) The average amount of curvature per mile, in degrees.

(h) The approximate length and height of wooden trestles or other temporary construction.

(Details under this paragraph not fixed by survey are to be estimated from reconnaissances so far as possible.)

Also the following exhibits will be required:

A. A copy of the engineering report of reconnaissance for the proposed line, if records of location surveys are not submitted.

C. A map of the location projected or actually staked for the proposed line, if such location has been made. This map should show the alignment in detail, with the usual topographic features added. Small maps may be folded accordion fashion to conform to the size of the return. If more than 12 feet long, the maps should be submitted in a continuous roll.

D. A copy of the best available profile of the proposed line. If more than 12 feet long, submit in a continuous roll, otherwise fold to the size of the return.

E. (1) A detailed estimate of the cost of building the proposed line, with all the necessary appurtenances (except equipment), classified by Interstate Commerce Commission primary accounts; also a concise detail of estimated quantities and prices covering what is set down under Accounts 3 to 12, inclusive. Details may be required for other principal accounts. A complete estimate showing quantities and prices in reasonable detail may be submitted in any form.

78
37 30
26 30
4) 142
35°

289

St. Paul, Minnesota
April 12, 1948

Mr. R. W. Clark:

It has been decided to make application to the Interstate Commerce Commission to construct a branch line from a point known as Mitchell spur on the Connell Northern Branch, a distance of approximately four miles to Moses Lake, Washington as shown on the attached map.

Anticipating questionnaire in connection with this application, will you please furnish answers to the following questions:

(8). Whether the line proposed to be constructed, acquired, or operated would receive material revenue from the territory traversed, or serve any material public convenience and necessity of the local territory.

(9) The name, area, and population of each county in which the new line is to be constructed, or in which the line to be acquired or operated is located, and the name and population of each city, town, and village at which a station would be or is established, together with its distance from a designated initial point, with the source of information as to population.

(10) The names of places mentioned in paragraph 9 that are now served by common carrier railroads (excluding street railways), and the name of each such carrier serving the several places.

(11) The names of the places mentioned in paragraph 9 that have no common carrier railroad service, the distance in miles of each such place from the nearest station on a common carrier railroad, the name of each such railroad and the character of the connecting highway.

(12) The name and population of each city, town, and village (together with state and county in which located), within the area to be served but not on the proposed route.

(13) The approximate distance in miles by highway from the nearest station on the line to be constructed or acquired to each of the places mentioned in paragraph 12, and the names of all common carrier railroads that now serve each of the places.

(15) The number of common carrier truck and bus lines operating in the area to be traversed by the line, and the character of service performed by each.

(16) The general character of the country which the line would serve. Indicate whether it is level, rolling, mountainous, cultivated, pasture, prairie, desert, rocky, or timbered, etc.

(17) The approximate area of the territory to be served by the line, an estimate of the population therein, and the area,

(1) in timber,
(2) in pasture, and
(3) under cultivation.
(See General Instructions)

(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.

(20) What carriers now serve these industries, and to what extent.

(21) Whether the chief support of the line to be constructed or acquired would 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 applicant's contractual or financial relation thereto.

(22) Whether the proposed line of railroad would be built, acquired, or operated primarily for a direct profit from railway operation, or for the advantage of any other industry or business. If for the latter, state what industry or business would be so benefited, what such advantages would be, and the applicant's contractual or financial relation to said industry.

(23) If the line is to be or is an extension of an existing railroad, or a branch, connecting track, or cutoff, the extent to which it is expected to be directly profitable in itself, and the extent to which it is expected to be justified by its effect on the business of the existing line.

(24) If the line is to be a connecting link between existing railroads, the kind and volume of traffic, expressed in tons or carloads, that probably would be interchanged, and the economies that would be effected by such interchange.

(25) Of the interchange traffic mentioned in answer to paragraph 24, what part, expressed in tons or carloads, cannot be hauled or moved by existing railroads or truck lines.

(26) The facts concerning any agreement, tentative or otherwise, with existing carriers, covering operation, interchange of traffic, division of rates, or trackage rights, in connection with the line.

(29) 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 of operation, together with an estimate of the annual gross 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, also chief points or territories of origin and destination.

(31) 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.

10774

Saint Paul, April 6, 1948

MR. W. H. JAHN:

It has been decided to make application to the I.C.C. to construct a spur from the Connell Northern line near WHEELER to MOSES LAKE.

Attached is my file 10774 containing map dated April 30 1947 and profile with projected line shown as having been made June 4, 1947.

Mr. Derrig's letter of June 9 gives his estimate of the cost of constructing the 4-mile spur. Will you arrange to have made up the usual application drawings and develop the information for the answers to the questionnaire.

cc—Mr. J. T. Derrig

Mr. Derrig: Was this line definitely run out; and what further field work is required to establish the definite location?

bb/s

att.

10774

Memo Seattle 8/23-47

Mr Blum

Thought You might be intrested in the "Buffalo Bunch at Moses Lake-Real Estate."

The Potato Crop is reported better than last year. This is a Farmers Year, not a Tavern Year. Now that the Slot Machines are Closed.

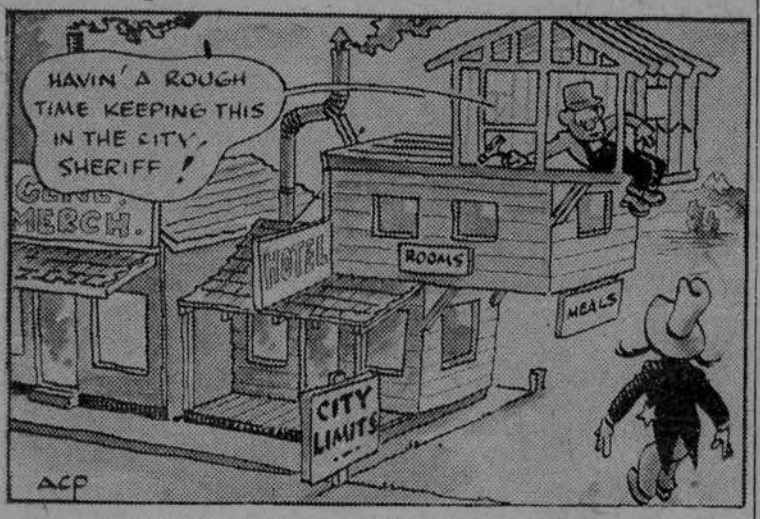
R.D. 8/27-47

B

AUG 28 19

Seattle Times
FRIDAY, AUGUST 22, 1947.

Moses Lake, Once Wild Spot For Speculators, Has Calmed



By BYRON FISH
Times Staff Correspondent

MOSES LAKE, Grant County, Aug. 22.—All the boys were whooping it up along the main street of Moses Lake when a rider, at full gallop, came thundering into town. He dismounted on the run and burst through the swinging doors of the "O. K. Realty Bar," where lots were sold by the jigger or the barrel.

"Boys," shouted the haggard, dusty rider, "the government has gone on a non-spending spree. The reclamation program is mebbe gonna run out o' cash."

There was a lot of sobering up in the next few months. Land deeds that were getting frazzled from changing hands so often, found time to rest in safe deposit boxes.

Up until last summer, Moses Lake was giving a small imitation of Florida in 1929. A tavern that had sold for $3,500 in 1938 brought $32,500 in 1946. Another one changed hands at a reputed $50,000. Lots that owners were glad to ret rid of at $175, eight years ago, were swapping hands at $100 a front foot and up.

Calm Has Fallen

Comparatively speaking, a great calm has fallen on Moses Lake this summer. The place is still busy and still optimistic, but real estate speculators no longer are trampling one another underfoot in their haste to snatch a bargain in sagebrush for the future site of "maybe a 20-story hotel, who knows?"

The permanent inhabitants of Moses Lake ("formerly Neppel") say soberly that the change is a good thing.

"Unsound real estate speculation," they say, "has been brought to a halt, and we are building for the future on a firmer foundation."

They also point out that the uproar of the past year was not caused by local citizens, but by "people from the coast." They say they are just as glad to be rid of this influence, because they've been trying all the time to keep Moses Lake out of the "boomtown" category.

As the mayor, C. M. McCosh, says: "Moses Lake has enough natural advantages for permanent growth without any rush of speculators, or of floating construction-worker population."

The population jumped from 900, at the beginning of 1945, to 2,500 by the middle of 1946, where it has remained for the past year. On this basis, the town may promote itself from a fourth to a third class city. The council has received a petition to this effect, and the city attorney, B. J. McLean, is taking the necessary legal steps for calling a special election on the proposal this fall.

'Speculators' Spot

After hearing all over the Columbia basin that Moses Lake is a "wild, speculators' spot," attendance at a City Council meeting convinces an observer that the reports are greatly exaggerated. The councilmen have lived in the town on an average of seven or eight years, or before the boom started. Their business interests are varied—garage, real estate and insurance, freight line, home appliances, general store. One is a carpenter. They meet in the evening, in overalls and sweaters, at $3 a meeting.

The only thing that smacked of boom or inflation was one item that had been advertised to the public as $95,000." That was a typographical error.

It should have been "$9,500." But nobody questioned it, apparently because Moses Lake people long since had become accustomed to an extra zero or two.

Outside of a few things like that, Moses Lake has a steadying influence, the potato. It is the most conservative of all vegetables, isn't it? And it's Moses Lake's principal crop. We'll tell you about this underground business later.

Couple Saved

Woman Accused Of Bilking State Farmer

Times Readers Have Their Say

UNIONS' PROGRAM

Editor, The Times:

ON August 15 your newspaper carried an article on intentions of the Teamsters' Union to promote a program which will be instrumental in reducing juvenile delinquency. The Teamsters can be assured of assistance from other labor organizations from every corner of this entire area.

However, your article referred to another union as a typical example of "un-American" activity. I resent such an attitude toward any organization, especially when it is used in conjunction with a program that is so necessary and of such common interest. I am a member of that union, namely the International Longshoremen's and Warehousemen's Union.

To further your information, I am also a family man who is raising two sons, whose ages are now 11 and 13. They are of the age to enjoy everything that you and I and the Teamsters' Union are now striving to promote. I am also an ex-service man. I am a home owner, taxpayer, and a member of several clubs which stand for our American way of living.

Allow me to invite your attention to a few facts. The officials of our union are elected by secret ballot. That puts our officials in an enviable position as comparable to the Teamsters' Union, to be elected by the men themselves by a common vote.

All locals of the I. L. W. U. hold a minimum of two membership meetings per month, one of which every member must attend or be subject to a fine. When an election is held, every member of the local union must vote or be subjected to fine.

In other words, it is mandatory that every member assist in the government of our union. In all, our whole set-up is patterned after the same democratic system that we use in the conduct of our great United States government. Any criticism to our union really should come from someone who practises an equivalent democratic policy.

Let us not use this struggle for power in the same program with welfare of our children. I am sure the Longshoremen are heartily in favor of the Teamsters' program and will be enthusiastic in its desirable results.

—H. J. OFSTHUN,
I. L. W. U., Local 1-19

TRAFFIC VERSE

Editor, The Times:

THE following verse is my sentiment regarding the speech of Judge Roy de Grief. I don't know where he got his statistics, for I've heard a report of the National Safety Council that the two major factors in auto accidents are speed and liquor.

What should the vesture of a
judge conceal?
A heart of gold, a heart of steel.
Should honesty and justice and
fair play
Comprise the order of the day?

What lies beneath the robe of
Judge DeGrief?
What errors make up his belief?
Distorted facts! Unwarranted defense!
The drunken-guilty—innocence.

Against 'injustice to this poor old
man'
The truth, the awful truth, let's
scan.
Of broken bodies, pain, death and
hell,
Of sorrow, grief too great to tell.

More lenience to the drunken
driver? No!
A thousand thousand answers:
No!
Let citizens arouse; let those who
care
Of such false leadership beware.

—DORIS MOREY,
3272 S. 200th St.

* * *

HARD TO RECONCILE

Editor, The Times:

TWO articles in The Times of August 16 were interesting because of their association. One told of persons tried in traffic court by Judge Roy deGrief. Two cases in particular, both involving a greater or less degree of drinking, were noted. One involved, among other things, hit and run driving; the other, the taking of a pedestrian's life, for which a $250 fine was imposed.

Another item in the issue told of a talk made by Judge DeGrief in which he minimized the part played by drink in traffic accidents and advocated less stringent laws relating to drunken driving. No doubt the judge decided his men listeners would be pleased to learn of his lenient attitude toward the mixing of alcohol and gasoline. It is hard to reconcile the two news items.

—HAROLD HEMRY,
Blaine, Wash.

The Land of Never-Sleep

—By HENRY McLEMORE

RIO DE [illegible]RO. — Tomorrow I leave Ri[illegible]

J. E. H. noted JEH 6/13 10774

note B.B 6/12

Seattle, Wash.
June 9, 1947

Moses Lake - Industrial Development

Mr. Bernard Blum:

I am attaching hereto copy of my letter this date to Mr. Williams in reference to proposed projection for spur track, Moses Lake.

At Mr. Williams request no copies of this estimate or sketches were furnished to other parties and I am attaching the copy of letter and maps for your information.

Mr. Williams may have some suggestions to make in respect to the development shown on the attached map after he reviews the map on the ground for the layout as shown is substantially as outlined on a preliminary map furnished by him.

Assistant Chief Engineer

JTD:c

OFFICE OF
CHIEF ENGINEER
JUN
12
1947
NOR. PAC. RY.
ST. PAUL, MINN.

Seattle, Wash.
June 9, 1947

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J. T. DERRIG

Assistant Chief Engineer

JTD:c

Seattle, Wash.
June 9, 1947

Moses Lake - Industrial Development

Mr. V. E. Williams:

Vault file 1185-25

In compliance with your request I arranged to prepare map, scale 400' to the inch, showing projected location of a spur track from Mitchell for a development of the so-called Penhallurick property, Moses Lake.

The data for this survey was obtained from a Reclamation Dept. map - the topography of which has been transposed to the attached map dated June 4, 1947.

Vault file 1185-26

There is also attached map, scale one mile to the inch, showing the location of this spur in relation to the so-called Moses Lake Irrigation District pumping project. This small scale map also shows location of trunk highway and also proposed relocation of trunk highway along the westerly side of the Moses Lake Project. There is also attached print of projected profile dated this office, June 4, 1947. The above mentioned maps are forwarded you in triplicate.

dated 10-3-45 Rev. 6-4-47

Vault file 912-23

I reviewed this projected location on the ground and the attachhd maps are as near correct as it is possible to make a projection and the alignment and profile for projection is, I think, the best that can be accomplished without actually running out a survey on the ground. I consider the attached maps sufficiently correct for obtaining right-of-way requirements.

The estimated cost of constructing the spur, approximately four miles in length, with 2300 ft. siding at Mitchell and siding for connection to the Govt. track at Moses Lake is estimated at $268,200, exclusive of right-of-way and summarized as follows:

Grading 300,000 cu. yds. @ 30¢	$ 90,000
B. T. C.	6,000
Main track work 20200 ft. @ $5.00	101,000
Second tracks 6000 ft. @ $4.80	28,800
Turnouts (6) @ $800.00	4,800
Crossing Signs (4) @ $500.00	2,000
Station Facilities	12,000
T. & T. (Mitchell to Moses Lake 4 miles)	4,000
Engr, Supervision, etc. 10% on labor	15,000
Taxes	4,600
Total	$268,200

This data will, I think, give you sufficient information to consider the advisibility of constructing this branch line and with particular reference to the development of the so-called Penhallurick property.

You will note on the map there is shown small spur track for development leading from the Govt. trackage on the spur leading to the airport. This development is at the interesection of the highway leading from Ephrata and it would appear to be a valuable industrial site if the City is developed beyond the extension of the present Milwaukee trackage.

I have shown on the small scale map the location of the trunk highway and its possible relocation so that this matter can be given consideration in studying the possible devdopment at Moses Lake.

J. T. DERRIG

Assistant Chief Engineer

JTD:c

P.A. Larson - please file maps - noting on J T H's letter Vault file No. - return letter.

J. E. Horing

Done PAL

J.M.

10774

Seattle, Washington
May 12, 1947

Mr. B. Blum:

Moses Lake to Wheeler - Proposed spur track

For your information I am attaching herewith one set of prints, three sheets, covering Bureau of Reclamation's contour of survey in the vicinity of Moses Lake to Wheeler. These maps cover a territory where we have had some discussion about possible location of spur track from Wheeler to Moses Lake, and the prints may be of value in the event an estimate for the construction is requested by our management.

I am arranging to make a layout map, scale 4 feet to the inch, showing possible development of property owned by a local investor for Mr. Williams' information. This project will be approximate only, and I will furnish you with print when the map is completed.

Asst. Chief Engineer

JTD:dl
Enc.

H.A.P. 5/14
J.E.H. JEH 5/14
J.H.S. HS 5/16

note and file
B.B
5/17

OFFICE OF
CHIEF ENGINEER
MAY
15
1947
NOR. PAC. RY.
ST. PAUL, MINN.

Seattle, Washington
May 12, 1947

Mr. B. Blum:

Moses Lake to Wheeler - Proposed spur track

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J. T. DERRIG
Asst. Chief Engineer

JTD:dl
Enc.

10774

Seattle Journal of Commerce, Nov 12th, 1946

Starch Plant At Moses Lake May Cost $75,000

MOSES LAKE.—A starch plant is planned for Moses Lake that is estimated to cost between $60,000 and $75,000. The plant project was outlined before members of the Moses Lake Grange by Ronald Smith, field representative of the Northwest Chemurgy Cooperative. Smith said that a plant capable of handling the area's surplus and cull potatoes is necessary here. The plant will produce starch which, in turn, would be taken to Ellensburg and further processed into glucose. The unit will be the property of the cooperative.

"There need never be a cull potato dumped," he declared. "We can control the market by diverting our poorer grades into these by-products, for which we have a ready sale."

Northwest Chemurgy Cooperative has contracts to sell glucose to Orange Crush, Arden Farms, a number of breweries, bakeries and ice cream manufacturers, Smith reported. "These producers have found our product far superior to either sugar or corn starch," he stated.

Smith said the chemurgy group is carrying on many experiments aimed at discovering new uses for potatoes, wheat, apples and other farm products of the Northwest.

10774

Saint Paul, September 9, 1946

MR. R. W. CLARK:

Your letter of the 6th inquiring about Mr. Derrig's letter of November 12 to me, regarding access to the Moses Lake irrigation district:

That report was transmitted to Mr. Stevens on November 23, and in transmitting it I said that construction of such a line would require a certificate of convenience and necessity and I questioned if it would be granted in view of the Milwaukee Line now being contiguous to the development. I also raised question as to policy in attempting to enter a district already served by another railroad, in view of the fact that the Northern Pacific mileage through the Columbia Basin development is greater than that of any other railroad, and it seemed questionable to start competitive railroad construction, for the reason that in the long run we would stand to suffer.

My file also contains copy of letter of December 21, 945 from Mr. Macfarlane to Mr. Denney, who had requested the views of Mr. Macfarlane concerning a connection from the Connell Northern to the Moses Lake area. Mr. Macfarlane stated that that week he had gone over it with representatives of the Traffic Department. Mr. Macfarlane's view was that the Milwaukee serves the Moses Lake irrigation district and that although shippers would like to have the Northern Pacific build in, there is not enough business to justify service by two railroads. He went on to say that for 1945 but 2200 carloads were handled, consisting of 1800 potatoes, 300 onions, and 100 miscellaneous. The normal production of potatoes should be far less. This is not a fruit section.

Mr. Macfarlane went on to say that the situation to the north of Moses Lake should be watched, and if any indication that the Milwaukee wishes to acquire the government line and extend it, such extension should be opposed, as it would be a direct invasion of territory fully served by such points as Cloyd. Considering the character of the land such extension by the Milwaukee to the north seems remote. A more likely extension for it would be to the west, which would concern the Great Northern, and not the Northern Pacific.

Under date of December 24 Mr. Denney wrote Mr. Macfarlane, copy to Mr. Stevens and yourself, that he was in accord with the views expressed by Mr. Macfarlane. The matter stands at that point.

BERNARD BLUM

b/s

Saint Paul, September 9, 1946

MR. E. E. CLARK:

Your letter of the 6th inquiring about Mr. Derrig's letter of November 12 to me, regarding access to the Moses Lake irrigation district:

That report was transmitted to Mr. Stevens on November 23, and in transmitting it I said that construction of such a line would require a certificate of convenience and necessity and I questioned if it would be granted in view of the Milwaukee line now being contiguous to the development. I also raised question as to policy in attempting to enter a district already served by another railroad, in view of the fact that the Northern Pacific mileage through the Columbia Basin development is greater than that of any other railroad, and it seemed questionable to start competitive railroad construction, for the reason that in the long run we would stand to suffer.

My file also contains copy of letter of December 21, 945 from Mr. Macfarlane to Mr. Denney, who had requested the views of Mr. Macfarlane concerning a connection from the Cowell Northern to the Moses Lake area. Mr. Macfarlane stated that that week he had gone over it with representatives of the Traffic Department. Mr. Macfarlane's view was that the Milwaukee serves the Moses Lake irrigation district and that although shippers would like to have the Northern Pacific build in, there is not enough business to justify service by two railroads. He went on to say that for 1945 but 2200 carloads were handled, consisting of 1800 potatoes, 300 onions, and 100 miscellaneous. The normal production of potatoes should be far less. This is not a fruit section.

Mr. Macfarlane went on to say that the situation to the north of Moses Lake should be watched, and if any indication that the Milwaukee wishes to acquire the government line and extend it, such extension should be opposed, as it would be a direct invasion of territory fully served by such points as Quincy. Considering the character of the land such extension by the Milwaukee to the north seems remote. A more likely extension for it would be to the west, which would concern the Great Northern, and not the Northern Pacific.

Under date of December 24 Mr. Denney wrote Mr. Macfarlane, copy to Mr. Stevens and yourself, that he was in accord with the views expressed by Mr. Macfarlane. The matter stands at that point.

b/s

10774

St. Paul, Minn., Sept. 6, 1946.

Mr. Bernard Blum,
Chief Engineer.

I have just seen for the first time Mr. Derrig's letter of November 12, 1945 to you in connection with the question of Northern Pacific access to the Moses Lake district, State of Washington.

Can you tell me what was done with this report and how the matter now stands?

RW Zon

St. Paul, Minn., December 26, 1945

Mr. Bernard Blum:

Attached is copy of Mr. Denney's letter to Mr. Macfarlane and Mr. Macfarlane's report of December 21 on the Moses Lake project, which I discussed with you and about which you wrote on November 30.

Check H.E.S. file.
what he said

CHIEF ENGINEER
DEC
1945
NOR. PAC. RY.

C
O
P
Y

St.Paul, Minn., December 24th, 1945

Mr. R. S. Macfarlane,
Vice President-Asst. to President.

I am in accord with the views expressed in your letter of December 21, regarding the East Columbia Basin Project, including the Moses Lake Irrigation District and the first unit in the South Columbia Basin Irrigation District.

It is assumed that you will keep in touch with the highway planning mentioned in Item 6. Please keep me advised as to developments.

I agree that a study should be made to locate probable station grounds, as suggested in Item 7.

I will be pleased to hear from you when these studies have progressed sufficiently to justify making a recommendation.

Have you or our local people any recommendations at this time as to the possibility of establishing packing facilities at or near Pasco to serve the first unit of the South Columbia District?

(Signed) C. E. Denney

cc-Mr.H.E.Stevens: Copy of Mr. Macfarlane's letter is attached.

Mr.R.W.Clark (2)

(Signed) C.E.D.

COPY

Seattle, Wash., December 21, 1945

Mr. C. E. Denney:

Referring to your letter of December 3rd, requesting my views concerning a possible connection from our Connell Northern Branch to Moses Lake.

I agree with the views of Mr. Stevens quoted in your letter.

In a trip this week Messrs. Burnham, Ackerman, Stapleton and I pretty well covered the territory along our Connell Northern Branch to the north end of the so-called First Unit in the East Columbia Basin Project, including the Moses Lake Irrigation District. The small print attached to Mr. Derrig's letter of November 12 shows the situation clearly.

1. If the present Congress passes the First Deficiency Bill, which now includes a Columbia Basin appropriation of $10,275,000 and which is in addition to about $8,000,000 on hand, it is expected that construction will be promptly started on the Grand Coulee Reservoir and controlling dams located from 30 to 60 miles north of the First Unit of the East District. I am told that around $60,000,000 and four to five years are needed to bring the First Unit of the East District under irrigation, including construction of the above mentioned reservoirs, main canals, etc.

2. The Northern Pacific is well located for handling the bulk of the construction material (cement, machinery, etc..) that would be handled by rail for the First Unit.

3. It will be at least four years before the First Unit is brought under irrigated farming, and it will be some considerable time thereafter until there is full production. The present Connell Northern is well located to control the transportation of this production. The hazard lies in the existing facilities and possible growth of the town of Moses Lake (terminus of the Milwaukee Branch) and possible extension of the Milwaukee by acquiring the Government Railroad north and construction to the north and east, but I feel that if we take proper steps in developing shipping and packing facilities along our line at such points as Gloyd, Wheeler, and the south main highway crossing, we should be able to control the transportation of the larger part of the production of the unit. It is to be hoped that something approaching a town will develop along our line within this unit, - we have nothing now except a couple of spurs.

4. Moses Lake is a small boom town, and handles the products of the Moses Lake Irrigation District. There are four packing sheds and a cold storage plant now located there. The Milwaukee serves this District, and although the shippers would like to have the Northern Pacific build in, there is not enough business to justify service by two

railroads to this Irrigation District. This year about 2200 carloads were handled, consisting of about 1800 carloads of potatoes, 300 carloads of onions, and 100 carloads miscellaneous. Normal production of potatoes should be far less. Unpredictable market conditions will be a large factor. This is not a fruit section.

5. The situation to the north of Moses Lake should be watched and if there is any indication that the Milwaukee wishes to acquire the Government Line and extend the same, such extension should be protested, as it would be a direct invasion into territory that would be fully served by such points as Gloyd. Considering the character of the land, etc., such an extension of the Milwaukee to the North seems remote. A more likely extension would be to the West, which would concern the Great Northern and not us.

6. It is extremely important to keep in close touch with highway planning to see that the production of the First Unit is not directed to Moses Lake.

7. I think a study should be made in the near future, as to probable station grounds in relation to projected highways and that then adequate areas be acquired while prices are low (about $10 per acre.)

8. I greatly doubt if the Commission would grant a certificate for an extension into Moses Lake under present conditions. Further, we should not set the pace in invading a competitor's territory. It will be time enough when the Milwaukee seeks to invade our territory. On the whole, if neither road makes extensions, we will be the chief beneficiary of the First Unit of the East District. This assumes that we will take full advantage of the central location of the Connell Northern.

Turning now to a brief comment on the First Unit of the South Columbia District (6000 acres) close to Pasco. This is exclusive Northern Pacific territory and no rail extension is involved. The land lays well, and the present Deficiency Bill appropriation is expected to build the pumping plant and canals. There may be production in 1947. Steps should be taken to see that there are packing facilities in Pasco. All such facilities are now located in Kennewick, and are largely joint with the Union Pacific.

(Signed) Robert S. Macfarlane

Saint Paul, December 27,1945

MR. H. E. STEVENS:

My letter of November 23 about developments in the COLUMBIA RIVER BASIN, and transmitting Mr. Derrig's report on reconnaissance for railway connection from the Connell Northern to the Moses Lake area:

I am now transmitting copy of his letter of the 20th, giving figures on shipments of vegetables during the past year, and the number of carloads yet to move from the Moses Lake area.

I presume the Traffic Department is working with the Bureau of Reclamation on service for the construction requirements on the canal and other reclamation works.

bb/s

att.

Seattle, Wash.
Dec. 20, 1945

637-2

Mr. B. Blum:

Moses Lake Irrigation Territory

With reference to my report of November 12, 1945 with regard to possible trackage to serve the Moses Lake Irrigation District and with particular reference to my suggestion of locating a railroad along the high land ditch for serving contractors during the period of constructing the main ditch.

Mr. Tremaine now advises that the status of shipments during the past year and prospects of shipments next year from the Moses Lake District as of November are as follows:

	1,400	cars of potatoes
	100	cars of onions
	150	cars of miscellaneous vegetables
Total	1,650	cars

Estimated to be in storage for shipment yet this year:

	600	cars of potatoes
	150	cars of onions
	100	cars of miscellaneous
Total	800	cars

Mr. Tremain advises that next year there will be approximately 1,000 acres more placed under irrigation through an experimental Federally established farm. This figure is in addition to the 1000 - 15000 acres which did not produce a crop last year due to late watering. In other words there will be close to 9000 acres under irrigation in this district next season.

J. T. Dillon
Assistant Chief Engineer

JTD:vf
cc - RSM
FRB

Saint Paul, November 23,1945

MR. H. E. STEVENS:

Herewith for your file a clipping from the Spokane Chronicle of November 16 reporting on Reclamation Service plans to start work on the irrigation of the Columbia Basin in 1946.

A few days ago I received from Mr. Derrig a report of a reconnaissance for a railway connection from the Connell Northern to the Moses Lake area, which he states was requested by you verbally. I am transmitting the original of the report with a set of maps.

The attached newspaper clippings make reference to Moses Lake.

I presume that the construction of such a line would require a certificate of convenience and necessity; and I would question if it would be granted in view of the Milwaukee line now being contiguous to the proposed irrigation development.

Inasmuch as the Northern Pacific apparently serves considerably more acreage than any of the other railroads in the territory it would seem to me that as a matter of policy it would be questionable to start competitive railroad construction for in the long run it would seem that we would suffer more than would the other railroads. Stated otherwise, at the present writing it would seem to our advantage that no new construction be permitted until the necessity therefor develops.

cc-Mr. J. T. Derrig
x

bb/s

att.

Seattle, Washington
November 12, 1945

637 - 2

Mr. B. Blum:

In compliance with Mr. Stevens' verbal request I made reconnaissance for possible railroad connection from our Connell Northern Branch to Moses Lake. I am now attaching two prints of map dated October 3, 1945, showing two alternate propositions for reaching the so-called Moses Lake Irrigation District.

It is possible to obtain a 1% grade from a connection on our Connell Northern Branch by taking a heavy cut on the bench between M.P.1 and M.P.2, and then descending into the town of Moses Lake. I have shown on this sketch a section of our condensed profile between Adco and Wheeler and have also shown projection of a possible spur track from Mitchel Spur to Moses Lake. The estimated cost of the construction of this spur track is $223,300, summarized as follows:

Right of Way	$10,000
Grading 260,000 cu.yds.	70,200
Bridges, Trestles & Culverts	3,000
Station Facilities	6,000
Telephone & Telegraph	3,000
5½ miles 3 lb. #90 track comp.	105,500
Siding	15,000
Contingencies, Engineering, Etc.	10,600
Total Cost	$223,300
Out of Pocket Cost	$195,000

Note: Right of way estimate is approximate only.

It would also be possible to enter Moses Lake Irrigation District by an alternate connection from a point about 1 mile east of Cloyd, connecting with the existing Army Railroad four miles in length to Moses Lake. This connection would require about seven miles of new construction to reach the Government Railroad and about two miles of new construction within the station grounds at Moses Lake. We could get along without a two mile extension beyond the end of the Government Railroad and put in a short spur about 4000 feet in length, but from a competitive standpoint I think it would be advisable to extend the Government Railroad two miles further west in order to get closer to the point of delivery, as a very considerable portion of the district tonnage will come over highway #10 bridge where it crosses Moses Lake.

I am also attaching small print of Government map showing the proposed Grand Coulee Irrigation Development as a whole and I have shown in red outline on this print the three projects to be first developed under the Government program.

The immediate concern is the development of the so-called Moses Lake Irrigation District, which is a pumping project and not as yet a part of the so-called Columbia Basin Grand Coulee project, and it seems apparent that the so-called Moses Lake District will continue as an independent project as water can be obtained by pumping from the Moses Lake Basin cheaper than obtaining such water from the so-called Grand Coulee Project.

The so-called Moses Lake Project includes approximately 10,000 acres and in addition there is a bordering area of about 3,000 acres that can be watered from this district at less cost than obtaining water from the Grand Coulee project.

Without exposing by identity, I talked with the local manager of a warehouse for the grainage organization at Moses Lake, and he informed me that the so-called Moses Lake District would probably ship about 2100 cars of perishable products this year. The potato portion will probably consist of 1800 cars with about 300 cars of onions, rutabagas and lettuce. Of the latter 300 cars about 80% are for onions.

This warehouse manager informed me that he raised some 650 tons of potatoes and that his total water bill was around $165, and if that statement is correct the cost of watering his potatoes was less than 1¢ per bushel. However, his land is favorably located, but the entire district of some 13,000 acres is capable of producing heavy tonnage with a minimum cost for irrigation. This man stated that there was some 5,000 acres planted within this district but about 1,000 acres did not produce due to the fact that irrigation and pumping systems were not completed in time. Therefore tonnage obtained this year came from approximately 4,000 acres or about 30% of the total acreage within this district.

This warehouse man stated that the planting next year would probably double that of this year but that statement will have to be weighed in the light of next year's market possibilities for the potato product. He stated that some fields produced up to 30 tons of potatoes per acre for the first planting and he considered 20 tons a fair average

for the district for the first planting. Some of this potato land was replanted for the second crop known under the trade name of Moses Lake Gems. This second crop, he stated, averaged 10 tons per acre.

Some of the potato land was also planted for second crop with lettuce, and this product was market during the last month.

I think this warehouse manager is over-optimistic in estimating the production of 4,000 cars for next season, but, as stated before, the market and Government subsidy will be the controlling factor. There is no question but that the Land, if properly watered, will supply that tonnage or in excess of that figure if the 13,000 acres are fully developed.

In respect to the Moses Lake District of 13,000 acres, practically the entire area is within the Milwaukee territory and unless competitive trackage is provided they will monopolize the tonnage from the so-called Moses Lake District. I understand there is some complaint of the service the Milwaukee have been giving them, and I am certain the Moses Lake Irrigation District will welcome competitive trackage.

I have heretofore stated that the Milwaukee track as it now exists and with the Government extension are in a position to control this entire district and even extend their branch further north over the Government railroad to tap the future irrigation district parallel to our line and in the vicinity of Ephrata, or Quincy Flats on the G.N.

The Milwaukee also are in a position to extend a branch line from their Marcellus Branch northerly along the main high canal and, if that is done, they would have a parallel line on either side of our Connell Branch, which would give that company a very strategic position in controlling the construction material for the high canal and at the same time compete with the Northern Pacific for tonnage from the first unit of 27,400 acres known as the Wheeler-Gloyd District.

Therefore from a long pull I am inclined to think that the spur line from a point 1 mile east of Gloyd and connecting with the Army Railroad and the construction of a siding and industrial facilities at Moses Lake south of the Government Railroad would give us a good strategic position. If we had connections to the Government Railroad we would be in a position to ask for joint trackage rights with the Milwaukee within Moses Lake, if we did not provide new trackage facilities two miles south from the Government Railroad at Moses Lake. The connection with the Government Railroad would forestall the Milwaukee extension north of the airport at a future time.

I appreciate that the extension of a spur to connect with the Government Railroad will produce no adjacent tonnage for some years to come, but the grading cost on this spur will be about $30,000 less than a connection from Wheeler, and the total cost would be in the neighborhood of $250,000 exclusive of the rights on the Government track, and this additional expense I think would be justified in the future rather than making the short connection from the Mitchell Spur.

In the event spur is connected across the flying field now in disuse it will, of course, be necessary to obtain rights from the Government to cross this property, but I do not anticipate that any difficulty will be met in obtaining such rights, as this flying field will undoubtedly be abandoned shortly.

I have called on Mr. Banks' office twice at Grand Coulee during the past month, and both times Mr. Banks himself has been in Washington and possibly is there to this date with other irrigation officials interested in getting the final approval for the so-called Columbia Irrigation System.

I have just obtained from Mr. Banks a revised tracing of the proposed development, and I am bringing this tracing up to date in respect to the railroads' future tracks, and when the tracing is completed I will arrange to forward you a print of that map. The attached map together with a small scale Government map will, I think, give you a preliminary picture of the proposed development and trackage requirements within this district for the future.

My records indicate that the Milwaukee crossing at Bridge #24 near Warden is covered by contract dated December 21, 1909, the bridge structure is maintained by the Northern Pacific Railway Company DR 336.

Bridge 33 near Bassett Junction is covered by agreement dated March 1, 1912. This structure is maintained by the Milwaukee and contract was undoubtedly completed at the time the Milwaukee built their branch line to Moses Lake.

I have no information as to the amount of tonnage previously moved from the so-called Moses Lake Station, formerly named Neppel, but it is evident that the development of the Moses Lake Irrigation District has taken great strides during the past year, and it is further apparent that this development will be greatly augmented within the next few years. The increased production during the past year has given the district very favorable advertising, and it will possibly be four or five years before water is available for the so-called upland project, known as the Lloyd-Wheeler District.

I have also shown on the blueprint map attached in orange color the proposed location of State highways. You will observe that the State Highway Department propose a trunk road along our Connell Northern Branch within the Cloyd-Wheeler District. While it may be said that there will be some advantage to the Northern Pacific to have this trunk highway parallel to its line, it is also evident that the Moses Lake irrigation district will have a very substantial community established by the time water is placed on the upland district, Cloyd to Wheeler, and this road will have the effect of carrying some tonnage to the established community and warehouses at Moses Lake.

I suggest that it will be advisable to have our Traffic and Operating officials fully discuss potential track requirements within the irrigation district as a whole. I do not think that it will be out of line for the Northern Pacific to at least locate a spur track northeast from Wheeler along the so-called high line canal, and possibly obtain the right of way and industrial sites in advance of the Government starting construction on this high line. There will be a very heavy volume of construction material entering the canal. Unless we take steps to locate a line along this canal, the Milwaukee will undoubtedly arrange to do so and unquestionably will be able to obtain a permit for the construction of such a line based on providing construction materials for the construction of the high line canal.

In conclusion it is my recommendation that we locate a line from a point about 1 mile east of Cloyd to connect with the Government Railroad and arrange to obtain property for separate station facilities at Moses Lake and then give consideration to a possible connection with the Milwaukee at that point with a joint station. It is also my recommendation that we locate a line from a point about 2 miles south of Wheeler northerly along the location of the high canal for the purpose of obtaining tonnage entering into the canal, and at the same time have a spur track constructed that would forestall the extension of the Milwaukee along the high canal and protect the Northern Pacific's tonnage between the high canal and the so-called first unit of the Cloyd-Wheeler Project.

It will probably be fifteen or twenty years before the Northern Pacific would receive any substantial tonnage in production from the soil adjacent to the extension of a spur along the high canal, but the situation would be relative to the Milwaukee entering the Moses Lake district in 1912 where they are now in a position to control the tonnage from this entire district.

The advantage of having a railroad constructed and station facilities obtained in advance of the full development of the irrigation system should not be overlooked from a strategic standpoint of controlling future tonnage from the development of this project which, in my opinion, is bound to be carried out shortly.

J. T. DERRIG

Assistant Chief Engineer

JTD:vf
Enc. (duplicate prints)

cc - Mr. R. S. Macfarlane (1 set of prints)
Mr. F. R. Bartles (2 sets of prints)
Mr. J. F. Burnham (1 set of prints)

First Unit In Quincy-- Columbia Basin Irrigation District - 27900 acres

First Unit in East Columbia Basin Irrigation District - 27400 acres.

Moses Lake Irrig. Dist.

Potholes Dam

First Unit in So. Columbia Basin Irrigation District, originally 15300 acres, now 6000 acres.

FEEDER CANAL

GRAND COULEE DAM AND PUMPING PLANT

NORTH DAM

GRAND COULEE RESERVOIR W.S. EL. 1570

SOUTH DAM

MAIN CANAL

BACON SIPHON

BACON TUNNEL

TRAIL LAKE W.S. EL. 1507

NATURAL CHANNEL

POWER DROP 165'

LONG LAKE W.S. EL. 1335

LONG LAKE DAM

BIFURCATION WORKS

EAST LOW CANAL

HIGH EAST CANAL

NORTHERN CANAL

QUINCY LATERAL

WEST CANAL

POTHOLES RESERVOIR W.S. EL. 1052

POTHOLES DAM

POTHOLES WEST CANAL

POTHOLES EAST CANAL

PARADISE FLATS

EXPLANATION

CANAL LOCATIONS

TUNNEL LOCATIONS

SIPHON LOCATIONS

IRRIGABLE LAND

LOCATION MAP

PASCO PUMPING PLANT

BURBANK PUMPING PLANT

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

COLUMBIA BASIN PROJECT-WASHINGTON

IRRIGATION SYSTEM

DRAWN A.P.M. SUBMITTED

TRACED C.V.R. RECOMMENDED

CHECKED APPROVED

DENVER, COLORADO JUNE 10, 1943 222-D-8623

REV. 5-12-45

Smith-Brooks Press, Denver—10,500—5-45


ADAMS COUNTY
GRANT COUNTY
Prop'd State Secondary Road
Prop'd State Primary Highway
MOSES LAKE
MOSES LAKE IRRIGATION DISTRICT
U. S. A. A. F.
FLYING FIELD
Projected Service Track
Prop'd Siding
Proposed State Primary Highway
Track Profile Mile Posts
Condensed Track Profile Mile Posts
EPHRATA
SOAP LAKE
GRANT ORCHARDS
WARDEN
RITELL
BASSETT JCT.
SIELER
WHEELER
MITCHELL SPUR
NAGEL
GLOYD
ADRIAN
ADCO
TIFLIS
LAING
RUFF
STRATFORD
T 19 N
T 20 N
T 21 N
R 27 E
R 28 E
R 29 E
CONDENSED PROFILE
PROJECTED PROFILE
LOCATION MAP
Scale: 1" = 20 miles
LEGEND
N.P.Ry. Tracks
N.P.Ry. Prop'd
C.M.St.P.&P.R.R. "
U.S.A. "
G.N.Ry. "
Propd State Primary
" 2nd ary Road
N. P. Ry.
Idaho Division
Wash. Central Branch
Map Showing
Proposed Service Track to Moses Lake, Wash.
Office of Assistant Chief Eng'r. - Seattle, Wash.
Scale: 1" = 1 mile
October 3, 1945

10774

BASIN WILL HUM BY NEXT SPRING IF FUNDS COME

Thousands of men and women will be employed along a 150-mile construction front in the Columbia basin next spring if congress grants the requested appropriations, Frank A. Banks, regional director for the reclamation bureau, revealed today.

A rapidly expanding army of workers will be employed on actual construction of irrigation works for the Columbia basin project as soon as the weather permits next spring, Banks indicated.

Work in the vicinity of Grand Coulee dam, including installation of equipment in the pumping plant and excavation of a canal from the pumping plant head works to the north dam in the Grand Coulee will be by labor hired directly by the bureau, Banks said.

Bids for Four Dams.

Contractors will be asked to bid on the construction of four earth-fill dams, a pumping plant and irrigation works near Pasco and additional dwellings at Coulee Dam, Banks asserted.

William E. Warne, assistant commissioner of reclamation, told the National Reclamation association today at Denver that the bureau was preparing to spend up to $19,474,000 on the Grand Coulee-Columbia basin project before July 1, 1946. The money would come from the unexpended balance of the 1945 appropriation and from a $11,000,000 deficiency appropriation now before congress.

"Work will be started," said Director Banks, "as rapidly as plans and specifications can be prepared at the bureau's Denver office."

Construction of the canal from the pumping plant headworks to the north dam in the coulee will provide rock for the north dam and for other purposes, and also will serve as a work project for men employed on seasonal jobs around Grand Coulee dam.

New dwellings will be erected in the former Mason City townsite across the river from the administrative offices. Residential areas on both sides of the river are now referred to as Coulee Dam, Banks said.

27-Mile Reservoir.

Rock and earth-fill dams will be constructed at each end of the Grand coulee to form an equalizing reservoir 27 miles long. The north dam, near the village of Delano, will have a maximum height of 90 feet, will be 1360 feet long at the crest and will contain 1,100,000 cubic yards of material, according to data issued by the Denver office of the bureau. The south dam, near Coulee City, will be 63 feet high, 9880 feet long and contain 1,400,000 cubic yards of material.

The Long Lake dam, north of the village of Stratford, would create a reservoir five miles long and save a large amount of canal construction in a difficult area. It would be 100 feet high, 1650 feet long and contain 1,000,000 cubic yards.

Crab Creek Dam Largest.

Largest of the earth-fill dams would be built across the Crab creek channel east of the Frenchman hills to create a huge reservoir, which would include Moses lake. The level of Moses lake would be raised about five feet. The Potholes dam, as the structure will be called, will be 110 feet high, three miles long and will contain about 12,000,000 cubic yards of rock and earth. It will have a larger volume than Grand Coulee dam.

Director Banks explained that part of the $19,474,000 apropriation would be used in connection with the launching of a huge steel caisson to be used in repairing the "toe" of Grand Coulee dam. The caisson is being fabricated at Gary, Ind., and is expected to be delivered to the dam next spring. Banks said he doubted that it could be put into operation before 1946 high water, but that it would be available for use next fall.

Many Great Projects.

DENVER Nov. 16. (AP)—The United States bureau of reclamation plans to spend $170,000,000 for construction in 17 western states before the present fiscal year ends next July and upward of $300,000,000 the following year.

These figures were presented to the National Reclamation association today by Assistant Commissioner William E. Warne in a report in which he said $43,000,000 was available in unexpended balances and $33,000,000 in present appropriations, and $99,360,000 now is being sought from congress in deficiency appropriations.

Mr. J. W. Haw

Please note and return.

Bernard Blum

11-26-45.

Seattle, Wash.
October 22, 1945

Mr. B. Blum:

I am attaching hereto Van Dyke negative which I informally obtained from the United States Engineers Office, showing the location and development of the so-called Moses Lake air base.

The track layout shown on this map is an extension of the Government Railroad from the Milwaukee tracks serving the station of Moses Lake formerly named Neppel. The former Moses Lake post office in this section was abandoned several years ago and the town of Neppel was formally named Moses Lake.

I am preparing map showing possible location for spur track leading to Moses Lake, and I will have this map available for your use. The attached Van Dyke tracing may be of some use to you in the event question arises as to possible use of the Government trackage after abandonment of the airport property for future development in connection with the Grand Coulee irrigation project.

Mr. Tremaine reviewed the proposed location of spur track with me, and I am also forwarding him a print of this map for his files.

J. T. Dewing
Assistant Chief Engineer

JTD:vf
Enc.

cc - Mr. H. M. Tremaine

P. A. L.

TKG
negative filed, -
#1177-3.
PAL.
JM.

Seattle, Wash.
October 22, 1945

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Mr. Tremaine reviewed the proposed location of spur track with me, and I am also forwarding him a print of this map for his files.

J. T. DERRIG

Assistant Chief Engineer

JTD:vf
Enc.

cc - Mr. H. M. Tremaine

Saint Paul, October 20,1942

MR. H. E. STEVENS:

Mr. Tremaine advises, concerning the suggested shuttle service between Coulee Dam and Wheeler on the Connell Northern line - Wheeler being the nearest point to the new Moses Lake airport - as follows:

"On October 14 Col Lacey V. Murrow of the Second Air Force Command at Fort Wright called me on the phone to ask my advice about the practicability of establishing commuter service by rail between Coulee Dam and Wheeler, the nearest town to the Moses Lake or Ephrata Airport developments.

I told Col. Murrow that about six weeks past a Major Weil of Coulee Dam, who it seems is one of the leading promoters of that territory, called on me with a request for the same answer. It was Weil's idea that inasmuch as there were empty houses at the collection of towns around Coulee Dam, it would be feasible to establish rail commuter service from there to the Moses Lake airport district and thus solve in a large measure the question of housing. I told Major Weil that of course there was a physical connection by rail between these two points but that the track was slow and the distance of approximately 70 miles was such as to prohibit successful operation of commuter service of the kind he described, and that it would be most difficult also to get equipment with which to make the experiment.

I repeated this to Col. Murrow, who said he agreed with me that it was utterly impractical but wished to get my reaction before completing his report."

bb/s
x

Spokane, Washington
October 15, 1942

Mr. Bernard Blum:

Herewith copy of memo I have made for my file regarding contact I have had with Col. Murrow of the Second Air Force Command at Fort Wright, regarding the possibility of establishment of commuter service by rail between Coulee Dam and Wheeler.

/s/ [illegible]
District Engineer

HMT-b
c Mr. A. F. Stotler
encl

OFFICE OF
CHIEF ENGINEER
OCT
19
1942
NOR. PAC. RY.

MEMO FOR FILE

On October 14 Col. Lacey V. Murrow of the Second Air Force Command at Fort Wright called me on the phone to ask my advice about the practicability of establishing commuter service by rail between Coulee Dam and Wheeler, the nearest town to the Moses Lake or Ephrata Airport developments. I told Col. Murrow that about six weeks past a Major Weil of Coulee Dam, who it seems is one of the leading promoters of that territory, called on me with a request for the same answer. It was Weil's idea that inasmuch as there were empty houses at the collection of towns around Coulee Dam, it would be feasible to establish rail commuter service from there to the Moses Lake airport district and thus solve in a large measure the question of housing. I told Major Weil that of course there was a physical connection by rail between these two points but that the track was slow and the distance of approximately 70 miles was such as to prohibit successful operation of commuter service of the kind he described, and that it would be most difficult also to get equipment with which to make the experiment.

I repeated this to Col. Murrow, who said he agreed with me that it was utterly impractical but wished to get my reaction before completing his report.

H. M. Tremaine
District Engineer

Spokane, Washington
October 15, 1942

C O P Y

Saint Paul, September 2, 1942

MR. H. E. STEVENS:

On August 26 we sent you copy of Mr. Stotler's letter of the 22nd about proposed airport base at Moses Lake, a short distance west of our Connell Northern line.

I am attaching copy of Mr. Stotler's airmail of September 1, indicating that direct connection from our line to the base has been lost to the Milwaukee due principally to change in the boundaries of the airbase.

The last paragraph of Mr. Stotler's letter mentions Mr. Williams' letter of the 31st to Mr. Poore. Mr. Williams advised Mr. Poore that the boundary of the airport has been changed , subject to Washington approval and the army engineers are satisfied that approval will be had; further that Maj. Diamond who is directing the land acquisition told him that the U S Engineers have been in consultation with the Milwaukee and it seems fairly well settled that the extension of the line from the Milwaukee terminus at Moses Lake will be made at government expense and that Mr. Allis of the Austin Co. has just told him that he had filed a conditional bid for the primary contract and has been notified that his bid would not be considerdd because of his other commitments and that no contractor has yet been selected.

bb/s
encl.

VIA AIR MAIL

Seattle, Washington,
September 1, 1942.

Mr. Bernard Blum:

Wheeler (vicinity) Connell Northern
Line: Proposed airport at Moses Lake.

My letter to you of August 22 outlining the area for the Moses Lake airfield. Major Moffitt requested that Mr. Bartles and I meet with him in his office last Saturday, to go over the matter of trackage to serve the airfield, which we did. He advised that the location had been moved east three miles and south two miles and the railroad head changed so as to be in the southerly part, which would be closer to the Milwaukee. General Olds, of the Spokane area, who is in charge of the airports, was at the site last Wednesday, although I noticed a map this A.M. showing the various sites east of Wheeler and east of Nagel, in fact numerous sites, but I understand the changes referred to above have been approved by Washington and the contract was being let yesterday.

Attached is print of highway map showing the location as approved. On same is shown line "A", hatched in red, proposed Northern Pacific track, length 9 miles, cutting out near Wheeler, on basis of 1.25% compensated grade; "B" in solid red, proposed alternate Northern Pacific track 6½ miles, cuts out near Nagel, on basis of 1.25% compensated grade: "C" solid yellow, proposed Milwaukee extension 3½ miles, on basis of 1.25% compensated grade.

We had a Government quad and worked up these locations, the elevation of Northern Pacific practically at Wheeler is 1280 feet and at Nagel 1275 ft. At Willow Creek (which is a dry creek) located immediately West of the Connell Branch and adjacent to the airfield, elevation is about 1075 ft. and has a width of about 800 to 1000 ft. between these two contours. On account of the low ground to be crossed of course it follows that the Northern Pacific trackage would be longer than the Milwaukee.

After learning of this change, I advised Major Moffitt that we would project a line and advise him Monday, although he had his staff go over these lines and his representative stated that the Milwaukee was shorter and more economical to build and as the Government had to construct the trackage they were interested in both a shorter line and less cost.

Yesterday A.M. I met Major C.A.Jackson, Major Moffitt's

Construction Engineer, who had a quad map showing the projections, and he immediately stated that all their investigation pointed to the extension of the Milwaukee.

Have just received copy of Mr. Williams' letter to Mr. Poore, copy of which I am attaching, dated August 31, regarding the Milwaukee, which is self-explanatory.

Dictated
AFS:L
Encl.

AFStol

Copy to Judge Macfarlane)
Mr. F.R.Bartles)
Mr. J.L.Burnham)
Mr. V.E.Williams) Herewith 1 print each
Mr. F.G.Cook)

WHITING'S POSITION BOND

CHIEF ENGINEER'S OFFICE
SEP 1 1942
NOR PAC
ST. PAUL, MINN.

Construction Engineer, who had a road map showing the projections, and he immediately stated that all their investigation pointed to the extension of the Willmarbee.

Have just received copy of Mr. Williams' letter to Mr. Foore, copy of which I am attaching, dated August 31, regarding the Willmarbee, which is self-explanatory.

Dictated
AMS:L
Encl.

Copy to Judge Macfarlane)
Mr. R.E.Bertles)
Mr. J.L.Burnham)
Mr. V.E.Williams) Herewith I print each
Mr. F.G.Cook)

Via Airmail

Seattle, August 31,1942.

Mr. J. H. Poore,
Executive Assistant,
St. Paul, Minnesota.

Referring to my letter of August 21st about the Moses Lake Airport, the U. S. Engineers have been in conference the last few days and have changed the boundaries and general layout, subject to approval at Washington, which approval they seem confident will be promptly secured.

In connection with these conferences last Saturday Mr. Bartles and Mr. Stotler were called for consultation in connection with railroad extension and I assume Mr.Stotler will make report to Mr. Blum in regard to the matter.

It looks clear that extension from the Milwaukee Line at Moses Lake would be less expensive than connection with our line, in view of the new boundaries and change in the location of the cantonment.

Major Diamond, who is directing the land acquisition, told me that U. S. Engineers have been in consultation with the Milwaukee today and it seems to be pretty well settled that the extension will be made from Moses Lake at government expense.

Mr. Ellis, of The Austin Co., advises today that he had placed a conditional bid for the prime contract and has been notified that his bid will not be considered on account of his conditions and that no contractor has yet been selected.

I attach plat showing new layout and Mr.Stotler has indicated thereon in pencil possible location of railroad extension of our line from Wheeler and Nagel and the Milwaukee from Moses Lake.

VEW-L enc.
Copy to: Mr. R. W. Clark,
Mr. R. S. Macfarlane,
Mr. F. R. Bartles,
Mr. J.L. Burnham,
Mr. A.F. Stotler,
Mr. T.M.Crawford.

V. E. Williams
Industrial Agent.

OFFICE OF
ASST. CHIEF ENGR.
SEP - 1 1942
N. P. RY. CO.
SEATTLE, WASH.

LEGEND

A = N.P.Ry. Propd Track 9. Miles Long
B = N.P.Ry. Alternate Track 6.5 Mi. Lg
C = C.M.St.P.&P.R.R. Propd Exten. 3.5 Mi. Lg
Above Tracks all on 1.25% Compensated Grade
Spur 321'
Nagel - Unl'dg. Track 870'
House Track 2500', Siding 1040'

T. 20 N.
T. 19 N.

R. 28 E. W.M.
R. 29 E. W.M.

Scale 1" = 7.2 Miles.

NORTHERN PACIFIC RAILWAY COMPANY
OFFICE OF ASST. CHIEF ENGINEER
SEATTLE, WASH.
PORTION OF
STATE OF WASHINGTON
PRINT MADE Aug. 21-'42
SCALE AS SHOWN

Scale in Miles
10 5 0 10 20 30 40

Seattle, September 1, 1942

Mr. Bernard Blum:

Your letter of the 26th about proposed airport at Moses Lake.

The tentative location of this airport has again been changed and the area moved bodily east and south. The Milwaukee is now the indicated connection for the administration and construction.

OFFICE OF CHIEF ENGINEER
SEP 5 1942
NOR. PAC. RY.
ST. PAUL, MINN.

10774

St. Paul, Minnesota,
August 26, 1942.

Mr. H. E. Stevens:

For your information attached is copy of Mr. Stotler's letter of August 22 in regard to proposed airport at Moses Lake located west of our Connell Northern line between Wheeler and Gloyd as indicated on attached print of portion of sectional map. The length of spur track at Gloyd is 320 feet in place of 1070 as stated in Mr. Stotler's letter.

Mr. Yager — Mr. Bluss — The discussion about the scarcity of track material is significant. H.P. 8/29

Chief Engineer.

HRP/van

Enc. Plant

note 8/27 B.B.


OFFICE OF
CHIEF ENGINEER
SEP
1942
NOR. PAC. RY.

VIA AIR MAIL

Seattle, Washington,
August 22, 1942.

Mr. Bernard Blum:

Wheeler (vicinity), Connell Northern
Line: Proposed airport at Moses Lake.

Mr. Williams and I met Major Moffitt (Area Engineer for the U.S.Government) at Yakima this week, in order to secure first-hand information regarding the Army's proposed airport just West of Wheeler and immediately North of Moses Lake, where the U.S. Government is planning a super airfield of 9600 acres.

Major Moffitt was not able to furnish full information for the reason that he had just opened his office, but he was having surveys made. We brought up the question of what the Army proposed in the way of serving this site with trackage and he stated that his directive did not include any trackage, the principal reason being that there would be no track material available. It was the understanding that if trackage should be built, the Government would have to pay for same. It would have to be constructed along the Northwest corner of the site.

I am attaching State highway map showing the site hatched in red, which is opposite Nagel Station on the Connell Northern and directly north of Moses Lake. You will note that the Milwaukee terminates at Moses Lake and would have to construct considerable trackage to reach the Northwest corner of the site, approximately between 8 and 10 miles and the Great Northern would have practically the same distance. A connection from the Northern Pacific would be approximately 5 or 6 miles of track. The connection would have to be north of Gloyd.

Copy of Mr. Williams' letter of August 21 to Mr. Poore is attached. It covers the matter fully. I note he states on the second page that the Austin Company expects to bid on the prime contract and I assume they will request that temporary trackage be constructed for construction purposes.

I have shown on the attached print the trackage in place at Wheeler, which is as follows:

Passing track - 2500 ft.
House track - 100 ft.

Nagel - Passing Track - 870 ft.
Gloyd - " " - 1070 ft.

The Government will open bids on August 26 and I assume we will have inquiries from Contractors regarding trackage for construction purposes. However, in view of the shortage of material we can only say to Contractors that they will have to provide trackage along the main line and truck from these points to the site.

The major item of the material is cement, which we estimate will be about 2,000 carloads. Gravel and sand will be secured at the site. The balance of the material would probably not justify temporary construction of trackage to the site.

It was stated, however, that after the airport is completed, there will be considerable shipments of gasoline and supplies, but no estimate was made.

The matter was left in the position,(after meeting with Mr. Jackson, Construction Engineer) that if the Government proposed trackage to serve this plant, he would call on us and we would go over the matter and furnish any assistance necessary on the part of the Railway Company.

AFS:L
Encl.

Copy to
Mr. Bartles

Judge Macfarlane

CHIEF ENGINEER
AUG 24 1942
NOR. PAC. RY.
ST. PAUL, MINN.

Copy

Seattle, August 21, 1942.

Via Airmail

Mr. J. H. Poore,
Executive Assistant,
St. Paul, Minnesota

Referring to our exchange of telegrams of August 10th about an airport in the Ephrata District.

Messrs. Stotler, Crawford and I yesterday discussed the project with Major R. C. Moffitt, Area Engineeer with offices in the Larsen Building, Yakima, under the U.S.District Engineers' office at Seattle, who showed us the plans and fully explained all the features of the project. At Seattle Mr. Stotler and I today talked with Mr. R.C.Jackson, Construction Engineer, to whom Major Moffitt directed us for additional information.

The site includes sections 11, 12,13,14,23,24 and 25, township 20 north, 27 east, W.M., and sections 7,8,17,18,19,20,29 and 30, township 20 north, range 28 east. Land acquisition is now in progress under direction of Captain Diamond who has offices at Seattle. The odd numbered sections were a part of our land grant, all of which has been sold excepting section 29, 20 north, 28 east. Sections 11,13,23 and part of section 25, township 20 north, 27 east, have been sold under contract by our Land Department but the title still remains in the Northern Pacific. Major Moffitt told us that the estimated land cost is about $3.00 per acre.

Following is list of runways to be paved:

Two runways 500 ft.wide and 10,000 ft. long.
Parking lot 600 ft.wide and 4,000 ft. long.
One runway 150 ft.wide and 7,500 ft. long.
A number of taxi runways, width 75 ft. and total length 16,900 ft.
The total area to be paved, as we figure it, is 1,643,610 square yards.

The cantonment is to be located in section 13, 20 north, 27 east and section 18, 20 north, 28 east, and the buildings authorized are as follows:

Six Warehouses each 50 ft. by 192 ft.
One Warehouse 120 ft. by 160 ft.
One Warehouse 160 ft. by 200 ft.
195 housing or barrack units with prospect that 200 more may be authorized. They are planning to take care of a personnel of 10,000 men.

Much attention has been given to the question of railroad connection but no railroad construction is authorized under the Directive for the project. Both Major Moffitt and Mr. Jackson realize the importance of railroad extension but the army has considered under the priority given them for this project that track material cannot be obtained. Construction bids have been invited and they expect to select the prime contractor when bids are opened at the Seattle District Engineer's office on August 26th and the railroad situation is left open for consideration of the contractor selected who will need to justify the expense of railroad extension by savings over truck haul of the construction material, the biggest item of which will be about 2,000 carloads of cement which will require deliveries to be made of from 35 to 40 carloads per day.

Mr. Ellis, of the Austin Co., today talked with Judge Macfarlane and later with me, stating that he expects to bid for the prime contract and has already given consideration to the railroad question. He expects to go over the situation with Mr. Stotler before placing his bid. He is very anxious to try to work out rail connection and thinks the government can be induced to assist direct in the expense on account of use after the construction period, providing, of course, that track material can be secured.

The runways will be so located that railroad track will have to be located to approach the cantonment in sections 13 and 18 from the north, so that connection with our track in the vicinity of Gloyd would seem to provide the shortest line from

any one of the railroads. If railroad extension is not made and materials are delivered by truck, the town of Moses Lake on the Milwaukee would probably by the best approach because there is a direct highway. However, there is no cement plant, as I understand it, on the Milwaykee so that deliveries may be taken from our line at Wheeler or from the G.N. at Ephrata. We have been told that the cement will be shipped from Concrete and Grotto on the G.N. and from the Pacific Coast plant at Seattle, so that deliveries will be made either on the G.N. or N.P. The building materials may, of course, come over any line, I attach map showing the location of the project which will give you a perspective of the highways and railroads in that vicinity.

Mr. Stotler is making some study of possible railroad extension and has offered his assistance in locating the ling to the Army Engineers. Our Traffic Department will be advised as soon as the prime contractor is selected.

(Sgd) V. E. Williams
Industrial Agent

VEW-L

enc.

Copy to Mr. R. W. Clark,
Mr. R. S. Macfarlane,
Mr. F. R. Bartles,
Mr. J. L. Burnham,
Mr. A. F. Stotler,
Mr. T. M. Crawford.

P.S. There is a small air plane landing field now under construction north of Ephrata which heretofore has been designated Ephrata No. 1 and the large project now under consideration has been designated as Ephrata No.2. These designations have been changed respectively to "Ephrata" Air port and "Moses Lake" Airport.

V. E. W.

Unloading Track 320' 1070'
Nagel Spur 870'
Willoughby
9600 A
Passing Track 2500' 7000'
House

NORTHERN PACIFIC RAILWAY COMPANY
OFFICE OF ASST. CHIEF ENGINEER
SEATTLE, WASH.
PORTION OF
STATE OF WASHINGTON
PRINT MADE 6-21-42
SCALE as shown

Scale in Miles
10 5 0 10 20 30 40

10774

1

FORM 1781 PTD. IN U.S.A.

NORTHERN PACIFIC RAILWAY COMPANY

CHIEF ENGINEER

Fee 10774 RY. B.

Moses Lake Branch Application to S66
Return to Questionnaire
Exceptions of Applicant to Examiners Report

June 26, 1948.

Subject: In the Matter of the Application of Northern Pacific Railway Company for Certificate of Public Convenience and Necessity Authorizing Applicant to extend its line of railroad from Mitchell Spur on its Connell Northern Branch (also known as Washington Central Branch) in the State of Washington to Moses Lake, Washington. F. D. No. 16119 (2899 ICC)

Mr. W. P. Bartel, Secretary
Interstate Commerce Commission
Washington 25, D. C.

Dear Sir:

I am sending you under separate cover, fifteen copies of Return to Questionnaire in the above docket; also, Proof of Publication.

I am informed that various local interests expect to intervene in support of the application, and that they would be well pleased if the hearing could be had at Moses Lake for their convenience.

This matter is now ready for hearing by the Examiner whenever convenient.

Yours truly,

L B DAPONTE

daP:b

bc-Mr. Charles H. Baker
Mr. R. S. Macfarlane
Mr. C. E. Denney
Mr. R. W. Clark
Mr. Bernard Blum

OFFICE OF
CHIEF ENGINEER
JUN
28
1948
NOR. PAC. RY.
ST.

BEFORE THE

INTERSTATE COMMERCE COMMISSION

Finance Docket No. 16119

IN THE MATTER OF THE APPLICATION OF NORTHERN PACIFIC RAILWAY COMPANY FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING APPLICANT TO EXTEND ITS LINE OF RAILROAD FROM MITCHELL SPUR ON ITS CONNELL NORTHERN BRANCH (ALSO KNOWN AS WASHINGTON CENTRAL BRANCH) IN THE STATE OF WASHINGTON TO MOSES LAKE, WASHINGTON.

RETURN TO QUESTIONNAIRE

INTERSTATE COMMERCE COMMISSION

Finance Docket No. 16119

IN THE MATTER OF THE APPLICATION OF NORTHERN PACIFIC RAILWAY COMPANY FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING APPLICANT TO EXTEND ITS LINE OF RAILROAD FROM MITCHELL SPUR ON ITS CONNELL NORTHERN BRANCH (ALSO KNOWN AS WASHINGTON CENTRAL BRANCH) IN THE STATE OF WASHINGTON TO MOSES LAKE, WASHINGTON.

RETURN TO QUESTIONNAIRE

The Northern Pacific Railway Company, having made application to the Interstate Commerce Commission, under paragraph (18) to (21) inclusive, of Section 1 of the Interstate Commerce Act, for authority to construct a branch line of railroad extending from a connection with the existing line of railroad of the Northern Pacific Railway Company at Mitchell Spur, Grant County, Washington, in section six (6), township nineteen (19) north, range twenty-nine (29) east, to Moses Lake, Grant County, Washington, in section fourteen (14), township nineteen (19) north, range twenty-eight (28) east, a distance of approximately four (4) miles, which application is filed in the office of the Commission in Finance Docket No. 16119, hereby affirms that notice of the application has been published in the form prescribed by the Commission, at least once during each of three consecutive weeks, in the Grant County Journal, that said newspaper is of general circulation in Grant County, Washington and that Washington is the only state and Grant County is the only county in which the proposed new line of railroad will be situated; and that the newspaper clipping hereto attached contains a true copy of the notice as published in said newspaper:

NOTICE

NORTHERN PACIFIC RAILWAY COMPANY hereby gives notice that on the 24th day of May, 1948, it filed with the Interstate Commerce Commission at Washington, D.C., an application for a certificate of public convenience and necessity authorizing construction of a line of railroad extending from a point known as Mitchell Spur on its Connell Northern Branch (also known as its Washington Central Branch) to Moses Lake, a distance of approximately 4 miles, all in Grant County, Washington Finance Docket No. 16119.

NORTHERN PACIFIC RAILWAY COMPANY

The applicant also submits the following information required by the Commission:

1. The essential facts to show that the applicant is a carrier by railroad, engaged in the transportation of passengers or property, subject to the Interstate Commerce Act, or is a corporation organized to construct and operate a railroad. If not incorporated, so state, giving complete description of party or parties filing the application.

ANSWER: Applicant, Northern Pacific Railway Company, is a corporation under the laws of the State of Wisconsin (March 15. 1870) authorized to and now operating in the states of Wisconsin, Minnesota, North Dakota, Montana, Idaho, Washington and Oregon as a common carrier by railroad engaged in the transportation of passengers and property.

2. Whether the proposed new line of railroad would be both constructed and operated by the applicant.

ANSWER: The proposed new line of railroad would be both constructed and operated by the applicant.

3. Whether any corporation, individual, or trustee, holds control over the applicant at the date of filing this return. If so:

(a) The form of control, whether sole or joint, and whether in trust.

(b) The name and business address of the controlling corporation, individual, or trustee.

(c) The manner in which control was established.

(d) The extent of control.

(e) Whether control is direct or indirect; if indirect, the name and business address of the intermediary through which it was established and is exercised.

(f) The name and business address of the beneficiaries for whom the trust, if any, is maintained.

(g) The purposes of the trust.

ANSWER: At the date of filing this return, applicant was not controlled by any corporation, individual or trustee.

4. Whether the applicant is connected by stock ownership, or otherwise, with any industry to be served by the line proposed to be constructed, acquired, or operated. If so, state the facts.

ANSWER: The applicant is not connected by stock ownership or otherwise with any industry or business to be served by the proposed line.

5. The chief uses and purposes of the proposed line or operation.

ANSWER: The chief uses and purposes of the proposed line are to serve the territory which is being developed under the East Columbia Basin Irrigation District. The land in this district is highly fertile and when irrigated is capable of growing large quantities of agricultural products which will be hauled by truck to Moses Lake for processing and then transported by rail throughout the United States, including points on the applicant's existing lines.

The applicant's existing Connell Northern Branch bi-sects longitudinally the First Unit of this Irrigation District. However, there are no sites on applicant's line as now constructed, suitable for the establishment of processing and packing houses to handle the produce from the area to be irrigated.

The town of Moses Lake is an established community located adjacent to an ample supply of good water and on a primary trunk highway and is the logical site for the establishment of processing and packing plants, some of which are already in operation. The physical advantages of an ample water supply in this semi-arid country and its location on a main highway make it apparent that Moses Lake will be the marketing, processing, trading, and shipping center for this entire area. It is estimated that Moses Lake will grow to a population of fifteen to twenty-five thousand when the contemplated development is completed.

6. The classes of service to be performed, as passenger, freight, express and switching.

ANSWER: Classes of service to be performed are freight and switching.

7. The kind of motive power to be used. If electric power, state source and estimated cost.

ANSWER: Steam and Diesel electric locomotives would be used.

8. Whether the line proposed to be constructed, acquired or operated would receive material revenue from the territory traversed, or serve any material public convenience and necessity of the local territory.

ANSWER: The proposed line would receive material revenue from the territory traversed, as will be shown more definitely in answer to questions 29, 30, 31 and 36.

9. The name, area, and population of each county in which the new line is to be constructed, or in which the line to be acquired or operated is located, and the name and population of each city, town and village at which a station would be or is established, together with its distance from a designated initial point, with the source of information as to population.

ANSWER: The proposed line would be located wholly within Grant County, Washington, having an area of 2777 square miles, and a population of 22,000. Moses Lake with a population of 1943, is the only point at which a new station will be established. Population figures are estimated as of May 1st, 1948 based upon survey by Moses Lake Planning Commission. Moses Lake is approximately four miles from Mitchell Spur located on applicant's existing Connell Northern Branch.

10. The names of places mentioned in paragraph 9 that are now served by common carrier railroads (excluding street railways), and the name of each such carrier serving the several places.

ANSWER: Moses Lake is now served by the Chicago, Milwaukee, St. Paul and Pacific Railroad Company.

11. The names of the places mentioned in paragraph 9 that have no common carrier railroad service, the distance in miles of each such place from the nearest station on a common carrier railroad, the name of each such railroad and the character of the connecting highway.

ANSWER: There are no such places.

12. The name and population of each city, town and village (together with state and county in which located), within the area to be served but not on the proposed route.

ANSWER: There are none.

13. The approximate distance in miles by highway from the nearest station on the line to be constructed or acquired to each of the places mentioned in paragraph 12, and the names of all common carrier railroads that now serve each of the places.

ANSWER: Not Applicable.

14. The names of common carrier railroads with which the line would connect, and the proposed points of track connection.

ANSWER: The proposed line of railroad would not connect with any common carrier railroad except that of the Northern Pacific Railway Company.

15. The number of common carrier truck and bus lines operating in the area to be traversed by the line, and the character of service performed by each.

ANSWER: Four common carrier truck lines and one common carrier bus line operate in the area to be traversed by the proposed line. The truck lines are Consolidated Freightways, Inc., Spokane-Pacific Line, United Truck Lines, Inc., and Eland and Stewart Motor Freight. Each of these lines serves the town of Moses Lake daily, except Sunday, in connection with its regular route scheduled service operation between Seattle and Spokane, Washington. The common carrier bus line is Northwest Greyhound Lines, Inc. It serves Moses Lake with both its eastbound and westbound service between Seattle and Spokane, Washington, three times daily.

16. The general character of the country which the line would serve. Indicate whether it is level, rolling, mountainous, cultivated, pasture, prairie, desert, rocky, or timbered, etc.

ANSWER: The country to be served by the proposed line is generally of a rolling character. It is partially under cultivation but to a large extent is semi-arid and at present unproductive. The cultivated area is used almost exclusively for the production of wheat under marginal and semi-marginal dry farming conditions. The uncultivated area generally is used for livestock range during a portion of the year.

17. The approximate area of the territory to be served by the line, an estimate of the population therein, and the area,

(1) in timber
(2) in pasture, and
(3) under cultivation

(See General Instructions)

ANSWER: The total area to be served by the proposed line will be about 200 square miles, of which approximately half or 68397 acres will be brought under irrigation. The estimated population of the area, exclusive of Moses Lake, is 125.

At present 25,000 acres are under cultivation, and the balance is unproductive or range land. None of the area is timbered.

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.

ANSWER: At the present time, as explained in the answer to question No. 16, a portion of the area to be served is devoted to dry farming and a portion thereof to livestock grazing during certain seasons of the year. Under irrigation, as a part of the Columbia Basin Irrigation Project, which is now in the course of construction, the land will be devoted to the intensive production of a variety of agricultural products.

19. The main facts as to the age, growth, and extent of such industries, their probable future growth and permanence and the reasons therefor.

ANSWER: As explained in preceding answers, the area to be served is at present to some extent devoted to dry farming and livestock grazing, and upon its development as a part of the First Unit of the Columbia Basin Irrigation Project will be devoted to intensive, diversified agriculture. Under present plans of the Bureau of Reclamation of the United States Department of the Interior, 23002 acres of land in the area will be provided with water for irrigation purposes for the 1952 crop. The Bureau's plans contemplate that subsequently irrigation water will be furnished to an additional 45,395 acres, making an ultimate total of 68,397 acres under irrigation. Irrigation headworks and main canals are now under construction. This land under irrigation will be devoted to diversified agriculture, including the raising of sugar beets, potatoes, seed crops, fruit and miscellaneous vegetables for fresh marketing and for processing. There will be some dairying and livestock production in the area, but the production of cash crops will be the major enterprise.

20. What carriers now serve these industries and to what extent.

ANSWER: As stated in the answer to Question 10, the town of Moses Lake is presently served by a branch line operation of the Chicago, Milwaukee, St. Paul and Pacific Railroad. The area described in the answers to Questions 9, 18 and 19 is all tributary to applicant's Connell Northern Branch; however, it is contemplated that the major portion of the tonnage produced in the area will be handled through

the processing houses and other facilities established and to be established at Moses Lake.

21. Whether the chief support of the line to be constructed or acquired would 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 applicant's contractual or financial relation thereto.

ANSWER: The chief support of the line would come from the general community, but will be derived primarily from the handling of the products of agriculture produced in the area to be served, as explained in preceding answers. There are no contractual or financial relations between applicant and such producers.

22. Whether the proposed line of railroad would be built, acquired, or operated primarily for a direct profit from railway operation, or for the advantage of any other industry or business. If for the latter, state what industry or business would be so benefited, what such advantages would be, and the applicant's contractual or financial relation to said industry.

ANSWER: The proposed line would be built and operated for a direct profit from railway operations.

23. If the line is to be or is an extension of an existing railroad, or a branch, connecting track, or cutoff, the extent to which it is expected to be directly profitable in itself, and the extent to which it is expected to be justified by its effect on the business of the existing line.

ANSWER: The proposed line is an extension of the Connell Northern Branch and is expected to be profitable as a part of the Connell Northern Branch and part of the system.

24. If the line is to be a connecting link between existing railroads, the kind and volume of traffic, expressed in tons or carloads, that probably would be interchanged, and the economies that would be effected by such interchange.

ANSWER: The proposed line is not to be a connecting link between existing railroads.

25. Of the interchange traffic mentioned in answer to paragraph 24, what part, expressed in tons or carloads, cannot be hauled or moved by existing railroads or truck lines.

ANSWER: Not applicable.

26. The facts concerning any agreement, tentative or otherwise, with existing carriers, covering operation, interchange of traffic, division of rates, or trackage rights, in connection with the line.

ANSWER: Not applicable.

27. Whether any aid, gift, grant of right-of-way, or other donation has been promised in connection with the proposed new line of railroad; if so, state specifically the nature, amount, and value of such promised donations.

ANSWER: No aid, gift, grant of right-of-way or other donation has been promised in connection with this proposal.

28. The manner in which it is proposed to finance construction and equipment, or acquisition, the kind and amount of securities to be issued, and the approximate terms of their sale; to what extent funds for financing are now available, and which, if any, of such securities would be underwritten by industries to be served by the proposed line.

ANSWER: The cost of the new line would be financed from current funds.

29. 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 of operation, together with an estimate of the annual gross 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, also chief points or territories of origin and destination.

Answer: The estimated traffic and revenue expected from the new line is as follows

Commodity	Point of destination or interchange point	Mean haul Miles	Rate per car (min. tons)	1st Year No. of Cars	1st Year Revenue	2nd Year No. of Cars	2nd Year Revenue	3rd Year No. of Cars	3rd Year Revenue	4th Year No. of Cars	4th Year Revenue	5th Year No. of Cars	5th Year Revenue	Av. per year for 2nd 5 yr. period No. of Cars	Av. per year for 2nd 5 yr. period Revenue	Average per year after full development No. of Cars	Average per year after full development Revenue
Forwarded			$		$		$		$		$		$		$		$
Potatoes	To Minn. Tfr., Minn.	1642.7	363.60	96	34900.00	180	65400.00	180	65400.00	1226	446000.00	1472	535200.00	1334	485200.00	1460	530900.00
"	" Seattle, Wash.	329.9	105.60							204	21500.00	241	25500.00	221	23400.00	241	25500.00
Onions	" Minn. Tfr.	1642.7	323.10			10	3200.00	10	3200.00	138	44600.00	165	53500.00	107	34500.00	274	88400.00
"	" Seattle	329.9	105.60							75	7900.00	85	8900.00	54	5800.00	139	14800.00
Tomatoes	" Minn. Tfr.	1642.7	344.00									45	15500.00	36	12400.00	23	7700.00
"	" Seattle	329.9	196.80									4	800.00	3	600.00	2	400.00
Dried Peas	" Minn. Tfr.	1642.7	666.40							18	11800.00	21	14200.00	18	11800.00	21	14100.00
"	" Seattle	329.9	138.00							20	2800.00	37	5100.00	21	2900.00	24	3400.00
Canned Goods	" Minn. Tfr.	1642.7	691.20											17	12000.00	106	73200.00
" "	" Seattle	329.9	249.00											17	4300.00	106	26400.00
	TOTAL			96	34900.00	190	68600.00	190	68600.00	1681	534600.00	2070	658700.00	1828	592900.00	2396	784800.00
Received			$		$		$		$		$		$		$		$
Fertilizer	From Durant, Mont.	519.9	220.80	3	700.00	4	900.00	11	2400.00	13	3000.00	14	3100.00	13	3000.00	18	4000.00
"	" Spokane, Wash.	156.6	70.80	3	200.00	4	300.00	11	800.00	13	1000.00	14	1000.00	13	900.00	18	1300.00
Seed potatoes	" Grand Forks, N.D.	1523.0	349.20	5	1700.00	7	2500.00	15	5400.00	18	6400.00	19	6800.00	15	5400.00	18	6400.00
"	" Craigmont, Idaho	265.5	177.10	15	2700.00	20	3600.00	37	6700.00	44	7900.00	47	8400.00	38	6800.00	45	8100.00
Farm Machinery	" Minn. Tfr., Minn.	1642.7	803.00	1	800.00	1	800.00	45	20400.00	11	9100.00	13	10200.00	28	22300.00	62	50200.00
Autos and Trucks	" Portland, Ore.	469.1	95.76					25	2400.00	10	1000.00	15	1400.00	20	1900.00	40	3800.00
Lumber	" Spokane, Wash.	156.6	132.00					28	3800.00	22	2900.00	17	2300.00	10	1300.00	40	5400.00
"	" Tacoma	326.0	180.40	2	400.00	4	800.00	28	5100.00	22	4000.00	17	3200.00	10	1800.00	40	7400.00
Cement	" Seattle	329.9	195.00					14	2700.00	10	2000.00	5	1000.00	5	900.00	16	3100.00
"	" Irvin	164.6	110.00					14	1500.00	10	1100.00	5	600.00	5	500.00	16	1800.00
Coal	" Wallula	97.2	78.60					4	300.00	7	600.00	10	700.00	14	1100.00	53	4200.00
"	" Roslyn	234.6	191.50	3	600.00	4	800.00	4	800.00	7	1400.00	10	1800.00	14	2700.00	53	10100.00
Flour and Feed	" Spokane	156.6	128.00					14	1800.00	17	2200.00	20	2600.00	26	3300.00	90	11500.00
Roofing	" Portland, Ore.	469.1	114.80					3	300.00	5	600.00	5	600.00	10	1100.00	10	1100.00
Plaster	" Spokane, Wash.	156.6	82.00					3	200.00	3	200.00	3	200.00	3	200.00	5	400.00
Gasoline and Oil	" Seattle, "	329.9	237.60					8	2000.00	11	2400.00	12	2900.00	15	3800.00	54	13000.00
Heating Equipment	" Minn. Tfr. Minn.	1642.7	880.00					2	1400.00	2	1400.00	3	2600.00	2	1900.00	4	2800.00
Household Furnishings	" Minn. Tfr. "	1642.7	677.28					5	2000.00	4	2800.00	6	4200.00	20	14400.00	28	19200.00
	TOTAL			32	7100.00	44	9700.00	271	60000.00	229	50000.00	235	53600.00	261	73300.00	610	153800.00
	TOTAL REVENUE				42000.00		78300.00		128600.00		584600.00		712300.00		666200.00		938600.00

30. The estimated gross revenue, operating expenses, net revenue, and net railway operating income, corresponding with the estimates of traffic under paragraph 29. By "net railway operating income" is meant the excess of the credits over the debits to income, as reflected by the operating revenue, operating expense, railway tax accrual, uncollectible railway revenue, equipment rent, and joint facilities rent accounts.

ANSWER:

	Estimated Gross Revenue	Estimated Operating Expense	Estimated net Railway Operating Income
	$	$	$
First Year	42,000	21,000	21,000
Second Year	78,300	39,150	39,150
Third Year	128,600	64,300	64,300
Fourth Year	584,600	292,300	292,300
Fifth Year	712,300	356,150	356,150
Average for 2nd five year period	666,200	333,100	333,100
Average per year after full development	938,600	469,300	469,300

Operating expenses estimated on basis of 50% of the gross revenue shown

31. 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.

ANSWER: The estimate of traffic in answer to question 29 is restricted to the tonnage which it is calculated will be produced on the lands in the Moses Lake trade territory which are tributary to applicant's Connell Northern Branch, plus such traffic as will indirectly result from the development of such lands under irrigation. All of such traffic will constitute net additional business developed or created after construction of the proposed new line. It is assumed, of course, that a portion of such traffic will be handled by the Chicago, Milwaukee, St. Paul and Pacific Railroad, which line presently serves Moses Lake. The Columbia Basin Irrigation Project, however, includes large additional areas within the Moses Lake Trade Territory which are not tributary to applicant's line. A substantial volume of traffic, comparable to that produced in the area tributary to

applicant's Connell Northern Branch, will result from the development under irrigation of these additional lands. It is assumed that applicant will receive for transportation some substantial part of that traffic sufficient, at least, to offset the portion of traffic produced in the area tributary to applicant's Connell Northern Branch, which will be handled by the Milwaukee.

32. The dates on which it is expected to begin and to complete the construction of the proposed new line of railroad.

ANSWER: It is expected to commence construction of the proposed line of railroad immediately following receipt of a Certificate of Public Convenience and Necessity from the Commission and construction would be completed within six months thereafter.

33. The engineering work in full detail which has been done with respect to the proposed new line at the time of filing the return.

ANSWER: Preliminary survey has been made and line tentatively located.

34. The following details concerning the line to be constructed:

(a) The gage and number of main line tracks.

ANSWER: Standard gage and single main track.

(b) Weight of rail for main line track.

ANSWER: 90#

(c) Rate of maximum grade in each direction, and whether and how compensated for curvature.

ANSWER: 1.4% east bound and 0.5% west bound, not compensated.

(d) Rate of limiting grade that will fix train loading in each direction, and whether and how compensated for curvature.

ANSWER: 1.4% east bound, 0.5% west bound, not compensated.

(e) If helper grades are to be used, the location, length, rate, and direction of ascent for each.

ANSWER: No helper grades are to be used.

(f) The maximum rate of curve.

ANSWER: Five degrees.

(g) The average amount of curvature per mile in degrees.

ANSWER: Thirty-eight degrees.

(h) The approximate length and height of wooden trestles or other temporary construction.

ANSWER: There would be no wooden bridges or other temporary construction on the proposed line.

35. An estimate of total increase in charges to road and equipment account during the first five years after completion of the new line. If this displaces rental charges on equipment, so show.

ANSWER: It is not anticipated that any charges to road and equipment accounts would be incurred during the first five years after completion of the new line.

36. Any additional facts or reasons to show that the public convenience and necessity require the granting of this application.

ANSWER: Moses Lake, the terminus of the line proposed to be built is the only established community presently located in the immediate vicinity of the area being improved in the First Unit of the East Columbia Basin Irrigation District. The physical advantages enjoyed by this community, of an ample supply of good water and highway facilities insure its growth and its importance as the marketing, processing, trading, and shipping center of the area being improved under the First Unit of the East Columbia Basin District and the territory now under irrigation in the Moses Lake Area.

The Applicant's existing Connell Northern Branch bi-sects or closely borders the First Unit of the East Columbia District for a distance of 25 miles. The territory within this district at present is semi-arid and the cost of developing an adequate water supply and providing means for disposal of sewage and waste from processing plants at some point on applicant's existing line would be so excessive as to preclude the establishment of processing and canning plants on an economic parity with those at Moses Lake.

The lands to be irrigated under the East Columbia Basin Irrigation District are highly fertile and when irrigated will be devoted to intensive production of a variety of agricultural products. It is estimated that homes for approximately 878 farm families will be established in the area with a farm population of 3500 people. It is estimated also that the population of the town of Moses Lake will have a population of 15,000 to 25,000 when the area tributary thereto is fully developed as now planned.

The maturing period of crops in this area will result in a wide distribution of the agricultural produce and consequent need for rapid and expanded transportation facilities.

NORTHERN PACIFIC RAILWAY COMPANY

BY C. E. Denney
President

STATE OF MINNESOTA)
) ss
COUNTY OF RAMSEY)

C. E. DENNEY makes oath and says that he is the President of Northern Pacific Railway Company, applicant herein; that he has been authorized by proper corporate action on the part of said applicant to verify and file with the Interstate Commerce Commission the foregoing return to questionnaire of said Commission in respect of the application in Finance Docket No. 16119; that he has carefully examined all of the statements referred to in said return and the exhibits attached hereto and made a part hereof; that he has knowledge of the matters set forth in such return and that all such statements made and the matters set forth therein are true and correct to the best of his knowledge, information, and belief.

C. E. Denney

Subscribed and sworn to before

me this 25th day of June, 1948

C. B. Theits

C. B. Theits
Notary Public, Ramsey County, Minnesota
My Commission expires Jan. 24, 1951.

Exhibit "A"

Exhibits " C", "D", and "E" are hereto attached, and therefore, a copy of engineering report of reconnaissance for the proposed line is not furnished.

EXHIBIT "B"

NORTHERN PACIFIC RAILWAY COMPANY.

CONSTRUCTION SPECIFICATION NO. E-114

OFFICE OF CHIEF ENGINEER

ST. PAUL, MINN., JUNE 1, 1928.

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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. **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.

3. **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.

4. **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, six inches 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.

5. **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.

6. **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.

7. **Inspection of Material.** All material and equipment to be used will be inspected by the Company on the site of the work. If the Contractor sees fit to furnish any or all such material and equipment in such manner as to require inspection away from the site of the work, he shall bear any expense the Company may be put to by reason of such inspection.

8. **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.

9. **Flagmen.** Whenever the Engineer considers flagmen necessary for the protection of the Company's operated tracks they will be furnished by and at the expense of the Company. The Contractor shall carry on no operation requiring the use of flagmen unless they are on duty.

10. **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.

11. **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.

12. **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.

13. **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.

14. **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.

15. **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 the operations.

February 7, 1940.

N. P. RY. CO. CONSTRUCTION SPECIFICATION E-114

Section Two

CLEARING AND GRUBBING

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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.

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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 slope 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 may 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

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 embankment 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 rock, 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 price 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 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 specifications 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 purpose; 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 from 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

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 length 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 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.

August 15, 1928

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Section Eight

TRACKLAYING

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.
$\frac{1}{16}$" for plus 75 degrees to plus 100 degrees.
$\frac{1}{8}$" for plus 50 degrees to plus 75 degrees.
$\frac{3}{16}$" for plus 25 degrees to plus 50 degrees.
$\frac{1}{4}$" for plus 0 degrees to plus 25 degrees.
$\frac{5}{16}$" 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 $\frac{1}{16}$" 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 track-laying 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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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.

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Section Ten

GRAVEL BALLASTING

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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Section Thirteen

CONCRETE

1. **Work Included.** The Contractor shall build complete all concrete structures as herein specified or as shown or implied by the plans.

2. **Definition.** Concrete is an intimate mixture of Portland cement, water, fine and coarse aggregates, with small additions of other ingredients when required, proportioned, mixed, transported, placed and cured as herein specified.

3. **Furnishing Materials.** Unless otherwise specified in the contract, the Contractor shall furnish all material entering into the completed concrete structures except Portland cement and reinforcing bars. The Contractor shall furnish, erect and remove all forms, falsework and other temporary structures necessary for the concrete work.

4. **Portland Cement.** The quality of cement and the methods of sampling and testing shall conform to the current ASTM specifications C 150, Type I. Other C 150 types may be used by order of the Engineer without change in compensation.

5. **Admixtures.** The Company may elect to furnish an admixture, which the Contractor shall handle and include in the concrete without change in compensation.

6. **Fine Aggregate.** The fine aggregate shall be coarse, sharp, hard, strong, durable particles of natural sand, free from adherent coating, and washed to remove clay, loam, alkali, organic matter or other deleterious substances. Grading of fine aggregate shall conform to the following requirements:

	Per cent by weight passing the following standard ASTM sieves:					Clay or Loam per cent by weight
	⅜ inch	No. 4	No. 16	No. 50	No. 100	
Minimum	100	95	45	10	0	—
Maximum	—	100	80	30	8	1.5

7. **Coarse Aggregate.** The coarse aggregate shall be hard, durable broken rock or gravel of approximately uniform grading as follows:

Maximum Designated Size	Per cent by weight passing the following standard laboratory sieves with square openings.					
	1½″	1¼″	¾″	⅜″	No. 4	No. 8
¾ inch	—	100	90–100	20–55	0–10	0–5
1½ inch	100	90–100	35–70	10–30	0–5	—

Coarse aggregates shall be washed clean and shall be free from adherent coatings or lumps of clay, loam, roots, sticks and other organic matter, alkali or other deleterious material.

8. **Aggregate—General.** The Contractor shall submit samples of the aggregates which he proposes to use. No aggregate shall be used unless it has been approved by the Company's Engineer of Tests. Further samples shall be submitted as necessary to assure continued supply of acceptable aggregates.

In addition to the foregoing gradings and tests, the aggregates will be tested in the field, and shall not be used unless they combine to form an acceptable grading for strength and economy. If the concrete is not of workable character, or when finished it does not exhibit a proper surface, either the fine or coarse aggregate or both shall be rejected or altered as required by the Engineer.

9. **Water.** Water shall be clean and free from injurious amounts of oil, acid, alkali, chemically active salts, organic material or other deleterious substances. If water is not known to be potable, a one gallon sample shall be submitted to the Company's Engineer of Tests for analysis.

10. **Reinforcement.** All reinforcement shall be of the grade, dimensions and form shown on the plans. Bars shall be round, deformed billet steel bars unless otherwise specified. Reinforcing bars shall conform to the current ASTM specifications A 15 for billet steel, intermediate grade. The Contractor shall furnish suitable tie wires and metal fastenings and supports for reinforcement.

11. **Storage of Materials.**

(a) Cement shall be stored in a weather-tight structure with the floor raised not less than one foot above the ground. All cement shall be subject to retest at any time, and, if it fails to meet any of the requirements of the specifications, and particularly if it has hardened or partially set, it shall not be used. The Contractor shall be charged with the cost of any cement furnished by the Company and lost or damaged through neglect of the Contractor.

(b) The Company will furnish cement in paper sacks, and the Contractor shall properly dispose of all empty sacks.

(c) The Contractor shall unload, pile and store fine and coarse aggregates separately and in such manner as to avoid segregation of sizes and prevent contamination.

(d) Metal reinforcement shall be stored in racks off the ground.

12. **Proportioning.** If proportions are shown on the plans they shall be subject to modification by order of the Engineer. Materials shall be measured by weighing. Allowance shall be made for the free water held by the aggregates. Coarse aggregate, fine aggregate and cement shall be weighed separately. The water shall be measured by weight or volume. One sack of cement containing 94 pounds shall be considered one cubic foot in volume. Paper sacks shall be opened at the end and shall be completely emptied.

13. **Classes and Proportions of Concrete.**

(1) When concrete is described by classes, it shall conform to the following several specifications. Proportions are by weight. If no class or identification is given, concrete shall be of the classes suitable for the work, as ordered by the Engineer. The uses shown below are typical and not exclusive.

(2) Class A concrete, for general use for reinforced concrete, shall have coarse aggregate of 1½ inch maximum size and six gallons of water per sack of cement. Trial proportions should be 1:2.2: 3.8 with not less than 5.7 sacks of cement per cubic yard.

(3) Class B concrete, for mass concrete in abutments, piers and retaining walls, shall have coarse aggregate of 1½ inch maximum size and 6½ gallons of water per sack of cement. Trial proportions should be 1:2.5:4.25 with 5.2 sacks of cement per cubic yard.

(4) Class C concrete, for narrow beams and thin slabs, shall have coarse aggregate of ¾ inch maximum size and six gallons of water per sack of cement. Trial proportions should be 1:2.4:3.0 with 6.2 sacks of cement per cubic yard.

(5) Class D concrete, for concrete blocks and other small precast units, shall have coarse aggregate of ¾ inch maximum size and five gallons of water per sack of cement. Trial proportions should be 1:2.0:2.5 with 7.4 sacks of cement per cubic yard.

(6) Class E concrete, for paving, shall have coarse aggregate of 1½ inch maximum size and 5½ gallons of water per sack of cement. Trial proportions should be 1:2.0:3.4 with 6.2 sacks of cement per cubic yard.

(7) If the Engineer finds that the ratios indicated, together with the recommended proportions of aggregates, do not produce workable mixes, he will permit increase of the amount of both cement and water, without change of water-cement ratio. Concrete having a maximum slump of three inches will be considered a workable mix. Whenever water tends to accumulate at the surface of the concrete, the proportion of water shall be reduced until this bleeding is corrected.

(8) Concrete of specified strength, deposited in air, shall have the following quantities of water per sack of cement:

Minimum Compressive Strength (28 days)	Gallons per sack
2700 lbs. per sq. in.	7
3000 lbs. per sq. in.	6½
3300 lbs. per sq. in.	6
3700 lbs. per sq. in.	5½
4250 lbs. per sq. in.	5

14. **Forms.**

(a) Forms shall be of surfaced wood, metal or other approved material and shall conform to the shape, lines and dimensions of the concrete as called for on the plans. They shall be mortar tight and substantial and shall preserve their accurate shape until the concrete has set. Warped or distorted forms shall be immediately replaced. Joints shall be truly horizontal or vertical, neatly fitted with special care to give an even surface.

(b) All forms shall be so constructed that they can be removed without prying or hammering against the concrete. Bolts and rods used for internal ties shall be so coupled that when the forms are removed no metal shall be within one inch of any surface. Any material previously used in forms must be in good repair and thoroughly cleaned before being used again. Any probable deflection in long spans where intermediate support is impossible shall be compensated for, so that the finished work shall be true.

(c) Sheet piling may be used as forms for footing courses of concrete structures if approved by the Company's Bridge Engineer but the volume of concrete to be paid for shall be computed from dimensions given on the plans. The Company reserves the right to charge the Contractor for any additional Company material so used.

(d) Bevel strips 1½ inches on the diagonal face shall be placed in all exposed corners of forms. Abutting edges of expansion joints shall be beveled, or formed with proper tool of one quarter inch radius.

(e) Temporary openings shall be provided wherever necessary to permit thorough cleaning and inspection immediately before depositing concrete.

(f) The inside of forms shall be coated before each use with non-staining mineral oil or other approved material which shall be applied before the reinforcement is placed.

(g) The removal of forms shall not be started until the concrete has attained strength sufficient to support its own weight and construction live loads. Falsework for supporting forms and concrete shall not be removed until authorized by the Engineer. Forms shall not be removed from beams and slabs in less than two weeks nor from columns in less than five days nor from self-supporting concrete in less than forty eight hours unless authorized by the Engineer.

15. **Placing Reinforcement.**

(a) Cleaning. Before being placed in the forms, metal reinforcement shall be thoroughly cleaned of mill and rust scale, dirt, grease and any coating that will tend to reduce the bond.

(b) Forming and Placing. Bars shall be bent cold. Reinforcement shall be accurately formed and placed as shown on the plans, and securely fastened with annealed iron wire ties, suitable clips or spot welding at all intersections and shall be supported by concrete or metal supports. Metal clips or supports shall not be placed in contact with forms for exposed surfaces. Splices shall be made subject to direction of the Engineer. The lap at splices shall not be less than 40 diameters of the bars spliced. Splices will not be permitted at points of maximum stress, and adjacent bars shall have splices staggered.

16. **Inspection of Forms and Reinforcement.** The Contractor shall not place any concrete until the

Company's inspector has examined the forms and reinforcement, and all corrections ordered therein have been made.

17. **Joints.**

(a) Instructions as to the placing of joints shall be strictly followed. If necessary construction joints are not indicated, they shall be located as directed by the Engineer and formed so as not to impair the strength and to least impair the appearance of the structure. Keys equivalent to one-third of the area shall be formed in all joints, including the top of each day's work. If directed by the Engineer, dowels shall be placed. Reinforcement shall continue through the joint.

(b) Joints shall not be made in water-tight construction unless authorized by the Engineer. When such construction joints are authorized, the Contractor shall use all suitable means, including the providing and embedment of a non-corrosive metal seal, to insure that the joint will be fully and permanently tight against water under pressure.

18. **Mixing Concrete.** The Contractor shall mix all concrete in a suitable rotary batch mixer in good working condition, having capacity to handle the largest continuous pouring in eight hours or less. The plant shall include equipment for measuring and weighing all material, including water. Scales shall be of an approved type, made for weighing concrete ingredients, and be accurate within 1%. The Contractor shall keep on hand a suitable set of standard 50 pound test weights. The mixing period shall be not less than one and one-half minutes after all materials including water are in the mixer, and this time shall be increased 15 seconds for each half yard of mixer capacity above one cubic yard. Longer mixing may be required if necessary to produce homogeneous mixes. The drum shall revolve at a speed of 14 to 20 revolutions per minute. The size of batch shall not exceed the rated capacity. The entire batch must be discharged before starting to recharge the mixer. Material which has hardened to any degree shall not be used.

19. **Ready-Mixed Concrete.** On approval by the Engineer, the Contractor may use ready-mixed concrete conforming to the current ASTM specifications C 94.

20. **Depositing in Air.**

(a) Cleaning. Before placing of concrete is begun, the mixing and conveying equipment, forms and reinforcement shall be cleaned of mortar, dirt and debris, and if forms are on rock, all loose rock and other loose material shall be removed. Water shall be removed from the space to be occupied by the concrete. Any flow into an excavation shall be diverted or removed in a way which will eliminate washing of freshly deposited concrete.

(b) Handling and placing. Concrete shall be transported as rapidly as practicable by means which will prevent separation or loss. It shall be deposited continuously for each monolithic section, as nearly as practicable in its final position, and with a surface maintained approximately level. It shall not have a free fall of more than six feet.

(c) Bonding. Before depositing concrete in contact with concrete which has hardened, or with stone, the hard surface shall be roughened, thoroughly cleaned of loose or foreign matter and laitance, and saturated with water. After removal of excess water, the damp surface shall be slushed over with a grout of neat cement, to be followed immediately by the deposit of new concrete.

(d) The first mix deposited in any run of pouring, whether over old concrete or not, shall be of normal proportions except that it shall have no coarse aggregate. Such mortar shall be deposited to a depth equal to the largest size of coarse aggregate.

21. **Conveying Concrete.**

(a) The conveying plant shall be so arranged and operated as to avoid separation of ingredients and to provide as nearly a continuous flow as the type of plant will permit. If flow in a chute is intermittent, the chute shall discharge into a hopper. Chutes shall be on slope not steeper than one vertical to two horizontal.

(b) Compressed air and pumping conveyors will not be permitted without permission of the Engineer. In requesting such permission the Contractor shall submit complete details of all equipment and operation, with information as to any special requirements as to proportioning of concrete. Varying the water-cement ratio on account of conveyors will not be permitted.

(c) All conveying systems shall be thoroughly emptied and cleaned immediately after each use. Water used for cleaning shall not be allowed to reach concrete.

22. **Compacting.**

(a) Concrete, during and immediately after placing, shall be thoroughly compacted. Internal vibrators of approved type shall be used and, in addition, such other tools shall be used as appear necessary to eliminate voids and segregation and bring mortar and fine particles to the surfaces of the forms. On thin and inaccessible sections external vibrating may be required.

(b) Vibration shall be at a frequency of not less than 3600 impulses per minute, of sufficient intensity and duration to produce uniform settlement, plasticity and compaction. Vibration shall extend through full depth of each layer of fresh concrete, consolidating successive batches with each other, but shall not be allowed to penetrate into partly hardened concrete nor to disturb embedded metal. There shall be at least 15 seconds of vibration per square foot of top surface of the layer being vibrated, but vibration shall not continue for more than 30 seconds in one position. If pools of grout, water or laitance form readily during vibration, the mixture shall be modified.

23. **Depositing Under Water.**

(a) Concrete shall not be deposited under water unless the Engineer shall authorize it; and then only when it appears impractical to remove water, and only to the extent of a seal to make de-watering of the remainder practicable. Details shall be subject to approval of the Engineer.

(b) For deposit under water the concrete shall contain not more than five and one-half gallons

of water per sack of cement, and not less than seven sacks of cement per cubic yard of concrete.

(c) Cofferdams, cribs or forms shall be tight enough to prevent any flow of water through the space in which concrete is to be deposited. Pumping will not be permitted while the concrete is being placed, nor until it has attained sufficient strength to withstand the water pressure.

(d) The concrete shall be deposited, by bottom dump bucket or tremie, so that no concrete will be washed by water previous to its placing. Rapid and continuous placing is essential. The mass shall be built up approximately level, by movement of depositing mechanism and use of as many units as are required to avoid flow of the concrete in contact with water after placing.

(e) The bottom dump bucket shall be designed so that its doors cannot be opened until it has rested, with its load, on the surface upon which the concrete is to be deposited, but will then be automatically unlatched and the bottom doors shall open downward and outward as the bucket is raised. The top of the bucket shall be equipped with covers which will effectively protect the contained concrete from wash during lowering.

(f) A tremie shall be a strong water-tight pipe, not less than eight inches in diameter, long enough to reach from its charging hopper above water, to the bottom of the placed concrete. Its top section shall be a hopper large enough to hold an entire mixer batch, or the entire contents of the transporting bucket. There shall be a suitable device for sealing the discharge end during the placement of the tremie, and such device shall be arranged to open fully when the pipe is full of concrete. The tremie may be moved and raised as required to maintain flow of concrete, but at all times the lower end shall be under the top surface of the concrete, and water shall never be allowed to enter above the concrete in the pipe. If charge of concrete is lost, the tremie shall be raised above the surface and refilled.

(g) All requirements under the heading "Depositing in Air" shall be applicable also to concrete deposited under water where they are not in contradiction with the requirements for depositing under water.

24. **Temperature.**

(a) Concrete when deposited shall have temperatures within the limits of the following table of degrees Fahrenheit and shall not include frozen materials;

Temperature of Air	Temp. of heated concrete when placed	
	Minimum	Maximum
Below 30°	70°	90°
30° to 45°	60°	90°
Above 45°	50°	90°

The required temperatures shall be obtained by heating mixing water or aggregates or both to temperatures between 70° F. and 150° F.

(b) In freezing weather or when there is likelihood of freezing temperatures within the specified curing period, suitable and sufficient means shall be provided in advance, for maintaining all concrete surfaces at a temperature of not less than 50° F. for the entire curing period. Small apertures shall be provided in the forms for placing thermometers against the concrete surfaces. Coverings or housings shall be arranged so as to exclude extraneous air currents and permit free circulation of heat. There shall, however, be enough ventilation to carry off salamander gases. Exposed surfaces shall be kept moist during the time of heating.

(c) If concrete is to be deposited in water whose temperature is below 40° F., the water shall be heated to 40° minimum during pour and 96 hours thereafter.

(d) Any concrete which has been frozen or frost bitten shall be promptly removed from the work.

25. **Surfacing Finishing and Curing.**

(a) Where not otherwise specified, the forms for concrete which will show in the finished work shall be removed as soon as the Engineer will permit, and all surface irregularities dressed and pointed to a smooth surface matching in texture the general surface. Any defective concrete shall be removed immediately and replaced as directed by the Engineer. Small openings shall be filled with mortar of the same proportions of cement and sand as used in the concrete, and smoothed with a wooden float. The mortar shall be fresh and plastic. Surfaces shall be saturated with water before pointing. There shall be no general surface plastering.

(b) Top surfaces of concrete shall be filled high enough to permit all excess water and thin mortar to be struck off and the coarse aggregate worked below the surface, which shall then be given a float finish at true grade.

(c) The curing period shall be seven days, and all surfaces of concrete shall be kept continuously moist for that period. In lieu of maintaining moist surfaces, they may be sealed as soon as surface dry by coating with an acceptable non-staining curing sealer.

(d) Wearing surface finish. Walks, and other surfaces where so designated, shall be given a sidewalk finish. For this, particular care shall be taken to have a low enough water cement ratio so that there shall be no excess water or thin mortar on top. The concrete shall be compacted by rolling or tamping, and floated with a wood or mechanical float. It shall then be tested with a straight edge and all surface irregularities eliminated. After the concrete has hardened sufficiently to prevent fine material from working to the surface, it shall be finished with a steel trowel to a smooth surface free from defects and blemishes. After troweling, the surface shall be slightly roughened with a special tool or by sweeping lightly with a broom. It shall be cured as specified for other top surfaces.

26. **Waterproof Paint.** The inner surfaces of all reinforced walls, and tops of concrete slabs, shall be given two heavy coats of a heavy asphalt paint or its equivalent, particular attention being given to the corners. All concrete shall be at least 10 days old and thoroughly dry before the application of waterproofing materials.

September 17, 1946.

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 diagrams, 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 re-erection 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.

ESLEECK MFG. CO.
MADE IN U.S.A.

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.

EXHIBIT "C"

To Cheney

To Stratford

T. 22 N.
T. 21 N.

FIRST UNIT OF EAST COLUMBIA BASIN

GLOYD SPUR

T. 21 N.
T. 20 N.

R. 28 E.
R. 29 E.

R. 28 E.

FIELD

NORTHERN PACIFIC RY.

East Low Canal

GRANT COUNTY

R. 29 E.
R. 30 E.

Bituminous Surface To Ephrata

FLYING

MOSES LAKE IRRIGATION DISTRICT

U.S. GOV. R.R.

Surface

T. 20 N.
T. 19 N.

MITCHELL SPUR

PROPOSED LINE

MOSES LAKE

MOSES LAKE IRRIGATION DISTRICT

WHEELER

Bituminous Surface

To Burke

Bituminous Surface

ATWOOD SPUR

Bituminous Surface

To Ritzville

T. 19 N.
T. 18 N.

C. M. ST. P. & P. R. R.

To Connell

SIELER

N

EXHIBIT "C"
N.P.Ry.
Proposed Line
between
MITCHELL SPUR AND MOSES LAKE
WASH.
Scale: 1" = 1 Mile
Office of Chief Eng. St. Paul, Minn. April 8, 1948
Rev. June 15, 1948


EXHIBIT "D"
MITCHELL SPUR
To Coulee City
215,000 cu. yds.
1600' V.C.
-0.20
1185.5
1189
Prop'd. Industrial Development
Total Embankment 255,000 cu.yds.
Total Excavation 220,000 cu.yds.
Total Curvature 147°
N.P. Ry.
Idaho Div. Connell Northern Ry.
Prop'd Track from
MITCHELL SPUR TO MOSES LAKE
April 19, 1948
Scales: Hor. 1"=400', Vert 1"=20'
Office of Asst. Ch. Engr. Seattle, Wn.

Exhibit "E"

NORTHERN PACIFIC RAILWAY COMPANY

Mitchell Spur to Moses Lake

Idaho Division — State of Washington

Estimate of cost of branch line from Mitchell Spur to Moses Lake as sketch dated April 8, 1948, revised June 15, 1948.

Outline of Trackwork

Main Track: 90# steel on treated ties on 6" of pit run ballast. Length 19490 trk. ft.

Second Tracks: 90# steel on treated ties on 3" of pit run ballast
Length including 6 turnouts 6000 " "

Total track length 25490 " "

Outline of Culverts

	48" R.C.P.	36" R.C.P.
Sta. 10	48	
" 119	60	
" 159		40
" 187		60
	108	100

- - - - - - - - - -

Additions

Acct. 1 - Engineering			15,000
Acct. 2 - Land for transportation		31,500	31,500
Acct. 3 - Grading			
Common excavation and haul	215000 c.y.	64,500	
" borrow	45000 c.y.	9,000	73,500
Acct. 6 - Culverts			
48" Reinf. conc.pipe	108'	1,510	
36" " " "	100'	900	2,410
Acct. 8 - Ties			
Cross ties, treated,	13460 pcs.	33,650	
Switch ties, tr. 6-#9 sets,	18 MFBM	1,420	35,070
Acct. 9 - Rail			
90# 3d. cl.	50584 L.F. 677.5 G.T.	13,550	13,550

Exhibit "E"

Acct. 10 - Other Track Material		
Angle bars 90# S.H. 1600 prs.	3,100	
Track bolts and locks, new 6400 sets	1,410	
Tie plates, 90# S.H. 27400 pcs.	7,670	
Track spikes, new 180 kegs	1,980	
Rail anchors, new 9300 pcs.	2,510	
6-#9 - 90# spring frogs, new	1,350	
6 - Split switches, 90# new	1,410	
6 sets 90# guard rails, new	270	
6 switch stands, new	270	
6 lamps and locks, new	90	
Store expense	1,400	21,460
Acct. 11 - Ballast		
Pit run gravel 11000 cu. yds.	7,150	7,150
Acct. 12 - Tracklaying & Surfacing		
Lay, line, and surface 25490' track	51,000	
Place 6 turnouts	3,600	54,600
Acct. 16 - Station & Office Buildings		12,000
Acct. 26 - Telegraph & Telephone		6,000
Acct. 39 - Public Improvements		2,000
Total		274,240

NORTHERN PACIFIC RAILWAY COMPANY

Exhibit "F"

Income Account

Years 1943 to 1947, inclusive, and period January 1 to April 30, 1948.

	1943	1944	1945	1946	1947	4 mos. to Apr.30,1948
I. Operating Income						
A. Railway operating income						
Railway operating revenues	$151 531 732	$155 978 310	$149 244 108	$126 744 079	$142 591 148	$45 920 588
Railway operating expenses	92 136 022	107 618 188	#132 606 256	105 794 661	112 436 547	39 401 136
Net revenue from railway operations	59 395 710	48 360 122	16 637 852	20 949 418	30 154 601	6 519 452
Railway tax accruals	27 604 226	28 775 859	##2 709 879	12 323 408	17 466 236	5 097 891
Railway operating income	31 791 484	19 584 263	13 927 973	8 626 010	12 688 365	1 421 561
B. Rent income						
Hire of freight cars - credit balance	1 961 829	1 185 106	1 949 836	2 369 966	2 830 611	421 030
Rent from locomotives	456 435	328 197	203 595	203 860	266 352	147 432
Rent from passenger-train cars	145 115	169 893	204 956	325 196	88 261	20 113
Rent from work equipment	21 510	26 192	33 176	34 808	38 320	10 663
Joint facility rent income	3 411 204	3 498 147	3 676 492	3 495 221	3 669 681	1 379 289
Total rent income	5 996 093	5 207 535	6 068 055	6 429 051	6 893 225	1 978 527
C. Rents payable						
Rent for locomotives	44 951	104 671	98 106	79 600	53 692	17 995
Rent for passenger-train cars	362 404	323 657	540 040	525 699	392 108	132 629
Rent for work equipment	1 415	2 285	1 583	1 308	1 246	363
Joint facility rents	955 351	983 065	1 082 598	1 096 561	1 129 051	363 217
Total rents payable	1 364 121	1 413 678	1 722 327	1 703 168	1 576 097	514 204
Net rents	4 631 972	3 793 857	4 345 728	4 725 883	5 317 128	1 464 323
Net railway operating income	36 423 456	23 378 120	18 273 701	13 351 893	18 005 493	2 885 884
II. Other Income						
Income from lease of road and equipment	383 430	89 684	109 130	109 751	116 418	37 388
Miscellaneous rent income	449 015	441 454	407 750	272 737	493 927	98 149
Miscellaneous non-operating physical property	227 397	167 982	151 924	226 287	105 654	21 629
Dividend income	2 509 699	2 509 699	6 000 236	5 000 236	5 005 957	6 708
Income from funded securities	98 760	404 821	415 659	356 279	153 269	67 652
Income from unfunded securities and accounts	124 407	255 668	256 498	464 808	259 362	111 786
Release of premiums on funded debt	9 509	7 651	5 776	3 886	2 328	-
Miscellaneous income	126 798	128 184	128 156	88 315	38 784	35 096
Total other income	3 929 015	4 005 143	7 475 129	6 522 299	6 175 699	378 408
Total income	40 352 471	27 383 263	25 748 830	19 874 192	24 181 192	3 264 292
III. Miscellaneous Deductions From Income						
Miscellaneous rents	46 798	42 521	47 379	40 572	39 392	15 908
Miscellaneous tax accruals	74 501	76 589	71 300	82 092	63 872	29 768
Miscellaneous income charges	282 020	393 819	283 888	311 580	239 372	62 816
Delayed income debits	-	-	-	-	-	314 075
Total miscellaneous deductions	403 319	512 929	402 567	434 244	342 636	422 567
Income available for fixed charges	39 949 152	26 870 334	25 346 263	19 439 948	23 838 556	2 841 725
IV. Fixed Charges						
Rent for leased roads and equipment	78 739	79 356	81 803	97 079	128 846	44 440
Interest on funded debt - fixed interest	14 293 754	13 605 211	13 622 809	10 398 451	10 257 258	3 390 519
Interest on unfunded debt	2 772	24 782	47 447	21 339	18 750	2 973
Amortization of discount on funded debt	53 457	-	34 343	41 933	53 998	12 201
Total fixed charges	14 428 722	13 709 349	13 786 402	10 558 802	10 458 852	3 450 133
Income after fixed charges	25 520 430	13 160 985	11 559 861	8 881 146	13 379 704	(608 408)

#Includes $20,530,958 account of accelerated amortization of defense projects.

##Includes credits to Federal Income Taxes due to above item as well as refunding of Series "B" Mortgage Bonds and other adjustments.

(------) denotes deficit.

Exhibit "F"

NORTHERN PACIFIC RAILWAY COMPANY

Earned Surplus "Unappropriated" as of April 30, 1948

	Debits	Credits
Credit balance at beginning of year		$182 737 730
607 Miscellaneous credits		699 792
Debit balance transferred from income	$ 608 408	
621 Miscellaneous debits	170 880	
Credit balance carried to Balance Sheet	182 658 234	
Total -	$183 437 522	183 437 522

NORTHERN PACIFIC RAILWAY COMPANY

Exhibit "F"

General Balance Sheet as of April 30, 1948

ASSETS

Investments			
701-Road and equipment property			$693 560 077
702-Improvements on leased property			1 639 277
702½A-Acquisition adjustment		Cr.	3 649 485
702½B-Donations and grants		Cr.	3 693 401
Investment in transportation property			687 856 468
702½C&702½D-Accrued depreciation-Road and Equipment		Cr.	86 563 979
702½E&702½F-Accrued amortization of defense projects-Road and Equipment		Cr.	46 121 941
Recorded depreciation and amortization		Cr.	132 685 920
Investment in transportation property less recorded depreciation and amortization			555 170 548
703-Sinking funds			20 058
704-Capital and other reserve funds			1 910 677
705-Miscellaneous physical property			8 151 926
706-Investments in affiliated companies			169 767 498
707-Other investments			6 279 981
Total investments less recorded deprecn.and amortzn.			741 300 688
Current Assets			
708-Cash			12 089 058
709-Temporary cash investments			20 540 000
711-Special deposits			2 538 110
712-Loans and bills receivable			198 330
713-Traffic and car-service balances - Dr.			997 659
714-Net balance receivable from agents and conductors			2 024 742
715-Miscellaneous accounts receivable			7 752 331
716-Material and supplies			19 848 240
717-Interest and dividends receivable			156 223
718-Accrued accounts receivable			4 137 272
719-Other current assets			268 443
Total current assets			70 550 708
Deferred Assets			
720-Working fund advances			44 558
722-Other deferred assets			450 360
Total deferred assets			494 918
Unadjusted Debits			
723-Prepayments			750
725-Discount on funded debt			1 093 271
727-Other unadjusted debits			5 491 482
Total unadjusted debits			6 585 503
Grand Total -			$818 931 517

LIABILITIES

Capital Liabilities		
751-Capital stock	$248 000 000	
Less- in Treasury	17 400	$247 982 600
755-Funded debt unmatured		242 403 900
756½-Equipment obligations		25 093 294
Total capital liabilities		515 479 794
Current Liabilities		
760-Audited accounts and wages payable		11 163 937
761-Miscellaneous accounts payable		3 022 546
762-Interest matured unpaid		888 991
763-Dividends matured unpaid		14 101
764-Unmatured interest accrued		1 377 824
766-Accrued accounts payable		2 321 457
767-Taxes accrued		10 302 900
768-Other current liabilities		806 043
Total current liabilities		29 896 899
Deferred Liabilities		
770-Other deferred liabilities		413 893
Total deferred liabilities		413 893
Unadjusted Credits		
773½-Equalization reserves		95 020
778-Other unadjusted credits		2 962 304
779-Accrued depreciation-leased property		136 606
Total unadjusted credits		3 193 930
Surplus		
784-Unearned surplus		423 105
785-Earned surplus-appropriated		86 865 662
786-Earned surplus-unappropriated, Credit balance		182 658 234
Total surplus		269 947 001
Grand Total -		$818 931 517

Exhibit "G"

In the matter of the application of Northern Pacific Railway Company for certificate of public convenience and necessity authorizing applicant to extend its line of railroad from Mitchell Spur on its Connell Northern Branch (also known as Washington Central Branch) in the State of Washington to Moses Lake, Washington.

To the Honorable
Interstate Commerce Commission
Washington, D. C.

Gentlemen:

The undersigned respectfully states that he is familiar with the charter powers of the Northern Pacific Railway Company, and that in his opinion the proposed extension of line as set forth in the application in Finance Docket No. 16119 is within the charter powers of applicant Northern Pacific Railway Company.

L. B. daPonte
General Counsel

BEFORE THE

INTERSTATE COMMERCE COMMISSION

Application of NORTHERN PACIFIC RAILWAY COMPANY for a Certificate of Public Convenience and Necessity Authorizing Applicant to Extend its Line of Railroad from Mitchell Spur on its Connell Northern Branch (also known as Washington Central Branch) in the State of Washington, to Moses Lake, Washington.	Finance Docket No. 16119

EXCEPTIONS OF APPLICANT, NORTHERN PACIFIC RAILWAY COMPANY, TO REPORT PROPOSED BY EXAMINER A. G. NYE, AND BRIEF IN SUPPORT THEREOF

L. B. DAPONTE,
DEAN H. EASTMAN,
Attorneys for Applicant.

909 Smith Tower,
Seattle 4, Washington.

Due Date: February 25, 1949.

THE ARGUS PRESS, SEATTLE

OFFICE OF
ASST. CHIEF ENGR.
FEB 24 1949
N. P. RY. CO.
SEATTLE, WASH.

BEFORE THE

INTERSTATE COMMERCE COMMISSION

Application of NORTHERN PACIFIC RAILWAY COMPANY for a Certificate of Public Convenience and Necessity Authorizing Applicant to Extend its Line of Railroad from Mitchell Spur on its Connell Northern Branch (also known as Washington Central Branch) in the State of Washington, to Moses Lake, Washington.	Finance Docket No. 16119

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L. B. DAPONTE,
DEAN H. EASTMAN,
Attorneys for Applicant.

909 Smith Tower,
Seattle 4, Washington.
Due Date: February 25, 1949.

THE ARGUS PRESS, SEATTLE

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BEFORE THE

INTERSTATE COMMERCE COMMISSION

Application of NORTHERN PACIFIC RAILWAY COMPANY for a Certificate of Public Convenience and Necessity Authorizing Applicant to Extend its Line of Railroad from Mitchell Spur on its Connell Northern Branch (also known as Washington Central Branch) in the State of Washington, to Moses Lake, Washington.	Finance Docket No. 16119

EXCEPTIONS OF APPLICANT, NORTHERN PACIFIC RAILWAY COMPANY, TO REPORT PROPOSED BY EXAMINER A. G. NYE, AND BRIEF IN SUPPORT THEREOF

The applicant, Northern Pacific Railway Company, takes the following exceptions to the proposed report of Examiner Nye, and respectfully requests the privilege of oral argument of the proceeding before the Comission.

EXCEPTIONS

Exception No. 1

Excepts to the finding on Sheet 3 that

> "It (Moses Lake) is a considerable distance from the geographical center of the entire irrigation project and slightly outside that portion of the East Columbia district scheduled to receive irrigation water in 1952."

Exception No. 2

Excepts to the statement on Sheet 4 (lines 32 to 43) and Sheet 5 (line 1) to the effect that applicant's traffic estimate is open to question because there was no evidence that certain markets local to the Northern Pacific had ever been used by Moses Lake shippers, and the estimate included certain southwest markets because of faster service, but that Milwaukee schedules were not shown.

Exception No. 3

Excepts to the statements on Sheet 5 (lines 38 to 52) and Sheet 6 (lines 1 to 29), relating to the testimony of certain shipper witnesses with respect to Milwaukee service in connection with the handling of potato shipments.

Exception No. 4

Excepts to the statement on Sheet 6 that

> "Moses Lake shippers contend they cannot compete in California markets with potatoes from the Yakima district because Milwaukee schedules require an extra day. The main reason, however, is the substantial difference in rates that places Moses Lake shippers at a disadvantage."

Exception No. 5

Excepts to the findings on Sheets 6 and 7, as follows:

> "The record shows that as a general rule rail distances from Moses Lake to the

more important shipping centers and diversion points on the Milwaukee are shorter than via the applicant's railroad and, except to a few unusual destinations, there is a substantial equality of rates between Moses Lake on the Milwaukee and Wheeler about 6 miles from Moses Lake on the applicant's Connell Northern branch. Where there are differences in the rates, viz, coal with Utah origins, grain to Portland, Oregon, potatoes to California points, and a few others, there is nothing in the record to show that any steps have been taken to correct or otherwise change these alleged inequalities or irregularities. There is no assurance that the applicant if it operated into Moses Lake would equalize its rates with those in effect to and from the Yakima district, the principal competitor of Moses Lake producers and shippers. Furthermore very few if any new routes and new markets for Moses Lake shippers would be opened up by Northern Pacific service. It cannot be said that delays have been above the average or that the Milwaukee was responsible where they did happen. Schedules on all railroads are subject to interruptions particularly when cars are shipped as rollers but there is no assurance that the service which the Moses Lake shippers are requesting and the applicant seeks to render would be any better."

Exception No. 6

Excepts to the finding on Sheet 8, as follows:

> "Carriers have no legal right to exclusive occupancy of a territory and the Commission has permitted additional rail service whenever it has appeared that the interests of shippers required it. *Chesapeake & O. Ry. Co. Construction*, 267 I.C.C. 665. The record herein shows, however, that at present the interests of shippers at Moses Lake do not require the service of another railroad."

Exception No. 7

Excepts to the finding on Sheet 8, as follows:

> "It has not been affirmatively shown that the applicant can furnish better service than is now being rendered by the Milwaukee."

Exception No. 8

Excepts to the statement and finding on Sheet 3, as follows:

> "Except for a grain warehouse at Wheeler near the southern end, it is said there are no trading points, communities, or facilities on this portion of the branch to serve shippers. The record shows, however, that coal consigned to Moses Lake dealers has been received at Wheeler in the past and that more than 80,000 bushels of grain produced in the Moses Lake area also left this station during 1947."

Exception No. 9

Excepts to the statements on Sheet 7 (lines 33 to 57) with respect to the water supply and sewage facilities at Moses Lake and the available water supply at Wheeler and the conclusion of the Examiner, expressed therein, that it is possible to establish packing and processing plants at Wheeler in competition with those at Moses Lake.

Exception No. 10

Excepts to the statements on Sheet 8 (lines 28 to 54) to the effect that suitable loading facilities could be installed along the Connell Northern Branch for shippers who wish to avail themselves of applicant's service, and that the transportation needs of the three irrigation districts ultimately to benefit by the Columbia Basin Project should be considered collectively, thus obviating the possibility of one railroad invading the territory of another.

Exception No. 11

Excepts to the findings on Sheet 9, as follows:

> "There is no doubt that with the applicant operating into Moses Lake, the Milwaukee would handle less traffic through that station, particularly until 1952 when the newly irrigated land comes into production. To what extent the traffic would be divided after that time is problematical. There is the further possibility, however,

that the applicant would get a greater share of the traffic from the area if it established shipping facilities along the Connell Northern branch supplemental to those at Moses Lake."

Exception No. 12

Excepts to the findings and conclusions on Sheet 9, as follows:

"A greater part of the evidence in this proceeding is devoted to showing that there might be a need for Northern Pacific service at Moses Lake if and when the surrounding areas come into full production which at the earliest may not be for another 3 or 4 years. It has not been shown that there is or will be such a public need. The plans for the development of Moses Lake as an industrial, business, and shipping center are commendable and additional transportation facilities might be required in the future. Such hopes and expectations, however, do not constitute sufficient grounds for granting the application at this time."

Exception No. 13

Excepts to the findings and recommendations of the Examiner stated on Sheet 9, as follows:

"It is recommended that division 4 find that the present or future public convenience and necessity are not shown to require the construction by the Northern Pacific Railway Company of the branch line of railroad in Grant County, Wash., described herein.

"An order denying the application should be entered."

STATEMENT OF THE ISSUES

In this proceeding the Northern Pacific Railway Company (hereinafter called "Northern Pacific" or "applicant") seeks a certificate of public convenience and necessity authorizing the construction and operation of a branch line from a point on its Connell Northern Branch in Grant County, Washington, a distance of approximately 4 miles to Moses Lake, Washington.

The Connell Northern Branch, approximately 61 miles in length, extends from Connell to Adrian, Washington. It forms a part of the Washington Central Branch extending from Connell on the main line through Adrian and thence to Cheney, Washington, on the main line, a distance of approximately 190 miles. The Connell Northern is largely in Grant County and at its nearest point is within 4 miles of Moses Lake.

Construction of the Connell Northern was completed in 1910. The Milwaukee, which opposes the application, constructed a branch line to Moses Lake some two years later.

The Connell Northern was constructed for the purpose of providing rail transportation service for the products of agricultural lands traversed by the line between Connell and Adrian. At the time of construction, such lands were and presently are devoted largely to dry land wheat production, and, to some extent, livestock grazing. Such lands, however, are within the Columbia Basin Project, and under plans of the U. S. Bureau of Reclamation will be provided with water for irrigation purposes.

The Moses Lake territory, embracing approximately 165,000 acres of irrigable land, is within that part of the Project known as East Columbia Irrigation District. Under present plans, approximately 29,500 acres will be provided with irrigation water in 1952. Approximately 68,000 acres within the Moses Lake trade territory are tributary to the Connell Northern, of which approximately 23,000 acres will be provided with water in 1952.

The character of agricultural production in the area will be substantially changed as a result of irrigation. As in other irrigation districts in Washington, there will be produced a large volume of fresh vegetables and fruits and other products which will require processing, storage and other services prior to transportation to ultimate market.

It is expected that Moses Lake will be the marketing, processing, trading and shipping center for the entire area. There are no communities of consequence or established industries on the Connell Northern, except a few grain elevators and grain warehouses. Moses Lake, approximately 4 miles from the branch, is the only established community in the area. It is the logical site for the establishment of processing, packing and storage plants, a number of which are already in operation. The agricultural products from the 23,000 acres lying tributary to the Connell Northern will be trucked into Moses Lake for subsequent movement by rail to consuming markets. It is essential that the Northern Pacific have access to the city of Moses Lake if it is to participate in the rail transportation of these products grown on the lands tributary to its existing branch.

The City of Moses Lake, Moses Lake Chamber of Commerce, and Moses Lake Grange intervened in this proceeding in support of the application. They produced many shipper witnesses who testified that under existing rail service producers in the Moses Lake area are confined largely to midwestern markets. At present, they are unable to compete in the markets in the southeastern, southern and southwestern sections of the United States and

in California. They assert that new markets which they require for their products will be opened up by Northern Pacific service. The extension proposed will make it possible for producers in the Moses Lake area to compete in the southern markets as the producers in the Yakima Valley, to whom such service is available, are now able to do.

The Examiner in his proposed report, however, concludes that present and future public convenience and necessity are not shown to require the construction of the branch line proposed, and recommends that Division 4 so find and enter an order denying the application. Applicant respectfully submits that the proposed report of the Examiner and his findings and recommendations therein contained are erroneous, unsupported by and contrary to the evidence and contrary to law, in the particulars indicated in the above stated exceptions and for the reasons stated in the argument which follows.

ARGUMENT

The Location of Moses Lake in The Columbia Basin Project

(Exception No. 1)

The Examiner, on Sheet 3, speaking with respect to the location of the city of Moses Lake, makes the statement that

> "It is a considerable distance from the geographical center of the entire irrigation project and slightly outside that portion of the East Columbia district scheduled to receive irrigation water in 1952." (Exception No. 1)

The statement is clearly misleading. Although it cannot be said that Moses Lake is located exactly in the geographical center of the entire irrigation project, it is a misstatement to say that its location is a considerable distance from the center of the project.

The location of the Columbia Basin Project is shown on the Bureau of Reclamation map, Exhibit No. 1. It will be noted that the area comprising the project is somewhat triangular in form, the South Columbia Basin District in effect forming the base of the triangle, and the Quincy and East Columbia Basin Districts, respectively, forming the sides of the triangle. Moses Lake is located virtually in the center of that portion of the project comprising the East and Quincy Districts, and is only slightly north

of the center of the entire Project area. Of the established communities of any size, it is the only one that may be said to be located in the heart of the Columbia Basin Project. Ephrata, Adrian and Connell, specifically referred to by the Examiner elsewhere in his proposed report, are located on the extreme edges of the Project area. Ephrata and Adrian are on the northwestern boundary of the Quincy District, and Connell near the eastern edge of the South Columbia Basin District.

It is true that Moses Lake proper is not included within the area of the East Columbia Basin District scheduled to receive irrigation water in 1952. That area includes the irrigable lands to be farmed, and comprises approximately 29,500 acres. Of course, the lands within the town are not included. There are, however, approximately 13,900 acres in the area immediately surrounding Moses Lake, within the Moses Lake Irrigation District, which are at present under irrigation *(129, 130). These lands are adjacent to the lands in the first unit in the East Columbia Basin District to be brought under water in 1952. Thus, Moses Lake will lie within an irrigated area totaling approximately 43,000 acres. And upon the full development of the Columbia Basin

*Unless otherwise indicated, figures in parentheses refer to pages of the transcript.

Project, the irrigated lands of the Moses Lake trade territory will approximate 136,000 acres (149, 150).

Applicant's Estimate of Traffic

(Exception No. 2)

On Sheet 4 the Examiner discusses applicant's revised estimate of traffic (Exhibit No. 4) which it expects to handle from Moses Lake for the year April 1, 1949, to April 1, 1950, and for like periods thereafter to April 1, 1957. After discussing the estimates of carloads and revenues for each year, as shown in the exhibit, the Examiner then makes the following statement:

> "Certain features of this estimate are open to question. When asked to explain how the volume of out-bound traffic for the second and third periods before irrigation water would be available, was arrived at, the same being about 30 percent less than the original estimate in the return to questionnaire, a witness testified it represented cars destined to markets not otherwise reached via the Milwaukee. Dickinson and Mandan, N.D., and Glendive, Mont., were named as typical markets without any evidence that they have ever been used by Moses Lake shippers. It was also said to include traffic to certain markets in the southwest because of faster

service, but the Milwaukee schedules were not shown." (Exception No. 2)

The Examiner, as we read the foregoing statement, concludes that the traffic estimate is open to question because, first, there was no evidence that the markets of Dickinson and Mandan, North Dakota, and Glendive, Montana, named by the witness as typical of markets not reached via the Milwaukee, had ever been used by Moses Lake shippers, and second, the estimate included certain markets in the southwest because of faster service, but "the Milwaukee schedules were not shown."

The witness whose testimony is referred to is Mr. Kopp, applicant's Western Freight Traffic Manager, who prepared Exhibit 4, the traffic estimate. He was asked on cross-examination to explain the basis of his estimate of 125 carloads of potatoes which Exhibit 4 shows would be handled by the applicant during each of the second and third years of operation. The witness stated that it represented shipments to markets that could be reached to better advantage by the Northern Pacific than by the Milwaukee. He referred to markets local to the Northern Pacific, such as Mandan and Dickinson, North Dakota, and Glendive, Montana, which are not reached by the lines of the Milwaukee, and markets in the southwest to which the Northern Pacific, because of its

connections with the Burlington Railroad, could provide a faster service than the Milwaukee (45-48).

The fact that Moses Lake producers may not in the past have shipped to local Northern Pacific markets certainly would not indicate an infirmity in the traffic estimates. To the contrary, it would tend to support such estimates. The witness testified that the Northern Pacific has handled many carload shipments of potatoes from this Northwest territory to these local Northern Pacific points which serve wide consuming areas. It is only reasonable to assume that the Moses Lake producers would ship to these markets if they were made available to them by the direct line of the Northern Pacific, even though in the past they had not made any such shipments.

With respect to shipments to the southwest, the Examiner comments upon the fact that the Milwaukee schedules were not shown. We submit that that fact is wholly unimportant in light of the testimony of numerous shippers to the effect that the service of the Milwaukee, regardless of what its schedules might be, prevented them from reaching those markets, although producers in the Yakima and Roza districts served by the Northern Pacific were able to compete in such markets. The unsatisfactory experience of Moses Lake producers in

connection with shipments to southern markets will be more fully discussed in the argument relating to Exceptions 3 to 7, inclusive.

Opening of New Markets to Moses Lake Producers by Extension of Northern Pacific Service (Exceptions 3 to 7, Inclusive)

In this proceeding, applicant and intervenors contend that under existing rail service producers in the Moses Lake area are not able to compete in the markets in the southern section of the United States. Unsatisfactory service and connections of the Milwaukee prevent them from reaching those markets and confine them largely to midwestern markets. Applicant, through its connections at Laurel, Montana, maintains a direct, dependable service to this southern territory. Extension of applicant's line as proposed will make it possible for the producers in the Moses Lake area to compete in such markets as the Yakima Valley producers, to whom such through service is available, are now able to do. The findings and conclusions of the Examiner to which Exceptions 3 to 7, inclusive, are directed, deal with those contentions. Such findings and conclusions are as follows:

> "Several shippers testified they could not compete in certain markets with other potato-growing districts because of slower Milwaukee schedules. A grower who

shipped about 300 carloads of potatoes last year said that some of his cash buyers refused to deal with him as long as he shipped over the Milwaukee. The witness did not know the kind of service demanded by these buyers or whether the applicant could furnish it, the particular markets to which they failed to get the desired service, or whether the Milwaukee or its connections had failed in the past. A representative of another dealer shipping from 1,000 to 1,200 carloads of potatoes a year together with others said they could not compete in the southeastern and southwestern markets with potatoes from other districts, particularly if the transit involved movement through the St. Louis, Kansas City, and Omaha gateways. The competition referred to by the witness comes from the Yakima and Wapato districts of Washington and some areas in Oregon and California. The rates to southern destinations are about the same from Yakima and Moses Lake but shipments over the Northern Pacific from the Yakima district are said to arrive 2 to 4 days ahead of those shipped over the Milwaukee from Moses Lake. The witness showed that out of 960 cars of potatoes handled by the Milwaukee out of Moses Lake during the 1947 crop season, 21 carloads, all of which were sold on delivered sales, were unusually long in arriving at destination. The service on the remainder that moved

east through Minneapolis, Chicago, and other junctions was satisfactory. Out of the 21 cars, 6 showed an incorrect shipping date because, as near as could be learned, they were loaded and billed after the train serving Moses Lake had departed and therefore they laid over until the next day. Many of the other cars moved through the Kansas City and St. Louis gateways presumably so the consignors could get the benefit of those markets. The Milwaukee points out that the normal routing on such shipments would have been through Chicago where the service would have been faster but which probably would have curtailed the diversion privileges. It was also found that other cars were stopped in transit for partial unloading. It is not improbable also that some of these cars were delayed because of diversion orders being received after they had reached their first destination. This finds support in the fact that only in 2 cases did the Milwaukee handle the cars to destination while the line-haul movement for 19 cars was completed by connecting carriers, 1 of which was the Northern Pacific." (Exception No. 3)

"Moses Lake shippers contend they cannot compete in California markets with potatoes from the Yakima district because Milwaukee schedules require an extra day. The main reason, however, is the substantial difference in rates that places Moses

Lake shippers at a disadvantage." (Exception No. 4)

"The record shows that as a general rule rail distances from Moses Lake to the more important shipping centers and diversion points on the Milwaukee are shorter than via the applicant's railroad and, except to a few unusual destinations, there is a substantial equality of rates between Moses Lake on the Milwaukee and Wheeler about 6 miles from Moses Lake on the applicant's Connell Northern branch. Where there are differences in the rates, viz, coal with Utah origins, grain to Portland, Ore., potatoes to California points, and a few others, there is nothing in the record to show that any steps have been taken to correct or otherwise change these alleged inequalities or irregularities. There is no assurance that the applicant if it operated into Moses Lake would equalize its rates with those in effect to and from the Yakima district, the principal competitor of Moses Lake producers and shippers. Furthermore very few if any new routes and new markets for Moses Lake shippers would be opened up by Northern Pacific service. It cannot be said that delays have been above the average or that the Milwaukee was responsible where they did happen. Schedules on all railroads are subject to interruptions particularly when cars are shipped as rollers but there is no assurance

that the service which the Moses Lake shippers are requesting and the applicant seeks to render would be any better." (Exception No. 5)

"Carriers have no legal right to exclusive occupancy of a territory and the Commission has permitted additional rail service whenever it has appeared that the interests of shippers required it. *Chesapeake & O. Ry Co. Construction*, 267 I.C.C. 665. The record herein shows, however, that at present the interests of shippers at Moses Lake do not require the service of another railroad." (Exception No. 6)

"It has not been affirmatively shown that the applicant can furnish better service than is now being rendered by the Milwaukee." (Exception No. 7)

In substance, the Examiner finds that the record does not show that the Moses Lake shippers are unable to reach these southern markets and that they would not be opened up to them by Northern Pacific service. We submit that such findings are not only unsupported by the evidence, but are directly contrary to it. The Examiner has completely ignored the major portion of the testimony of the shipper witnesses which deals with their unsuccessful efforts under existing service to reach the southern markets on a competitive basis. He gives no

consideration to the facts clearly established by the record, which show that producers in the Yakima Valley and Roza districts, using Northern Pacific service, successfully compete in those markets, and that producers in the Moses Lake area would have available to them the same service if the proposed extension is authorized. The Examiner refers only briefly to the testimony of two witnesses, although a number of producers and shippers testified on the subject. In view of the findings and conclusions of the Examiner, we feel compelled to review the testimony in some detail.

Western Cold Storage and Western Produce Company operate a 250-car cold storage plant and facilities for storing, packing, and processing for the market fresh fruits and vegetables. They ship from 1,000 to 1,200 cars of potatoes and other produce a year from Moses Lake (196, 197). Speaking with respect to their experience in reaching the southeastern southern and southwestern markets (markets served through the Omaha, St. Louis and Kansas City gateways), Russell Smith, Vice- President and General Manager of the two companies, testified as follows:

"Q (By Mr. Ivers) Have you actually had experience with shipments into those markets?

A Definitely.

Q And has that experience been good or bad?

A Bad." (202)

Q Now with respect to the service, time in transit, I am speaking of the points which you refer to as being through the Omaha, St. Louis, Kansas City gateways, has the time in transit in that area been a factor in limiting your ability to reach that market?

A Yes, very definitely.

Q Is it necessary to your business that you do reach that market?

A As the production increases, we have got to have more markets. Our potatoes will take less money in St. Louis because of two or three days additional time in transit than the stuff in Yakima Valley, even with rates comparable. There is no difference in rates.

Q Now in view of the time of transit which appears on Exhibit No. 12, and the testimony of Mr. Kopp, which was that their scheduled service is fifth day Denver and Omaha, sixth day Kansas City, sixth day St. Louis, and seven day New Orleans, would you be in a position to compete in that market on those schedules?

A Yes." (205)

Statements made by the Examiner on Sheet 6 of the proposed report apparently relate to

Mr. Smith's testimony. It is stated that the witness showed that out of 960 cars of potatoes handled by the Milwaukee out of Moses Lake during the 1947 crop season, 21 carloads were unusually long in arriving at destination, and the service on the remainder that moved east through Minneapolis, Chicago and other junctions, was satisfactory. The statement infers that complaints against Milwaukee service to markets in southern territory are without merit, since delay was shown with respect to only 21 out of a total of 960 carload shipments.

The witness explained, however, that the 21 shipments represented the total of shipments to that territory. He said that the "time of delivery was so slow that brokers down in that area didn't even wish to deal with us in Moses Lake." The balance of the 960 cars moved through Minneapolis and Chicago to northern and midwestern territory — the markets to which the Moses Lake producers are largely confined.

The Examiner further states on Sheet 6 that out of 21 cars (which are listed in Exhibit 12) 6 showed an incorrect shipping date because "as nearly as could be learned" they were loaded and billed after the train serving Moses Lake had departed, and therefore they laid over until the next day; that many of the

other cars moved through the Kansas City and St. Louis gateways "presumably" so the consignors could get the benefit of those markets; that other cars were stopped in transit for partial unloading; and finally, that it is not improbable, also, that some of the cars were delayed because of diversion orders being received after they had reached their first destination.

The Examiner's defense of this poor transit record on the 21 cars is presumably based upon the testimony of Mr. Wilson, the Milwaukee's traffic witness. It is true that the witness stated that from an examination he made of the Agent's records he concluded that on some occasions cars were loaded and billed after the train departed from Moses Lake, and were held until the next day. The records he examined, however, did not relate to the cars shown on Exhibit 12 (339, 340). Moreover, on cross-examination he admitted that from the records he examined there was no way of telling whether or not the cars were, in fact, loaded, billed and ready to go on the date shown on the billing (356, 357).

As to partial unloading, the witness identified only one car as having been stopped enroute for that purpose. With respect to diversion of shipments, the witness agreed that if

the diversion order was received before the car reached its billed destination, there would ordinarily be no delay at all, and from records he examined, he could not state, with respect to any of the cars, when and where the diversion order was received and the diversion made.

We have been unable to find any statement in the witness' testimony which inferred that any of the cars moved through the Kansas City and St. Louis gateways in order that the shippers could get the benefit of those markets.

Big Bend Growers Cooperative is an association of farmers in the Moses Lake area. The Association handles for its members the marketing of farm produce, which consists largely of potatoes and onions (236). Mr. Sam Driggs, who operates an irrigated farm of approximately 420 acres and is a member of the Association, testified with respect to their marketing problems in southern territory, as follows:

> "Q Do you have a transportation problem with respect to some of the markets that you feel you have to reach?
>
> A Yes. Through the southeast, I want to make this clear, as I am not a transportation man, the only thing I can state on that is it bars handling our produce.
>
> Q Where are the markets that you are having difficulty with?

A Mostly Kansas City and Oklahoma City and down in there.

Q And what is the character of your difficulty?

A Well, mostly your time element." (237-238)

"Q Mr. Driggs, if by shipping via the Northern Pacific Railroad, their schedules indicated that they can give you a fifth or sixth day delivery into Kansas City, would that put you into a position to properly compete in that market?

A It would help, it would help immensely, no doubt.

Q And that is the thing that you are interested in?

A That is right.

* * * * * * * * * * *

Q Now, is it necessary for you to reach the markets in the southeast and south central parts of the United States in the marketing of your products?

A Yes, I think that we have to. Well, I'll tell you, I might quote you an instance. One of our cash track buyers was here a year ago. and these were his markets, but he said on account of not being able to reach those markets in time over the Milwaukee that he just had to quit handling our produce." (239)

Mr. Howard A. Michaelis, a partner and

Manager of Russell Hansen Warehouse Company, engaged in the the business at Moses Lake of processing and shipping fruit and produce, testified with respect to the unsuccessful efforts of his company to competitively reach the markets in the southern territory. His company ships each year an average of 280 cars of produce, principally potatoes. He testified as follows:

"Q Are you able to meet all markets within continental limits of the United States on a competitive basis at this time?

A No, we are not.

Q Would you please explain to the Examiner why you are not able to do so at the present time?

A Well, at the present time we are serviced only in our area by the Chicago Milwaukee and Pacific Railroad, and they in turn do not make suitable contacts of distribution for consuming areas in the Omaha and St. Louis gateways. In other words, I am speaking of the southeastern and southwestern markets, primarily. Therefore our shipments are mainly limited to the northern area distribution points, Chicago, points to the north. We cannot go into the southwest on a competitive basis with shipments through the Yakima and Roza areas.

Q To explain the problem a little better, why are you unable to deliver these early potatoes to some markets in competition with other productive areas like the Yakima Valley where the potatoes are raised, and the other areas?

A Mainly, as I stated before, 60% of our entire output consists of the early variety, which is a highly perishable product, and the time element is the main contributing factor in distribution to consuming areas. Therefore, the time being the main factor, the buying broker or the receiver prefers this merchandise to be delivered to his terminal in the fastest possible way. And we not having the fastest time service to those consuming markets, they are buying preferably in markets that are served by roads that get there in the fastest possible time.

Q Mr. Michaelis, in the past years have you endeavored to reach these markets?

A We have tried it, but not being very successful, have not done it extensively." (245-246)

"Q Did you hear the schedules of service to some of the markets which you have mentioned, and which more or less your exhibit mentions, as was detailed by Mr. Kopp that they could reach?

A I believe that I heard most of it.

Q Well, then, in your opinion, would that service that the Northern Pacific would offer, would that permit you to competitively enter these markets in question, or the ones that you make reference to now?

A I believe it would." (247)

"Q Have you ever handled any business over the Northern Pacific?

A Yes, I have. I have been, as stated before, in the produce business for quite a number of years, and I have shipped produce out of Wapato for six years." (248)

"Q In comparison with the Yakima district, Roza district, and certain districts in California, at what time of the year are the Moses Lake area potatoes ready for shipment?

A That varies, of course, with the season of the year, depending on the weather conditions. Normally, I would say those shipments would begin approximately on July the 10th.

Q From your district?

A From Moses Lake district.

Q What has been your observation as to the average time of commencement of shipments from, I believe they call it the Roza district, in comparison, is it before or after the same time, or not?

A Generally speaking, about the same time.

Q How about the California early potatoes, are you in competition with them?

A There are shipments of early California potatoes, however, they are generally out of the way when we start." (250)

"Q Mr. Michaelis, where is Wapato located?

A Fourteen miles south of Yakima.

Q How far from Moses Lake?

A 145 miles.

Q And the movement on the Northern Pacific out of Wapato, the cars that move out of there, they move through Pasco?

A You say do they?

Q Yes.

A Yes.

Q The same as they would go from Moses Lake through Pasco?

A Yes.

Q You have had experience in shipping, as I understood from your testimony, some Wapato potatoes to the southeast and the south central and the southwest portion of the United States?

A That is right. The last year being the 1947 crop, the last time that I shipped there. And we were at that time also

shipping from Moses Lake. We were shipping on a lease basis there, and the only reason we shipped out on Wapato at that time was on buyer preference, a man by the name of Siegel located in Chicago, and he requested that we route one third of the contract that we had with him via the Northern Pacific." (256)

The Basin Produce Company, Inc., is engaged in the business of processing and shipping fresh vegetables at Moses Lake. Its shipments average 700 carloads a year. Mr. George Schuster is Manager of the company. He also operates an irrigated ranch in the Moses Lake area, producing fruits and vegetables, principally potatoes and onions. With respect to shipments by his company, he testified as follows:

"Q Some of these markets, can you reach on a competitive basis?

A We have trouble competing with other areas, especially Yakima Valley, southeastern states, southwest, the State of California. The St. Louis, Kansas City and Omaha gateways.

Q Has your firm during the past few years endeavored to reach any of these markets that you say cannot be reached on a competitive basis?

A Yes, we have." (263)

"Q They were all potatoes. Now, if the Northern Pacific schedules would give you,

say, eight, nine day delivery to the southeast United States, and seven days to the south central, and three days, three or four days, say, to the California points, in your opinion, would that service allow you to reach these points competitively on the market?

A Yes." (264)

"Q Now say at the present time where you are served by the Milwaukee or Chicago Milwaukee, St. Paul and Pacific Railway, is it possible to reach some of the markets that you speak of with the delay in transit that is caused by the reshifting of the cars?

A Do you mean is it possible to reach the market?

Q No, I mean you can reach it, but is there a delay, or there is a delay, isn't there, in reaching some of these markets?

A The time element is too long compared with an area like Yakima Valley, it takes too long." (265-266)

Mr. K. I. Goodrich, a member of the partnership of Goodrich Brothers and Lyman, engaged in the operation of a 1,000-acre irrigated farm in the Moses Lake district (268) testified with respect to his firm's experience in reaching southern markets, as follows:

"A The markets we have the most difficulty in reaching on a competitive basis

are mostly to the south and southwest, in my experience.

Q Have you personally had experience with buyers in that area where you found that it is impossible to deal with them on account of your transportation difficulties?

A Yes, that is right.

Q And just where are those buyers located?

A Where are the buyers located?

Q Yes, that you said that expect — —

A We make two separate types of sales, cash track sales, and cash track buyer, and in a good many cases we don't know where he ships the stuff after he buys it. But we find different buyers among the cash track buyers, when the northern markets become saturated to the point where there is an overflow, where they have to go somewhere else, and have to go to the southern markets, that the cash track buyer immediately begins pulling out on the ground that he is full. In other cases, the cash track buyers pull out of the market and won't remain under any conditions. And other cash track buyers hang around for sales they can make in the northern territory without much possibility of getting into the south, although they do get some stuff into the south if the market will stand it.

Q Did you last year make a trip down through Texas where you saw buyers in that area?

A Yes. We noticed that in some of those southern cities we sometimes supplied as high as one half of one per cent and one per cent of their early supplies, and in northern cities two and three and four and five per cent. And it appeared to me as though there might be quite a potential down there. So, I made quite an extensive trip through Texas and Tennessee, those two states, and contacted brokers, produce dealers and buyers generally, to see if we could find possibilities of opening up larger markets. And invariably I would run into brokers who would make the statement that they like the quality of the potatoes out of the Moses Lake area, but because of its inaccessibility they didn't like to buy out there, invariably they had trouble, and they considered the trouble was mostly due to delay in movement.

Q That is the time in transit?

A Yes. I know of at least three of the biggest brokers in the south, in the southwest, that I could quote, that made that statement, that they didn't like to buy out of the Moses Lake area because of rail connections." (275-277)

"Q If the Northern Pacific is permitted to come into Moses Lake and can supply services fifth day to Denver and Omaha,

sixth day to Kansas City and St. Louis, seventh day New Orleans, eighth and ninth day points east of New Orleans and southeastern area, the first and second day to Portland, and third day to Sacramento and San Francisco, and fourth day to Los Angeles, will that kind of service permit you to get in competitively to the southeastern and southwestern markets?

A In my opinion, I feel that it certainly will." (278-279)

Mr. D. D. Baker is Sales Manager of the Potato and Onion Division of Mojonnier & Company, at Kennewick, in the Yakima Valley. He also represents the Bacon Produce Company, a buyer and shipper of potatoes in the Moses Lake district. With respect to the handling of potato shipments to southern territory for the two firms which he represents, one in the Yakima Valley and the other at Moses Lake, he testified as follows:

"Q Have you had experience in making shipments of potatoes to points in Southeastern United States, South Central United States, and to Portland and to Southwestern United States points?

A I have.

Q In the conduct of your business in selling potatoes destined to those territories, from what points do you ship them?

A Well, we ship them from both Moses

Lake and Yakima Valley, but generally from Yakima Valley to the South and Southeast.

Q And why do you ship them from Yakima Valley?

A The time in transit from Moses Lake has always been a handicap to shipments out of that district for anything that has to go South or Southeast.

Q The shipments that are going South or Southeast, over what rail line are you making those shipments?

A Practically all of them are originating over the Northern Pacific at the present time.

Q And the shipments that you do make out of Moses Lake, over what lines are they routed?

A Over Milwaukee." (371)

The Northern Pacific operates daily out of Pasco a perishable freight train eastbound to St. Paul, Minnesota, from which point shipments move via connections to midwestern and eastern markets. This train, known as the "fruit manifest," also makes connections at Laurel, Montana, with the C.B.&Q., thus providing through service to the southern territory via the Kansas City and St. Louis gateways. Connections are also maintained at Pasco with the Spokane, Portland & Seattle Railway,

permitting an expeditious service into Portland and thence to California points in connection with the Southern Pacific (37, 38, 112).

Carload shipments of fruits and vegetables from the Yakima Valley and Walla Walla territory are brought to Pasco, where the fruit manifests are made up (112). The distance from Yakima to Pasco is 87.6 miles. From Moses Lake to Pasco the distance is approximately 82 miles (110). The Northern Pacific proposes to operate its trains from Moses Lake to Pasco to connect with its eastbound trains and the S.P.&S. trains to Portland (37, 38, 106).

The evidence is positive and uncontradicted that producers in the Yakima Valley district, using Northern Pacific service, are able to and do compete in the southern markets. That service, if made available to Moses Lake producers, would also permit them to reach those markets on a competitive basis, which under existing service they cannot do. Contrary to the Examiner's conclusion stated on Sheet 7, lines 9 and 10, new routes and new markets for Moses Lake shippers would be opened up by Northern Pacific service.

With respect to the contention that Moses Lake shippers cannot compete in California markets with potatoes from the Yakima dis-

trict because Milwaukee schedules require an extra day, the Examiner on Sheet 6 says:

> "The main reason, however, is the substantial difference in rates that places Moses Lake shippers at a disadvantage."

It is true that existing rates on potatoes to California points from the Yakima District are lower than those from Moses Lake. For example, from Yakima the rate, including Ex Parte 166 increases, is 71c to San Francisco, compared with 79c from Moses Lake. To Los Angeles the rates are 83c and 90c, respectively. But there is no testimony in the record that supports a finding that such difference in rates is the main reason that Moses Lake shippers are at a disadvantage in the California markets. There is, however, positive testimony to the effect that if the faster and more direct service of the Northern Pacific were available, producers in the Moses Lake area would be able to compete in those markets.

Three shipper witnesses testified on the subject. Mr. Smith, Manager of Western Produce Company, stated that there were two factors which affected the competitive situation—rates and service. He did not say, however, that the rate differential was the main factor. And no such inference can be drawn from his testimony (203-205, 213, 214). He did say specifically, however, that the situation from a

service angle would be cured if the Northern Pacific was permitted to serve Moses Lake (214).

Mr. Schuster, Manager of Basin Produce Company, expressed the view that with such additional service Moses Lake shippers could compete in the California markets. He testified as follows:

> "Q They were all potatoes. Now, if the Northern Pacific schedules would give you, say, eight, nine day delivery to the southeast United States, and seven days to the south central, and three days, three or four days, say, to the California points, in your opinion, would that service allow you to reach these points competitively on the market?
>
> A Yes." (264)

The testimony of Mr. K. I. Goodrich of Goodrich Brothers and Lyman on the same subject was as follows:

> "Q If the Northern Pacific is permitted to come into Moses Lake and can supply services fifth day to Denver and Omaha, sixth day to Kansas City and St. Louis, seventh day New Orleans, eighth and ninth day points east of New Orleans and southeastern area, the first and second day to Portland, and third day to Sacramento and San Francisco, and fourth day to Los Angeles, will that kind of service permit you

to get in competitively to the southeastern and southwestern markets?

A In my opinion, I feel that it certainly will." (278-279)

It is clear from the foregoing that there is no support for the Examiner's finding.

On Sheet 7 it is stated that there is no assurance that the applicant, if it operated into Moses Lake, would equalize its rates with those in effect to and from the Yakima district, the principal competitor of Moses Lake producers and shippers.

The rates on fresh fruits and vegetables, including potatoes, to transcontinental destinations from Yakima Valley points and from Moses Lake are on a parity. It is certain that the Northern Pacific would not establish a higher basis of rates than the present Milwaukee rates from Moses Lake. As to California rates, we have shown that the Moses Lake shippers testified that if the faster Northern Pacific service was available to them, they would be able to compete in the California markets.

Establishment of Processing Plants at Wheeler to Serve Producers in the Moses Lake Area.

(Exceptions No. 8 and 9)

The Examiner is apparently of the view that producers in that part of the East Columbia Irrigation District which is tributary to applicant's Connell Northern Branch can be adequately served through the station of Wheeler. On Sheet 3 of the proposed report it is stated:

> "Except for a grain warehouse at Wheeler near the southern end, it is said there are no trading points, communities, or facilities on this portion of the branch to serve shippers. The record shows, however, that coal consigned to Moses Lake dealers has been received at Wheeler in the past and that more than 80,000 bushels of grain produced in the Moses Lake area also left this station during 1947." (Exception No. 8)

And on Sheet 7 it is stated:

> "The Moses Lake interveners further contend that the development of processing centers and shipping facilities along this section of the branch is impossible because there are no city water and sewage facilities available as at Moses Lake. The applicant joins in this contention by stating in the return to questionnaire that the cost of developing an adequate water supply and providing means for the disposal of sewage and waste from the plants at

some points along this line would be so excessive as to preclude the establishment of processing and canning plants on an economic parity with those at Moses Lake. The evidence shows otherwsie, however, and that it is possible to establish plants at Wheeler in competition with those at Moses Lake, the very thing the proponents are trying to avoid. The city of Moses Lake obtains its water supply from two drilled wells that also supply the several potato-processing plants. There is also a drilled well at the experimental farm at Wheeler that is now irrigating 80 acres and is capable of providing enough water for 160 acres. According to the Milwaukee this refutes the contention that there is no water available along the branch. Furthermore, municipal sewage systems are not necessary for the operation of agricultural processing plants because those at Moses Lake do not use the municipay sewage system but like many others throughout the country dispose of their waste by surface run-offs and sumps." (Exception No. 9)

Wheeler, in fact, is only a name station on the Connell Northern Branch. It is in no sense an established community. Aside from the grain elevator and a railroad water tower, there are two dwellings situated nearby, housing two families which constitute the total

population of Wheeler (201). It is true that grain produced in the Moses Lake area has been handled through the Wheeler elevator and shipped from that station. However, the facilities required for handling that commodity are entirely different than those required in connection with the handling and marketing of perishable products. For grain, storage alone is required. Processing, packing, storage and other facilities, essential in connection with the handling of fresh fruits and vegetables, require services and facilities which are available only in established communities.

The coal shipments to Wheeler, which the Examiner mentions, were shipments for Moses Lake dealers. It was necessary for the coal to be unloaded from the cars at Wheeler and then trucked to Moses Lake.

The Examiner, on Sheet 7, refers to the contentions of the applicant and intervenors that development of processing centers and shipping facilities along the Connell Northern is impossible because there are no city water and sewage facilities available as at Moses Lake. He then states:

> "The evidence shows otherwise, however, and that it is possible to establish plants at Wheeler in competition with those at Moses Lake, the very thing the proponents are trying to avoid. The city of

> Moses Lake obtains its water supply from two drilled wells that also supply the several potato-processing plants. There is also a drilled well at the experimental farm at Wheeler that is now irrigating 80 acres and is capable of providing enough water for 160 acres. According to the Milwaukee this refutes the contention that there is no water available along the branch."

The statement that the experimental farm is at Wheeler is probably based upon a question by the Milwaukee's counsel, Mr. Maguire, to Mr. Wilson, in which he referred to the experimental farm "up near Wheeler" (331). The fact is that the experimental farm is not at Wheeler. The farm is located in the East Half of the Southeast Quarter of Section 13, Township 19 North, Range 28 East. Moses Lake is located in Section 14, approximately a mile and a half or possibly a mile and three-quarters from the experimental farm. Wheeler is located in the extreme southeast corner of Section 16, Township 19 North, Range 29 East—three miles due east of the experimental farm. The farm is generally referred to as the "Moses Lake Pre-Development Farm."

On Sheet 7 the Examiner says: "Furthermore, municipal sewage systems are not necessary for the operation of agricultural processing plants because those at Moses Lake do not use the municipal sewage system but like many others throughout the country dispose of their waste by surface run offs and sumps."

Neither in the return to the questionnaire nor in their testimony have applicant or intervenors asserted that a municipal sewage system is required for disposal of waste water from cleaning and packing plants. They do assert, however, that there is no natural drainage on the higher lands along the branch line, such as there is at Moses Lake where such waste waters may be merely discharged and allowed to run into the lake. It must be conceded that with no such natural drainage, artificial means for disposal of waste water would have to be employed. This necessarily would involve an additional expense which very probably would be substantial — an expense with which the processor at Moses Lake is not burdened.

Contrary to the findings of the Examiner, there is no proven water supply at Wheeler or natural drainage for disposal of waste waters, such as Moses Lake has by virtue of its location on the lake. It is inconceivable that, even with the united efforts of all members of the two families at Wheeler, any success would attend an attempt to establish packing and processing plants at that point in competition with those at

Moses Lake, an established and rapidly growing community located only five miles or so from Wheeler.

Establishment of Rail-Loading Facilities on Branch Lines.

(Exception No. 10)

This exception is directed to the statement and conclusions of the Examiner on Sheet 8, as follows:

> "Much stress is laid on the improvements that are expected after 1952 and the extent that Moses Lake will grow. If conditions become such that another railroad is necessary, no sound reason exists why application cannot be made at that time or without permission from the Commission, suitable facilities installed along the Connell Northern Branch for shippers who wish to avail themselves of Northern Pacific service. The transportation needs of the three irrigation districts ultimately to benefit by the Columbia River project should be considered collectively rather than as proposed in this proceeding. These districts are served by at least three trunk-line railroads. As near as can be determined from maps of record the applicant operates about 100 miles of railroad through the easterly one-half of the combined area; the Great Northern Railway with about 90 miles bisects the northerly one-half; and the Milwaukee serves the southern and a part of the southeastern sections with about 110 miles of line. The Union Pacific Railroad reaches Connell in the southeast corner, and the lines of the Spokane, Portland & Seattle Railway and the applicant parallel the southern portion along the Snake River. Rail-loading facilities if needed could be provided for shippers at any number of stations along these lines including Ephrata and Adrian which presumably will have the same hopes and aspirations for municipal development as Moses Lake. Not only would the arrangement of providing loading stations throughout the area be more convenient for producers hauling their products to railheads but would provide a diversification of transportation and obviate the possibility of one railroad invading the territory of another." (Exception No. 10)

The Examiner's proposal suggests that adequate means for handling the agricultural products which will come from this irrigated area would be provided by the mere establishment of rail-loading facilities throughout the countryside. We do not believe, however, that it can seriously be contended that such facilities alone are enough. Such products are mostly perishable in nature. In addition to storage, they require processing, packing and other servicing to prepare them for market. Such facilities are

not generally established in the rural areas but are concentrated in established communities. This is indicated by what has occurred generally in the irrigated areas in the west.

A complete answer to the Examiner's proposal is found in the testimony of Mr. Haw, Director of the Northern Pacific's Department of Agricultural Development, who for over a period of twenty-five years has been closely connected with irrigation development in the Pacific Northwest States. Mr. Haw testified as follows:

> "With the advent of the passenger automobile, the farm truck and a highly improved highway net the whole course of urban development in rural sections has been changed. The closely spaced small town development which characterized the horse and buggy or wagon days has stagnated or become completely outmoded. In its stead marketing, processing, banking, commercial and social centers have arisen at peculiarly favored locations. Usually these centers become established where rail and highway transportation systems converge, where water supply and sewage disposal are favorable and where enterprising citizens begin the establishment of social, health, educational and business facilities. The demand of a constantly rising standard of living accelerates the growth of urban communities which first set these

forces in motion. Growth begets further growth in cities and towns under our peculiarly American type of civilization and business development. Go into any part of rural America and it will be observed that for the last 30 years small towns are generally becoming smaller and well spaced larger towns, larger. The apparent pattern is for a town or city of 6,000 - 8,000 or 15,000 to 30,000 at intervals of about 25 to 50 miles along the main avenues of commerce. Where farming is intensive, where farmers are closely settled this pattern is accentuated and the main trading, marketing and commercial centers are larger. This is especially true in irrigation areas where the concentration, processing and marketing of products which arise under intensive irrigation farming is a particular problem. Substantiation of the drift toward this type of urban development is found in the growth of such towns and cities as North Platte, Nebraska; Phoenix, Arizona; Greeley, Colorado; Billings, Montana, and Yakima, Washington, to mention only a few." (118-D, 118-E)

"It is completely untenable to assume that any other urban community development pattern will arise in the Columbia Basin irrigated area. The location, the surroundings and the spirit of Moses Lake citizenry, say nothing of its present substantial headstart, lend indisputable proof

that this small city is destined to become one of the leading, if not the leading marketing and trade center for the irrigated lands in the northern portion of the Basin project." (118-E)

"The metamorphosis of an arid and semi-arid region of large farms, sparse settlement and scanty production into a highly developed irrigated section is profound and revolutionary. School facilities, public utilities, highway net and urban development must adjust itself to the new order. Anything static and inflexible fails miserably to meet the needs of the new type of civilization that follows closely in the wake of irrigation. Rail lines should rightly be in the vanguard of utilities which make adjustments to meet the requirements of the new order. If foreclosed from making such adjustments they fail to serve the best interests of the community, the region and the state, totally aside from interests of the owners of the rail property." (118-F)

Division of Rail Traffic at Moses Lake

(Exception No. 11)

On Sheet 9 it is stated:

"There is no doubt that with the applicant operating into Moses Lake, the Milwaukee would handle less traffic through that station, particularly until 1952 when the newly irrigated land comes into production. To what extent the traffic would be divided after that time is problematical. There is the further possibility, however, that the applicant would get a greater share of the traffic from the area if it established shipping facilities along the Connell Northern branch supplemental to those at Moses Lake." (Exception No. 11)

There is no basis for the Examiner's conclusion that with the Northern Pacific operating into Moses Lake, the Milwaukee would handle less traffic, particularly until 1952, when the newly irrigated land comes into production.

For the past several years, production in the Moses Lake area has been steadily increasing, and the city of Moses Lake has been growing. It is reasonable to assume that traffic from and to Moses Lake will similarly increase. Moreover, the processing and packing plants presently in operation are located on Milwaukee trackage. It will undoubtedly be some time after the line is constructed before similar facilities are located on applicant's trackage.

To what extent the traffic is divided after 1952 will undoubtedly depend upon service. If the applicant should get a greater share, as the Examiner suggests might be the case, it would conclusively demonstrate that there is a public need for applicant's service.

Public Convenience and Necessity

(Exceptions No. 12 and 13)

Exceptions 12 and 13 are directed to the conclusions and recommendations of the Examiner stated on Sheet 9, as follows:

> "Justification for the construction of a line of railroad in interstate commerce must be established by clear proof that the proposed line is or will be required by the present or future public convenience and necessity. A greater part of the evidence in this proceeding is devoted to showing that there might be a need for Northern Pacific service at Moses Lake if and when the surrounding areas come into full production which at the earliest may not be for another 3 or 4 years. It has not been shown that there is or will be such a public need. The plans for the development of Moses Lake as an industrial, business, and shipping center are commendable and additional transportation facilities might be required in the future. Such hopes and expectations, however, do not constitute sufficient grounds for granting the application at this time." (Exception No. 12)
>
> "It is recommended that division 4 find that the present or future public convenience and necessity are not shown to require the construction by the Northern Pacific Railway Company of the branch line of railroad in Grant County, Wash., described herein.

> "An order denying the application should be entered." (Exception No. 13)

In our view, the foregoing conclusions and recommendations are erroneous and contrary to law. They are based upon findings inconsistent with and contrary to the evidence, as we have pointed out in the earlier pages of this brief.

We submit that, contrary to the findings and conclusions of the Examiner, the record in this case compels a finding that public convenience and necessity require authorization of the proposed extension. In our original brief (pages 12 to 15) we cited a number of cases in which less compelling considerations than are here present prompted the Commission to authorize extensions even into new territory. We respectfully direct the Commission's attention to those cases and particularly to *Construction by San Antonio & Aransas Pass Ry.*, 111 I.C.C. 483. In that case the Southern Pacific, by its application, was endeavoring to participate in the transportation of products from a territory which it did not then serve and which was not tributary to its existing lines. The Commission granted the application. In the instant case, the Northern Pacific is not seeking authority to extend its lines into new territory. It is merely asking that it be permitted to continue to transport the products from the lands directly

tributary to its existing line. Applicant is desirous only of continuing to serve the area which it pioneered and has served for the past forty years.

The record in this case demonstrates conclusively that under existing rail service the producers in the Moses Lake area are confined largely to midwestern markets. Unsatisfactory service and connections of the Milwaukee prevent them from competing in the markets in the southern section of the United States and in California. Extension of applicant's line as proposed will make available to these producers a service that will open up these markets to them and permit them to compete with producers in the Yakima Valley, to whom such service is now available.

The success of the Columbia Basin Irrigation Project and the growth and development of the Moses Lake area are dependent upon adequate transportation service. The products of the area are of a highly perishable character. The producers are entitled to the best transportation service obtainable. The construction proposed will afford the producers an additional supply of refrigerator equipment, create a tremendous widening of the area of consuming markets, and give them the benefits of competitive service.

The conclusion is inescapable that the proposed extension is in the public interest and is of public convenience and necessity, and the Commission should so find.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have this date served the foregoing document upon all parties of record in this proceeding by mailing by first-class mail a copy thereof, properly addressed, to each other party.

Dated at Seattle, Washington, this 21st day of February, 1949.

DEAN H. EASTMAN,
Of Counsel for Applicant.