Northern Pacific Railway Company. Engineering Department Records.

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Version 3
August 20, 2018

Form 1757 6-13-24 10M RP

Northern Pacific Railway Co.

OFF. CHIEF ENGINEER

FILE NO. 6303-1

SUBJECT:

AUBURN, WASHINGTON

WATER SUPPLY

6303

To: 12-31-42

Closed

6303

1

6303

63 03

July 24. 1929

Traeger & Jensen

boiler at Auburn Wash.

Form 109B General Contract—Short Form 12-12-23 1M RP

Agreement made the twenty-fourth(24) day of July A. D. 192 9
between the NORTHERN PACIFIC RAILWAY COMPANY, hereinafter called the "Company" and

Traeger & Jensen, a copartnership, of Auburn, Washington.

hereinafter called the "Contractor".

The Contractor agrees to furnish all labor, services and material for, and construct, complete and finish in the most thorough workmanlike and substantial manner in every respect to the satisfaction of the Chief Engineer of the Company, within the time specified, and according to the specifications hereto annexed and made part of this contract

Work

drilling and casing of four inch well in freight yard at Auburn, Washington.

Date of completion

The work is to be commenced immediately and completed on or before the thirty-first(31) day of August A. D. 192 9.

Prices for work.

The prices to be paid by the Company for the work are as follows:

For all material, labor, services, tools and equipment for driving and casing a 4" well, including drive shoe, and pipe perforations as specified, price per linsal foot of pipe in place - $3.50

Price for extra work.

For extra work done under written orders of the Engineer of the Company for which prices are not named herein, the Contractor shall be paid the actual outlay in such work and ten per cent additional.

Estimates. Payments: etained rcentage.

Approximate estimates of the work done will be made monthly and be paid on or about the twentieth day of the following month, less however all previous payments and less ten per cent of such estimates, which shall be retained until and as security for complete performance of this contract.

Work when and where directed.

The Contractor shall carry on the work in such a manner and at such times and at such points as the Engineer of the Company from time to time shall direct, but the Contractor shall have full control of his employes and be solely responsible for all personal injuries caused in any manner by carrying on any work under this contract.

Transportation

No free transportation will be furnished in connection with this contract.

Insurance

Damage by fire to buildings or structures during construction will be made good by the Contractor, who will keep all structures fully insured until completion and acceptance by the Company. The cost of insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear, and deposited with the Chief Engineer.

lease.

The Contractor at final payment will execute, acknowledge and deliver to the Company under his hand and seal, a valid discharge from all claims and demands growing out of or connected with this contract.

IN WITNESS WHEREOF, the parties hereto have executed these presents.

Witness as to the Company

Northern Pacific Railway Company,

_____

By_____

_____

Witness as to the Contractor

_____ _____ (SEAL)

_____ _____ (SEAL)

S P E C I F I C A T I O N S

The work shall consist of drilling and casing a four (4) inch well to supply yard office, etc., with water for drinking purposes. Well to be drilled to a depth estimated not to exceed sixty feet at a location adjacent to the existing four inch well near what is known as the South End Yard Office, as shown by the locality sketch attached and as particularly located by the Engineer. Contractor to verify estimated depth necessary to obtain satisfactory well.

The pipe for the purpose shall be the standard four (4) inch commercial wrought iron (black) pipe. The necessary drive shoe and drive cap shall be furnished.

The first eight feet of the four inch pipe above the drive shoe shall be perforated by one-half inch holes of such number that the combined area of these holes shall exceed the Cross-sectional area of the four inch pipe by one and one-half times / or equivalent. The holes shall be placed in such a manner as not to endanger the driving, or cause collapse of the pipe.

The work must be done in a workmanlike manner satisfactory to the Engineer. The well must be vertical and straight.

On completion of work top of well casing shall be left at the elevation designated by the Engineer. The well and premises must be left in a good, safe and orderly condition satisfactory to the Engineer.

The Contractor and his men must exercise care while working on the Railway Company's premises so as not to suffer injury or damages to himself, men or equipment by reason of cars or locomotives operating in the vicinity and shall not create hazards to the Railway Company's operation of the yard.

Any omission to disapprove of work shall not be construed as acceptance of defective work and the Contractor must remove and rebuild or make good at his own cost all defective work.

The Contractor will pay into the Treasury of the State of Washington, if required, the percentage on his payroll in such amounts and at such times as is provided by Chapter 74, Laws of Washington, 1911, and all amendments and supplements thereto, commonly called the "Workmen's Compensation Act" and comply with the orders of the Industrial Commission relative thereto.

6303

6303

July 11th 1924

Contract E. T Lawson

drilling 12" well at

Auburn Wash.

Form 109B General Contract—Short Form 12-12-23 1M RP

Agreement made the Eleventh (11th) day of July A. D. 192 4
between the NORTHERN PACIFIC RAILWAY COMPANY, hereinafter called the "Company" and
E. F. Lawson of Seattle, Washington

hereinafter called the "Contractor".

The Contractor agrees to furnish all labor, services and material for, and construct, complete and finish in the most thorough workmanlike and substantial manner in every respect to the satisfaction of the Chief Engineer of the Company, within the time specified, and according to the specifications hereto annexed and made part of this contract,

Work

drilling and casing one or more 12 inch wells, not exceeding four in number, and not exceeding 100 feet in depth, at Terminal Yard, Auburn, Washington.

Date of completion

The work is to be commenced immediately and completed on or before the first (1st) day of September, A. D. 192 4, for first well or four wells on or before the first day of November 1924.

Prices for work.

The prices to be paid by the Company for the work are as follows:

For all labor, equipment and material, (except casing, drive shoe, cement, sand and gravel, which will be furnished by the Railway Company) for drilling wells, per lineal foot ---$8.50

For extra work such as pulling casing, placing perforated point, screen or other device, installing pump, testing, etc., furnishing tools, equipment and two (2) men, per hour----5.00

Price for extra work.

For extra work done under written orders of the Engineer of the Company for which prices are not named herein, the Contractor shall be paid the actual outlay in such work and ten per cent additional.

Estimates. Payments: Retained percentage.

Approximate estimates of the work done will be made monthly and be paid on or about the twentieth day of the following month, less however all previous payments and less ten per cent of such estimates, which shall be retained until and as security for complete performance of this contract.

Work when and where directed.

The Contractor shall carry on the work in such a manner and at such times and at such points as the Engineer of the Company from time to time shall direct, but the Contractor shall have full control of his employes and be solely responsible for all personal injuries caused in any manner by carrying on any work under this contract.

Transportation

No free transportation will be furnished in connection with this contract.

Insurance

Damage by fire to buildings or structures during construction will be made good by the Contractor, who will keep all structures fully insured until completion and acceptance by the Company. The cost of insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear, and deposited with the Chief Engineer.

Release.

The Contractor at final payment will execute, acknowledge and deliver to the Company under his hand and seal, a valid discharge from all claims and demands growing out of or connected with this contract.

IN WITNESS WHEREOF, the parties hereto have executed these presents.

Witness as to the Company

Northern Pacific Railway Company,

_____

By_____

_____

Witness as to the Contractor

_____ _____ (SEAL)

_____ _____ (SEAL)

N O R T H E R N P A C I F I C R A I L W A Y C O M P A N Y

S P E C I F I C A T I O N S

For drilling and casing one or more 12-inch wells, not exceeding four in number, at the Northern Pacific Railway Company's Terminal Yard at Auburn, King County, Washington.

The wells shall be located at points indicated by stakes set by the Engineer representing the Railway Company and sunk to such a depth as directed, not exceeding one hundred (100) feet in depth.

The well shall be cased with standard twelve (12) inch well casing for the full depth or as directed by the Engineers, the Railway Company to furnish the casing.

Following the penetration of the water-bearing gravel the well shall be tested from time to time to determine the volume of the water available. On reaching the desired depth and after pumping the well continuously for two hours or more, as directed by the Engineer, the well shall be thoroughly cleaned. If required the Contractor shall install the suction pipe and raise the casing to the top of the strainer or such an height as directed by the Engineer. The earth around the casing excavated to elevation given and as directed by the Engineer, the casing cut off at an elevation to be fixed by the Engineer and securely fastened into a block of concrete cast round the casing as per plan attached. For this purpose a section of casing will be provided to avoid cutting.

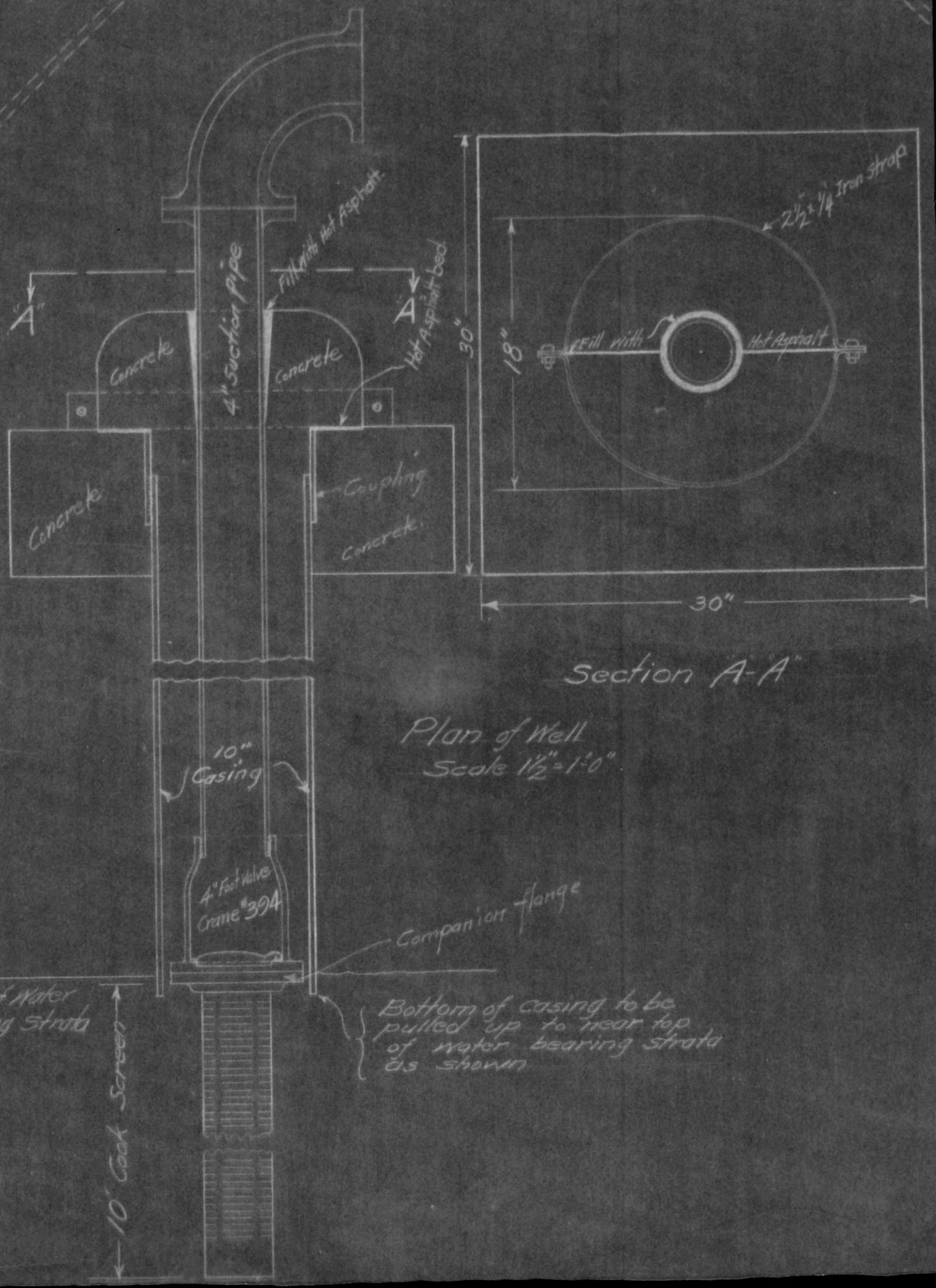
If more than one well is necessary to furnish the supply of water required, other wells shall be sunk, to the full

number of four if required, following the preceding specifications and directions of the Engineer, for each well.

On completion of each well it shall be sealed in such a manner as to prevent contamination by surface seepage.

The Railway Company will furnish all casing, cement sand and gravel on cars at siding near the work.

Office Asst. Chief Engineer,
Seattle, Washington,
May 22nd, 1924.


A
A
Fill with Hot Asphalt.
4" Suction Pipe
Concrete
Concrete
Hot Asphalt bed
Concrete
Coupling
Concrete
30"
2½" x ¼" Iron Strap
18"
Fill with
Hot Asphalt
30"
Section A-A
Plan of Well
Scale 1½" = 1'-0"
10" Casing
4" Foot Valve Crane "394
Companion Flange
Top of Water bearing Strata
10' Cast Screen
Bottom of casing to be pulled up to near top of water bearing strata as shown

6303

St. Paul, Minn., August 14, 1942-

Mr. Bernard Blum:

Your letter 1st about drinking water well for Auburn Yard which you estimate can be put down for $500.

You may go ahead and charge to Operating.

H E Atwell.

cc- Mr. F. R. Bartles
Mr. L. Yager

1332c

Mr Yager:

I assume you have arranged for

B B,

yes 11/8/20 19

Mr. L. Ayer.

cc- Mr. E. B. Bartlett

6303

Train 4, Rky Mtn Division,
August 1,1942

MR. H. E. STEVENS:

Early in June the State Public Health Engineer made analysis of water from the well at the south end of AUBURN YARD, which is used by crews working in that vicinity.

A lot of time has been consumed in investigating the matter, which just came to my attention a day or two ago with recommendation that we drill a 6" well about 70' deep with company outfit.

Mr. Grime estimates the cost at about $400 but to be fairly safe I would request authority to proceed with the work at an estimated cost of $500.

Mr. Burgess recently traced us for action, as the water is needed badly. There is an underground supply all through the terminals and it is believed that a drilled well with concrete top and extending 70' into the underlying gravel will preclude surface contamination.

The present well was originally a dug well 15' deep; and later on 46' of 4" pipe was driven and the hole backfilled to within three feet of the top. It is apparent that contamination from the surface reaches the four inch pipe and this undoubtedly is the reason for the condemnation by the health officer.

Do you approve proceeding with a new well?

bb/s

H.E.S.
authority for 65'-70' well
$400 to $500

W-3326

St. Paul, July 25, 1942

AIR MAIL

Mr. Bernard Blum
c/o A. F. Stotler
181 King Street
Seattle, Washington

Referring to the attached papers starting with Superintendent Burgess' letter June 16 to Mr. Grime about water supply in the well south end of Auburn yard having been condemned:

Situations of this sort are rather perplexing because of the uncertainty of the possible surface contaminations reaching the lower water bearing depths which would be penetrated by a drilled well. I have considered this in the light of similar situations in the past and have come to the conclusion that it would be more than a reasonable gamble to expect waterof an acceptable sanitary quality from a drilled well in this location. The water would come from the water bearing strata and there is reasonable promise that the overlying strata are sufficient seal to avoid contamination.

I therefore recommend we be authorized to proceed with the drilling of a 6" well with company forces.

H. Hagen

LY:m
encl.

Papers returned to Hagen 8/14/42

N. P. 534 11-33

F-27

(A) FROM _____ (B) DATE _____

(C) To _____ (C) To _____

(C) To _____ (C) To _____

(C) To _____ (C) To _____

REPORT OF ACCIDENT

(D) At _____ (F) Time _____ (G) Date _____

(H) Division _____ (J) Sub-Division _____ (K) Div'n Report No. _____

(M) Train _____ (Q) Cond'r _____ (S) Engine _____ (U) Engineman _____

(W) Number of Cars in Train _____ (X) Number of Loaded or Empty Cars Damaged (See Note-1) _____

(AB) Nature and Brief Account of Accident:

(AC) Track Will Be Cleared About _____

(AD) Rough Estimate of Amount of Damage to Equipment _____

(AF) Names, Addresses, Occupation and Nature of Injuries of Persons Injured: (See Note-2)

(AG) Names and Addresses of Witnesses:

(AK) Name of Doctor Called _____

(AM) Disposition of Injured Persons:

(SG) Signature _____

NOTE-1: This report to show only the number of cars involved in accident. Make report on regular message blank referring to this accident number and give initials and numbers of cars damaged and destroyed, also contents of loaded cars. If shipments are destroyed or badly damaged give waybill reference.

NOTE-2: In reporting employees injured show probable number of days off duty. If person injured or killed is NOT an employee of the Northern Pacific Railway, state if trespasser, civilian, coach or pullman passenger; give home address and ticket destination.

On Idaho Division,
August 18th, 1939

Mr. Bernard Blum:

Referring to your letter to Mr. Sloan of August 12th, copy to me, about proposed wayside water treatment at Auburn terminal.

Is this absolutely necessary? Wish you would discuss the matter with me on my return.

T. R. G.

Mr Blum
A+E has now been approved - Mr Sloan's ltr to Mr Stevens Aug 24th attached
Hold for 2 weeks
9/5
MLG 9/8-39

6303

Saint Paul, August 12, 1939

MR. W. C. SLOAN:

Herewith for approval AFE for installation of wayside water treatment at Auburn terminal, Tacoma AFE ED-103, amount $965.

Since we provided a drilled well supply at Auburn, taking the place of a former long gravity line from up the river, we have had considerable trouble with corrosion in locomotives operating out of Auburn.

The usual soda ash treatment in use for a number of years was accompanied by difficulties due to the intermittent and variable applications of the soda ash. At times too much was employed, which increased the caustic alkalinity to such a high point that there was serious corrosion of washout plugs and other brass fittings. About a year ago Mr. Neish showed me some samples of plugs removed from boilers at Tacoma that were nearly gone.

Quite good results are being obtained elsewhere in using the tannin treatment, and the matter has been discussed with Mr. Grimm and he has given his approval of the installation, as indicated by his signature on the AFE.

A considerable portion of the expenditure results from the necessity of providing city water for drinking purposes, as the treated water is not suitable for such uses.

There is also included in the AFE the cost of providing an overhead discharge from the city supply into the storage tank. That was ordered under the present setup by the State authorities some time ago but has not been carried out, and apparently must be done in any event.

In this connection I understand that we are charging the Great Northern 25 cents per tank of water for emergency supply taken at Auburn. With the approval of this AFE it would be proper to charge them fifty cents per tank.

I recommend approval of the AFE.

cc-Mr. H. E. Stevens
x

bb/s

Transmitted to
W.C.S.

St. Paul, Minn., July 29, 1939.

MR. BERNARD BLUM:

Referring to the attached AFE for tannin wayside treating plant at Auburn:

Since we provided a drilled well water supply at Auburn to supplant the former gravity supply, we have had considerable trouble with corrosion in our locomotives operating out of Auburn. The usual soda ash treatment has been in use a number of years but the intermittent and variable application of soda ash has resulted in the usual difficulties. There have been times that they used so much soda ash that the caustic alkalinity has been so high that there has been serious trouble from corrosion from washout plugs and other brass fittings. There has been no question in my mind but what we were amply justified in using the tanin treatments at Auburn by reason of the highly beneficial results obtained elsewhere from this treatment. I wrote to Mr. Grimm and discussed the subject with him and you will note his approval outlined in his letter to me of June 22nd and likewise his signing the AFE.

A considerable proportion of this expenditure results from the necessity to provide city water for sanitary purposes. The AFE likewise includes the cost of providing an overhead discharge into the tank from the emergency city supply. That was ordered by State authorities some time ago but has not yet been carried out.

I am leaving attached, the file of correspondence bearing on this subject. Mr. Hackenberg's memorandum in the file, dated July 24th, directs attention to the 25¢ rate per tank of water charged the Great Northern for emergency supply taken at that point. I think we should now make this rate 50¢ per tank which is not out of line.

W. Sayre

LY-d

MEMORANDUM

The water station facilities at Auburn, except the standpipe situated on the west side of the main tracks, are not joint account with the G. N. Ry. Co. under contract dated Dec. 1, 1909.

In accordance with letter agreement June 12th, 1924 the G.N.Ry. pays 25¢ per engine tank for water taken by them at this standpipe. This rate was based on a computation to determine the cost of water at that time. Inasmuch as the G. N. will be furnished treated water upon completion of this improvement at an additional expense to the N. P. Ry. Co. the 25¢ rate probably should be increased to cover the additional cost of water treatment.

R. A. Hackenberg
7-24-39

RAH AFE 7/3

St. Paul, July 3, 1939.

Mr. J. T. Derrig:

Please note file attached regarding the proposed wayside treating plant at Auburn and request from Mr. Yager that an AFE be submitted promptly.

On the bottom of the file will be found my detailed estimate dated November 30, amounting to $697.00 to cover the expenditure required, and the plat of Auburn which is also attached shows in yellow the drinking water lines now in use and in red the additional pipe lines required to connect the drinking water system directly with the city water supply so that drinking water will be available after we have treated water in the storage tank. The estimate also includes the new connection required by the health authorities by which sanitary city water will be supplied over the top of the storage tank in an emergency when the pumping plant may be out of order. I understand Supt. Taylor was required to provide this connection some time ago and it is therefore included in this estimate as an A & B item, being detail No. 5.

The explanation for the RFA may be made to read as follows:

"Auburn deep well water supply not only contains 3.7 grains per gallon scale forming material but is also of corrosive nature. Since 1917 trouble has been experienced with pitting and corrosion of fire box sheets, back flue sheets, and combustion chambers on type Z-3 locomotives as well as other locomotives operating on the Tacoma Division which receive any appreciable quantity of water at Auburn.

"The water consumption is 38,000,000 gallons per annum. The neutralization of the solids in this water will create an estimated gross annual saving of $2618. The increased cost for chemicals will amount to $996. per annum, and in addition there will be expense for attendance, heat for the pump room during the winter season, additional electric power and a slight increase in cost of water required for drinking purposes, making the total increase in cost $1200. Deducting this from the above gross savings leaves a net saving of $1418.

"The mixing machinery required for improving the treatment will be furnished on loan basis by the National Aluminate Corporation and the labor and material required by the N. P. to make the desired changes will amount to $697, as per estimate attached.

"This improvement is recommended as something to materially improve locomotive operating conditions and reduce the cost of boiler repairs."

Will you kindly return all papers with the RFA and I will arrange for Mr. Grimm's approval.

E.M. Grimm

Engineer of Water Service.

EMG:WP
enc.

St. Paul, Minn., June 22, 1939.

File W-3
4538

MR. L. YAGER:

Replying to your letter of June 8, with return of file about the installation of a wayside water treating plant at Auburn, which it is estimated will require an investment of $697 and the treatment will result in an annual saving of $1,418.

I have had this matter investigated quite thoroughly and find that since the use of well water was started at Auburn in 1917 or 1918, we have experienced considerable trouble with pitting and corrosion of firebox sheets, back flue sheets and combustion chambers on the Z-3 locomotives; also other locomotives on the Tacoma Division which take an appreciable amount of water at Auburn.

In view of the small investment required to provide suitable water treatment and the estimated annual savings, I will approve an AFE for water treating facilities to bring about the improvement in conditions on the locomotives that you anticipate.

E. L. Grimm

cc Mr. E. R. Manor

13326

St. Paul, April 10, 1939.

Mr. L. Yager:

Referring to my previous report of November 30th covering the matter of going to the use of Nalco treating materials in place of soda ash compound which is now used at Auburn with rather unsatisfactory results.

The problem is to eliminate the scale forming material now in the water and at the same time produce a water which will not cause locomotive operating trouble and also be one which will eliminate corrosion, of which we have had considerable complaint at that point.

This raw water contains 3.7 grains per gallon scale forming material, and on the basis of a consumption of 38,000,000 gallons per annum removal of this material will accomplish a saving on the basis of 13¢ per pound of $2618.00 per annun. To accomplish this we will make use of 1/2 pound of Nalco No. 47, pulverized, phosphate tannin solution per M gallons, and in addition use 1/4 pound of soda ash per M gallons to obtain sufficient alkalinity to inhibit corrosion. The cost for these chemicals amounts to $1612 per annum, but we are now spending $616 for soda ash stick compound so the net increased cost for chemical will be $996. Under the new arrangement city water will be furnished for drinking purposes only and on the basis of 4 gallons per day for each of the 430 employes the cost for city water will be $6.13 per month. We are now paying $4.50 per month as the minimum rate on account of the 4" city meter which supplies water to the storage tank in emergencies. The increased cost for city water per month will therefore be about $2.00, or say $24.00 per annum.

The mixing machinery, which will be furnished by the National Aluminate Corp. under their contract, will be located in the present pump room and it may be necessary to provide electric heat for use during the colder days in winter. For this heat, and also operation of the small motors the electric bill will probably be increased $60.00 per annum and allow $10.00 per month or $120.00 per annum for daily attendance account supplying the mixing vats with soda ash and No. 47 creates a total increased cost per annum of $1200.00. Deducting this from the saving as above mentioned leaves a net annual saving of $1418.00. The labor and material to accomplish these changes as shown in my letter of Nov. 30 amounts to $697.00

I recommend this improvement as something to materially improve locomotive operating conditions and reduce the cost of boiler repairs.

EMG:WP

Engineer of Water Service.

13326

St. Paul, Nov. 30, 1938

Mr. L. Yager:

In accordance with your request of August 10th I have made an investigation of the water supply situation at Auburn with reference to providing suitable treatment for this supply which will eliminate the difficulty with corrosion and scale as well as foaming trouble with freight power operating from this terminal, particularly ascending the mountain grade.

Conditions here require an accurately regulated dosage of chemicals consisting principally of tannin and disodium phosfate. These chemicals can be readily added to the water as it is discharged from the pump at the wells to the storage tank by means of mixing and proportioning machinery which will be furnished on loan basis by the National Aluminate Corporation and be connected up with the present pumping equipment so as to provide automatic control. The present pump house will house the equipment but it will be necessary to provide a floor at the ground level of the pump room where the machinery can be located. This floor, together with pipe connections, electric connections, valves, etc., will cost about $200.00.

At the present time drinking water is supplied to the various facilities, either through the fire line or through the special drinking water line which was constructed when the terminal was built, by gravity supply from the storage tank. Since the pump is located in a pit where there is some possibility of flooding the arrangement from a sanitary aspect is not favorable. Originally city water was furnished through a special piping system as shown in yellow on the enclosed map, but later on this city connection was eliminated and the supply furnished from the storage tank.

Under the proposed arrangement treated water from the storage tank will supply all water columns as well as the stationary plant, but as this will not be satisfactory for drinking purposes it becomes desirable to return to the use of city water for this purpose and the expense for the pipe changes necessary to accomplish this amount to about $400.00.

For some years we have had a 4 inch connection from the meter at the northeast to a point near the base of the storage tank. This has been necessary to provide an emergency supply in case of trouble with the pump. The Washington State Board of Health has objected to this cross

connection with the city supply and under date of Nov. 22nd Supt. Taylor was given a mandatory order by the City of Auburn to remove this connection. We are thus compelled to extend the 4 inch city line up the outside and over the top of the storage tank to avoid any possibility of mixing the two supplies. This will cost about $100.00.

Returned EMG 8/15/27

On the map attached there is shown in yellow existing pipe lines through which it is intended to deliver sanitary water, and in red the changes which must be made to accomplish this purpose. The estimate for an AFE to cover all the above details is attached herewith.

In this connection I should add that the emergency 4 inch connection involves a regular standby charge of $4.25 per month whether we use any city water or not, and most of the time we pay this simply for emergency protection. The water rates at Auburn are such that this charge will pay for the regular use of about 27,000 gallons of water per month, and this amount will go a considerable way toward providing the water for drinking and other purposes as intended by this new arrangement.

E M Grimes

Engineer of Water Service.

EMG:WP
Copy Mr. Taylor
Mr. Hayward

AUBURN

Changes necessary to provide treated water for locomotive and stationary plant purposes and sanitary drinking water for employes.

	Labor	Material
Floor in pump room to support mixing machinery at ground level	$30.	$25.
Pipe connections, valves, etc.	60.	30.
Electrical connections	25.	10
Pipe changes required to provide city water for drinking purposes	150.	230.
Pipe changes required to eliminate present cross connection between City and Railway supply as ordered by State Board of Health.	40.	56.
Chemical mixing equipment to be furnished by National Aluminate Corporation on loan basis under their contract.	-	-
Use of tools	9.	
Engineering	32.	
	$346.	$351.
		346.
		$697.

Office of
Engineer of Water Service
St. Paul, Minnesota
Nov. 30, 1938

Seattle, Washington,
August 20th,1929.

Re: AFS Vou #65 amt $215.25 covering
Estimate #1, favor Traeger &
Jensen.
Auburn: Well at South end of
Frt. Yards. AFE 637-29 ED 106-29 SD

Mr. Bernard Blum:-

Please find attached herewith AFS voucher #65 amount $215.25 favor Traeger & Jensen, covering estimate #1 and final, account work in connection with driving well at south end of freight yard, Auburn, Washington, under AFE 637-29 ED 106-29, contract dated July 24th,1929.

Affidavit covering this work is also attached for your files.

A. F. Stoller
Asst. Ch. Engineer.

ANB

N. P. 200 6-24

FILE COPY OF VOUCHER

[redacted] #65.

TO Trager and Jensen,
Auburn, Washington.

1197

Two Hundred Fifteen and 25/100 Dollars---------- $ 215.25-----

Memo No.

August 17th, 1929. Estimate No.1 and Final, August 1929

In payment of: All labor, services, superintendence, material, use of tools and equipment for driving and casing a four inch well, including drive shoe and pipe perforations, at Auburn, Washington, as per terms of contract dated July 24th, 1929.

61.5 Lin.Ft. @ 3.50 LF $215.25

Amount of this Voucher:.....$215.25
++++++++

Work completed August 16th, 1929

Charge:
Division Accounts,
Engineering Dept.
D.A.S. #1.
Seattle Div. F-6-278 $215.25

DISTRIBUTION:

B

6303

Saint Paul, August 14, 1929.

Mr. R. H. Rolf:

Herewith ~~for execution~~, contract with Traeger & Jensen for drilling 4" well in freight yard at Auburn, together with Mr. Donnelly's letter of August 6th authorizing me to execute.

The amount involved is approximately $210.00. No bond has been required.

REG-s
encl.

Chief Engineer

6303

On #5 Idaho Division,

August 11th, 1929.

Mr. A. F. Stotler:

Herewith for delivery to the Contractor, executed copy of contract with Traeger and Jensen for drilling 4-inch well at Auburn, Wn.

Chief Engineer.

Saint Paul, Minn.,

August 7, 1929.

Mr. Bernard Blum:

Your letter of August 2nd, inclosing proposed agreement with Traeger and Jensen for drilling a 4-inch well at Auburn, Washington:

I return, herewith, both copies of the agreement together with Mr. Donnelly's letter of August 6, authorizing you to execute the agreement.

H. E. Stevens

R. E. G.

Have sent 1 copy to Contracts

8/11 BB

St.Paul, August 2, 1929

Mr. H. E. Stevens:

Herewith for execution contract with Traeger and Jensen for drilling four inch well in the freight yard at Auburn, Washington. Bids received compare as follows:

Traeger and Jensen	210.00
E. F. Lawson	No bid
N. C. Jannsen Drilling Co	210.00
AFE estimate	210.00

Contract was awarded to Traeger and Jensen as they were located at Auburn.

encl

Chief Engineer

Seattle, July 30, 1929.

Mr. Bernard Blum:

Re: Auburn - Contract covering drilling and casing of 4" well in freight yard

I enclose herewith form of contract dated July 24, 1929, with Traeger & Jensen for drilling and casing of four inch well in freight yard at Auburn, Washington, which was awarded in compliance with your wire B-51 of July 23.

Will you please have same executed on the part of the Railway Company, after which return one copy for the use of the contractors. An additional copy is included for your files.

As the contract amounts to only $200.00 the furnishing of a bond by the contractors was waived.

MJW:H

enc.

A. F. Stoller

St. Paul, Minn., August 6, 1929.

Mr. H. E. Stevens,
Vice President.

Referring to your letter of August 5 and returning proposed contract with Traeger and Jensen for drilling 4-inch well in the freight yard at Auburn, Washington:

This letter, when filed with the Assistant Secretary may be considered authority for the Chief Engineer to execute the contract on behalf of the Railway Company.

Encl.

cc-Mr. R. H. Relf.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME F
M.

6303

St Paul July 23 1929

A F Stotler Seattle

OK award contract drill 4" well Auburn to Traeger and Jenson B-51

Bernard Blum

Seattle, July 17, 1929.

Mr. Bernard Blum:

Re: Auburn - Well at South End Yard Office

I hand you herewith summary of bids for the drilling and casing of 4" well at South End Yard Office, Auburn. Estimated depth of well 60 feet.

You will note that the two bids received are identical. I recommend that the contract be awarded to Traeger & Jensen, as they are a local concern and I am informed that they have been located at Auburn for a number of years and are very reliable.

Original bids received also enclosed herewith.

MJW:H

enc.

A. F. Stoller

NORTHERN PACIFIC RAILWAY COMPANY

Summary of bids for drilling and casing a 4" well at South End Yard Office, Auburn, Washington.

	Quantities Lin.ft.	Estimated Cost Unit price	Estimated Cost Cost	Traeger & Jensen Unit price	Traeger & Jensen Cost	N. C. Jannsen Drilling Company Unit price	N. C. Jannsen Drilling Company Cost
For furnishing all material, labor, etc. including drive shoe and pipe perforations	60	3.50	210.00	3.50	210.00	3.50	210.00

Office of District Engineer,
Seattle, Washington,
July 8, 1929.

NOTE - Proposal was also submitted to Mr. E. F. Lawson who could not be reached.

NORTHERN PACIFIC RAILWAY COMPANY

Summary of bids for drilling and casing a 4" well at South End Yard Office, Auburn, Washington.

	Quantities Lin.ft.	Estimated Cost Unit price	Estimated Cost Cost	Traeger & Jensen Unit price	Traeger & Jensen Cost	N. C. Jannsen Drilling Company Unit price	N. C. Jannsen Drilling Company Cost
For furnishing all material, labor, etc. including drive shoe and pipe perforations	60	3.50	210.00	3.50	210.00	3.50	210.00

Office of District Engineer,
Seattle, Washington,
July 8, 1929.

NOTE - Proposal was also submitted to Mr. E. F. Lawson who could not be reached.

Form 3175 PROPOSAL 4-19-29 1M RP

NORTHERN PACIFIC RAILWAY COMPANY

You are hereby requested to submit a proposal for the drilling and casing of a four (4) inch well, at the South end of the Northern Pacific Railway Freight Terminal Yard, at Auburn, Washington

Work to be started immediately after award of contract and be completed on or before fifteen days after award of Contract

The Company reserves the right to reject any and all bids, and, at its option, to require a bond for the full estimated amount of the contract. If bond is required, the premium will be paid by the Company.

All proposals to be sealed, marked for drilling and casing of 4" well in Freight Yard at Auburn,

District Engineer 917 Smith Tower, Seattle, Wash.

and addressed to the Chief Engineer of the Northern Pacific Railway Company, Saint Paul, Minnesota.

Bids will be received until Noon July 8, 1929.

NORTHERN PACIFIC RAILWAY COMPANY

By

PROPOSAL

The undersigned hereby proposes to undertake the above described work, and, if this proposal is accepted, agrees to enter into a contract with the Northern Pacific Railway Company, in the form hereto attached and made a part hereof, and at the unit prices inserted in said form of contract by the undersigned, and returned herewith.

Official Name of Partnership or Corporation Traeger & Jensen

By Fred H. Jensen

Official Position Co-partner

Address Auburn, Wash. R2

Date July 6, 1929

Form 109B General Contract—Short Form 12-12-23 1M RP

Agreement made the day of A. D. 192
between the NORTHERN PACIFIC RAILWAY COMPANY, hereinafter called the "Company" and

Troeger & Jensen

hereinafter called the "Contractor".

The Contractor agrees to furnish all labor, services and material for, and construct, complete and finish in the most thorough workmanlike and substantial manner in every respect to the satisfaction of the Chief Engineer of the Company, within the time specified, and according to the specifications hereto annexed and made part of this contract

Work

The completed well shall be finished as called for in specifications except in place of preforating the lowes 8' (eight foot) portion of the well casing with 1/2" holes we recomend slotting longetudinally with 1/8" x 3 1/4" slots with a total sloted area of over twelve square inches per running foot or a total of over 96 sq. inches for 8 feet of preforations.

Date of completion

The work is to be commenced immediately and completed on or before the day of A. D. 192 .

Prices for work.

The prices to be paid by the Company for the work are as follows:

1. For all material, labor, services, tools & equipment for driving and casing a 4" well, including drive shoe and pipe perforations as specified.

Price per lin. ft. of pipe in place $3.50

If pipe is to be furnished us $.64 per foot of pipe in place may be deducted from the above price.

Note: The above mentioned slotting cost shall be included in the above price per foot of pipe in place.

Price for extra work.

For extra work done under written orders of the Engineer of the Company for which prices are not named herein, the Contractor shall be paid the actual outlay in such work and ten per cent additional.

Estimates. Payments: Retained percentage.

Approximate estimates of the work done will be made monthly and be paid on or about the twentieth day of the following month, less however all previous payments and less ten per cent of such estimates, which shall be retained until and as security for complete performance of this contract.

Work when and where directed.

The Contractor shall carry on the work in such a manner and at such times and at such points as the Engineer of the Company from time to time shall direct, but the Contractor shall have full control of his employes and be solely responsible for all personal injuries caused in any manner by carrying on any work under this contract.

Transportation

No free transportation

Insurance

Damage by fire to buildings or structures during construction will be made good by the Contractor, who will keep all structures fully insured until completion and acceptance by the Company. The cost of insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear, and deposited with the Chief Engineer.

Release.

The Contractor at final payment will execute, acknowledge and deliver to the Company under his hand and seal, a valid discharge from all claims and demands growing out of or connected with this contract.

IN WITNESS WHEREOF, the parties hereto have executed these presents.

Witness as to the Company

Northern Pacific Railway Company,

_____

By _____

_____

Witness as to the Contractor

Henry Traeger _____ (SEAL)

Fred H. Jensen _____ (SEAL)

S P E C I F I C A T I O N S

The work shall consist of drilling and casing a four (4) inch well to supply yard office, etc., with water for drinking purposes. Well to be drilled to a depth estimated not to exceed sixty feet at a location adjacent to the existing four inch well near what is known as the South End Yard Office, as shown by the locality sketch attached and as particularly located by the Engineer. Contractor to verify estimated depth necessary to obtain satisfactory well.

The pipe for the purpose shall be the standard four (4) inch commercial wrought iron (black) pipe. The necessary drive shoe and drive cap shall be furnished.

The first eight feet of the four inch pipe above the drive shoe shall be perforated by one-half inch holes of such number that the combined area of these holes shall exceed the Cross-sectional area of the four inch pipe by one and one-half times. The holes shall be placed in such a manner as not to endanger the driving, or cause collapse of the pipe.

The work must be done in a workmanlike manner satisfactory to the Engineer. The well must be veritcal and straight.

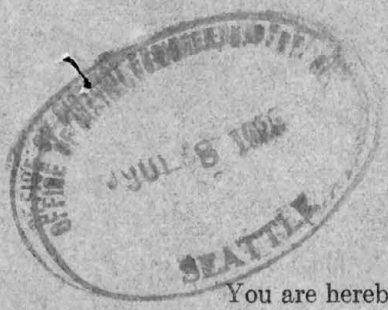
On completion of work top of well casing shall be left at the elevation designated by the Engineer. The well and premises must be left in a good, safe and orderly condition satisfactory to the Engineer.

The Contractor and his men must exercise care while working on the Railway Company's premises so as not to suffer injury or damages to himself, men or equipment by reason of cars or locomotives operating in the vicinity and shall not create hazards to the Railway Company's operation of the yard.

Any omission to disapprove of work shall not be construed as acceptance of defective work and the Contractor must remove and rebuild or make good at his own cost all defective work.

The Contractor will pay into the Treasury of the State of Washington, if required, the percentage on his payroll in such amounts and at such times as is provided by Chapter 74, Laws of Washington, 1911, and all amendments and supplements thereto, commonly called the "Workmen's Compensation Act" and comply with the orders of the Industrial Commission relating thereto.

Form 3175 PROPOSAL 4-19-29 1M RP



NORTHERN PACIFIC RAILWAY COMPANY

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Work to be started immediately after award of contract and be completed on or before fifteen days after award of Contract

The Company reserves the right to reject any and all bids, and, at its option, to require a bond for the full estimated amount of the contract. If bond is required, the premium will be paid by the Company.

All proposals to be sealed, marked for drilling and casing of 4" well in Freight Yard at Auburn

District Engineer 917 Smith Tower, Seattle, Wash.

and addressed to the Chief Engineer of the Northern Pacific Railway Company, Saint Paul, Minnesota.

Bids will be received until Noon July 8, 1929.

NORTHERN PACIFIC RAILWAY COMPANY

By

PROPOSAL

The undersigned hereby proposes to undertake the above described work, and, if this proposal is accepted, agrees to enter into a contract with the Northern Pacific Railway Company, in the form hereto attached and made a part hereof, and at the unit prices inserted in said form of contract by the undersigned, and returned herewith.

Official Name of Partnership or Corporation H. C. Lamman Drilling Co

By H. C. Lamman

Official Position Owner

Address 1200 - 4 Ave So Seattle Wash

Date July 1 - 1929

Agreement made the day of A. D. 192
between the NORTHERN PACIFIC RAILWAY COMPANY, hereinafter called the "Company" and

hereinafter called the "Contractor".

The Contractor agrees to furnish all labor, services and material for, and construct, complete and finish in the most thorough workmanlike and substantial manner in every respect to the satisfaction of the Chief Engineer of the Company, within the time specified, and according to the specifications hereto annexed and made part of this contract

Work

Date of completion

The work is to be commenced immediately and completed on or before the day of A. D. 192 .

Prices for work.

The prices to be paid by the Company for the work are as follows:

1. For all material, labor, services, tools & equipment for driving and casing a 4" well, including drive shoe and pipe perforations as specified.

Price per lin. ft. of pipe in place $3.50

Price for extra work.

For extra work done under written orders of the Engineer of the Company for which prices are not named herein, the Contractor shall be paid the actual outlay in such work and ten per cent additional.

Estimates. Payments: Retained percentage.

Approximate estimates of the work done will be made monthly and be paid on or about the twentieth day of the following month, less however all previous payments and less ten per cent of such estimates, which shall be retained until and as security for complete performance of this contract.

Work when and where directed.

The Contractor shall carry on the work in such a manner and at such times and at such points as the Engineer of the Company from time to time shall direct, but the Contractor shall have full control of his employes and be solely responsible for all personal injuries caused in any manner by carrying on any work under this contract.

Transportation

No free transportation

Insurance

Damage by fire to buildings or structures during construction will be made good by the Contractor, who will keep all structures fully insured until completion and acceptance by the Company. The cost of insurance will be divided equally between the parties, the policies written in the name of both, loss payable as their interest may appear, and deposited with the Chief Engineer.

Release.

The Contractor at final payment will execute, acknowledge and deliver to the Company under his hand and seal, a valid discharge from all claims and demands growing out of or connected with this contract.

IN WITNESS WHEREOF, the parties hereto have executed these presents.

Witness as to the Company

Northern Pacific Railway Company,

_____

By _____

_____

Witness as to the Contractor

_____

A. C. Jamison Drilling (SEAL)

_____

A. C. Jamison (SEAL)

S P E C I F I C A T I O N S

The work shall consist of drilling and casing a four (4) inch well to supply yard office, etc., with water for drinking purposes. Well to be drilled to a depth estimated not to exceed sixty feet at a location adjacent to the existing four inch well near what is known as the South End Yard Office, as shown by the locality sketch attached and as particularly located by the Engineer. Contractor to verify estimated depth necessary to obtain satisfactory well.

The pipe for the purpose shall be the standard four (4) inch commercial wrought iron (black) pipe. The necessary drive shoe and drive cap shall be furnished.

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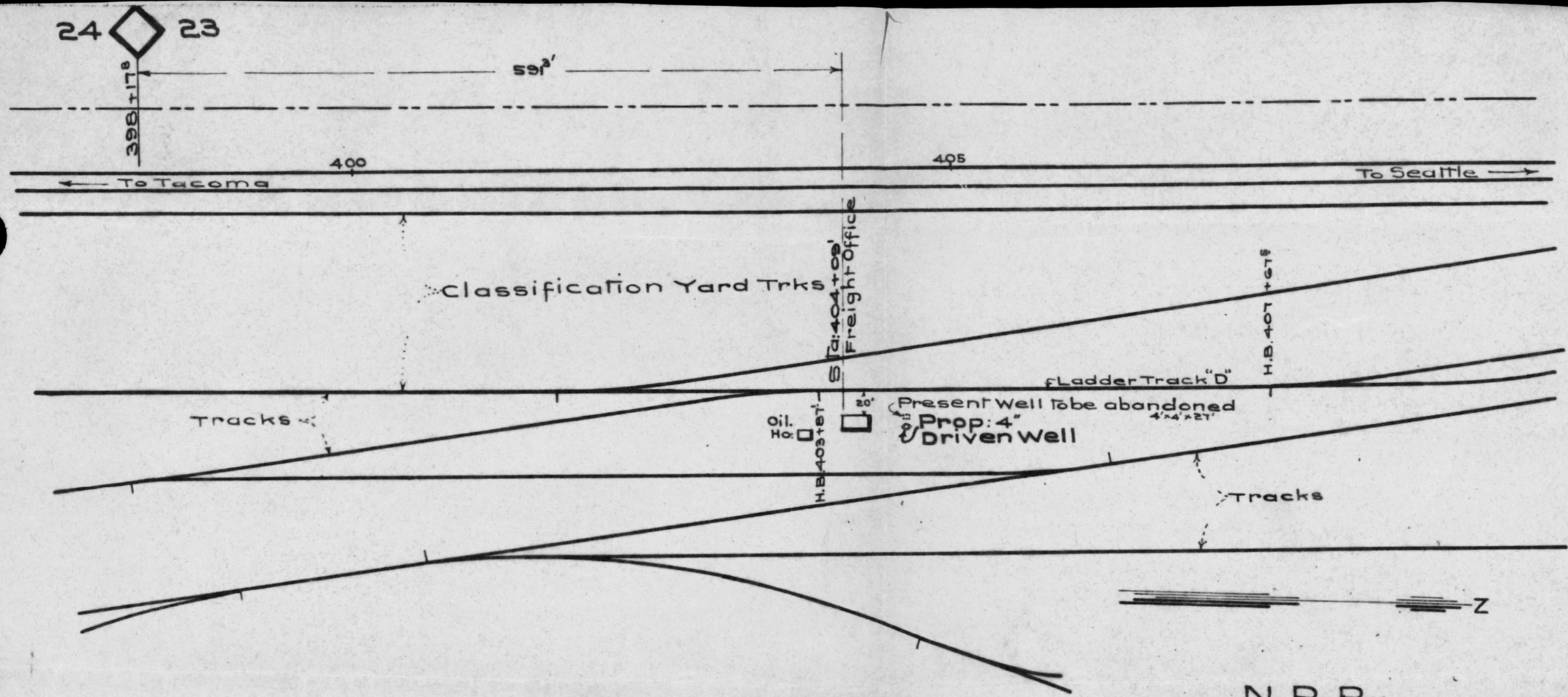
The work must be done in a workmanlike manner satisfactory to the Engineer. The well must be veritcal and straight.

On completion of work top of well casing shall be left at the elevation designated by the Engineer. The well and premises must be left in a good, safe and orderly condition satisfactory to the Engineer.

The Contractor and his men must exercise care while working on the Railway Company's premises so as not to suffer injury or damages to himself, men or equipment by reason of cars or locomotives operating in the vicinity and shall not create hazards to the Railway Company's operation of the yard.

Any omission to disapprove of work shall not be construed as acceptance of defective work and the Contractor must remove and rebuild or make good at his own cost all defective work.

The Contractor will pay into the Treasury of the State of Washington, if required, the percentage on his payroll in such amounts and at such times as is provided by Chapter 74, Laws of Washington, 1911, and all amendments and supplements thereto, commonly called the "Workmen's Compensation Act" and comply with the orders of the Industrial Commission relating thereto.



N. P. Ry
Seattle Terminal Divn.
Wash. Val. Sec. 3
Proposed New Well at So. End Yard Office at AUBURN WN.
Office of Dist. Engr: Seattle Wn.
Scale 1"=100' April 2 1929

SEATTLE DIVISION AFE ED 106-29

6303

St. Paul, February 28, 1929.

Mr. H. E. Stevens:

Forwarding voucher favor of N. C. Jannsen Drilling Company, amount $113.00, for labor, etc. furnished on the Auburn wells.

We have two drilled wells at Auburn which supply water to the roundhouse, etc. Recently they began to fail and did not furnish the required amount. Mr. Jannsen was employed to clean out the perforations of the casing which had become closed. The wells have been restored so as to give ample supply.

Chief Engineer.

MB h

6303

Saint Paul, March 14, 1927.

Mr. A. V. Brown:

Returning file received with your letter of December 15th about suggestion of the City of Auburn that they furnish the Railway Company with its water supply at that point.

I am attaching copy of Mr. Grime's letter to Mr. Yager of the 24th and Mr. Yager's letter to me of the 28th, together with comparative analysis made of the present Railway water supply and the City water supply. There is no practical difference in the quality of the water from the standpoint of boiler maintenance and the matter may therefore be decided on the basis of cost to the Company of water from the two sources.

The cost to us for furnishing water from the present wells, including maintenance and depreciation, runs between $40.00 and $50.00 per month. If the City are willing to furnish us an un-limited supply at the price of, say, $45.00 per month, I recommend the proposition be accepted.

Later analyses show present City water supply is relatively better than previous sources but not enough so to justify making any substantial difference in the above recommendation.

Chief Engineer.

HES:H
enc

Saint Paul, March 12, 1927

Mr. H. E. Stevens: (proposed letter)

Referring to the carbon copy of your letter in the attached file to Mr. Brown under date of December 29th relative to the proposition of obtaining from the City of Auburn water for our Terminal supply.

I took this matter up with Mr. Cook in order to obtain more details, as a result of which I received a copy of Asst. Engineer Adams' complete report to Mr. Stotler under date of January 6th. That report raised just one question, and that was the difference in quality between the old City supply and the new supply from Coal Creek. Mr. Cook arranged to have analyses made of the latter supply which showed up relatively better than our own supply and that of previous sole source of the City supply.

It seems to me that the investigation is now complete, but I do not believe that the developments warrant any change in the attitude expressed in the last paragraph of your letter to Mr. Brown of December 29th.

LY:B

Asst. Chief Engineer

Re: Securing drinking
water from City of Auburn,
Wash. for Auburn Terminals.

Seattle, Wash.,
March 8, 1927.

1003-18

Mr. L. Yager,
Asst. Chief Engineer,
Saint Paul, Minn.

Replying to your letter of February 14 in re samples of water from the Auburn City water supply derived from Coal Creek.

I am enclosing to you herewith copy of District Engineer Stotler's report of March 4, with blueprint referred to attached; also copy of City Engineer Fallgreen's letter of February 24 to Assistant Engineer Adams.

A. P. Good

ARC:L
Encl.

Seattle, Wash.
March 4, 1927

Mr. A. R. Cook
Asst. Chief Engineer
Seattle, Washington

Re: Proposed securing of water from the Town of Auburn for Auburn Engine Terminals

Dear Sir:

Referring to your letter of the 23rd ult. regarding securing water from the Town of Auburn for the Auburn Engine Terminals and asking what assurance there would be that the supply would come from the new source at Coal Creek and also at what point the Town proposes to connect its pipeline with the pipeline serving the Railway Company at the Auburn Terminals.

This matter was investigated by Assistant Engineer Adams and attached is a letter from City Engineer Fallgrem of Auburn, outlining the proposed Town connection with the N. P. water supply and also stating that if the Railway Co. requires same that the Town of Auburn would place a physical obstruction in the old pipe mains so that no water from the old supply would reach the N. P. system. All water to be furnished the Railway Co. is to come from the Coal Creek source.

Following is the information which I presume has not been previously furnished in regard to the town of Auburn supply, that is, the elevation to top of N. P. water tank - the source of supply in Coal Creek is 45 ft. above the top of N. P. water tank and the outlet in reservoir is 123 ft. above. The above is data secured from the City Engineer's office.

Attached is a portion of the Auburn station plat on which City main is shown as located on 8th St. SE - termination being at point marked "X" in red circle. The City Engineer advised that if the Railway Co. is to secure water from the Town of Auburn that they would extend the main over to the property line.

Yours very truly,

AFS:B

District Engineer.

No 2

N.P.R.

PUGET SOUND DIVISION

AUBURN

KING CO. WASH

Sec. 24-25-36 T21N R4E W.M.

Office Engr. M. of W. Tacoma Wash.

Scale 1" = 100' Nov. 28, 1913

Key to Pipe Lines
Sewer shown thus
Water "
Air "
Steam "

Plat compiled from G.A. Kendrick's map of July, 1911 T.N. Buchanan's notes of Nov. 26, 1913 Revd as to street names Sept. 29, '21

R/W. checked by R/W. Dept St. Paul May 23, '14. Revised from notes furnished by Asst. Engr. dated 6-3-26

2022

P.S.P.&L. Co. Line - 6 Wires

Gravel Road

Cripple Yard

Carmen's Bldg.

Shelter Shed

Platform

Station House

Boiler House

Coal Bin

Box Car Babies

Lettuce Shed

Cinder Driveway

Concrete Sidewalk

Power Co. Pole Line

N.P.R. Power Line

Garage

Supply Shed P.S.&B. Dept.

Blow off Tower C.M. 7828

100,000 gal. Water Tank

Oil Sump 14,000 gal

Pump House 30000 gal Oil Tank

Bunk Ho.

Shed

Hyd. 2½ Conn.

Gates Check Valve

Sand Dock

Wash Rack

Dock

Trail

Road

Platform

Shelter

Cinder Path

Hose Ho.

Tool Ho.

Scale House

Coal Dock

Coaling Station

Washing Plant

Sand House

Oil House

Oil Ho.

Tank

Pump Ho.

Garage

Supply Shed

Blow off Tower

Bunk Ho.

Lettuce Shed

Cinder Driveway

Concrete Sidewalk

Power Co. Pole Line

N.P.R. Power Line

Platform

Shelter

Hose Ho.

Tool Ho.

Scale House

Coal Dock

Coaling Station

Washing Plant

Sand House

Oil House

Oil Ho.

Tank

Pump Ho.

Garage

Supply Shed

Blow off Tower

Bunk Ho.

T21N R4E

A ST.

1st ADD.

HART'S

YOUNG'S FIRST ADD.

1st ST. SE.

10th ST. SE.

9th ST. SE.

8th ST. SE.

7th ST. SE.

6th ST. SE.

22nd ST. SE.

ENCLOSURE
With letter dated 3/8/27
From A. A. Cook
To L. Yager
Subject Securing water for Auburn Engine Terminals from Town of Auburn

(COPY)

Auburn, Wash.,
February 24, 1927.

Mr. W. R. Adams,
Asst. Engineer,
Northern Pacific Railway,
Seattle, Washington.

Dear Sir:-

In reply to your request I would like to say that if a connection is made between the City of Auburn Coal Creek supply and the N. P. water system it will be made in the following manner:

The present 10" line on 8th Street will be extended so that the connection can be made thereto. The extension to be of satisfactory size. Also if necessary a physical obstruction will be placed in the old pipes so that no water from the old West side supply can reach the N. P. System.

Yours truly,
City of Auburn, by
J. A. FALLGREEN
City Engineer.

Saint Paul, February 14, 1927

Mr. A. R. Cook:

You have undoubtedly by this time received a copy of Engineer of Tests report No. 37664, analysis of Auburn City water supply direct from waste way of hydraulic ram.

This analysis is considerably bettern than samples previously submitted. This may be due to the fact that this supply is always better than the previous one or may represent a seasonal variation. A more definite knowledge concerning the sourve of supply will be necessary before predictions can be made on this point.

The fact that the City has two supplies raises an interesting point as brought out in Asst. Engineer Adams letter of January 6th in which he states that the City now has two supplies, the new one from Coal Creek, and states that he is not sure that the new Coal Creek supply gets as far west as the depot where previous sample was taken. Where did the City propose to give us a connection and what assurance have we that we would always get water from the new Coal Creek supply? I do not desire to have too much significance attached to the fact that the last analysis is better than the former. The ratio of improvement is, of course, great, but that may have a minor influence on the total incrustation in the boilers and consequently little influence on the increased value of the supply.

LY:B

Asst. Chief Engineer

Auburn Water Station
Drilled Well & etc

Elevation of pump pit at Cent pump Foundation 91.81
Elev top concrete pit about ground line 105.84

Discharge line 6" vertical 14 ft
" " horizontal 18 ft.
" " " 50 ft
82

Elevation low water pump not operating 86.40
Lowered water 3.7 ft
Produced ~~700 g.p.m~~ 670 g p m

100 M steel Tank say 60 ft to top Elev = 04 166.00
Elevation of low water 83.
Static Lift 83
Friction say 7
Total Head 90

$\frac{670 \times 90}{4000}$ = 15 hp @ 60% = 25 hp.

$\frac{12 + 30 + 6 \times 75 \times .746 \times .01}{.88}$ = Pump 80

N. P. 821 7-24

OFFICE OF ENGINEER OF TESTS

REPORT NO. 37664

St. Paul, Minn., February 11th, 1927 19

To Mr. E. M. Grimo, Engr. of Water Service

ANALYSIS OF WATER

Sent in by

Station Auburn, Wash.

Test Request No.

Source of Supply City Supply direct from waste way of hydraulic ram

		Grains Per U. S. Gallon	
Incrusting Solids Producing Scale	Oxides of Silica, Iron, and Aluminum	-	
	Calcium Carbonate	.41	
	Magnesium Carbonate	.91	
	Calcium Sulphate	-	
	Magnesium Sulphate	-	
	Calcium Chloride	-	
	Magnesium Chloride	-	
	TOTAL INCRUSTING SOLIDS		1.32
Non-Incrusting Solids Producing Foaming	Alkali Carbonates	.87	
	Alkali Sulphates	.73	
	Alkali Chlorides	.60	
	Alkali Nitrates	-	
	TOTAL NON-INCRUSTING SOLIDS		2.20
	TOTAL MINERAL SOLIDS		3.52

REMARKS: Incrusting Rating - Good
Foaming Rating - Good

DW(3)
CC--Mr. Yager
Mr. Stotler, Dist. Engr., Seattle, Wn.

P. G. BURNHAM

Engineer of Tests.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

A. R. Cook, Seattle

Saint Paul, February 1, 1927

Abdomen Has sample of water for analysis from Auburn been forwarded to Burnham G-70

L Yager

2013

Saint Paul, January 31, 1927.

Mr. A. V. Brown:

Your letter of the 25th about Auburn water supply.

Claim has been made that the samples we received and analyzed were not truly representative, and we therefore arranged to obtain additional samples of the City supply. I will advise you further as soon as these have been received and reported on.

Chief Engineer.

HES:H

Seattle, January 25, 1927.

Mr. H. E. Stevens:

My letter December 15, enclosing papers with regard to officials of the City of Auburn approaching us with an offer to furnish us water at that point.

Can you at this time let me have your opinion as to how the City supply compares with our supply is so far as usability is concerned, e tc.

A V Brown

Proposed reply referred to Mr
Yager who is investigating further
with Mr Cook

6303

On Line - On Yellowstone Divn.,
Jan. 17, 1927.

Mr. A. R. Cook:

Referring to your letter of Jan. 12, enclosing Assistant Engineer Adams' report on the water supply at Auburn:

I believe that Mr. Adams has covered this in a very creditable manner. The only uncertain element is that concerning the definite complete analysis of the new city supply. Inasmuch as the quality of the water was the chief recommendation on the part of the city authorities for selling water to us, we should make an analysis of the new supply.

Kindly arrange to have Mr. Adams take this sample and send it to Mr. Burnham, at Como, for analysis, advising me when the sample goes forward.

LY:EES

Asst. Chief Engineer.

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

St Paul Minn Jan 12 1927

A R Cook
Seattle

Please hurry reply my Y16 Dec 30th Auburn water supply G8

L Yager

Re: Securing drinking
water from the City of
Auburn, Wash.

Seattle, Wash.,
January 12, 1927.

1003-18

Mr. L. Yager,
Asst. Chief Engineer,
Saint Paul, Minn.

Pursuant to your telegram of December 30, I am enclosing to you herewith copy of Asst. Engineer Adams' report on the cost of water supply at Auburn, Wash.

The matter of making up this statement has been delayed account of other work apparently more important. I have not had an opportunity to check up the figures nor have I the data from which to take them but it seems to me that Mr. Adams' estimate of the annual cost of operating the present plant at the Auburn terminal is generously high. In the body of the report you will note that 16% of the power used by Auburn is arbitrarily charged to the pump. I have no information as to how this percentage is arrived at nor by whom it was established. It seems to me, however, that it is too high.

A. P. Cook

ARC:L
Encl.

Seattle, Wash. Jan. 6,1927.

Mr.A.F.Stotler,
District Engineer,
Building,

Dear Sir:-

Referring to your letter of Jan. 3rd re securing water from the City of Auburn for general uses at the Roundhouse and returning Mr. Cook's letter of the 3rd.

In investigating this matter I have come to the conclusion that for us to take water from the city (from an economical standpoint) we would have to get water from them at an equal or cheaper rate than it is now costing us to operate the pumping plant or else on the assumption that the city water is so much better than ours that that we could reduce our Roundhouse operating costs enough to pay for any additional cost of the water.

Taking up the last proposition first-- viz investigating the quality of the City supply from their new supply. I find that Mr. Bartles had a sample of water sent to Mr. Burnham the latter part of last October. This water came from the tap at the depot and was from the city mains but I do not think that it came from the new Coal Creek supply .The city now has two supplies , one the old one from the west and the other the new from Coal Creek supply on the east. It is not probable that the water from the new supply gets as far west as the depot. To adequately settle this point a new sample should be taken for analysis, and this sample ~~XXXXXX~~ be obtained at the new City rams. The analysis of the sample of city water that was obtained at the depot does not quite come up

to our well water. The City water having 5.63 grains of incrusting solids per U.S. gal while in several samples of our well water the incrusting ~~XXXX~~ solids varies from 4.06 to 5.04 .

The former gravity supply that we had at Auburn was almost perfect for boiler uses and you will remember that when we started using the new wells there was a great deal of criticism about the water. It was finally found that most of the trouble was due to the failure of the oil separator at the stationary boilers to properly function. It is true that it is now necessary to wash out the switch engines twice a month instead of once as formerly , but Mr. McFee advises me that this has been done without increasing the force.

If you wish to have a further analysis of the city water made please advise - however it does not seem necessary as we are operating with the present water at no additional cost over when we were using practically perfect water.

Taking up the other proposition- viz the ability of the City to furnish us cheaper water than we are getting at present.

I took this matter up with Mr. Fallgren, the City Engineer, but he would not even give me an estimate of what the city would charge us, he said that he expected that the N.P would make a ~~X~~ bid of what it was worth to us , then the city would come back with a counter proposition and that an agre e able compromise could be reached. He said that the city would be willing to let us use the water free for 3 months,or lomger if necessary, to let us determine the actual value of their water to us. I however do not advise this as an analysis would show the respective merits of the water and so in view of the argument in the 2nd paragraph above.

Regarding the cost to us of operating the present plant- The entire roundhouse and shops at Auburn is on one elec meter and at present 16% of the cost of the current XXX is arbritrarilly charged against the pumping plant. XXXXXXXX This amounts to between $40.00 and $50.00 per month. It would pay to have a meter installed for something like a year so that any argument of this kind could be effectively settled in the future. I am unable to say definitely how much current is used or how much water is used either. However assuming that 250,000 gals are used per day or approximately 1,000,000 cu ft per month, (this assumption is probably fair for a busy time ,but not for this month as business in not good right now, this assumption might even be said to approximate an average) current would cost us about $40.00 per month. Attached is an estimate of the annual cost of operating the pumping plant on the above assumption. Depreciation, interest, repairs labor, and cost of electricity are all included.

If we were to take water from the city it would be necessary to maintain the present plant for a reserve , inasmuch as we now have it and therefore the only cost that we would be eliminating are the last two items which are cost of electricity and services of XX attendant a total of $542.00 per year or about $45.00 per month. To supply us water at an equal rate to what we would save the city would therefore have to supply us with water at the rate of 0.045 per 1000 c. ft or 0.006 per 1000 gals. Their present rate XX is a sliding scale up to 20,000 c. ft beginning at 0.15 per 100 c. ft and ending at 0.04 per 100 c. ft for water in XXXX xcess of 20,000 c. ft per month. With 20% off to industrial con-

rns.

I doubt that we could obtain a rate fromthe city that would be as low as our total cost including depreciation and interest which is shown on my attached estimate to be 0.1545 per 1000 c. ft or 0.0206 per 1000 gals.

If our plant were to remain idle it would probably depreciate slightly faster than shown on my estimate, but for comparative purposes my estimate will do .

If we were to take water from the city they could connect up so as to give us an adequate supply from the present mains without much expense. Very little pipe line would need to be laid.

The quality of water from wells has been known to change from time to time and our water may get better or worse , so,being pessimestic, we may at some time or other need city water. I understand that Mr. Herider has for the last two or three months been sending to Mr. Burnham monthly samples of water from Auburn and that this is to be kept up for a year. Mr. Burnham can probably tell now how our water is standing up.

From the above it appears that the only consideration is cheapness and that the city can not possibly supply us with water any cheaper than we are now getting it, therefore would recommend that we continue the use of our wells.

Yours truly,

W R Adams

Asst. Engineer.

Estimate of annual cost of operating the Auburn Pumping Plant on basis of using 250,000 gallons per day or approximately 1,000,000 cu.ft. of water per month.

Depreciation & Interest included

Total cost of plant $12,500.00 - AFE 396-24

6% Interest on $12,500.00	$ 750
Depreciation on pump, motor, wiring, $1436 ÷ 15 yrs.	96
" on Bldg. pipe line, wells, etc. $8215 ÷ 30 yrs.	274
" on concrete pit, excavation etc. $2849 ÷ 50 yrs	57
Repairs on motor & pump	60
Repairs on Building & pipe line	75
Services of Attendant 2 hrs. a week @ .60	62

Cost of Electricity

.01 per K.W.

670 gals. per min. = 6 hours per day

$$\frac{12 \times 30 \times 6 \times 25 \times .746}{\text{(Mo) (Dy) (Hr) (hp) (KW)}} \times .01 = 480$$

.88 (Efficiency of motor)

Total annual cost	1854

Cost per 1000 cu.ft. = $0.1545
" " 1000 Gals = 0.0206

gwa
1-6-27

N. P. 1386 12-24

TELEGRAM—BE BRIEF

TIME FILED

M.

Saint Paul, Dec. 30, 1926.

A. R. Cook,

Seattle, Wash.

See General Superintendent's file in connection with city offer to furnish water at Auburn. Please check up by months for year cost of electric current for our own pumping if separate meter is used. If not, advise method of apportioning current chargeable to pumping water. What other maintenance and depreciation charges should we figure against our own plant. Y-16.

L. Yager.

Saint Paul, December 29th, 1926.

Mr. A. V. Brown:

Returning file received with your letter of December 15th about suggestion of the City of Auburn that they furnish the Railway Company with its water supply at that point.

I am attaching copy of Mr. Grime's letter to Mr. Yager of the 24th and Mr. Yager's letter to me of the 28th, together with comparative analysis made of the present Railway water supply and the City water supply. There is no practical difference in the quality of the water from the standpoint of boiler maintenance and the matter may therefore be decided on the basis of cost to the Company of water from the two sources.

The cost to us for furnishing water from the present wells, including maintenance and depreciation, runs between $40.00 and $50.00 per month. If the City are willing to furnish us an un-limited supply at the price of, say, $45.00 per month, I recommend the proposition be accepted.

Chief Engineer.

enc

Ritsert

6303

Saint Paul, Dec. 28, 1926.

Mr. H. E. Stevens,

Chief Engineer.

Referring to the attached file concerning the suggestion that we purchase water from the City of Auburn, received with your letter of Dec. 22:

Next attached you will find Mr. Grime's letter of Dec. 24, together with print of a part of the Auburn station plat.

Differences in analyses such as are shown for the Northern Pacific wells are quite normal in supplies of this character. There is nothing of practical value in the difference in the quality of the city water as compared with the water from the Northern Pacific wells, and the quality of the water, therefore, cannot be a factor in the suggested change as a source of supply.

The city water supply is obviously entirely satisfactory from the standpoint of quality. The change to city supply, if made, should be based on a flat rate per month equal to the Northern Pacific cost of furnishing its own supply rather than upon a rate per thousand gallons of water used.

Ordinarily a suggestion of this kind would be altogether out of place, but since the city water is a gravity supply and there is an abundant surplus, any return which the city obtains from a sale of the surplus will be that much net revenue. The Northern Pacific supply is satisfactory, both from the standpoint of quality and cost.

L. D. Sayre

LY:FES
Encl.

Asst. Chief Engineer.

St. Paul, Minn., Dec. 24th, 1926.

Mr. L. Yager:

Replying to your letter of December 23rd and returning file concerning suggestion that we purchase water from the City of Auburn:

Our cycle of analyses for Auburn locomotive water has just been started and so on the analysis sheet attached I have shown the analysis of the water from our wells when the present plant was first placed in operation about September, 1925, and analysis of the water November 15th, 1926 and, for comparison, the analysis of the city water made December 4th, 1926. It may be noted that there seems to be a tendency for the water from our wells to decrease in quality, but on the whole there is very little difference in the quality of these two waters for locomotive use as they stand at the present time.

There is attached hereto a plat of the portion of Auburn terminal in the vicinity of our water facilities from which it may be noted that there is an old connection between our old 10-inch wood supply main and the 4-inch city main. If we should decide to use city water it would probably be advisable to lay 150 feet of new main for a connection between the city main and our present 6-inch discharge pipe near where it enters the storage tank. If a pressure as high as 60 pounds is carried on the city mains a 4-inch connection to our tank would give approximately 21000 gallons per hour as compared to our present

pumping capacity of 36,000 gallons per hour. This quantity might be sufficient for our needs and could be easily regulated by an automatic float valve in the tank. If such main is necessary, the cost of this and the float valve would be in the neighborhood of $300.00. Unless the city has a larger main in the near vicinity it seems to me that the amount of water we might require at certain times of the day will seriously interfere with the city distribution system in that locality and I believe this phase of the matter should be more carefully gone into on the ground.

Under the circumstances, if the expense to us will not exceed $300.00 for new connections, etc. and the city would like to furnish us water at a flat rate of about $40.00 per month, I would recommend using the city water. Possibly I should add in this connection that there are no evidences of corrosion in the boilers at Auburn using our well water and the only complaint from the local people is with regard to the slight increase in the amount of sludge which collects in the boilers in a thirty-day period as compared with what they formerly had with the water from the old gravity supply. As far as the use of city water is concerned, this sludge accumulation would be slightly higher.

E M Greene

EMG:HEJ Engineer of Water Service.

WATER ANALYSES - AUBURN, WASHINGTON.

Date	Oxides and Organic Matter	Carbonates	Sulphates	Alkali Carbonates	Alkali Sulphates	Alkali Chlorides	Total Incrusting Solids	Total Non-Incrusting Solids	Total Mineral Solids
N.P.Wells 9/4/25	Trace	2.45	1.61	-	-	0.48	4.06	0.48	4.54
" " 11/15/26	-	2.04	2.76	-	2.04	1.90	4.80	3.94	8.74
City Water 12/4/26	0.70	2.65	2.28	-	-	0.80	5.63	0.80	6.43

Office of Engineer of Water Service
Saint Paul, Minnesota
December 24, 1926

6303

On #4, Yellowstone Divn.,

December 22, 1926.

Mr. L. Yager:

Herewith file about suggestion that we purchase water from the City of Auburn. Wish you and Mr. Grime would check this over and let me have your recommendations.

Chief Engineer.

enc

HES:h

6303

6

Seattle, Washington.

December 15, 1926.

Mr. H. E. Stevens:

I enclose somw papers in regard to officials of the City of Auburn approaching us with an offer to furnish us water at that point. You will note an analysis of city water and also of our water. Apparently it is costing us about $50.00 per month to maintain and operate our plant with an estimated consumption of 8,000,000 gallons per month or .00625¢ per thousand gallon. The City have not given us any idea of what they would charge but if they have a considerable surplus it is probable that they would name an extremely low price and that they could do this because of our quantity consumption.

With return of papers I would be glad to know how you feel the City supply compares with our supply in so far as usability is concerned, etc.

Yours truly,

N° 2

N.P.R.

PUGET SOUND DIVISION

AUBURN

KING CO. WASH

Sec. 24-25+36 T21NR4E W.M.

Office Engr. M. of W. Tacoma Wash.

Scale 1"=100' Nov. 28, 1913

Rev. 8-14-26

Plat compiled from
G.A. Kendrick's map of July, 1911
T.N. Buchanan's notes of Nov. 26, 1913.

R.W. checked by R.W. Dept. St Paul May 23, '14

Revised as to all street designations Nov. 14, 1921.

Key to Pipe Lines
Sewer shown thus
Water "
Air "
Steam "

N

Pole 38+41 · Pole 39+31 · Pole 39+66 · Pole 40+67 · Pole 41+12 · Pole 41+66 · Pole 42+67 · Pole 42+85 · Pole 43+66 · Pole 44+65 · Pole 44+81 Cal. · Pole 45+02 · Pole 45+01 52 out · Pole 45+66 · Pole 46+32 · Pole 46+70 · Pole 47+60 · Pole 47+66 · Pole 48+65 · Pole 48+88 · Pole 49+69 · Pole 50+17 · Pole 50+59 · Pole 51+15 · Pole 52+70 · Pole 53+69 · Pole 54+01 · Pole 54+68 · Pole 55+38 · Pole 55+70 · Pole 56+57 · 2 out · Pole 56+89 · Pole 57+89 · Pole 59+14 · Pole 59+70 · Pole 60+82 · Pole 61+70 · Pole 62+20 · Pole 63+00

N.P. Pole Line 7

30+78 Rail R. 450+96 — 22 — 31+22 4-Sty. Box — 31+40 Sw. Box

Cripple Yard · Engine Turnaround · Turntable Spur #1 · Turntable Spur #2 · Coal Spur 23 & H.B. to End · Thoroughfare Yard Trk #18 · Caboose Track · Engine Run Around · Box Car Bodies · Repair Tracks Shelter Shed 460x30 · Lettuce Shed 100 · Mill Office · Board Fence · 16' Gate · Office · Grinding Mill · Saw Mill · Shed · Bunk Ho. · Hose Ho. · Oil Ho. · Pump Ho. 50000 Gal. Oil Tank · Oil Sump 14,000 Gal. Well #10 · 160,000 Gal. Water Tank · Platform · Wash Room & Shower Bath · Boiler · Coal Shed · Machine Shop · Store · Supply Shed P.S. & P. Dept. · Abandoned Fountain · Lead Track 1125 · Cinder · Driveway Meter Box · Taper Paving · Tract A · Commercial Bldg. · Car Shelter Shed · Platform · Oil Ho. · Pump Ho. · Sheds · Fire Hyd. · Sprinkler Valve · Water Meter · Gasoline Tank · Coal Pockets · Trestle 206.2' · Sewer Connection · Manhole · Catch Basin · Flush Tank · Sewer Co. Town Line

2½" Air Main · 4" Main · 6" V.T.C. Pipe Sanitary Sewer · 8" Sewer · 15" V.T.C. Sewer · 7" Steam Main Cond. & Trench · 4" Air Main · 2" Water Main · 2" Hose Conn. · 2" Hose Conn. Supplied with 2" Hose Conn.

Ladder Trk. · Ladder Trk. #2 · Thoroughfare Yard Trk. #18 · Engine Turnaround · Turntable Spur #1 · Turntable Spur #2 · Coal Spur 23 & H.B. to End · Box Car Bodies · Repair Tracks Shelter Shed 460x30 · Lettuce Shed 100 · Mill Office · Board Fence · 16' Gate · Office · Grinding Mill · Saw Mill · Shed · Bunk Ho. · Hose Ho. · Oil Ho. · Pump Ho. 50000 Gal. Oil Tank · Oil Sump 14,000 Gal. Well #10 · 160,000 Gal. Water Tank · Platform · Wash Room & Shower Bath · Boiler · Coal Shed · Machine Shop · Store · Supply Shed P.S. & P. Dept. · Abandoned Fountain · Lead Track 1125 · Cinder · Driveway Meter Box · Taper Paving · Tract A · Commercial Bldg. · Car Shelter Shed · Platform · Oil Ho. · Pump Ho. · Sheds · Fire Hyd. · Sprinkler Valve · Water Meter · Gasoline Tank · Coal Pockets · Trestle 206.2' · Sewer Connection · Manhole · Catch Basin · Flush Tank · Sewer Co. Town Line

T. 21 N. R. 4 E.

A COUNTY ROAD

S. 5TH ST.

TERMINAL PARK ADD. 1 · TERMINAL PARK ADD. 2

HART'S 1ST ADD. 4 · HART'S 1ST ADD. 3 · HART'S 1ST ADD. 2

YOUNGS FIRST ADD. 2

14th ST. S.E. · 13th ST. S.E. · 12th ST. S.E. · 11th ST. S.E. · 10th ST. S.E. · 9th ST. S.E. · 8th ST. S.E. · 7th ST. S.E. · 6th ST. S.E.

6303

St. Paul, Minn., January 27th, 1926.

Mr. L. Yager:

Your letter of October 22nd with reference to Auburn water supply.

I was at Auburn January 19th to inspect the water station facilities and found everything in first class shape and the operating officers well satisfied with conditions. Mr. Alex McPhee, Engine House Foreman, stated that they have practically no trouble from scale in the power plant boilers. These boilers are washed out once a month and all they find in the way of scale is a small amount of brown or grey fine silt. The first time they washed boilers after using water from the new wells the silt accumulation was about 3/16 of an inch thick but the last time they washed, this accumulation was about 1/16 of an inch. It is easily removed by washing.

Apparently this fine silt is being drawn from within the gravel bed and it is gradually being eliminated by the pumping process. Mr. McPhee is going to send me a sample of this silt the next time they wash boilers.

The wells seem to be holding up perfectly and there is no evidence of any subsidence of the surrounding ground. The pumping machinery is automatic in operation and requires no attention other than occasional oiling.

H.E.Ellis

To write in connection with Yager's letter dated 22-26

EMG:HEJ.

E.M.Grimm
Engineer of Water Service.

1/27/26

6303

Saint Paul, October 22, 1935.

Mr. L. Yager:

I am attaching copy of print dated September 19, 1934, giving log of the two wells drilled last year for Auburn water supply.

I suggest you have Mr. Grime familiarize himself with the correspondence covering the conditions in connection with the installation of these wells and the pumping equipment, and he should check up from time to time on the performance of these wells.

Chief Engineer.

encl.

HES-ar

Form 821 6-12-24 1M

NORTHERN PACIFIC RAILWAY CO.

OFFICE OF ENGINEER OF TESTS.

6303

REPORT NO. 32886

St. Paul, Minn., September 4th, 1925 19

To Mr. A. F. Stotler, District Engineer, Spokane, Wn.

ANALYSIS OF WATER

Sent in by A. F. Stotler Station Auburn, Wash.

Test Request No. Source of Supply No. 2 well

		Grains Per U. S. Gallon	
Incrusting Solids Producing Scale	Oxides of Silica, Iron, and Aluminum	0.20	
	Calcium Carbonate	1.95	
	Magnesium Carbonate	1.25	
	Calcium Sulphate	1.31	
	Magnesium Sulphate	-	
	Calcium Chloride	-	
	Magnesium Chloride	-	
	TOTAL INCRUSTING SOLIDS		4.71
Non-Incrusting Solids Producing Foaming	Alkali Carbonates	-	
	Alkali Sulphates	-	
	Alkali Chlorides	0.57	
	Alkali Nitrates	Trace	
	TOTAL NON-INCRUSTING SOLIDS		0.57
	TOTAL MINERAL SOLIDS		5.28

REMARKS:

Incrusting Rating - Good
Foaming Rating - Good
DW(1)
CC--HES(3)
SZ (2)

H. G. BURNHAM.

Engineer of Tests.

Form 821 6-12-24 1M RP

NORTHERN PACIFIC RAILWAY CO.

OFFICE OF ENGINEER OF TESTS.

REPORT NO. 32885

St. Paul, Minn., September 4th, 1925 19

To Mr. A. F. Stotler, District Engineer, Spokane, Wn.

ANALYSIS OF WATER

Sent in by Mr. A. F. Stotler Station Auburn, Wn.

Test Request No. Source of Supply No. 1 well

		Grains Per U. S. Gallon	
Incrusting Solids Producing Scale	Oxides of Silica, Iron, and Aluminum	1.05	
	Calcium Carbonate	1.25	
	Magnesium Carbonate	1.14	
	Calcium Sulphate	1.60	
	Magnesium Sulphate	-	
	Calcium Chloride	-	
	Magnesium Chloride	-	
	TOTAL INCRUSTING SOLIDS		5.04
Non-Incrusting Solids Producing Foaming	Alkali Carbonates	-	
	Alkali Sulphates	-	
	Alkali Chlorides	0.48	
	Alkali Nitrates	Trace	
	TOTAL NON-INCRUSTING SOLIDS		0.48
	TOTAL MINERAL SOLIDS		5.52

REMARKS: Incrusting Rating - Good
Foaming Rating - Good

DW(1)
CC--HES(3)
SZ (2)

H. G. BURNHAM.

Engineer of Tests.

Form 821 6-12-24 1M RP

NORTHERN PACIFIC RAILWAY CO.

OFFICE OF ENGINEER OF TESTS.

REPORT NO. 32884

St. Paul, Minn., September 4th, 1925 19....

To Mr. A. F.Stotler, District Engineer, Seattle, Wn.

ANALYSIS OF WATER

Sent in by A. F.Stotler Station Auburn, Wash.

Test Request No. Source of Supply Taken from pump while operating normally pumping from both wells

		Grains Per U. S. Gallon	
Incrusting Solids Producing Scale	Oxides of Silica, Iron, and Aluminum	Trace	
	Calcium Carbonate	1.57	
	Magnesium Carbonate	0.88	
	Calcium Sulphate	1.61	
	Magnesium Sulphate	-	
	Calcium Chloride	-	
	Magnesium Chloride	-	
	TOTAL INCRUSTING SOLIDS		4.06
Non-Incrusting Solids Producing Foaming	Alkali Carbonates	-	
	Alkali Sulphates	-	
	Alkali Chlorides	0.48	
	Alkali Nitrates	Trace	
	TOTAL NON-INCRUSTING SOLIDS		0.48
	TOTAL MINERAL SOLIDS		4.54

REMARKS: Incrusting Rating - Good
Foaming Rating - Good

DW(1)
CC--HES(3)
SZ (2)

H. G. BURNHAM,
Engineer of Tests.

Form 821 6-12-24 1M RP

NORTHERN PACIFIC RAILWAY CO.

OFFICE OF ENGINEER OF TESTS.

REPORT NO. 32883

St. Paul, Minn., September 4th, 1925 19

To Mr. A.F. Stotler, District Engineer, Seattle, Wash.

ANALYSIS OF WATER

Sent in by A. F. Stotler Station Auburn, Wash.

Test Request No. Source of Supply Supply line at roundhouse

		Grains Per U. S. Gallon	
Incrusting Solids Producing Scale	Oxides of Silica, Iron, and Aluminum	0.35	
	Calcium Carbonate	1.57	
	Magnesium Carbonate	0.87	
	Calcium Sulphate	1.54	
	Magnesium Sulphate	-	
	Calcium Chloride	-	
	Magnesium Chloride	-	
	TOTAL INCRUSTING SOLIDS		4.33
Non-Incrusting Solids Producing Foaming	Alkali Carbonates	-	
	Alkali Sulphates	-	
	Alkali Chlorides	0.48	
	Alkali Nitrates	Trace	
	TOTAL NON-INCRUSTING SOLIDS		0.48
	TOTAL MINERAL SOLIDS		4.81

REMARKS: Incrusting Rating - Good
Foaming Rating - Good

This sample sent in to replace sample taken from tank which was lost in transit due to broken jug.

DW(1)
CC--HES(3)
SZ (2)

H. G. BURNHAM.

Engineer of Tests.

Re: Pumping plant at
Auburn.

6303

Seattle, Wash.,
June 23, 1925.

Mr. H. E. Stevens,
Chief Engineer,
St. Paul, Minn.

I hand you herewith for your files one set of negatives from plans of wells and pumping plant at Auburn, Washington, as constructed under AFE 396 of 1924.

Yours truly,

A. R. Cook.

MJW:C

encl.

noted B.B. 6/30

BB
Trouble
J. M. P. to file 6/29

Reg.
Negatives filed
#336-2 J.M.S. J.M.

Re: Test of water from
Auburn, Wash.

1 ~ 6303

Seattle, Wash.,
June 19, 1925.

1003-18

Mr. H. E. Stevens,
Chief Engineer,
Saint Paul, Minn.

Dear Sir:-

I am enclosing to you herewith copy of health report made by State Sanitary Engineer, Department of Health, on the water from the Auburn wells for drinking purposes.

You will note that the water is of the best quality for that purpose as far as any contamination is concerned.

Yours truly,

A. R. Cook

ARC:L
Encl.

BB with 1/1 6/24 noted B.B. 6/25

COPY

STATE OF WASHINGTON
DEPARTMENT OF HEALTH

Paul A. Turner M.D.
Director of Health

220 Douglas Building
Seattle, Wash.

Report on Sample of Water received 6/10/25

For
A. F. Stotler
917 L. C. Smith Bldg.
Seattle, Washington

Laboratory No. W 568 Sample Taken 6/10/25

Source: 2 wells, pump. N. P. Auburn pump plant

Result: B. Coli Group . . . . . 0 per 100 c.c.

Total 37° C. Bacteria . . . . . 1 per c.c.

Total 20° C. Bacteria . . . . . 0 per c.c.

This water does . . . . conform with the U. S. Bacteriological Standard for drinking water.

Analysis completed: 6/12 - 1925 by G. S. /s/ A. M. SIMPSON, M.D.
Chief of Laboratory.

The laboratory examination determines the presence or absence of pollution at the time of sampling.

Water containing more than 2 B. Coli per 100 cc. or more than 100 37° C bacteria per c.c. must be considered unsafe, unless the Sanitary Survey data shows definite reasons wherefore such excess is belived to be without sanitary significance.

REMARKS

Good

/s/C. E. Dorisy, Sanitary Engineer.

6303

St. Paul, Minn., March 17, 1925.

Mr. A. R. Cook,
Asst. Chief Engineer,
Seattle, Wash.

Dear Sir:

Referring to your letter of January 14th in regard to material for Auburn well on ED requisition 1165.

Material due on requisition H-36604 was shipped complete February 2nd.

Yours truly,

Chief Engineer

REC:wp

m

ME-663

[redacted].H.E.Stevens:

Referring to your letter of Jan.17th regarding material ordered on ED-1165 covering electrical material for Auburn Well.

The material due on requisition H-36604 was shipped complete Feb.2nd.

C.C.K

3/14/25

L

6303

St. Paul, Minn., Feb. 21, 1925.

Mr. A. R. Cook,
Asst. Chief Engineer,
Seattle, Wash.

Dear Sir:

Referring to your letter of January 14th in regard to material for Auburn well on ED requisition 1165.

Material due on GSK 17845 was shipped complete by Crane Company on February 11th.

Yours truly,

Chief Engineer

REG:wp

ME-663

6303

Mr.H.E.Stevens:

Referring to your letter of Jan.17th, regarding material ordered n ED-1165 covering electrical material for Auburn Well.

The material due on G"k-17845 was shipped complete by Crane Co., on Feb.11th.

C.C.K.

2/19/25

L.

St. Paul, Minn., Feb. 5, 1925.

Mr. A. R. Cook,
Asst. Chief Engineer,
Seattle, Wash.

Dear Sir:

Referring to your letter of January 14th regarding material ordered on ED-1165 for Auburn Well.

See my letter of January 28th advising you as to material due on ST-36592 having been forwarded. I am now advised that the 10 x 28" Aux. reservoir due on B-36591 was shipped January 31st, in N. P. 17266.

Yours truly,

Chief Engineer

REG:wp

ME-663

Mr.H.E.Stevens:

Referring to your letter of Jan.17th, regarding material ordered on ED-1165 covering electrical materia for Auburn Well,

The 10x28" Aux.reservoir due B-36591 shipped Jan.31st in N.P.17266.

C.C.K.

2/5/25.

L.

St. Paul, Minn., Jan. 28, 1925.

Mr. A.R. Cook,
Asst. Chief Engineer,
Seattle, Wash.

Dear Sir:

Referring to your letter of January 14th, in regard to material for Auburn Well on ED-1165.

All material due on ST-36592, was forwarded January 8th in N.P. 40401. The balance of material due on the various requisitions you mention is being rushed all possible.

Yours truly,

REG:wp

Chief Engineer.

ME-663

Mr. W.E. Stevens:

Referring to your letter of Jan17th, regarding material ordered on ED-1165 covering electrical material for Auburn Well.

All material due on ST-36592 was forwarded Jan8th in N.P.40401, and balance of material due on various requisitions being rushed all possible.

Will advise further.

C.C.K.

1/26/25
L.

FORM 1386

Telegram—Be Brief

Time Filed

M.

6303

St. Paul, Minn., Jan. 21, 1925.

A R Cook

Seattle, Wash

L-13 Pump shipped January 15th M-26

H E Stevens

P-806

[redacted] H.E.Stevens:

Referring to your letter of Jan.19th, regarding pump for Auburn Water Station due on SK-15865.

Wish to advise material in question was shipped Jan.15th by Alan G Cary & Co.

C.C.K.

1/21/25

L.

Saint Paul, January 19th, 1926.

Mr. C. C. Kyle,
General Storekeeper

Dear Sir-

Will you please advise when we may expect pump for Auburn Water Station covered by ED-1091, GSK-15865.

Yours truly,

Chief Engineer.

REG-h

6303

Saint Paul, January 19th, 1925.

Mr. C. C. Kyle-
General Storekeeper

Dear Sir-

Referring to your letter of the 9th, desk 4, in regard to Cook well strainer on GSK-13787:

Assistant Chief Engineer, Mr. Cook, advises that the companion flange was received some time in December but that he omitted to advise of same.

Yours truly,

Chief Engineer.

REG-h

FORM 1386

Telegram—Be Brief

Time Filed

M.

172 cf gi

Seattle jan 17 1925 H E Stevens

Stpaul

When may we expect pump for Auburn Water station L-13.

A R Cook

329pm.

1091-24

GTR 15865

FORM 1386

Telegram—Be Brief

Time Filed

M.

Ja[illegible]19

Jones

Brainerd

Rush all possible material due B-36591, Auburn, advising. ME-663

C.C.K.

cy-H.E.S. Refers to your letter Jan.17th.

FORM 1386

Telegram—Be Brief

Time Filed

M.

Jan.19

Becker

Miss.Str.

Rush all possible material due H-36604 Auburn, advising. ME-663

C.C.K.

cy-H.E.S. refers to your letter of Jan.17th.

FORM 1388

Telegram—Be Brief

Time Filed

M.

Jan.19

Humes

So.Tacoma

Rush all possible material due GT-36592, Auburn, advising.ME-663

C.C.K.

cy-H.E.S. Refers to your letter of Jan.17th.

ME-663

Mr. R.J.Elliott:-

Please hurry material due on GSK- 17845 and advise.

1-19-25

o CCK

cy-HES- Your letter 1/17