

Mechanical Department records. Northern Pacific Railway Corporate Records.

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Version 3
August 20, 2018

Seattle, 4-11-13.

Mr. H. M. Curry,

Mechanical Superintendent, St. Paul.

Dear Sir:-

The Auburn terminal was opened and placed in operation at 12:01 A.M., April 10th, without any commotion whatever, insofar as the mechanical end of it was concerned, and which is commendable on the part of the men who were required to furnish the power, considering that there was not a single hand tool on the job, excepting those taken there by each of the machinists and boilermakers, who were transferred from Seattle, Lester and Ellensburg. Each of these men took their own kit.

Up to the present time I have made the following transfers to Auburn, Seattle Loco. Dept.:-

2	Boilermakers
1	Boilermaker Helper
1	Boiler Washer
1	" " Helper
3	Machinists
2	Wipers
2	Fire Cleaners
2	Cinder Pit Men
1	Sandhouse Man
14	Total

None as yet from Car Department, but expect to transfer about 25 as soon as Schmelz gets his bad orders reduced, which at the present time should come down rapidly, as there is only one freight train, "North Bend Local", coming into Seattle from the north, and the transfers from Auburn. All other freight trains from the north go to Auburn via Belt Line.

Transferred from Ellensburg:-

2	Machinists
1	Boilermaker
2	Outside Laborers
1	Car Inspector
1	1st Class Car Man
1	2d " " "
8	Total

This for the reason that all the heavy locomotive work formerly taken care of at Ellensburg will now be handled at Auburn, also the car situation will be materially improved.

- Lester -

1	Machinist
1	Laborer
1	Wiper

On account of the Auburn-Lester pushers now laying over at Auburn and which I figure has relieved the work at Lester to the extent of these three men and possibly more, I will add that later when Auburn has become well equipped and in running order and adjusted to the new order of things, I will be able to make a further reduction at Seattle of 3 machinists, 2 wipers and one more cinder pit man, and transfer them to Auburn, as 4 more switch crews will be taken off at Seattle in a short time.

In making the above changes, it was not done without first going into the matter thoroughly with the foreman and all concerned, but believe me in making all this preparation to start Auburn, which involved the placing of R.H. and car forces, getting engines and crews to handle the first day's business was no small

job, and there are some other things in connection with this matter that I desire very much to tell you about but not write about it. However, I have felt wholly equal to the occasion and things went off beautifully but strenuously.

The tools in the Auburn shop are all in position with the exception of the 20" lathe, which by the way has not been received, and I have wired Mr. Crosby to trace it. The tools connected up and in operation are as follows: 16" lathe, wet and dry grinder, small drill press, 36" lathe, crank planer, bolt cutter, blower, Watson-Stillman press, punch and shears and pipe cutter. Some of the above have only temporary switches, as the material for making the permanent connections has in some manner become delayed. The following tools will be ready for operation within the next two or three days or as soon as the electric connections and belting arrive: Iron boring machine, wood boring machine, saw and grindstone. The steam hammer was being set today and will probably be four or five days before it is placed in operation. Its blower is electrically connected but as yet there are no forges.

The drop pit rams are in about the same condition as when you saw them, excepting that Mr. Bennet, the bondsman for the contractors who threw up the job, is now personally setting the rams by sinking boiler iron casings in which to set them, and it will be impossible to give any definite date as to when the job will be finished, although he told me today that he (Mr. Bennet)

had succeeded in getting one of the casings placed.

The stationary boilers and Jones stokers are working fine, although the scales for weighing the coal and cinders have not yet arrived, neither am I able to get scales of any kind at Auburn, but expect to have this lined up in a couple of days.

The pumps and piping are in good shape, with the exception of a bad leak where the 10" suction pipes come into the tunnel from the hot well. This is overcome by keeping the water below this point.

The grounds around the buildings are an unsightly mess, as they are strewn with rubbish of every conceivable nature, which will include timbers, lumber, "scrap" piping, concrete mixers, boxes and barrels and rubbish of every kind, but McPhee is after it and is making a little showing. This rubbish was left by the contractors, who it seems left the job very suddenly.

McPhee is R.H. Foreman at Auburn, and as yet I have made no appointment at Ellensburg, but have a great many applications, and the one who looks the best so far is young Cook, who is now night foreman at Tacoma. He is certainly a good looking boy, and from all accounts a good hustler and good mechanic.

Everything on the division is going along good. We have a large number of work trains on the north end and have 4 S-4 engines in work train service out of Sedro Woolley and have about completed a boiler washing outfit at Sedro which will enable me to take care of the boiler washing of nearly all engines tributary

to Everett, Bellingham and Sedro. The S-4 engines had to be taken to Sedro via the G. N. Ry. account of the Snohomish River bridge, which is not considered safe for engines of their heft.

Referring again to Auburn, I have made request for three more of those cluster lights for the outside, as there is but one of these lights and is located at the extreme north end of cinder pit, leaving the space between them and the coal dock in darkness, and I hope you will see your way clear to authorize same, as they are surely needed, as all the water and oil stand pipes are located in the space where there is no light.

The fuel oil station at Auburn tested out all right, and have a small amount of oil in the sump and tank, and I may add that the coal dock is also satisfactory, as we have now unloaded about 10 carloads in the pockets.

The Buckeye engine in the power house is about the only thing that has given much trouble. This on account of some considerable difficulty experienced in getting the required speed regulation. Its speed varies from 5 to 20 RPM, although the lights burn steady and bright and the motors seem to run very steady.

Will write to you again in a few days.

Yours truly,

(Signed) C. S. Larrison

(COPY)

CARBON COPY

Saint Paul, August 5, 1912.

Improvements,
New Terminals.

File 5325.

Mr. W. H. Wilson,

Ass't. to Third Vice-President.

Dear Sir:

Referring to the attached regarding delay in getting plans and specifications for plumbing, heating, piping, location of tools, etc., at new terminals.

It is a physical impossibility to furnish the Engineering Department with the foundation plans and piping details in connection with new apparatus until that apparatus has been purchased, as each tool, engine or air compressor, as the case may be, has its own special foundation and connections.

It is absolutely necessary that the delivery of tools at our new terminals, where little or no protection is afforded, be so timed that they will not be received until we are ready to install them, in order to avoid permanent damage or possible theft of material, and requisitions were made with that end in view, Pasco requisition being made on May 15th, and the requisition for Auburn June 4th.

The purchase of tools from the various manufacturers and jobbers tributary to our line, particularly Coast dealers, has required a much longer time than ordinarily in an effort to satisfy all concerned and obtain best prices possible. It was considered advisable by the Purchasing Department, in which I concurred, that in order to obtain the best possible prices, the order for the Pasco tools be placed at the same time the tools for Auburn were purchased.

The co-operation of the Engineering Department in arranging their plans for foundations and setting the machines, which I believe is handled by contract, should be so arranged as to meet all the above conditions, particular reference being given to delivery and installation of tools at the proper time in order that best results can be obtained.

While, naturally, I regret any inconvenience that the Engineering Department has been subjected to by the action of this Department, I wish it very clearly understood that no pains or efforts have been spared to furnish, as promptly as conditions would permit of, the information and plans required by them.

Yours truly,

HMC R Copy WJB

Mechanical Superintendent.

St. Paul, Minn., July 31, 1912.

AUBURN, PASCO, PARKWATER
Engine Terminals
Improvements 1911-12
Tool Installation

File 5325

Mr. W. C. Smith:-

Referring to your letter of July 10th, enclosing letter from Mr. Perkins under date of July 3d. As you state, it is now well towards a year since the first request was made by your department for necessary information, so that machine-shop layouts for the above mentioned points could be definitely arranged for and finished, as far as the general contractor was concerned, and your position is thoroughly appreciated.

For your information, however, I would like to state that it is a physical impossibility to furnish you with shop tool layouts for any of the places until the tools are purchased, as you, of course, must understand that foundation plans for tools depend entirely on the tools. Further, it would not be a good proposition to start purchasing tools for large important terminals like the above will be without careful consideration of the requirements, and the purchases should not be made too far ahead of the time that the tools will be installed for the reason that inevitable damage would result from their being stored at new terminals where there are no storage facilities to protect them. The orders for new tools for both Auburn and Pasco have just been placed, and, as soon as I can obtain the foundation plans from the builders, I will be very

St. Paul, Minn., July 31, 1912.

AUBURN, PASCO, PARKWATER
Engine Terminals
Improvements 1911-12
Tool Installation

Mr. W.C.S. - 2 - File 5325

pleased to forward you the information necessary.

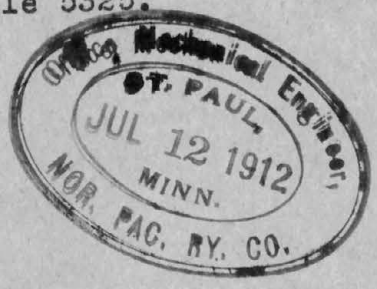
H. M. Curry

6-E

Saint Paul, July 12, 1912.

Pasco-Engine Terminals
Tools installation.
Also Parkwater.

File 5325.



Mr. W. J. Bohan,

Mechanical Engineer.

Dear Sir:

Attached letters from Mr. W. C. Smith and Mr. L. M. Perkins define themselves, relative to tool installation Pasco, and this department's responsibility.

I am anxious to get the desired information for the engineering staff at the earliest possible date. Just as soon as you return from your trip east, I wish to go over this with you.

Yours truly,

H. M. Murray

Mechanical Superintendent.

HMC R

Copy RMC

(COPY)

St.Paul, July 10, 1912.

Mr. H. M. Curry,

Mechanical Superintendent.

Dear Sir:

In further reference to the completion of the Pasco work, I attach herewith copy of a portion of Mr. Perkins letter of the 3rd.

It is now well towards a year since the first request was made for the necessary information so that the machine shop layout could be definitely arranged for and finished so far as the general contractor was concerned. You will note that the presence of the old machine shop at Pasco is interfering with the completion of the building work and the use of the newplant.

In this connection, I wish you would hurry similar information for Parkwater, thereby taking advantage of a little more time, as the buildings at Parkwater are not so far advanced but unless the information as to the machinery layout is obtainable there will, of course, be some delay in completing.

Yours truly,

(signed) W. C. Smith.

(COPY)

Tacoma, Wash., July 3, 1912.

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:

I have asked Mr. Smith to arrange to put in the floors in the roundhouse at once, but as I recently wrote you, the machinery question is the one which will delay occupancy of the new buildings. Deeks, Deeks & Smith cannot complete their contract until the old machine shop is torn down, as it blocks the car shop, and this, in turn, cannot be done until the new machine shop is about ready for occupancy and the machinery in place.

The proposition, as it stand now, is wholly up to the Mechanical Department to get their machinery for the new machine shop, and furnish information for foundations, etc., so that same can be installed.

Yours truly,

(signed) L. M. Perkins,

Engineer of Maintenance of Way.

St. Paul, Minn., July 31, 1912.

AUBURN, PASCO, PARKWATER
Engine Terminals
Improvements 1911-12
Tool Installation

File 5325

Mr. W. C. Smith:-

Referring to your letter of July 10th, enclosing letter from Mr. Perkins under date of July 3d. As you state, it is now well towards a year since the first request was made by your department for necessary information, so that machine-shop layouts for the above mentioned points could be definitely arranged for and finished, as far as the general contractor was concerned, and your position is thoroughly appreciated.

For your information, however, I would like to state that it is a physical impossibility to furnish you with shop tool layouts for any of the places until the tools are purchased, as you, of course, must understand that foundation plans for tools depend entirely on the tools. Further, it would not be a good proposition to start purchasing tools for large important terminals like the above will be without careful consideration of the requirements, and the purchases should not be made too far ahead of the time that the tools will be installed for the reason that inevitable damage would result from their being stored at new terminals where there are no storage facilities to protect them. The orders for new tools for both Auburn and Pasco have just been placed, and, as soon as I can obtain the foundation plans from the builders, I will be very

St. Paul, Minn., July 31, 1912.

AUBURN, PASCO, PARKWATER
Engine Terminals
Improvements 1911-12
Tool Installation

Mr. W.C.S. - 2 - File 5325

pleased to forward you the information necessary.

H. M. Curry

C-H

St. Paul, Minn., July 31, 1912.

AUBURN, PASCO, PARKWATER
Engine Terminals
Improvements 1911-12
Tool Installation

File 8325

Mr. W. C. Smith:-

Referring to your letter of July 10th, enclosing letter from Mr. Perkins under date of July 3d. As you state, it is now well towards a year since the first request was made by your department for necessary information, so that machine-shop layouts for the above mentioned points could be definitely arranged for and finished, as far as the general contractor was concerned, and your position is thoroughly appreciated.

For your information, however, I would like to state that it is a physical impossibility to furnish you with shop tool layouts for any of the places until the tools are purchased, as you, of course, must understand that foundation plans for tools depend entirely on the tools. Further, it would not be a good proposition to start purchasing tools for large important terminals like the above will be without careful consideration of the requirements, and the purchases should not be made too far ahead of the time that the tools will be installed for the reason that inevitable damage would result from their being stored at new terminals where there are no storage facilities to protect them. The orders for new tools for both Auburn and Pasco have just been placed, and, as soon as I can obtain the foundation plans from the builders, I will be very

St. Paul, Minn., July 31, 1912.

AUBURN, PASCO, PARKWATER
Engine Terminals
Improvements 1911-12
Tool Installation

Mr. W.C.S. - 2 - File 8325

pleased to forward you the information necessary.

H. M. Curry

6-E

St.Paul, Minn., January 2, 1912.

G. A. Kenrick, Assistant Engineer, Auburn, Wash.

Two 150 Horse Power Babcock & Wilcox "V.H." type, water tube boilers, with steel vertical headers, 4" tubes 18' long, 42" steam and water drums, 5" steam connections. Safe working pressure 160 lbs. Minimum factor of safety 4-1/2.

AUBURN
ENGINE FACILITIES
COMPTROLLER'S #____

Boilers to be furnished complete, including the following fixtures and fittings:

Water columns fitted with water gauges and gauge cocks,
4" safety valves, "Consolidated", with lever attachments
1-1/2" check and stop valves for feed connections,
3/4" stop valves for cleaning hose,
2-1/2" blow-off valves,
Steam gauges with 12" dials, and
All necessary pipe and fittings for attaching above mountings to boilers.
One boiler to be supplied with a 5" whistle.

Boilers also to be furnished with upper half fronts and necessary wrought iron supporting frames for supporting boilers independent of setting.

The two boilers to be set in one battery and designed to burn low grade, western sub-bituminous or black lignite coal and take the latest type of Jones Under-Feed Stokers.

Manufacturer to furnish Railway Company with the bids, detailed specifications covering tests, description of all material to be supplied, complete setting and erecting drawings, together with design and size of breeching for a 54" by 125' steel stack.

Manufacturer must also furnish all necessary drawings to the manufacturer furnishing the mechanical stoker.

Bids to include the services of an expert erecting engineer to supervise the installation.

Estimated Cost, - - - - - - - - - - - - - - - - $3700.00

St.Paul, Minn., January 2, 1912.

G. A. Kenrick, Assistant Engineer, Auburn, Wash.

Two Latest type Jones Under-Feed Mechanical Stokers complete, including all dead plates, one Jones-Troy Automatic Self-Oiling, Vertical Engine belted to one steel plate 3/4 House Jones Blower of capacity sufficient to operate two 150 horse power Babcock & Wilcox water tube boilers in one setting burning low grade, western sub-bituminous or black lignite coal, necessary air piping, blast gates, lower boiler fronts, belting, automatic feed attachments and engine regulating valve, etc.

A U B U R N
ENGINE FACILITIES

COMPTROLLER'S #____

Manufacturer to furnish Railway Company with the bids, detailed specifications and complete setting and erecting drawings, and to furnish all necessary drawings to the manufacturer furnishing the boilers.

Bids to include the services of an expert erecting engineer to supervise the installation.

Estimated Cost, - - - - - - - - - - - - - - - - $2000.00

Mr. H. M. Curry:

Referring to my memo. Jan. 18th in regard to your requisition 1000, SA 5380.

In connection with lathe on this requisition, Purchasing Agent writes me as follows:

"Referring further to my memo. of the 17th inst, relative to the 24" lathe on SA Req. 5380.
I am just in receipt of a letter from Robinson, Cary & Sands Co. reading as follows:
'We are just in receipt of a communication from the Lodge & Shipley Machine Tool Co. wherein they advise that on account of improvements which they desire to incorporate in the 24" lathe on your order 7-1164 they have delayed making shipment until about April 15th, which we trust will be entirely satisfactory to you!"

O. C. Wakefield

3-26-13
S-s

Office Mechanical Superintendent, ST. PAUL, MAR 27 1913, MINN.

Office Mechanical Engineer, ST. PAUL, MAR 27 1913, MINN., NOR. PAC. RY. CO.

Jan. 14,1913.

Auburn
Improvements 1911-12
VanDykes

Robinson,Cary & Sands Co.,

St.Paul,Minn.

Gentlemen:-

Please refer to my letter of Nov. 13,1912 reading as follows:-

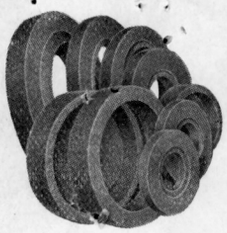
"Will you kindly furnish me with prints of the following machines purchased for our new improvements at Auburn:-

1 Lodge & Shipley 18"x8' Geared Head Stack Lathe, motor driven, S.A. 5380 7-1531.
1 Lodge & Shipley 36"x20' standard pattern head engine lathe motor driven, S.A.5380 7-1281.
1 Lodge & Shipley 24"x12' Geared Head Engine Lathe, motor driven S.A.5380 7-1164
1 Keystone #1 Iron Frame Grind Stone,S.A.5380 7-1165
1 Greenlea, #478-X Double arbor universal saw bench, motor driven ,S.A.5380 7--1165
I would appreciate receipt of these prints at your earliest opportunity."

We have not yet received a VanDyke print for the Lodge & Shipley 24"x12' Geared Head Engine Lathe motor driven ordered on S.A.5380 ,Purchasing Agent's order 7-1164, nor the Keystone #1 Iron Frame Grindstone ordered on S.A.5380 , Purchasing Agent's order 7-1165, nor the Greenlea #478-X Double Arbor Universal Saw Bench, motor driven ordered on S.A.5380, Purchasing Agent's order 7-1165. Rec'd 1/22

Cannot something be done to hurry these Van

E. R. HYDE, PREST. D. T. HOMAN, VICE-PREST. E. H. HAVENS, TREAS. E. E. GRUMMAN, SECY.



THE BRIDGEPORT SAFETY EMERY WHEEL CO.

INCORPORATED

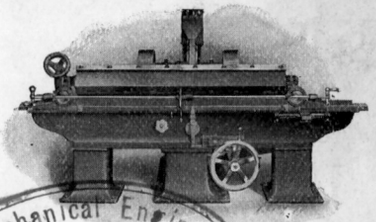
PATENTEES AND MANUFACTURERS

GRINDING WHEELS

GRINDING MACHINERY

POLISHING MACHINERY

BELT AND MOTOR DRIVEN



"Automatic Knife Grinder, Belt and Motor Driven," Sizes 30" to 180"

Over 300 Styles and Sizes of Grinders

ALL ORDERS ARE ACCEPTED WITH THE MUTUAL UNDERSTANDING THAT THEY ARE NOT SUBJECT TO CANCELLATION PROVIDED SHIPMENT IS MADE WITHIN THE TIME SPECIFIED, EXCEPT FOR DELAYS CONTINGENT UPON CAUSES BEYOND OUR CONTROL.

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

BRIDGEPORT, CONN., Aug. 21, 1912.

Office Mechanical Engineer
ST. PAUL
AUG 24 1912
MINN.
NOR. PAC. RY. CO.

H.M. Curry, Supt. Motive Power,
Northern Pacific Ry.Co.,
St.Paul, Minn.

Dear Sir:-

We received a letter to-day from Hallidie Machinery Co. requesting us to send foundation plans on their order #9411 for two #2 A.C. Motor Driven Combination Wet & Dry Grinders, and we are enclosing two blue prints covering same.

Trusting they will meet your requirements, we remain

Yours truly,

THE BRIDGEPORT SAFETY EMERY WHEEL CO.

By H. H. Peck

HP/W

P.S.- Copy of this letter mailed to L. Crassweller, Asst. Purchasing Agt., N.P. Ry.Co., Tacoma, Wash., also to F.G. Prest, Purchasing Agt., N.P.Ry.Co., St.Paul, Minn.

~~Pasco~~

Auburn

Traced See Dwg 17398 Z-4243

August 27, 1913.

Improvements 1911-12
CENTRALIA
AUBURN
PARKWATER
PASCO
Crocker-Wheeler Motors

Mr. G. Willius, Jr.,
Robinson Cary & Sands Co.,
St.Paul, Minnesota.

Dear Sir:

Following is list of motors that are giving trouble on account of Star Delta starters:

PASCO

Crocker-Wheeler Motor No. 137578, 7.5 H. P., 840 R.P.M., 60 cycle, 220 volt, 3-phase driving three spindle boring mill;

Crocker-Wheeler Motor No. 137516, 10 H. P., 840 R.P.M., 60 cycle, 220 volt, 3-phase driving cross cut saw.

CENTRALIA

Crocker-Wheeler Motor No. 151314, 15 H. P., 565 R.P.M., 60 cycle, 220 volt, 3-phase driving tank pump.

We have experienced that by substituting starting compensators in place of the Star Delta starters, the difficulty is entirely removed. Will you kindly arrange and advise me shipping directions of present starters.

Yours truly,

Mechanical Engineer

6-o
Cy-SHR
OCW: The above starters that are giving trouble will be replaced gratis by the Robinson Cary & Sands Co. I will advise you shipping directions for replacement starters as soon as I receive them.

WJB

Saint Paul, October 28, 1913.

Terminal Details
AUBURN, CENTRALIA, PASCO, PARKWATER
Power Plants
Buckeye engine regulation

Mr. A. Ousdahl,
c/o T. J. Cutler,
Spokane, Washington.

Dear Sir:

From your several letters received recently in connection with the inability of the Buckeye experts to obtain regulation on engines at various new terminals, I judge you are working very closely with the Buckeye expert.

This is not what you should do. The matter of regulating these engines is entirely up to the Buckeye people and not to you. I wish you would kindly let them do their own work, keeping away from them entirely until they state the engine or engines have been corrected. It is then plenty of time for you to take action to determine whether they have accomplished anything.

In the meantime you should devote your time to getting blueprints of steam piping layouts corrected up to date and sent in. In connection with this work I wish you would be careful not to do a lot of unnecessary drawing work; simply correct the prints so that the drafting room can take care of corrections on tracings.

Kindly acknowledge receipt and advise if fully understood.

Yours truly,

6-o

Mechanical Engineer

Spokane 8/14-13

Mr. W. J. Rohan
Mech. Eng.
Hear Sir:



The status of the work at Auburn is as follows; all work in connection with the new terminals is complete except the 3 additional yard lights which are 50% finished, owing to not having all the material I had to send the men to another job.

The ice house at Auburn is finished with the exception of hanging the electric and lamps, which so far I have not been furnished.

Yours resp
A. M. Reed

Spokane 8/2-13

Office Mechanical Engineer
ST. PAUL
AUG 7 1913
MINN.
G. N. RY. CO.

Mr. W. J. Bohan
Mech. Eng.
Dear Sir.

The status of the electrical work at Auburn is as follows;

Ice house finished except hanging and connecting up clusters. The clusters and lamps have not yet been received. I have advised A. F. Stotter Supt. B&B, (who made the requisition) to that effect.

I can not say definatly if all other work is completed or not as a few days ago we were short some of the material, for the additional yard lights.

Force for the work, 1 leading wireman, 1 wireman and 2 helpers.

This crew will move to Ellensburg in a day or so, to work on the wiring of the new Air Compressor also lighting of the various buildings.

Yours resp
F. H. Reed

Seattle 6/8 1913

Office Mechanical Engineer
ST. PAUL
JUN 13 1913
MINN.
NOR. PAC. RY. CO.

Mr. W. J. Bohan
Mech. Eng.
Dear Sir:

No work was done at Auburn this week, the status is the same as last reported, that is there is still 5% to do on the machine shop power also 5% on the machine shop lights. Some of this could have been done but as they are not inconvenienced to speak of I did not wish to transport men and tools twice to Auburn, in order to finish up. I see Mr Larsen today and he promises to see them and is fixed up so I can complete the job.

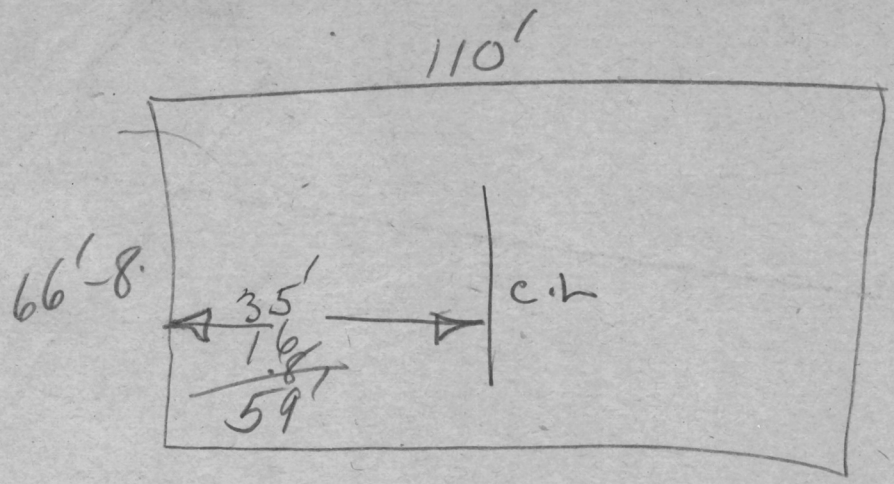
We still have the ice house to wire the material is mostly secured and I will get men there as soon as possible.

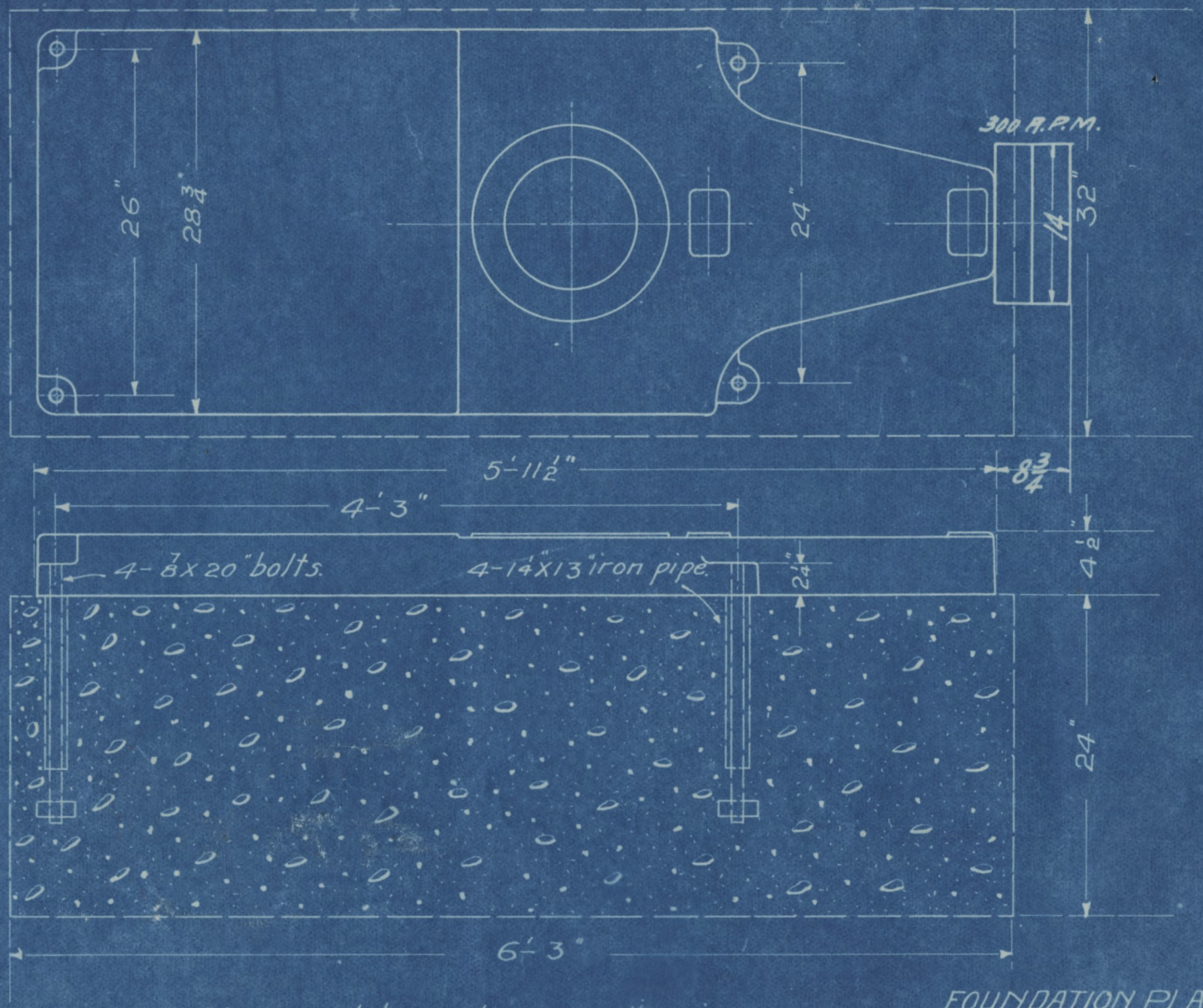
Respectfully
F. D. Reed

Autumn Machine Shop Tools including Car Shop Tools which are to be installed in new machine shop.

one print each 12-26-12 to Smith

✓	1 – 24 x 24 x 24 Crank Planer	✓	Van Dyke Received
✓	1 – Motor driven Grinder wet & dry	✓	2 Blue Prints
✓	1 – 100 Ton Forcing Press	✓	Van Dyke. 2 Prints
✓	1 – Motor driven Double Punch & shears	✓	6 Blue Prints
✓	1 – 800# Sing G.F. Steam Hammer	✓	3 Blue Prints 1 " on Press floor
✓	1 – Electric Forge Blower	✓	15 Blue Prints.
✓	1 – Motor driven Vertical 42" Boring Mill	✓	2 Blue Prints
✓	1 – 36" – 20' Motor driven Engine Lathe	✓	3 Blue Prints
	1 – 24" – 12' " " " "	✓	X no foundation prints floor space 42" wide 13-6 long 12-16-12
✓	1 – 18" x 8' " " " "	✓	2 Blue Prints
✓	1 – 36" Drill Press	✓	2 Blue Prints
✓	1 – 24" " "	✓	3 Blue Prints
✓	1 – 1½" Motor driven Double Bolt Cutter	✓	Van Dyke
✓	1 – Power Pipe Machine	✓	Templates
	1 – Grind stone Complete 48" Dia x 8" face	✓	no foundation
✓	1 – Flue Cutting Machine { To be built at 20 Tac.	✓	no foundation reqd. Dwg. X-885-5058
✓	1 – Three Spindle Boring Machine Car Shop Type	✓	Van Dyke
	1 – Saw Bench.	✓	X


110'
66'-8"
35'
16 8
59'
c.l.



After grout has set, remove the pipe, the space that is left should be filled with cement after machine is placed.

FOUNDATION PLAN.
36 INCH DRILL.
CINCINNATI MACH. TOOL CO.
CINCINNATI, O.
SCALE-1"=1Ft. M.A.U. SEP. 3, 07.

Office Mechanical Engineer
ST. PAUL, MINN.
JUL 30 1912
NOR. PAC. RY. CO.

ROBINSON, CARY & SANDS CO.
RAILROAD
MILL
MINERS
AND
MACHINIST
SUPPLIES
ST. PAUL, MINN.

7-1178

ESTABLISHED 1871. INCORPORATED 1889.

ROBINSON CARY & SANDS CO.,

RAILWAY EQUIPMENT AND SUPPLIES,

FOURTH & WACOUTA STS.

ST. PAUL, MINN. Aug. 12, 1912.

Office Mechanical Engineer, ST. PAUL, AUG 13 1912 MINN. NOR. PAC. RY. CO.

All quotations are made for prompt acceptance, and subject to change without notice. Statements of delivery subject to delays occasioned by strikes, fires or other causes beyond our control.

IN REPLY REFER TO DESK H

Auburn

Mr. F. G. Prest,
Purchasing Agent,
Northern Pacific Ry.,
C I T Y.

Dear Sir:

In reply to your letter of Aug. 8th, Desk #4, referring to your Order #7-1178 covering 24" Drill Press, will say, we are attaching herewith blue print of foundation plans in duplicate. We have written Cincinnati Bickford Tool Co. urging upon them the necessity of making prompt shipment as possible of the above tool, and hope to be able to give you definite advices in day or so.

Yours very truly,

Enclo

ROBINSON CARY & SANDS CO.

By C H Scholer

M. J. Bohan
applies SA-5380
F. G. Prest
8/13/12

NOR. PAC. R.
AU
13
1912
PURCHASING AGENT

St. Paul, Minn., February 28, 1912.

AUBURN and PASCO
Boiler Plant
Improvements 1911-12

Mr. R. M. Woods:-

Referring to the coal analyses you made the other day of Grand Ridge, Ravensdale, Mendota and CleElum screenings. Following is a table showing the comparative analyses made by the Under-Feed Stoker Company of America, which you will note vary considerably from the ones you made:-

	Grand Ridge		Ravensdale		Mendota		CleElum	
	A	B	A	B	A	B	A	B
Moist.	8.50	13.31	2.98	6.11	10.36	14.69	2.20	2.82
Vol.Com.	42.48	36.49	42.17	35.19	40.54	36.31	40.75	36.68
Fx.Car.	39.10	39.58	41.58	39.52	38.88	34.88	48.03	44.46
Ash	9.92	10.62	13.27	19.18	10.22	14.12	9.02	16.04

Our analyses are designated by "A" and the Under-Feed Stoker Company's by "B".

Will you kindly advise how you account for the differences.

W. J. Bohan

Office Mechanical Engineer, ST. PAUL, MAR 1 1912 MINN. NOR. PAC. RY. CO.

This can very easily be accounted for from the fact that when the coal was received it was so moist that it could not be powdered & We were obliged to air dry samples before proceeding with analysis. Samples sent away were taken directly from original coal. RMW 2-/29/12

The Under-Feed Stoker Company of America

Eighteenth Floor Harris Trust Building

Chicago February Twenty-seventh,
Nineteen Hundred Twelve.

CABLE ADDRESS:
"JONESTOKE CHICAGO"
CODES: WESTERN UNION,
MARCONI, BUSINESS,
LEIBERS.

C-96871 B-89840

Northern Pacific Ry. Co.,

Mr. W. J. Bohan, M. E.

Office Mechanical Supt., St. Paul, Minn.

Dear Sir:-

We are in receipt of your favor of the 24th to our Mr. Kenney, and the writer has taken the liberty of answering as he has charge of the analyses of the samples of coal which you sent in. For comparison we give you below our chemist analyses, which we have compiled, so that a careful comparison may be made. You will note that there is a slight difference between the analyses, which is probably due to the difference in the two samples.

Our chemist has been doing our work for the past six years now and we have found him very accurate, and this is the only way we can account for the difference ~~existing~~ except in the B.T.U. values. We anticipate that your chemist reported the B. T. U. value of the dry coal, whereas our chemist always reports the B. T. U. value in the coal as received; that is, on the B. T. U. value on coal containing moisture. We do this, because it is the coal containing moisture that we have to handle, therefore the results must be based not upon dry coal, but upon the coal as delivered.

We see no reason from either of the analysis

DIRECTORS:
LLOYD HARRIS
JAMES L. ROSS
A.W. HOLMESTED
DAVID FASKEN
WILLISTON A. KEEN
FREDERICK W. GARVIN
FRED A. DALEY

OFFICERS:
FRED A. DALEY — PREST. & TREAS.
DAVID FASKEN — VICE PREST.
JAMES L. ROSS — SECY.
FRANK M. SMITH — ASST. MGR.
W. J. KENNEY — CH. F. ENGR.

C-96871 B-89840 Feb. 27, 1912

Northern Pacific Ry. Co.

for changing the design of the plants, and we believe that you will find that the Jones Stokers are going to give you a very successful installation.'

Comparison of Coal Analyses.

	Grand Ridge		Ravensdale		Mendota		Cle Elum	
	Yr.An.	Our An.	Yr.An.	Our An.	Yr.An.	Our An.	Yr.An.	Our An.
Moist.	8.50	13.31	2.98	6.11	10.36	14.69	2.20	2.82
Vol.Com.	42.48	36.49	42.17	35.19	40.54	36.31	40.75	36.68
Fx.Car.	39.10	39.58	41.58	39.52	38.88	34.88	48.03	44.46
Ash	9.92	10.62	13.27	19.18	10.22	14.12	9.02	16.04
B. T. U.	11134	9876	12346	9921	10539	9084	13269	11448

Yours very truly,

The Under-Feed Stoker Co. of America,

Per F. M. Smith

Assistant Manager.



THE BABCOCK & WILCOX CO.

BUILDERS OF

BABCOCK & WILCOX-STIRLING-RUST

WATER TUBE STEAM BOILERS

STEAM SUPERHEATERS MECHANICAL STOKERS

Mechanical Engineer, MAR 5 1912 NOR. PAC. RY. CO.

BRANCH OFFICES

BOSTON, 35 FEDERAL STREET
PHILADELPHIA, NORTH AMERICAN BLDG.
PITTSBURGH, FARMERS DEPOSIT BANK BLDG.
CLEVELAND, NEW ENGLAND BLDG.
CHICAGO, 1207 MARQUETTE BUILDING
CINCINNATI, TRACTION BLDG.
ATLANTA, 1132 CANDLER BLDG.
PORTLAND, OREGON, WELLS-FARGO BLDG.
NEW ORLEANS, 533 BARONNE STREET
DENVER, 435 SEVENTEENTH STREET
SALT LAKE CITY, 313 ATLAS BLOCK
SAN FRANCISCO, 99 FIRST STREET
LOS ANGELES, 321 TRUST BUILDING
SEATTLE, MUTUAL LIFE BUILDING
HAVANA, CUBA. CALLE DE AGUIAR 104
HOUSTON, TEXAS, HOTEL BRAZOS BLDG.

MAIN OFFICE
85 LIBERTY STREET, NEW YORK

WORKS
BAYONNE, N.J. BARBERTON, OHIO

1207 MARQUETTE BUILDING

CHICAGO, ILL. Feb. 29th, 1912.

W. J. Bohan, Mech. Eng.,
Northern Pacific Railway Co.,
St. Paul, Minnesota.

Dear Sir:-

The writer begs to acknowledge receipt of your favor of the 24th on his return to his office this A.M., also have received the samples of coal. The writer has looked over the analyses and find that they are about the same as what we obtain from the average Illinois coal with the exception of the Cle Elum which seems to show a high B.T.U. The boiler settings and furnaces as designed for your Pasco and Auburn plants certainly should give you very satisfactory results with the above coal as fuel as the writer has seen vertually this same arrangement used in many cases for burning Illinois coal and the results certainly have been satisfactory, especially so because of the Dutch oven extension. In Chicago, using a Dutch oven extension, plain grates and hand firing, we are able to reduce the smoke to such an extent that it passes the Smoke Bureau of this City and the results, from the economical stand-point are also satisfactory. In your two cases you have the stokers to assist you on the economy of the boilers as you do not have to open and close the doors for firing and the Dutch oven in connection with your stoker certainly will eliminate all your smoke and when this is done you know that your economy is also improved.

Yours respectfully,

HMB-EAH

THE BABCOCK & WILCOX CO.

H. M. Bohan.

St.Paul, Feb.21,1912

Office Mechanical Engineer, ST. PAUL, FEB 21 1912 MINN. NOR. PAC. RY. CO.

Mr.W.J.Bohan,

Mechanical Engineer.

Dear Sir:

Complying with request in your letter of Feb.17th, I have analyzed the four samples of coal submitted. Results are as follows:

	Grand Ridge	Ravensdale	Mendota	Cle Elum
Moisture	8.50%	2.98%	10.36%	2.20%
Volatile Combustible	42.48%	42.17%	40.54%	40.75%
Fixed Carbon	39.10%	41.58%	38.88%	48.03%
Ash	9.92%	13.27%	10.22%	9.02%
B. T. U.	11134	12346	10539	13269

Yours truly,

R. M. Woods.

Chemist.

St. Paul, Minn., February 17, 1912.

Auburn and Pasco
Improvements 1911-12
Power Plant
Coal Analysis

Mr. R. M. Woods:-

I am forwarding to you today,

A sack of Grand Ridge pea coal, Tag #28624,

A sack of Ravensdale screenings,

A sack of Mendota screenings, Tag #22690, and

A sack of CleElum screenings, Tag #46470

Please make a careful analysis of this coal and submit me a complete report on same. Please do not delay this, as I am anxious to have your report in connection with the new boiler plants which will be installed at various western terminals.

W. J. Bohan

6-E

February 12, 1912.

Improvements 1911-12
Auburn and Pasco

The Under-Feed Stoker Co. of America,
Harris Trust Bldg.,
Chicago, Ill.

Gentlemen:-

Referring to yours of Feb. 2d, file C-96414 B-86498, addressed to Mr. S. A. Williamson, Minneapolis, Minn. It will be satisfactory to set the boilers 23" nearer the wall back of the boilers, making the coal bed 7'11" wide instead of 10', and a space of 8'6" between the coal bed and the boiler fronts with the understanding that it will be satisfactory to use Dutch ovens in connection with these boilers, for the purpose of obtaining better results from the low grades of coal which we propose to burn.

Yours truly,

Mechanical Engineer

6-E

Cy. Mr.S.A.Williamson

WEJ:
Please note the above and give me check at once on the points necessary to take up with Mr.Smith, regarding changes in boiler setting.

W J B

St. Paul, Minn., February 12, 1912.

Improvements 1911-12
Auburn and Pasco

Mr. W. H. Wilson:-

In accordance with your suggestion, I wrote Mr. Boon, relative to the use of Dutch ovens in connection with Babcock & Wilcox water tube boilers and Jones under-feed stokers. The following is a copy of his reply, which is self-explanatory:-

> "The writer begs to acknowledge receipt of your favor of Feb. 7th asking relative to equipping your Babcock & Wilcox boilers, which we have on order for you, with Dutch ovens. No doubt, you have received the drawings from the Jones Stoker Company and you will note that they show a Dutch oven arrangement, the same as the copies which they sent us and the writer begs to say that the Dutch oven arrangement for burning the kind of coal that you propose to burn is certainly a very satisfactory one, indeed, and feel that you will be pleased with same. Would say, for your information, that the writer very frequently uses the Dutch oven arrangement for hand firing the low grade Illinois coals and using the Dutch oven we are able to pass the Smoke Ordinance of the City of Chicago and the results that we have obtained with the Dutch oven are very satisfactory, indeed, and think that you will make no mistake if you use the Dutch oven in connection with your lignite coal."

I am writing the Jones under-feed people to proceed along these lines.

W. J. Bohan

6-E



MAIN OFFICE
85 LIBERTY STREET, NEW YORK

WORKS
BAYONNE, N.J. BARBERTON, OHIO

THE BABCOCK & WILCOX CO.

BUILDERS OF

BABCOCK & WILCOX-STIRLING-RUST

WATER TUBE STEAM BOILERS

STEAM SUPERHEATERS MECHANICAL STOKERS

BRANCH OFFICES

BOSTON, 35 FEDERAL STREET
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SEATTLE, MUTUAL LIFE BUILDING
HAVANA, CUBA, CALLE DE AGUIAR 104
HOUSTON, TEXAS, HOTEL BRAZOS BLDG.

Chief Mechanical Engineer
ST. PAUL
FEB 10 1912

1207 MARQUETTE BUILDING

CHICAGO, ILL. Feb. 8th, 1912.

W. J. Bohan, Mech Eng.,

Northern Pacific Railway Co.,

St. Paul, Minnesota.

Dear Sir:-

The writer begs to acknowledge receipt of your favor of Feb. 7th asking relative to equipping your Babcock & Wilcox boilers, which we have on order for you, with Dutch ovens. No doubt, you have received the drawings from the Jones Stoker Company and you will note that they show a Dutch oven arrangement, the same as the copies which they sent us and the writer begs to say that the Dutch oven arrangement for burning the kind of coal that you propose to burn is certainly a very satisfactory one, indeed and feel that you will be pleased with same. Would say, for your information, that the writer very frequently uses the Dutch oven arrangement for hand firing the low grade Illinois coals and using the Dutch oven we are able to pass the Smoke Ordinance of the City of Chicago and the results that we have obtained with the Dutch oven are very satisfactory, indeed and think that you will make no mistake if you use the Dutch oven in connection with your lignite coal.

Yours respectfully,

HMB-EAH

THE BABCOCK & WILCOX CO.

H. M. Bonn

FORM 1386

TELEGRAM.

All Railway Messages must be written in ink on these blanks, which must not be used for other purposes, and those for parties on trains (except trainmen) enclosed in sealed envelopes. The exact time sent, time received, personal signal of sending and receiving operators, call of sending office and name of receiving station must be entered on this blank.

After transmitting telegrams which in their judgment would have served the Company's interest as well if sent by train mail, or which appear unnecessarily long, operators are required to attach a copy to Form 238, and forward same to Superintendent of Telegraph.

Office Mechanical Engineer, ST. PAUL, FEB 8 1912 MINN. NOR. PAC. RY. CO.

177 BY·HV.A.

Tacoma Feby 8-1912 H.M.Curry.

ST.Paul.

Have arranged to ship one bushel Roslyn from Pasco, one bushel ravensdale from Tacoma, One bushel Grand Ridge from Seattle and one bushel Mendota from South Tacoma. All of which is screenings. Expect roslyn will be used east of mountains and Ravensdale west in connection with Pasco and Auburn.

331pm. R.M.Crosby.

W

Look over for Thew

2-9-12

FORM 1386 11-11 100m F

TELEGRAM.

All Railway Messages must be written in ink on these blanks, which must not be used for other purposes, and those for parties on trains (except trainmen) enclosed in sealed envelopes. The exact time sent, time received, personal signal of sending and receiving operators, call of sending office and name of receiving station must be entered in proper spaces in every instance. After transmitting telegrams which in their judgement would have served the Company's interest as well if sent by train mail, or which appear unnecessarily long, operators are required to attach a copy to Form 238, and forward same to Superintendent of Telegraph.

NUMBER	REC'D FROM	SENDER	RECEIVER	TIME REC'D	DATE REC'D	TIME FILED	NUMBER	SENT TO	TIME SENT	SENDER	RECEIVER
				M.		M.			M.		

FROM St. Paul, Minn.

DATED Feb. 6, 1912.

TO R. M. Crosby,

AT Tacoma, Wash.

Express at once one bushel sample low grade coal proposed to burn under water tube boilers new terminals Auburn and Pasco. Suggest confer with Mr. Nutt. Answer.

H. M. Curry

THE UNDER-FEED STOKER CO. OF AMERICA,

General Offices, Harris Trust Bldg., Chicago

To Mr. S. A. Williamson,
3753 - 10th Ave. S.
Minneapolis, Minn.

Date February 2nd, 1912

No. C-96414 B-86498

In reply to yours of the 29th

Subject Northern Pacific R.R.

We thank you for the blue prints enclosed under separate cover, and referred to in your communication, showing the Auburn and Pasco Plants of the above.

However, upon carefully noting these blue prints, we find that they do not contemplate the use of Dutch oven equipment and that in order to show such equipment it will be necessary to slightly revise the location of the boilers with respect to the boiler room.

Believing that in as much as they have put the furnace design up to us and knowing that the best results can only be obtained by the use of the Dutch oven, because of the peculiar characteristics of the coal which they will burn, we believe they would have no objections to following our suggestions in this respect.

We enclose two copies of A-1759, and when taking this matter up with those in authority you will kindly advise them that it will be possible to make this arrangement by setting the boilers back 21" nearer the wall back of the boilers, making their coal bed 8' wide in place of 10'; this will give 8'6" between the coal bed and the boiler fronts, or the fronts

To Mr. S. A. Williamson, Date February 2nd, 1912

No. C-96414 B-86498

In reply to yours of #2 Subject Northern Pacific R.R.

of the furnaces as this is only a wood partition, and built never more than 4' high, the distance of 8'6" will be entirely satisfactory.

On this same drawing we have indicated an arrangement and location for blowing equipment and we wish you to advise us if this arrangement and location is satisfactory.

While the enclosed prints illustrate the stokers for the Auburn, those for Pasco will be practically the same.

Please let us hear from you by return mail as it is very necessary that we have your prompt reply.

Yours very truly,

The Under-Feed Stoker Co. of America,

Per (Signed) W. F. Kenney

Chief Engineer.

TARIFF PARCHMENT PA W.B.&S.CO. W

(COPY)

St. Paul, Minn., February 9, 1912.

Improvements 1911-12
Auburn
Electric Current

File 5325-9

Mr. H. C. Nutt,

General Manager,

Tacoma, Wash.

Dear Sir:-

On Feb. 2d I wrote Mr. W. C. Smith, Chief Engineer Maintenance of Way, regarding our requirements in connection with negotiations for the purchase of electric current for the new terminals at Auburn, as follows:-

"Yours of January 29th. Mr.Perkins' letter returned herewith regarding the approximate electric current requirements at Auburn.

The following is approximately close:-

Lighting, Machinery Department, 250 lamps :
" Transportation " 100 " :

16 candle power, which will burn on an average of 12 hours a day the year round.

1 20 H.P. Motor on G.N. type Coal Dock, operating for 30-minute periods at intervals of three hours. Load likely to come on at any time.

1 20 H.P. Machine Shop Tools, 24-hour load factor, approximately 33-1/3%. "

For your further information will state, that the motor which will be connected to the coal dock will be 35 H.P. 20 H.P. is shown in the above and represents the average operating load. The power company may wish to know the actual horsepower rating

St. Paul, Minn., February 9, 1912.

Improvements 1911-12
Auburn
Electric Current

Mr. H.C.N. - 2 - File 5325-9

of the motor itself. Since writing the letter, it has developed that, in addition to the lighting load shown, there will be a freight transfer-shed load of something like 5 K.W. In my letter to Mr. Smith I intentionally neglected the 7-1/2 H.P. motor on the turntable. As this motor operates intermittently and is of small capacity, it is the usual practice to neglect this machine in figuring the load. It is just possible, however, that the Seattle Power Co. may wish to include it in their estimates.

Yours truly,

Mechanical Superintendent

6-E

Cy. Mr.Wilson:-
In accordance with your verbal request of even date.

H. M. Curry

Saint Paul, February 10, 1912.

Tools & Machinery. File 4167.



Mr. R. M. Crosby,

General Master Mechanic,

Tacoma, Wash.

Dear Sir:

I wish you to consider, in conjunction with Mr. Hessmer, the machine tool equipment desired for Auburn, and be prepared to discuss this with me when I am on the Coast. Please go into this quite in detail so that when the time comes to make requisition and select the tools, we will know just the kind of tools that should be furnished.

This will apply also to other terminal points. I should say particularly to Pasco.

Yours truly,

HMC R

Mechanical Superintendent.

Copy WJB

WJB 2/13-12

Office Mechanical Engineer
ST. PAUL,
MAY 16 1913
MINN.
NOR. PAC. RY. CO.

Office Mechanica Superintendent,
ST. PAUL,
MAY 16 1913
MINN.
NOR PAC. RY. CO.

Au[illegible]

Mr. H. M. Curry

Mech. Supt

Dear Sir:- In regard to attached will say that Mr Ramery was working on engine trouble on March 30 and 31st - April 1-2-3 4-5 and the 6th - also from April 9th to the 21st inclusive - The company should not pay for this time. As to the rest of the time I can not say as I have no copy of the contract

Yours truly

A Ousdahl

St. Paul, Minn., May 1, 1913.

AUBURN
Improvements 1911-12
Buckeye Engine

Mr. A. Ousdahl,

Inspector.

Dear Sir:-

Yours April 29th, regarding the time spent by the Buckeye Engine Company's expert in starting the Auburn engine. Your file attached.

Please advise me the actual time you consider the Northern Pacific Ry. Co. is responsible for in connection with the starting and correcting of the Buckeye engine, also the time for which the builders are responsible. We will have to stand Sunday time.

Please return file with your reply.

Yours truly,

H M Curry

Mechanical Superintendent

6-E

COPY OF ENGINEER'S JOB REPORT
[J.J.Ramsey]

March 5th — On train
March 6th — On train
March 7th — On train
March 8th — On train
March 9th — On train
March 10th — Erecting engine
March 11th — do
March 12th — do
March 13th — do
March 14th — do
March 15th — do
March 16th — Sunday
March 17th — erecting engine
March 18th — do
March 19th — do
March 20th — Waiting for packing and steam
March 21st — do
March 22nd S+W. — Taping foundation nuts. Packing end valve steam wanted
March 23th — Sunday
March 24th — ~~Sunday~~ Waiting for steam — Steam
~~March 25th~~
March 25th — Waiting for steam
March 26th — Waiting for steam one hour no steam
March 27th — Waiting for steam 6 hours running light 4 hours Steam
March 28th — Running on part test & regulating governor
March 29th — Running on test 4 hours governor started racing
March 30th — Working on governor for racing
March 31 — Working for governor for racing. Much better
April 1st — Working on governor for racing
April 2nd — Working on main valve rings & ricker arm
April 3rd — Working on governor for regulation
April 4th — do.
April 5th — do.
April 6th — Sunday
April 7th — Sawing off top of foundation bolts. Had no steam.
April 8th — Waiting for steam. Got steam 4 PM & run.
April 9th — Casting 2 lead weights & cut off two coils of springs
April 10th — Run on test. Got percent on load. Could not get engine rest of day.
April 11th — Running on work
April 12th — Running on work. Governor changing
April 13th. — Had another test, not good
April 14 — Engine running on work, Making changes on governor
April 15, — Took out main valves filed off high rough spots
April 16, — Running part of time on work and working on governor
April 17th — Running and stopping and working on governor
April 18th — Working on governor and running
April 19th — Run test. Eight Rev. dif. from 16HP to full load.
" 20th — Working on Engine
" 21st — Taking up slack in connection

St. Paul, Minn., May 1, 1913.

AUBURN
Improvements 1911-12
Buckeye Engine

Mr. A. Ousdahl,

Inspector.

Dear Sir:-

Yours April 29th, regarding the time spent by the Buckeye Engine Company's expert in starting the Auburn engine. Your file attached.

Please advise me the actual time you consider the Northern Pacific Ry. Co. is responsible for in connection with the starting and correcting of the Buckeye engine, also the time for which the builders are responsible. We will have to stand Sunday time.

Please return file with your reply.

Yours truly,

Mechanical Superintendent

6-E

St. Paul, Minn., April 29, 1913.

Mr. W. J. Bohan,

Mechanical Engineer.

Dear Sir:-

Herewith copy of Buckeye engineer's report (Mr. J. J. Ramsey) at Auburn, Wash.

As shown, he was erecting engine from March 10th to March 19th, inclusive. Report shows he called for steam and packing on March 20th. He did not say anything to me about steam until March 22d. As we were not ready to start up, I told him he could not have steam until Monday, March 24th. We gave him steam on said date; still his report shows waiting for steam. On March 25th and 26th we had no steam, as we were not ready for continuous service. He reports steam one hour on the 26th; this is not correct. In the afternoon on March 27th we gave him the required steam pressure and continued to do so until noon, April 5th. Had to shut down again on April 5th on account of plumbers. We started up again on April 8th and furnished him with steam continually from that time.

He was working on engine governor from March 27th to April 5th, inclusive, and from April 8th to the 21st, inclusive.

Yours truly,

A Ousdahl

Inspector.

St. Paul, Minn., February 10, 1912.

Improvements 1911-12
Auburn

File 5325-9

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

I note from the drawings that no arrangement has been made to take care of water from the roofs or the coal trestle at the boiler room. As this is a very rainy country, you will readily understand that if something is not done the engine-room and coal bunkers will be flooded. This should be taken care of at all points.

The door in the oil room should also be on the other side next the tracks so as to unload oil from cars. Platforms should be built at the office end of the storeroom with runways extending down to the ground for handling material, instead of steps as shown. I believe we had some understanding that this would be done.

The gable on the Auburn power plant will not be necessary with the arrangement at that point. If this will effect any saving it can be omitted.

Yours truly,

Mechanical Superintendent

6-E

Cy. RMC

St. Paul, Minn., February 8, 1912.

Mr. W. J. Bohan:-

In looking over the plans for Auburn, I note that there is a gable on the side of the engine room for bringing electric wires into the engine room.

This is unnecessary at this point, as the wires can as well be carried out through the end gables of the building, and I would suggest that it be omitted.

W. E. Johnston.

wej-t

St. Paul, Minn., February 8, 1912.

Mr. W. J. Bohan:-

Referring to conversation this morning with Mr. Tolaas in regard to engine facilities at Auburn:

As agreed upon, I understand that the coaling trestle is to be roofed over and proper provision made to take care of water. Also that the door in the oil room is to be moved to the opposite side of the building next to the store-house, so as to unload oil from cars. Also that there is to be a platform built at the office end of the store-room with runways extending down to the ground for handling material. Also that the roundhouse foreman's office and engineer's and fireman's supply room are to be interchanged, doors to be on the side toward the machine shop.

W. E. Johnston. ✓

wej-t

Saint Paul, Minn., Nov. 12, 1910.

Mr. William Moir,

Referring to our conversation earlier in the week, regarding the proposed engine terminal at Pasco.

I hand you herewith a blueprint that was revised October 13th from which Mr. W. C. Smith has made an estimate of the cost of the buildings and some of the equipment.

Will you please work up a statement of your requirements in the way of boilers, engines, electrical apparatus, air compressor and such machine tools as are required.

Babcock & Wilcox Water Tube Boilers in units of 150 H. P. each with Jones Later Improved Underfeed Stoker having side movable grates with cinder cutter should be specified.

No oil equipment has been included in Mr. Smith's estimate. I would suggest that you confer with Mr. Wakefield and specify the same type of apparatus and storage tanks as have been decided upon for the new terminal at Northtown.

Please do not permit the blue print to leave your office as it is the only one in St.Paul and may be wanted.

W. H. Wilson

(COPY)

St. Paul, Minn., Dec. 7, 1911.

Improvements 1911
Auburn and Pasco

File 5325-9
5325-16

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

Herewith blueprints of drawings 16126 and 16127, showing the general layout of piping for Auburn and Pasco terminals, which will serve your purpose in asking for bids.

In connection with the roundhouse piping, I am attaching herewith blueprint of drawing 16021, which should be followed for the blower pipe connections instead of drawing 12086-A.

You will please note on the Auburn plan that I have shown a 2" exhaust, 1" live steam main and 1-1/2" return to take care of the heating of the storeroom, also a 1" live steam, 2" exhaust and 1-1/2" return for supplying steam heat to the bulletin-room and roundhouse foreman's office.

On the Pasco plan I have shown live steam, exhaust steam and return connection to the piping in the tunnel for supplying steam heat to the car-shop, storehouse, offices and oil-house.

It is assumed, of course, that your department will take care of the heating of these various buildings.

In connection with the piping at both points, I would suggest that, in asking for bids, a clause be put in the specifica-

St. Paul, Minn., Dec. 7, 1911.

Improvements 1911
Auburn and Pasco

File 5325-9
5325-16

Mr. W.C.S. - 2 -

tions that will take care of any possible additions or reductions in the piping which may arise, on a unit basis. I know of none at the present time.

Yours truly,

Mechanical Superintendent

6-E

St. Paul, Minn., Feby. 25th, 1911.

Superintendent
FEB 27 1911
MINN.
NOR. PAC. RY. CO.

Proposed terminal at Pasco.
Oil Facilities

Office Mechanical Engineer
ST. PAUL.
FEB 27 1911
MINN.
NOR. PAC. RY. CO.

Mr. Wm. Moir,

Mechanical Superintendent.

Dear Sir:

Referring to your letter Feby. 4th, file 5325, relative to new proposed terminal at Pasco. Have investigated this matter with Supply Agent Robson and would recommend following:

1	1500	gal. tank for	car oil,
1	1500	" "	Eng. "
1	1500	" "	Valve oil,
1	1000	" "	Signal oil,
1	3000	" "	Headlight oil,
1	1000	" "	Mineral seal oil,
1	12000	" "	Fuel oil, if fire kindler is to be installed.
1	200	" "	Sipes Japan oil,
1	200	" "	Boiled oil,
1	200	" "	86 percent gasoline,
1	200	" "	Superheater oil.

Yours truly,

Woodfull

W-d.

Supply Agent.

WCS-r

Form 290 TW

Northern Pacific Railway Company

Saint Paul, December 4, 1911.

(Personal)

Mr. H. M. Curry,

Mechanical Superintendent.

Dear Sir:-

Referring to my letter some weeks ago requesting data from your department for completing the plans and specifications for the piping, boiler layout, including breeching and stack, etc., for Auburn and Pasco:

Contract for this portion of our facilities should be left right away, but before I can proceed, it is necessary to have the information from your department.

Will you please have it furnished to me not later than by the end of this week.

Yours truly,

W C Smith

Nov. 27, 1912.

AUBURN
Improvements 1911-12
Electric Current

Mr. L. R. Grant,
Suburban Agent, Puget Sound Traction, Light & Power Co.,
Seattle, Wash.

Dear Sir:-

I am in receipt of yours of Nov. 20th, enclosing a copy of your letter dated Nov. 8th in connection with your company supplying us with electric current for the operation of our new Auburn terminals.

We figure that we can manufacture electric current for not to exceed 1¢ per KWH with our own steam plant at Auburn, in view of the fact that it is necessary to maintain and operate steam boilers for such purposes as heating, blowing and washing engines, operating washout pumps, air compressors, etc. We would, therefore, purchase current at a net loss of 45/100¢ per KWH, which makes your proposition one that we could not seriously consider at this time.

In the event of your company being able to do something better in the way of a rate, I will be glad to hear further from you. I will probably be on the Coast a little later on, and will be glad to discuss the matter with you in case you have anything of further interest to offer.

Yours truly,

6-E

Mechanical Engineer

STONE & WEBSTER MANAGEMENT ASSOCIATION
GENERAL MANAGERS

JACOB FURTH
PRESIDENT

R.T. LAFFIN
VICE-PRESIDENT

H.T. EDGAR
MANAGER

PUGET SOUND TRACTION, LIGHT & POWER CO.

SEATTLE DIVISION

ADDRESS ALL COMMUNICATIONS
TO THE COMPANY

Office Mechanical Engineer,
ST. PAUL,
NOV 26 1912
MINN.
NOR. PAC. RY. CO.

SEATTLE November 20, 1912.

Mr. W.J.Bohan,

c/o Northern Pacific Ry.,

Northern Pacific Bldg.,

St. Paul, Minn.

Dear Sir:

Mr. Grambs informs me that the letter we recently wrote to you regarding the power for your installation at Auburn, has never reached you. I am very sorry that this delay has occurred, and hope that you have not been greatly inconvenienced by it.

We are enclosing a copy of the letter which was dated November 8, 1912.

Very truly yours,

L R Brandt

Suburban Agent.

STONE & WEBSTER MANAGEMENT ASSOCIATION
GENERAL MANAGERS

JACOB FURTH, PRESIDENT
R. T. LAFFIN, VICE-PRESIDENT
H. T. EDGAR, MANAGER

PUGET SOUND TRACTION, LIGHT & POWER CO.

SEATTLE DIVISION

ADDRESS ALL COMMUNICATIONS TO THE COMPANY

SEATTLE November 8, 1912.

Mr. W. J. Bohan,
c/o Northern Pacific Ry.,
Northern Pacific Bldg.,
St. Paul, Minn.

Dear Sir:

Following Mr. Gramb's telegram to you dated November 2nd, he has requested me to write you more fully in regard to rates for power supply to your Auburn shops.

The data we have, indicates that your requirements will be approximately, for lighting-- maximum, 22.5 KW., use, 7300 KWH in a month; for power,-- maximum 30KW, use, 5400 KW. per month; total, maximim 52.5 K.W., use, 12700 KWH per month.

Considering the diversified nature of your load, we will make a contract on our regular wholesale power schedule, setting an arbitrary demand for billing purposes of 35 KW, which on the above consumption will secure a rate of 1.45¢; a greater consumption will yield a lower rate.

This is very close to the power rate you are now receiving at South Tacoma on a much larger installation. We are, as you doubtless know, working under the regulation of the State Public Service Commission, and can, therefore, take business only on published rates.

Taking into account the labor, interest and maintenance cost of the steam plant such as youhave been considering, we feel sure that the service we can supply on a contract like the above, will be satis-

factory both in economy and reliability of service.

We now have three hydro-electric generating stations in service; two steam generating stations in reserve, and duplicate transmission lines from all our plants, thus insuring continuity of service under all conditions.

Customers are required to install primary transformers on wholesale power contracts, the Company furnishing and installing all necessary meters. While we are not generally in the transformer business, we have on hand at the present time, a large number of 20 KW Westinghouse transformers which we can sell at $2.00 per KW., or $40.00 each. These transformers have been removed from our commercial district in Seattle because of the installation of a direct current system, and we have, therefore, no immediate use for them. Three of these transformers at the cost of $120.00, would take care of your requirements at Auburn.

We can give you service at any time you may be ready for it, and will greatly appreciate an early reply if convenient.

Very truly yours,

L Brandt

Suburban Agent.

STONE & WEBSTER MANAGEMENT ASSOCIATION
GENERAL MANAGERS

JACOB FURTH
PRESIDENT

R.T. LAFFIN
VICE-PRESIDENT

H.T. EDGAR
MANAGER

PUGET SOUND TRACTION, LIGHT & POWER CO.

SEATTLE DIVISION

ADDRESS ALL COMMUNICATIONS
TO THE COMPANY

SEATTLE November 8, 1912.

Mr. W.J.Bohan,

c/o Northern Pacific Ry.,

Northern Pacific Bldg.,

St. Paul, Minn.

Dear Sir:

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The data we have, indicates that your requirements will be approximately, for lighting-- maximum, 22.5 KW., use, 7300 KWH in a month; for power-- maximum 30KW, use, 5400 KW. per month; total, maximum 52.5 KW., use, 12700 KWH per month.

Considering the diversified nature of your load, we will make a contract on our regular wholesale power schedule, setting an arbitrary demand for billing purposes of 35 KW, which on the above consumption will secure a rate of 1.45¢; a greater consumption will yield a lower rate.

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Taking into account the labor, interest and maintenance cost of the steam plant such as you have been considering, we feel sure that the service we can supply on a contract like the above, will be satisfac-

tory both in economy and reliability of service.

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We can give you service at any time you may be ready for it, and will greatly appreciate an early reply if convenient.

Very truly yours,

L Brandt

Suburban Agent.

Signed copy.

St. Paul, Minn., April 12, 1912.

A U B U R N
Improvements 1911-12
Electric Current

File 5325-9

Mr. W. H. Wilson:-

Yours April 2d.

Contract submitted by the Puget Sound Traction, Light & Power Co. returned herewith. Mr. Bohan estimates that we can produce electric current with our own plant at Auburn for 1¢ per K.W.H., based on Roslyn screenings at $1.00 per ton delivered at the plant. The attached contract will mean approximately 2½¢ per K.W.H., as near as can be determined.

Incidentally, it has not been our practice in any case to sign a contract with any of the power companies which contains a maximum demand clause, as this one does. I am inclined to believe that a much better contract can be obtained from the power company. In any event, we will be able to produce current very cheaply ourselves and will not be dependent upon them in case they will not make us a proper rate.

H. M. Curry

6-E

Form 290 TW

Northern Pacific Railway Company

Office Mechanical Superintendent
ST. PAUL,
Jan 3 1912
MINN.
NOR. PAC. RY. CO.

Seattle, Wash., Dec. 29, 1911.H

File W-1.

Office Mechanical Engineer
ST. PAUL.
JAN 3 1912
MINN.
NOR. PAC. RY. CO.

Mr H. M. Curry,

Mechanical Supt.,

St. Paul, Minnesota,

Dear Sir:-

Confirming my wire of this date with regard to the lights needed in Auburn other than those for new terminal facilities: Figure that we will need at the town passenger station thirty sixteen-candlepower incandescent lights to light the inside of the building and the platform, and in the freight house twenty sixteen-candlepower incandescent lights in the office and the freight house, and for the new passenger transfer platform we will probably need fifty sixteen-candlepower lights to light the inside of the building and the transfer platform. The last figure is only a guess as have not seen the plans of the proposed platforms.

Am sorry that was unable to give you anything concerning the lighting of the new terminal facilities, but it was out of the question to make other than a guess as have had no opportunity to see plans of the building. Presume, of course, that good data can be had on round-

(H.M.C.#2)

house and also the freight transfer platform from the Northtown Junction plans.

Yours truly,

Superintendent.

Form 290 TW

Northern Pacific Railway Company

Saint Paul, December 27, 1911.

List of Motors
for Auburn Terminal.

File 5325-9.

Office Mechanical Engineer
ST. PAUL,
DEC 29 1911
MINN.
N. P. RAC. RY. CO.

Mr. W. J. Bohan,

Mechanical Engineer.

Dear Sir:

I am requested, if we have not already done so, to furnish Mr. W. C. Smith with list of motors that will be used in and about the new terminal at Auburn. Information to be given of the size and about the current to be used. Also to confer about the kind and amount of lighting about the plant.

This information is desired by Mr. Nutt for the use of Mr. Winters, Sales Agent of the Stone and Webster Company, who expect to submit a proposition for furnishing power to us at that station.

Will you please give this your prompt attention, and after getting such data as you require, confer. As we secure power at a lower cost on the Coast, we should arrange to have the place well lighted.

Yours truly,

Mechanical Superintendent.

HMC R

Hold for Letter J. E. Cramer

STONE & WEBSTER MANAGEMENT ASSOCIATION
GENERAL MANAGERS

JACOB FURTH, PRESIDENT, SEATTLE.

LOUIS H. BEAN, MANAGER, TACOMA.

PUGET SOUND ELECTRIC RAILWAY, TACOMA RAILWAY AND POWER COMPANY.

ADDRESS ALL COMMUNICATIONS TO THE COMPANY

TACOMA, WASHINGTON. Dec. 18th. 1911.

REFER TO_____

Mr. W. J. Bowen,
Mechanical Engineer,
Northern Pacific Railway,
St. Paul, Minn.

Dear Mr. Bowen:-

I understand that sometime ago a letter was written to the Seattle Electric Company in regard to rates for light and power for your Round House, Freight Sheds, etc. at Auburn, Washington. I have made some inquiry in regard to probable load at this point; also have endeavored to find out who had charge of the light and power installations, but have been unable to obtain any definite information.

Your plans I understand, call for a steam generating plant, but I can hardly understand why such an installation should be put in with the prevailing prices for electric power in this vicinity.

As you understand we have been lighting the present Depot and Transfer Shed at Auburn, and have been requested a number of times by the Local Superintendent's Office to make a reduction in the rates on this series. This we were unable to do as the size and nature of the load did not warrant it. As the new installation will be very much larger and as I understand there will be a considerable amount of power used, we could undoubtedly make a considerable lower rate on this installation, and I would like very much - if you still have the matter of light and power

W.J.B.----#2.

contracts in hand, to take this matter up directly with you.

Trusting to hear from you on this matter at an early date, I remain

Very truly yours,

H. Shreve

Superintendent of Power & Equipment.

STONE & WEBSTER MANAGEMENT ASSOCIATION
GENERAL MANAGERS

JAMES FURTH
PRESIDENT

H. T. EDGAR
MANAGER

THE SEATTLE ELECTRIC COMPANY

ADDRESS ALL COMMUNICATIONS TO THE COMPANY

REFER TO

SEATTLE December 23,1911.

Mr. W. J. Bohan,
Electrical & Mechanical Engineer,
North Pacific R. R. Company,
St. Paul, Minn.

My dear Mr. Bohan:-

I have been corresponding for some little time past with Mr. H. C. Nutt in Tacoma, and on Wednesday, the 20th inst. I, at his request, called upon him in Tacoma, and we discussed the question of light and power service for the new Auburn shops. Mr. Nutt called in Mr. Perkins, who gave me what little information he had. It was then decided that Mr. Nutt would communicate with you and obtain detailed plans and specifications, which would enable us to submit a proposition.

While at Tacoma I talked this over with Mr. Schluss, of the Puget Sound Electric Railway, and it was decided that our Company would handle these negotiations instead of the Puget Sound Electric Railway.

I inferred from Mr. Nutt's remarks that you do not expect to get out here in the very near future. Just as soon as we can obtain full information of your requirements we shall submit a proposition to Mr. Nutt.

Trusting we may hear from you in the immediate future, and with personal regards, I remain

Yours very truly,

W. M. Hunter

Sales Manager.

St. Paul, Minn., Nov. 14, 1911.

Improvements 1911
Auburn
Electric Current

File 5325-9

Mr. J. E. Craver,
Division Superintendent,
Seattle, Wash.

Dear Sir:-

In connection with the electrification of our new terminals at Auburn for furnishing light and power: It will probably be desirable that we take care of the freight and passenger stations. If such is the case, I would like to have you kindly advise me what buildings should be included, how far they are from the engine-room at the new terminals, and how many and what kind of lights are in each one, and if any additional lights are recommended. This in order that we can determine the capacity of the plant.

It is the intention to install our own plant at Auburn and also to negotiate with the Seattle-Tacoma Power Co., whose line, I believe, passes very close to our new terminals. The installation of our own plant will protect us against failure of the Power Company's supply and make us independent, and has, therefore, been decided upon.

Yours truly,

6-E

Mechanical Superintendent

St. Paul, Minn., Nov. 14, 1911.

Improvements 1911
Auburn
Electric Current

File 5325-9

Mr. H. C. Nutt,
General Manager,
Tacoma, Wash.

Dear Sir:-

Your joint letter to Mr. Wilson and myself, under date of Oct. 31st, regarding taking up the matter with Power Companies with a view of obtaining rates from them for furnishing current at Auburn. Would state that I will be glad to have Mr. Bohan take this matter up with the Power Companies, as you suggest, and will keep you advised as to progress made.

Yours truly,

Mechanical Superintendent

6-E

Form 290 TW

Northern Pacific Railway Company

Office Mechanical Superintendent, ST. PAUL, NOV 4 1911 MINN. NOR. PAC. RY. CO.

IN YOUR REPLY PLEASE REFER TO FILE

Tacoma, October 31, 1911.

Office Mechanical Engineer, ST. PAUL, NOV 6 1911 MINN. NOR. PAC. RY. CO.

Mr. W. H. Wilson,
Assistant to the Third Vice President.

Mr. H. M. Curry,
Mechanical Superintendent.

Dear Sir:

I just have a letter from Mr. Bohan advising me that inasmuch as it has been decided to put in our own electric plant at the Auburn terminal, he thinks there is no particular hurry about negotiating with the power companies for electric current at the Auburn plant.

I agree with him that there is no particular hurry about it, but I still believe that before our plant is completed at Auburn, Mr. Bohan ought to take the matter up with the power companies here and see how favorable a price he can get them to quote for such power as we need there. I believe, in view of the completion of their Dieringer power plant within the near future, that they will be willing to quote a very favorable price for such power as we need at Auburn.

Yours truly,

H. E. Nutt

Form 290 TW

Northern Pacific Railway Company

IN YOUR REPLY PLEASE

REFER TO FILE_____

Tacoma, October 31, 1911.

Office Mechanical Engineer
ST. PAUL.
NOV 4 1911
MINN.
NOR. PAC. RY. CO.

Mr. W. J. Bohan,

Mechanical Engineer.

Dear Sir:

I have your letter of the 23rd relative to negotiations for power for the engine terminal at Auburn.

I agree with you that since it has been decided to put in our own electric plant, there is no particular hurry about negotiating with Stone & Webster for electric current, but I think before our plant is completed we ought to take up the question with them and see how favorable a price we can get them to make for such electric power as we want there. I am inclined to think that in view of the completion of their Dieringer plant they will be willing to make a price considerably cheaper than we can generate our own current.

Yours truly,

H E Nutt

Copy to Mr. L.M.Perkins.

St.Paul,Minn., Oct. 23rd, 1911.

Improvements 1910
Auburn
Electric Current

Mr. H.C.Nutt,
General Manager,
Tacoma, Wash.

Dear Sir:-

Yours October 14th, relative to negotiations for power at Auburn.

The information given you in Mr. Curry's letter of the 10th inst., is as nearly correct as can be furnished at this time. It is my understanding that our own electric plant will be installed whether we buy current or not. Such being the case I do not consider that there is any particular hurry starting negotiations with the Power Companies.

Yours truly,

Mechanical Engineer.

6-MM

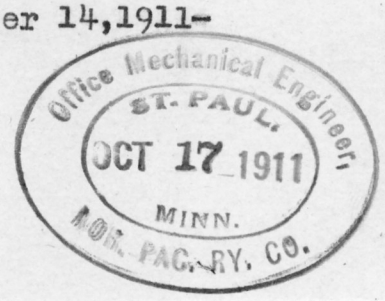
Form 290 TW

Northern Pacific Railway Company

Jw

IN YOUR REPLY PLEASE
REFER TO FILE_____

Tacoma, October 14,1911-



Mr. W. J. Bohan,

Mechanical Engineer, St.Paul.

Dear Sir:

Mr. W. C. Smith has suggested that we open negotiations with some of the power companies out here to determine what it will cost us to buy electric current for the operation of our new engine terminal at Auburn.

I have been endeavoring to secure from Mr.Curry some information as to just what lights and motors will be placed at the Auburn terminal and am just in receipt of his letter of October 10th advising that he cannot give accurate information at this time, but that his estimate of the current consumption is about 8,000 kilowatt hours per month.

I shall be glad if you will getmwhat information you can from Mr. Curry's office on this matter and then the next time you are out here,take the matter up with the power companies and ascertain whatit will cost us to buy current from them.

Yours truly,

H C Nutting

Oct. 23rd, 1911.

Improvements 1911
Auburn
Electric Current

Mr. F.B.Lieshington,
Agent, Seattle-Tacoma Power Company,
Tacoma, Wash.

Dear Sir:-

I wish to acknowledge receipt of your favor of Oct. 18th, and in reply would state, that I am unable to give you accurate figures at this time as to what our electric current requirements will be at Auburn.

At the present we are figuring on installing our own plant which will be from 60 to 75 kilowatts capacity and I should judge that the current consumption will be somewhere around 8,000 to 10,000 kilowatt hours per month.

A proposition for the purchase of electric current will have to be very attractive inasmuch as we will install a boiler plant at this point and will burn a low grade of coal which will enable us to manufacture our own current at a very low rate.

Yours truly,

6-MM

FORM A-20-3M-1-17-10.

Seattle-Tacoma Power Company

Everett. Seattle. Tacoma.

Tacoma, Washington Oct. 18, 1911.

Mr. W. J. Bohn, Mechanical Engineer,
Northern Pacific Railway Company,
St. Paul, Minnesota.

Dear Sir:-

Mr. Perkins, Engineer of Maintainance of Way of your Company, informs us that you are the party to write to for proper information relative to the amount of electric horse power your Company will install in new yards at Auburn, Washington.

We are in position to supply your Company electric power at this place and if you will kindly inform us as to the size of motors as well as phase and number your Company will use in Auburn yards it will enable us to be in a position to quote your Company a rate per kilo-wat on this business,

Yours truly,

Seattle-Tacoma Power Company,

F B Leetham

Agent.

St.Paul,Minn., Oct. 10th, 1911.

Improvements 1910
Auburn
Electric Current

File #5325-9

Mr. H.C.Nutt,
General Manager,
Tacoma, Wash.

Dear Sir:-

Yours September 25th, making inquiry relative to our electrical requirements at Auburn.

I am unable to give you accurate figures on this just at the present time. Regardless of whether we purchase current or not, we are figuring on installing our own electric plant, which from figures at hand will be from 60 to 75 kilowatts capacity and I should judge that the current consumption will be somewhere around 8,000 kilowatt hours per month.

Yours truly,

Mechanical Superintendent.

6-MM

Northern Pacific Railway Company

On Seattle Division, Oct. 2,1911.

Lighting Arrnagement
Auburn Terminals.

File 53225-9.



Mr. W. J. Bohan,

Mechanical Engineer.

Dear Sir:

I return a portion of your file on Auburn Terminals, which bears on electric current. See Mr. Nutt's letter of September 25th.

Please acknowledge for me even though you are not in a position just now to give definite information asked for.

Yours truly,

Mechanical Superintendent.

HMC R

Form 290 TW

Northern Pacific Railway Company

JW

Office Mechanical Superintendent
ST. PAUL, MINN.
SEP 29 1911
NOR. PAC. RY. CO.

Tacoma, September 25,1911-

Mr.H.M.Curry,

Mechanical Superintendent,

Saint Paul, Minn.

Dear Sir:

Mr.Crosby wrote you August 24th asking for diagram of lighting both inside and outside at the new roundhouse at Auburn, and on September 11th you advised him that location of lamps would be taken care of in your office.

We would like to know as soon as possible how many lights it is planned to have at the Auburn roundhouse and where they will be located in order that we may make some investigation as to what current will be necessary at Auburn and what we can buy it for from the Power Companies, and I should also be glad to know what motor equipment it is proposed to install at the Auburn roundhouse and how much current will be necessary to operate it.

Yours truly,

H C Nutt

Lighting Arrangement
at Auburn Terminal.

Tacoma, Wash., Sept. 11, 1911.

File 044

Office Mechanical Engineer
ST. PAUL
SEP 14 1911
MINN.
NOR. PAC. RY. CO.

Mr. I. B. Richards,

General Superintendent,

B u i l d i n g .

Dear Sir:

In harmony with your notation on your letter to Mr. Craver of August 19th, asking me to check up and submit recommendations in regard to the lighting of the Auburn terminal, and advising that a copy of the plans could be found in Mr. Perkins' office.

I interviewed Mr. Perkins but he had nothing showing this layout, whereupon I wrote Mr. Curry on the 24th, as follows:

"Will you kindly furnish me with a diagram showing the inside and outside lighting of Auburn roundhouse."

On the 28th, I received the following from Mr. Curry: "* * * Am unable to furnish this wiring as it has not yet been worked up. Will you kindly advise what use you wish to make of it."

On the 31st I again wrote Mr. Curry advising that I had been requested to check up the location of these lights and as there was nothing in Mr. Perkins' office, I made request for a blueprint, and today am in receipt of a letter reading, in part, as follows:

"Specifications and location of lamps at the new Auburn Terminal will be taken care of in this office at the proper time. This work will be done by our own forces."

From the above I would assume that there is nothing further to be done from this end.

Yours truly,

General Master Mechanic.

RMC F

Cy HMC

St.Paul,Minn., Sept. 7th, 1911.

Improvements 1911
Auburn
Electric Current

File 5325-9

Mr. R.M.Crosby,
General Master Mechanic,
Tacoma, Wash.

Dear Sir:-

Yours August 31st, file 044.

Specifications and location of lamps at the new Auburn Terminal will be taken care of in this office at the proper time. This work will be done by our own forces.

Yours truly,

Mechanical Superintendent.

6-MM

Form 290 TW

Northern Pacific Railway Company

Office Mechanical Superintendent,
ST. PAUL,
SEP 5 1911
MINN.
NOR. PAC. RY. CO.

Improvements
Auburn roundhouse

Tacoma, Wash., Aug. 31, 1911.

File 044

Office Mechanical Engineer,
ST. PAUL.
SEP 7 1911
MINN.
NOR. PAC. RY. CO.

Mr. H. M. Curry,

Mechanical Superintendent,

St. Paul, Minn.

Dear Sir:

In reply to yours of August 28th, file 5325-9, especially the last paragraph in which you ask me to advise you what use I wished to make of a blueprint showing the inside and outside wiring of the Auburn roundhouse.

I have been requested to check up the location of these lights, and, as there was nothing shown on anything in Mr. Perkin's office, I made request for a blueprint.

Yours truly,

RMC F

General Master Mechanic.

St.Paul,Minn., Aug. 28th, 1911.

Improvements 1911
Auburn

File 5325-9

Mr. R.M.Crosby,
General Master Mechanic,
Tacoma, Wash.

Dear Sir:-

Your memo August 24th, requesting diagram showing the inside and outside wiring of Auburn roundhouse.

Am unable to furnish this wiring as it has not yet been worked up. Will you kindly advise what use you wish to make of it.

Yours truly,

Mechanical Superintendent.

6-MM

M E M O .

Tacoma, Wash., Aug. 24, 1911

Office Mechanical Superintendent
ST. PAUL
AUG 28 1911
MINN.
NOR. PAC. RY. CO.

Office-Mechanical Engineer
ST. PAUL
AUG 28 1911

Mr.H.M.Curry,

Mechanic al Superintendent., St.Paul

Dear Sir:

Will you kindly furnish me with a diagram showing the inside and outside lighting of Auburn roundhouse.

R.M.Crosby

WCS-r
Form 290 TW

Northern Pacific Railway Company

Office Mechanical Superintendent
ST. PAUL
AUG 14 1911
MINN.
NOR. PAC. RY. CO.

Office Mechanical Engineer
ST. PAUL.
AUG 14 1911
MINN.
NOR. PAC. RY. CO.

Saint Paul, August 12, 1911.

Mr. H. M. Curry,

Mechanical Superintendent.

Dear Sir:-

Referring to your letter of July 31st regarding further information as to amount of electric current necessary for the new terminals at Auburn and Pasco:

I think that Mr. Nutt's letter of the 7th to you covers the ground, and that if Mr. Bohan takes a trip West he can readily see just what is involved and what it will cost to supply the requirements at the two places mentioned. Also seems desirable to provide at least a building for a steam plant at each point. You can later on determine where it is best to provide the boilers and remainder of the plant.

I will be glad to be informed of your conclusions.

Yours truly,

W. C. Smith

DICTATED.

C O P Y .

Saint Paul, August 10, 1911.

Mr. H.M.Curry,

Mechanical Superintendent.

Dear Sir:-

Acknowledging yours of the 10th regarding improvements at Auburn and Pasco.

I am unable to answer the question which you ask relative to amount of electric current which will be required at the two places, other than that which will be necessary to operate the proposed facilities. I wrote Mr. Nutt upon receipt of your letter of the 31st, asking him to advise if any outside requirements other than those included in the new facilities would have to be taken care of, and I will advise you as soon as I hear from him.

Yours truly,

(Signed) W.C.Smith.

See Mr. Nutt's letter 8/7

Form 290 TW

Northern Pacific Railway Company

Office Mechanical Superintendent
ST. PAUL,
AUG 12 1911
MINN.
NOR. PAC. RY. CO.

IN YOUR REPLY PLEASE
REFER TO FILE_____

Tacoma, August 7, 1911.

Office Mechanical Engineer
ST. PAUL,
AUG 12 1911
MINN.
NOR. PAC. RY. CO.

Mr. H. M. Curry,

Mechanical Superintendent.

Dear Sir:

Referring to your letter of July 31st to Mr. W. C. Smith, copy of which you sent to me, and the attached copy of a letter I have just received from Mr. Smith relative to electric current for the new terminals at Auburn and Pasco.

If we can get a satisfactory price from the Pacific Light & Power Co. for the purchase of current at Pasco, I think it would be desirable to buy current from them as they are very large shippers and would be inclined to favor us with their business if they had such a contract with us. I am very much afraid, however, that their ideas of prices will be so high that we can't consistently buy it from them. At Auburn I believe we shall have no difficulty in getting such a price from Stone & Webster as will warrant our buying current from

them instead of generating it ourselves.

We have no one on this end of the line who is at all competent to negotiate for these contracts, and I believe the matter is of sufficient importance to have Mr. Bohan come out here to see what he can do in the way of getting a contract for the purchase of current at Pasco and at Auburn.

I think the idea of putting in a steam plant, even if we should buy current, ought to be carried out at Pasco and it may pay us to do it at Auburn, although I am inclined to think we can get such a low price and such a long term contract from Stone & Webster at Auburn that we can dispense with the necessity for a steam plant at that point.

Yours truly,

W. L. Rutt

Enc.

Copy to Mr. W.C.Smith.

St. Paul, Minn., Aug. 10, 1911.

Improvements 1911
Auburn
Pasco

File 5325-9
5325-10

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

Before I can make complete reply to your letter of Aug. 8th, it is necessary that I obtain reply to my letter to you of July 31st, requesting information in connection with the purchase of electric current, etc., at Auburn and Pasco, so that we will know what kind of equipment we are going to install.

Yours truly,

Mechanical Superintendent

6-E

COPy

Auburn

St. Paul, August 1, 1911.

Mr. H. C. Nutt,

General Manager.

Dear Sir:

Referring to Mr. Curry's letter of the 31st, copy to you, regarding information as to what buildings and premises, other than those covered by the plans for the new engine facilities, will require electric current:

I presume that an investigation should be started immediately to ascertain what it will cost us to buy current from outside concerns at the two points, and the party starting this investigation should also be supplied with information as to the inclusion of any other buildings or facilities. I believe similar negotiations on this end of the line have often been handled by our Electrical Engineer.

I will be glad if you will start the matter going so that we will know just what we will have to provide in equipping our plants.

Yours truly,

W. C. Smith.

cc - L.M.P.

Elect. Current

St.Paul,Minn., July 31st, 1911.

Improvements 1911
Auburn
Pasco

879

File #5325-9
5325-16

Mr. W. C. Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

In connection with the new terminals at Auburn and Pasco, I should know definitely, as early as possible, what buildings and premises, other than those covered by your plans and specifications, we will require electric current for. This should include the current required for operating the pumps, machinery, electric lighting, etc. Capacities of pumps and machinery should be given, also the number of electric lights, and also what should be done with reference to the purchase of electric current for either, or both of these points.

The plans I note provide for full engine and boiler rooms, anticipating the installation of our own power plants, which is very desirable, as we wish to be in a position at any time to install our own plant, either as a factor of safety or a means of obtaining and maintaining low electric current rates. If it is the intention to buy electric current for these points, early arrangements should be made for same before wiring, and machinery is purchased.

St.Paul,Minn., July 31st, 1911.

Improvements 1911
Auburn
Pasco

File #5325-9
5325-16

Mr. W.C.S. -2-

I would like to have your recommendations as early as possible.

Yours truly,

Mechanical Superintendent.

6-MM

Cy HCN

Mr. H.C.Nutt:-

I would be very pleased to have you advise me your views on this subject.

It is my understanding that the Power Company at Pasco is very desirous of furnishing us current, and also that the power line of the Stone & Webster Company at Tacoma and Seattle will pass very close to our terminals, and that we may probably make some satisfactory negotiations with these Companies.

H.M.C.

Feb. 3, 1912.

1

General Concrete Construction Co.

431 South Dearborn Street

Chicago, Ill.

Gentlemen:-

Referring to your letter of January 29th. addressed to Mr. W. J. Bohan, Mechanical Engineer.

In that connection, If agreeable, I should be glad to have your price f.o.b. St. Paul, upon a concrete stack to take the place of steel stack as shown upon blue print of drawing 14147, enclosed.

Also please state shipping weight of your stack.

Yours truly,

RJE-L

Purchasing Agent.

St. Paul, Minn., February 2, 1912.

Improvements
General
1911-12

Mr. F. G. Prest:-

Please note next attached.

As a matter of information, I would like to have these people advise what they would construct a concrete stack for to take the place of steel stack shown on the attached blueprint of drawing 14147.

Will you kindly take the matter up with them and determine if possible.

W. J. Bohan.

6-jt

NOR. PAC. RY.
FEB
3
1912
PURCHASING AGENT

GENERAL CONCRETE CONSTRUCTION CO.

CONTRACTORS — ENGINEERS

TAPERING CONCRETE CHIMNEYS

W. F. KAEHLER,
SECY. & MANAGER.

431 SOUTH DEARBORN STREET.

30 CHURCH ST.
NEW YORK

CHICAGO

Jan. 29, 1912.

Mr. W. J. Bohan, Mechanical Engr.,
Northern Pacific R.R. Co., St. Paul, Minn.

Dear Sir:-

It is reported that you contemplate the erection of a new plant at Spokane, and if a chimney will be required, permit us to submit plans and a proposal on our Tapering Concrete Chimney.

These chimneys are without exception the best chimneys on the market today and are the result of years of experience. The fact that many of the leading engineers and industrial corporations are among our customers and constantly sending in repeat orders, is the best evidence we can offer you that our chimney has been generally accepted.

They are designed and constructed by engineers who have made chimneys their specialty. Our patented steel forms are the result of many years of experimenting, and we know that they are the best for the purpose.

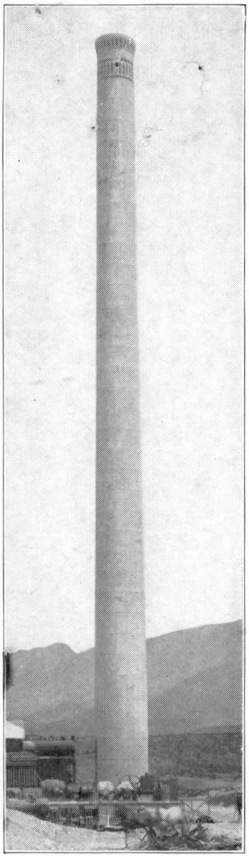
We can build these graceful tapering chimneys at very attractive prices, and ask you to kindly let us have the information requested on the enclosed card to enable us to submit a proposition.

Yours very truly,
GENERAL CONCRETE CONSTRUCTION CO.

E. T. Morrison
CONTRACTING ENGINEER.

No
1911-12

19



CHIMNEY TO BE BUILT AT

Distance from R. R.

Boiler H. P.

Height above grade

Depth below grade

Inside diameter

PRICES of MATERIAL and LABOR:

Cement, per bbl.

Sand, per yard

Gravel / Stone } Per yard

Common Labor, per hour

Date contract will be let

REMARKS:

Name _____

RETURN THIS CARD FOR OUR RECORDS

Post Card.



GENERAL CONCRETE CONSTRUCTION CO.

315 Dearborn Street

CHICAGO, ILL.

GENERAL CONCRETE CONSTRUCTION CO.

CONTRACTORS — ENGINEERS

TAPERING CONCRETE CHIMNEYS

431 SOUTH DEARBORN STREET.

W. F. KAEHLER,
SECY. & MANAGER.

30 CHURCH ST.
NEW YORK

CHICAGO

Feb.19, 1912.

Mr. W. A. Bohan, Mec.Engr.,

Northern Pacific Ry.Co.,

St.Paul, Minn.

Dear Sir:-

Yours of the 16th.

We guarantee all of our chimneys for a period of five years fom completion against faulty design, defective material or workmanship and to stand a temperature of 1000°F.

Should you desire any further information, we will be pleased to hear from you again. In the meantime when in the market we trust you will give us an opportunity to submit you an estimate.

Very truly yours,

GENERAL CONCRETE CONSTRUCTION CO.

W F Kaehler Secy.

Dict.
WEK/EBO.

N/
Res attach to file on Pas co.
WB 2/7/12

February 16, 1912.

Auburn and Pasco
Improvements 1911-12

Mr. H. M. Boon,
The Babcock & Wilcox Co.,
#1207 Marquette Bldg.,
Chicago, Ill.

Dear Sir:-

Will you kindly advise if you have any data concerning the merits of concrete chimneys, such as manufactured by the General Concrete Construction Co., Chicago, Ill. What I am particularly desirous of obtaining is their relative value, from an economical standpoint, as compared with steel stacks, also their relative stability and, if possible, to obtain the specification of the concrete mixture. If you have such information and it is entirely consistent for you to give it to me, I will appreciate it very much and will treat the matter confidentially, should you so desire.

Yours truly,

6-E

February 16, 1912.

Auburn and Pasco
Improvements 1911-12

General Concrete Construction Co.,
#431 So. Dearborn St.,
Chicago, Ill.

Gentlemen:-

Will you kindly advise what guarantees, if any, you give on your concrete chimney construction.

Yours truly,

6-E

February 23, 1912.

AUBURN and PASCO
Improvements 1911-12

Mr. H. M. Boon,
The Babcock & Wilcox Co.,
#1207 Marquette Bldg.,
Chicago, Ill.

Dear Sir:-

I wish to acknowledge receipt of and thank you very much for yours of Feb. 21st, regarding concrete chimneys, and enclosing booklet on the "Weber" chimney. I certainly appreciate your kindness very much.

Yours truly,

6-E

February 16, 1912.

Auburn and Pasco
Improvements 1911-12

Mr. H. M. Boon,
The Babcock & Wilcox Co.,
#1207 Marquette Bldg.,
Chicago, Ill.

Dear Sir:-

Will you kindly advise if you have any data concerning the merits of concrete chimneys, such as manufactured by the General Concrete Construction Co., Chicago, Ill. What I am particularly desirous of obtaining is their relative value, from an economical standpoint, as compared with steel stacks, also their relative stability and, if possible, to obtain the specification of the concrete mixture. If you have such information and it is entirely consistent for you to give it to me, I will appreciate it very much and will treat the matter confidentially, should you so desire.

Yours truly,

6-E

February 16, 1912.

Auburn and Pasco
Improvements 1911-12

General Concrete Construction Co.,
#431 So. Dearborn St.,
Chicago, Ill.

Gentlemen:-

Will you kindly advise what guarantees, if any, you give on your concrete chimney construction.

Yours truly,

6-E

GENERAL CONCRETE CONSTRUCTION CO.

CONTRACTORS — ENGINEERS

TAPERING CONCRETE CHIMNEYS

W. E. KAEHLER,
SECY. & MANAGER.

431 SOUTH DEARBORN STREET.

CHICAGO

Office Mechanical Engineer
ST. PAUL, MINN.
FEB 15 1912
30 CHURCH ST. NEW YORK
NOR. PAC. RY. CO.

Feb.14, 1912.

Mr.F.G.Prest, Pur.Agt.,

Northern Pacific Ry. Co.,

St.Paul, Minn.

Dear Sir:-

Re. Desk No.1;

Referring to your correspondence of February 3rd to 7th relative to price of reinforced concrete Chimney. and chimney erected complete, according to our system, 125' above grade 4'-6" inside diameter, erected complete including foundation, approximately 45' of brick lining, under average conditions, based on market prices of materials today at St.Paul or vicinity, would be approximately $2250.00.

For your further information, we are enclosing herewith standard print of a chimney about this size, together with strain sheet which may be of interest to your engineering department, at any rate, would be glad to have you place it on file for future reference together with the pamphlet describing and illustrating the system of our construction, and should you desire any further information or any time in the market, we will appreciate an opportunity of submitting you formal proposition.

Very truly yours,

GENERAL CONCRETE CONSTRUCTION CO.

W E Kaehler
Sec'y.

Dict.
WEK/EBO.

N.J.B. 20 yrs
F.G.R. 7/15.

Office Mechanical Engineer,
ST. PAUL,
FEB 15 1912
MINN.
NOR. PAC. RY. CO.

NOR. PAC. RY.
FEB 15 1912
PURCHASING AGENT

Feb. 7, 1912.

1

General Concrete Construction Co.

431 So. Dearborn St.

Chicago, Ill.

Gentlemen:-

Replying to your letter of Feb. 5th.

We are not contemplating, at this time, erecting a concrete stack either at Spokane or any other point upon this system. Our original inquiry in this connection was to estimate, if possible, the difference in cost between a concrete and metal stack, as covered by our drawing 14147. If you cannot give me the information in a general way, we will drop the subject.

Under the existing conditions, there is no necessity for sending one of your engineers to St. Paul for purpose of discussing the matter further, but if he is in the City, I shall be glad to go over the matter with him with our Engineers.

Yours truly,

RJE-L

Purchasing Agent.

GENERAL CONCRETE CONSTRUCTION CO.

CONTRACTORS — ENGINEERS

TAPERING CONCRETE CHIMNEYS

W. E. KAEHLER,
SECY. & MANAGER.

431 SOUTH DEARBORN STREET.

30 CHURCH ST.
NEW YORK

CHICAGO

Feb. 5, 1912.

Mr. F.G. Prest, Pur.Agt.,
Northern Pacific Ry.Co.,
St.Paul, Minn.

Dear Sir:-

We assume that in your letter of Feb.3rd you desire us to submit the price on concrete stack erected at Spokane, Washington with all freight allowed on materials from St.Paul, in other words freight on all tools and equipment and the railway fare of men from St.Paul, but we would also like to know if you will allow freight on sand, gravel and cement which we would purchase at the nearest possible point to Spokane?

Kindly let us have this information by return mail and in the meantime we will forward all estimates, strain sheets and drawings.

We expect to have one of our engineers in St.Paul Wednesday or Thursday of next week and will be glad to receive this information before he leaves.

Very truly yours,

GENERAL CONCRETE CONSTRUCTION CO.

E. T. Morrison

CONTRACTING ENGINEER

Dict.
ATM/EBO.

[redacted] PAC. RY.
FEB
6
1912
PURCHASING AGENT

Western Electric Company,

235-237 EAST SIXTH STREET

ST. PAUL,

IN REPLY REFER TO

REPLYING TO

10/7/12.

Pasco
Auburn

Auburn

W.J. Bohen, Mechanical Eng.,
Northern Pacific Ry. Co.,
St.Paul, Minnesota.

Dear Sir:

In accordance with your request of a few days ago, we hand you herewith complete data relative to switch boards sold you for your Pasco and Auburn, Washington Stations.

We wish to advise that we have taken these prints from our files, as we are of the impression that we will no longer need them, and they represent all the information which we have on the subject.

Should it ever become necessary for you to refer to any of these drawings, it would be wise for you to make copies of them. to forward to us.

Yours truly,

WESTERN ELEC. CO.,

Paul E. Davenport.
Manager.

note

OK. except position of rottmeter receptacle
M
90/7/12

Webb
file in Auburn
10/7/12

K-1128594-sheet 9-10

THIS PRINT
SUPERSEDES
NO. K-1128594
SENT TO YOU previously

Office Mechanical Engineer, ST. PAUL, OCT 7 1912 MINN. NOR. PAC. RY. CO.

NOT TO SCALE

FIRST APPROVED FOR
Northern Pacific
Railway

ORDER NO.
OUR REQ. NE 49302
SUPERSEDES.
SENT YOU

Print is loaned subject to return upon demand, and upon the express condition that it is not to be used directly or indirectly in any way detrimental to our interests.

WESTERN ELECTRIC COMPANY,

By

BY J. W. UPP

NP. 7687

DATE ADDED OR CHANGED | MARK | QUANTITY

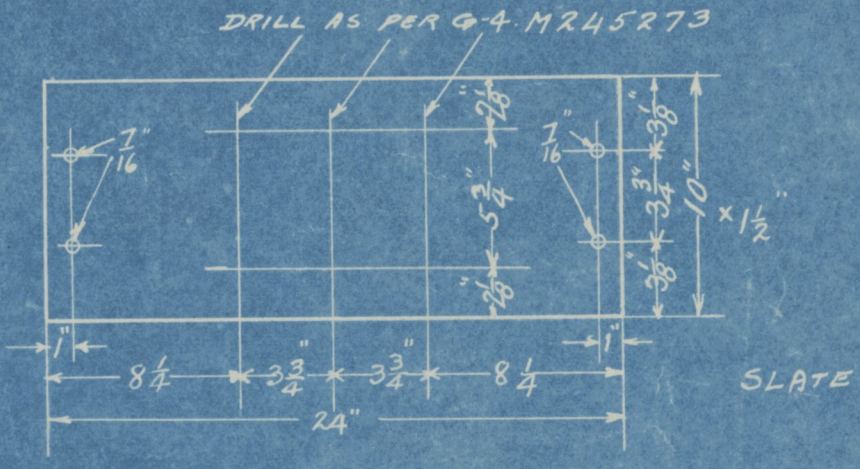
SUMMARY

S.O. 964121 REQ. No. WE-49302.

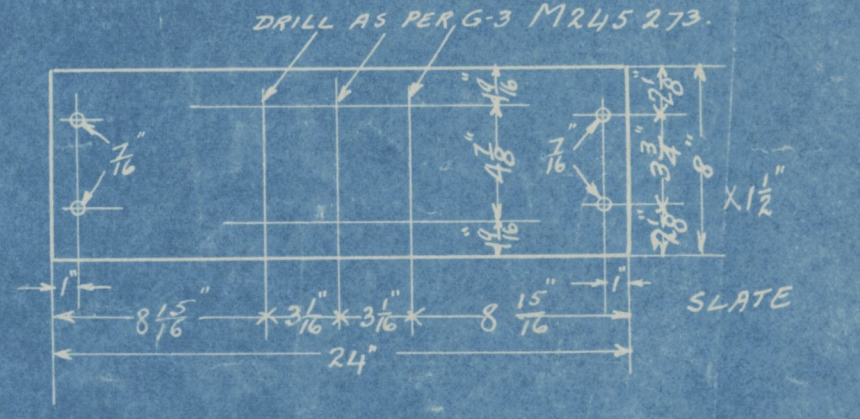
Wanted June 20-12. DESCRIPTION OF APPARATUS

FINISH

85 3 Littlefield



86 6 Littlefield



-DRAWINGS-

M-1140449 - SWITCHBOARD - FRONT VIEW.

M-1140450 - SWITCHBOARD - BACK VIEW.

K-1160516 - SWITCHBOARD - WIRING

7-19-12 ~~NO~~ FURTHER SUMMARIES TO FOLLOW.

SUMMARY OF SLABS. K 1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION. BRAINERD, MINN.

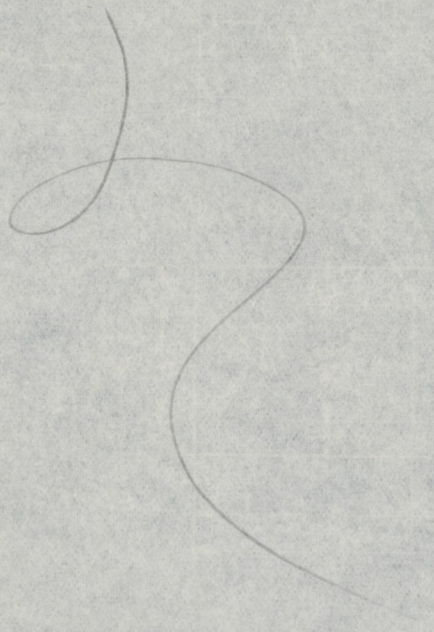
SB

COMPILED P.L.walker. June 12-1912 APPROVED INSPECTED Jun. 13-12.

7-19-12 GENERAL ELECTRIC CO., SCHENECTADY, N. Y. SHEET No. GENERAL CONTINUED ON SHEET No. 10

SW-2112-d 10m 2-13-12

2



DATE ADDED OR CHANGED	MARK	QUANTITY

SUMMARY

S.O. 964121

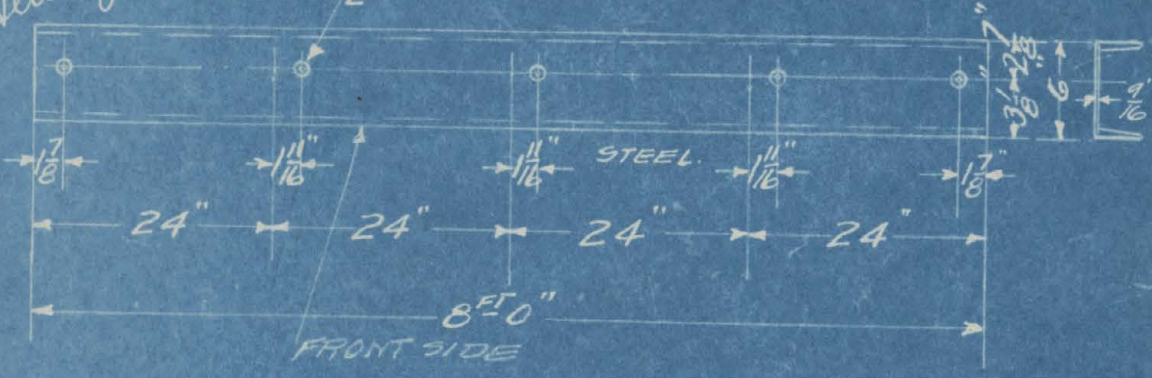
REQ. No. WE 49302

Wanted 7/22.

DESCRIPTION OF APPARATUS

FINISH

87 / Helling CHANNEL 1/2"-13-TAP



-DRAWINGS -

M-1140449 - SWITCHBOARD - FRONT VIEW.
M-1140450 - SWITCHBOARD - BACK VIEW.
M-1140516 - SWITCHBOARD - WIRING.

NO FURTHER SUMMARIES TO FOLLOW

SUMMARY OF STEEL DETAILS

K 1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION BRAINERD MINN.

SB

COMPILED H-E-DAHN JULY 17-12 APPROVED INSPECTED July 19-12

GENERAL ELECTRIC CO., SCHENECTADY, N. Y. SHEET No. 10 FINAL CONTINUED ON SHEET No.

SW-2112-d 10m 2-13-12



NOT TO SCALE

FIRST APPROVED FOR

ORDER NO.

OUR REQ.

SUPERSEDES

SENT YOU

PRINT IS LOANED SUBJECT TO RETURN UPON DEM
AND UPON THE EXPRESS CONDITION THAT IT IS NOT
BE USED DIRECTLY OR INDIRECTLY IN ANY
DETRIMENTAL TO OUR INTERESTS.

GENERAL ELECTRIC COMPANY.
SCHENECTADY, N. Y.
U. S. A.

BY J. W. UPP

K-1128 S 94 sheets 1-59



NOT TO SCALE

FIRST APPROVED FOR

Northern Pacific Railway

ORDER NO.

OUR REQ. NE 49302

SUPERSEDES.

SENT YOU

Print is loaned subject to return upon demand, and upon the express condition that it is not to be used directly or indirectly in any way detrimental to our interests.

WESTERN ELECTRIC COMPANY, INC.
U. S. A.

BY J. W. UPP

SUMMARY

S.O. 964121 REQ. No. WE-49302 FULLER.

DESCRIPTION OF APPARATUS

Wanted June 3-12. FINISH SEE BELOW

DATE ADDED OR CHANGED	MARK	QUANTITY	
			PANEL SLABS
		4	DULL BLACK MARINE FINISHED SLATE PANELS EACH CONSISTING OF: 1- TOP SECTION 65"X24"X2" } 3/8" BEVEL. 1- BOTTOM SECTION 25"X24"X2" }
			INSTRUMENT STOCK. (FINISH- DULL BLACK)
	A	1	SET OF INSTRUMENTS FOR USE ON A 240V, 300A 3 PH, 3W 60~ CIR. CONSISTING OF:
	1		3- AMM-5A WITH 400A SCALE, TYPE "H."
	2		1- VOLTM. 350V. TYPE "H."
	3		1- WATTHOUR METER 5A. 240V. POLYPHASE (2 CUR COILS) TYPE DS-4.
	18		2- CUR TRANS, 400A. K-5 RATIO 80:1 SPEC. 143825
	4	1	WATTHOUR METER 50A, 240V POLYPHASE (2 CUR COILS) TYPE D-3: FOR USE ON 3PH. 3W. 60~ CIR.
	5	1	WATTHOUR METER 100A, 240V, POLYPHASE (2 CUR COILS) TYPE D-3: FOR USE ON 3PH, 3W. 60~ CIR.
	20	1	POT TRANS 220/110V, 200W. 60~ SPEC 37404 FOR TA-125 REQ.
			INSTRUMENT STOCK CLOSED.
			LEVER & FIELD SWITCHES. (FINISH- #128)
	6	1	LEVER SW. 250V, 300A, TPST. D-12, G-3 M-218673
	7	3	stock. LEVER SW 250V, 200A, TPST. D-12 G-3 M-215720
	8	6	LEVER SW. 250V, 100A, TPST, D-12 G-3 M-215328.
	9	1	FIELD SW. 250V, 200A DPST. F-16 G-1 M-814917.

SUMMARY OF APPARATUS K 1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO.

AUBURN STATION, BRAINERD, MINN.

COMPILED HARVEY. MAY 28-12. APPROVED INSPECTED MAY 28-12.

SB

SHEET No. 1 CONTINUED ON SHEET No. 2

SW-2112-d 10m 2-13-12

12



SUMMARY

S.O. 964121 REQ. No. W.E. 49302

FULLER.

Wanted June 3-12. DESCRIPTION OF APPARATUS

FINISH

DATE ADDED OR CHANGED	MARK	QUANTITY	
			MISCELLANEOUS MATERIAL.
	10	1	Helling & RHEOSTAT CONC. MECH. G-16 M-877271 * ✓
	11	1	RECEPTACLE, 8 PT. POT. G-7 P-138887 ✓
	12	1	PLUG. 4 PT POT. G-13 P-138887 ✓
	13	3	LAMP RECEPTACLE G-1 M-127346. ✓
	14	10	CARD HOLDER. PUNCHING G. 413425. ✓
	15	9	FUSE. 250V, 200A, NECS. CAT. # 34981. FOR. MARK # 7.
	16	18	FUSE. 250V, 100A. NECS, CAT. # 34970. FOR MARK. # 8.
	17	1	RHEO. SUPPORT. G-5 M-814372; # 3 = 23½" LG.
	19	1	NAME PLATE N.P. 7687.
	21	1	Helling SUPPORT. G-1 P1S9756 (FOR TA-125 VOLT. REG.)
6-13-12	22	1	REGULATOR, TYPE TA-125 FORM A-2 OL. 40711; TO BE MOUNTED ON A DULL BLACK MARINE FINISHED SL. BASE.
6-13-12	23	1	CONDENSER SECTION SP. 27255. FOR 22
6-13-12	24	1	INSTRUCTION BOOK 8359 FOR 22.

* COUNTERSHAFT. 2 FT 9" LG: USE CHAIN G-1 P-193765 FOR PT. # 18.

OTHER SUMMARIES TO FOLLOW.

SUMMARY OF APPARATUS K1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY. CO.

AUBURN STATION, BRAINERD, MINN.

SB

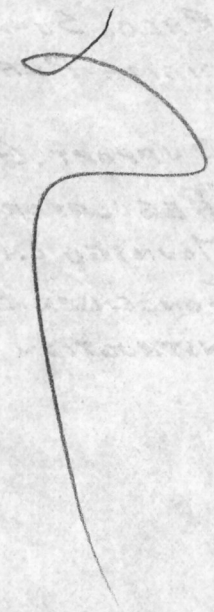
COMPILED HARVEY MAY 28-12 APPROVED INSPECTED MAY. 28-12.

6-13-12

SHEET No. 2 FINAL. CONTINUED ON SHEET No. 3

SW-2112-d 10m 2-13-12

15



SUMMARY

S.O. 964121 REQ. No. WE 49302.

Wanted June 20-12

DATE ADDED OR CHANGED	MARK	QUANTITY	DESCRIPTION OF APPARATUS FINISH
	30	5	TIE ROD FITTING G-1 P896627.
	31	5	Welding $\frac{3}{4}$" PIPE FITTING #5 M174562. PAT. 141331. J IRON MAL.
	32	3	Welding $\frac{3}{4}$" PIPE FITTING G-1 M833730.
	33	3	Welding $\frac{3}{4}$" DIA. PIPE. 16 $\frac{3}{4}$" LONG. IRON WRT.
	34	9	BUS BAR SUPPORT. G-2 P-806531.
	35	18	FUSE BLOCKS 200A. G-4 M-245273
	36	36	FUSE BLOCKS 100A. G-3 M-245273.
	37	1	SUPPORT FOR CONDENSER TRIPOD. G-1 P807407
	38	3	FOOT ANGLES G-2 M138782.
	39	1	FOOT ANGLES G-10 M138782.
	40	1	WIRE, PRIM. FOR MARK 20. #102 M871600. 30FT. LONG.
	41	1	CABLE. SEC. FOR MARK 20. #951 M871607. 25FT. LONG.
	42	1	CABLE. SEC FOR MARK 18. #1001 M871608. 25FT LONG.
	43	4	YOKES PU.432310. WITH STD. NUTS. FOR MARK 63

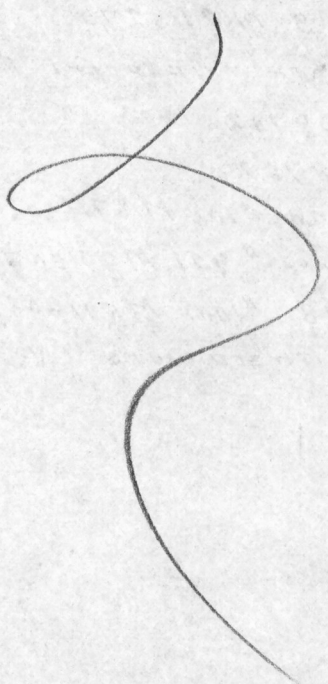
SUMMARY OF MISCELLANEOUS MATERIAL K 1128594.

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION. BRAINERD. MINN.

SB

COMPILED B.Walker. June 12-1912 APPROVED INSPECTED Jun. 13-12.

SHEET No. 3 CONTINUED ON SHEET No. 4

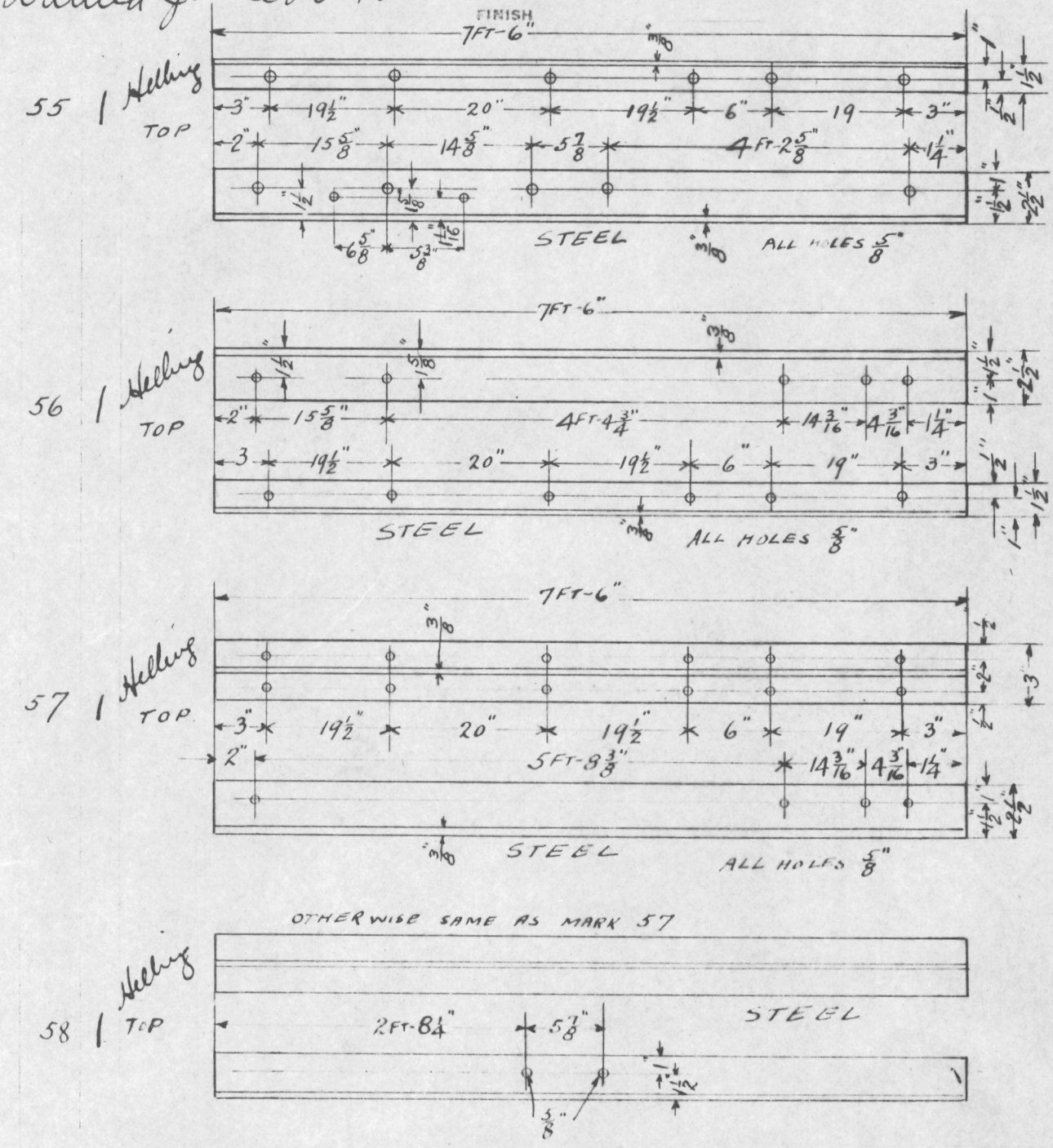


DATE ADDED OR CHANGED | MARK | QUANTITY

SUMMARY

S.O. 964121 REQ. No. WE. 49302

Wanted June 20-12. DESCRIPTION OF APPARATUS



SUMMARY OF STEEL DETAILS

K 1128594.

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO AUBURN STATION BRAINERD, MINN

SB

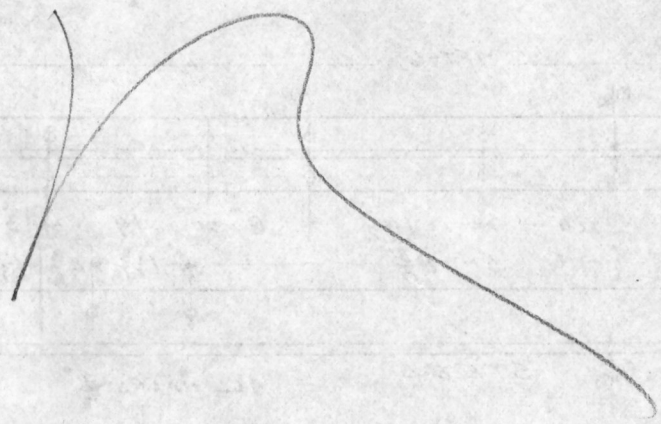
COMPILED BWalker June-12-1912 APPROVED

INSPECTED Jun. 13-12

SHEET No. 4 CONTINUED ON SHEET No. 5

SW-2112 d 10m 2-13-12

11



DATE ADDED OR CHANGED | MARK | QUANTITY

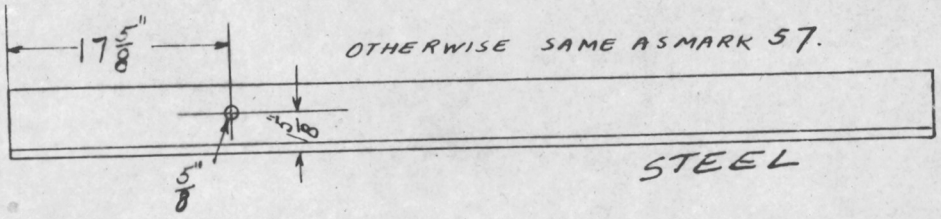
SUMMARY

S.O. 964121 REQ. No. WE-49302

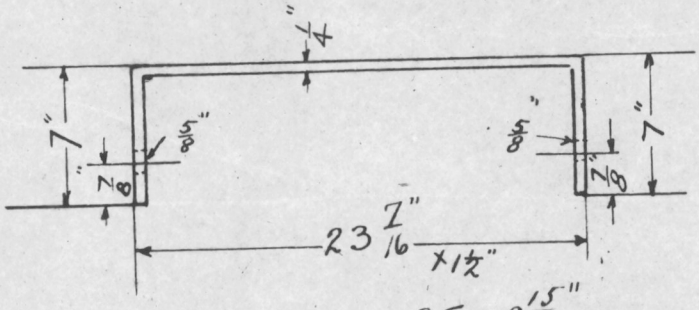
Wanted June 20-12. DESCRIPTION OF APPARATUS

FINISH

59 1 Kelling TOP



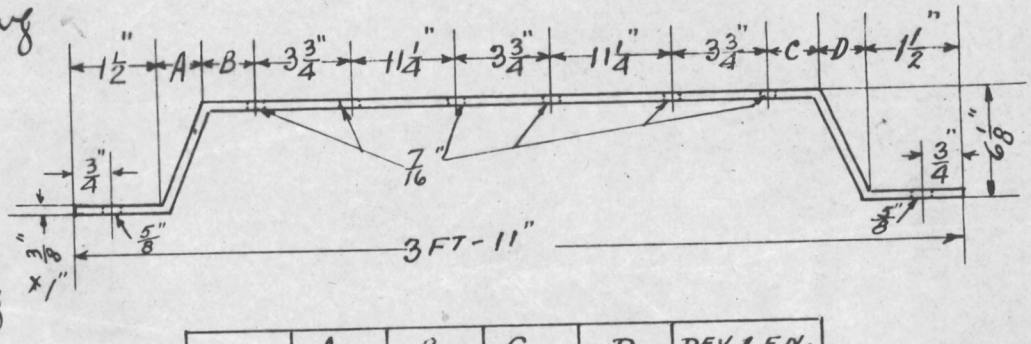
60 4 Kelling



DEV. LEN = 3FT-0 15/16"

61 4 Kelling

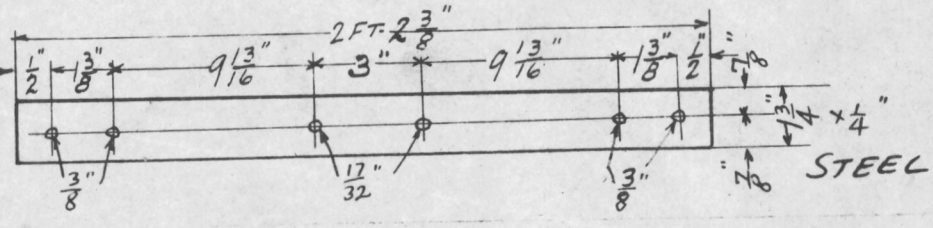
62 2 Kelling



MARK	A	B	C	D	DEV. LEN.
61	3 5/8"	2 1/8"	2 1/8"	2 3/8"	4FT-6 3/4"
62	2 5/8"	3 1/8"	3 1/8"	1 3/8"	4FT-8 1/8"

STEEL

63 2 Kelling



SUMMARY OF STEEL DETAILS K 1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION. BRAINERD, MINN.

COMPILED Bwalker · June-12-1912 APPROVED INSPECTED Jun. 13-12

SHEET No. 5 CONTINUED ON SHEET No. 6.

SW 2118-A 10m 2-13-12

DATE ADDED OR CHANGED | MARK | QUANTITY

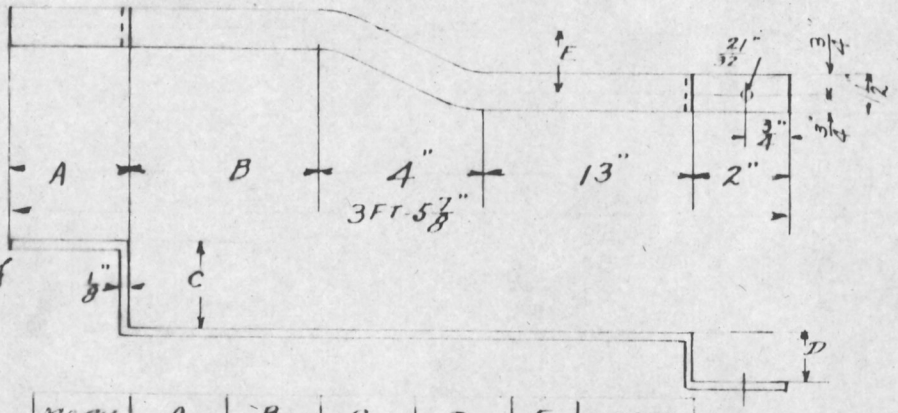
SUMMARY

S.O 964121 REQ. No. WE 49302

Wanted June 30-12

DESCRIPTION OF APPARATUS

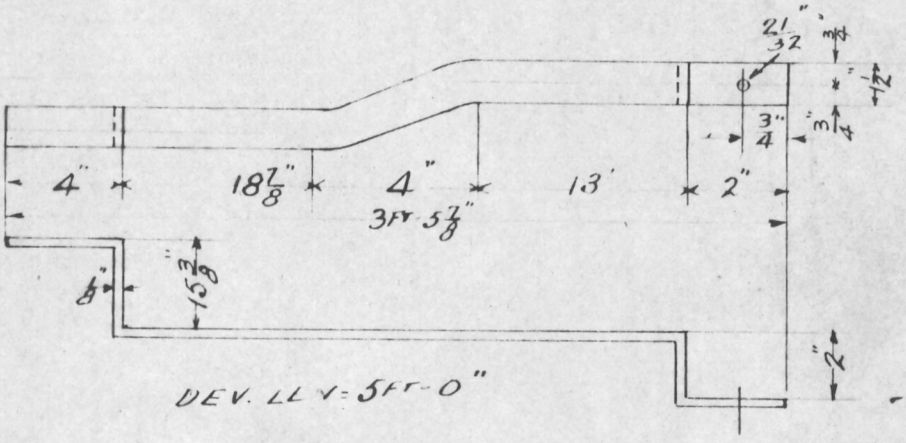
FINISH



65 1 Kelling

66 1 Kelling

MARK	A	B	C	D	E	DEV. LEN.
65	4"	18 7/8"	4 1/8"	1 1/4"	3/4"	4FT 0"
66	5 1/2"	17 3/8"	9"	2 3/8"	4 3/4"	4FT 7 3/4"



67 1 Kelling

68 3 Kelling 2"x1/4" BUS BARS 8FT-3" LONG

SUMMARY OF COPPER DETAILS. K 1128594.

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION. BRAINERD. MINN.

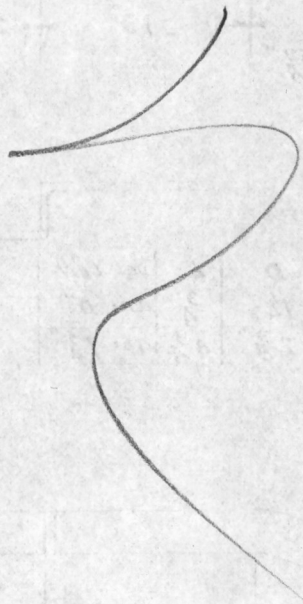
SB

COMPILED B.O. Walker June 12-1912 APPROVED INSPECTED Jun 13-12

SHEET No. 6 CONTINUED ON SHEET No. 7

SM-2112-4 10m 2-13-12

11



DATE ADDED OR CHANGED | MARK | QUANTITY

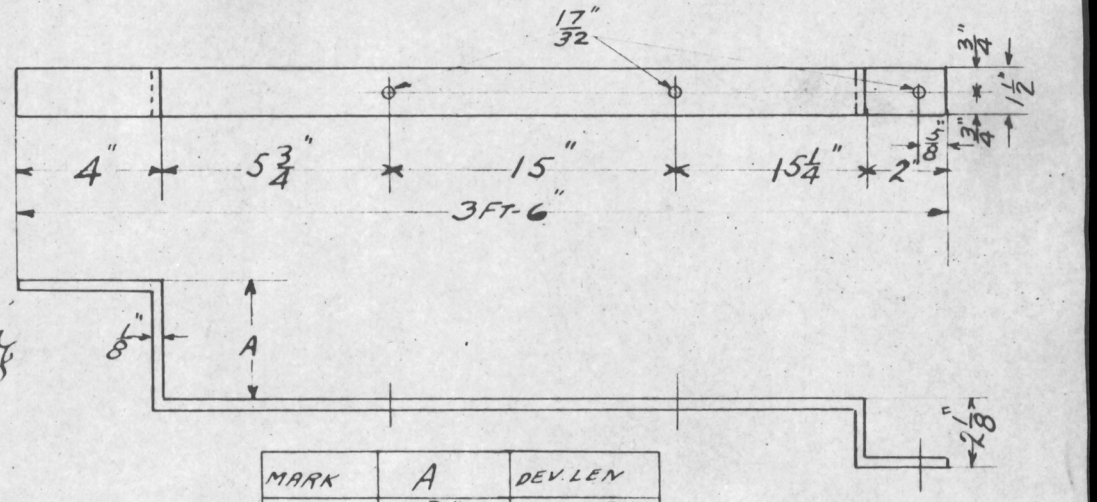
SUMMARY

S.O. 964121 REQ. No. WE-49302.

Wanted June 20-12.

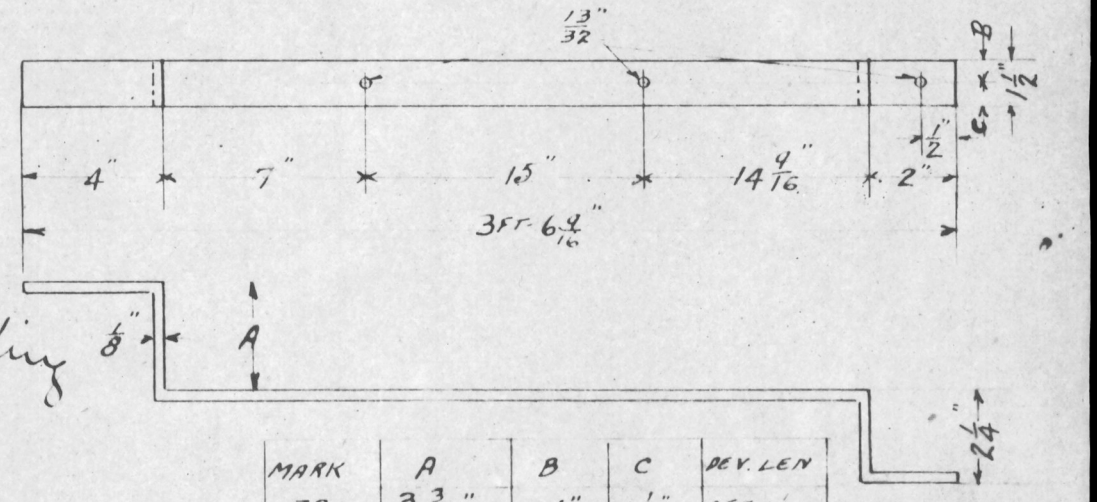
DESCRIPTION OF APPARATUS

FINISH



69 1
70 1 } Selling
71 1

MARK	A	DEV. LEN
69	3 3/8"	3FT-11 3/8"
70	9 3/8"	4FT-5 3/8"
71	15 3/8"	4FT-11 3/8"



72 2
73 2 } Selling
74 2

MARK	A	B	C	DEV. LEN
72	3 3/8"	1"	1/2"	4FT-0 3/8
73	9 3/8"	3/4"	3/4"	4FT-6 1/8"
74	15 3/8"	1/2"	1"	5FT-0 1/8"

SUMMARY OF COPPER DETAILS K 1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION BRAINERD, MINN

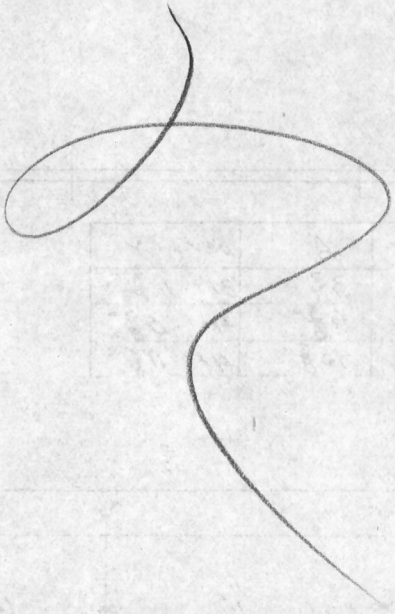
SB

COMPILED B. Walker June 12-1912 APPROVED INSPECTED

SHEET No. 7 CONTINUED ON SHEET No. 8

11

SW-2112-A 10M 2-13-12



DATE ADDED OR CHANGED | MARK | QUANTITY

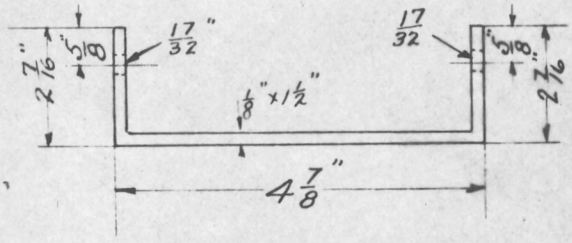
SUMMARY

S.O. 964121 REQ. No. WE-49302.

Wanted June 20-12. DESCRIPTION OF APPARATUS

FINISH

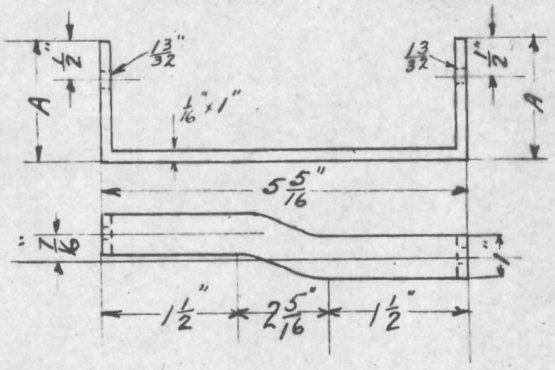
75 9 Selling



DEV. LEN = 9 1/2"

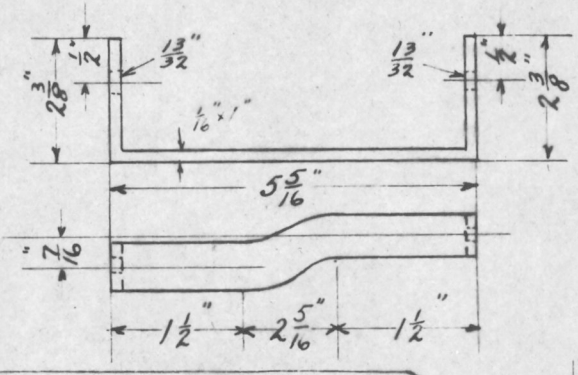
76 6 Selling

77 6 Selling



MARK	A	DEV. LEN
76	2 1/8"	9 5/8"
77	2 3/8"	10 1/8"

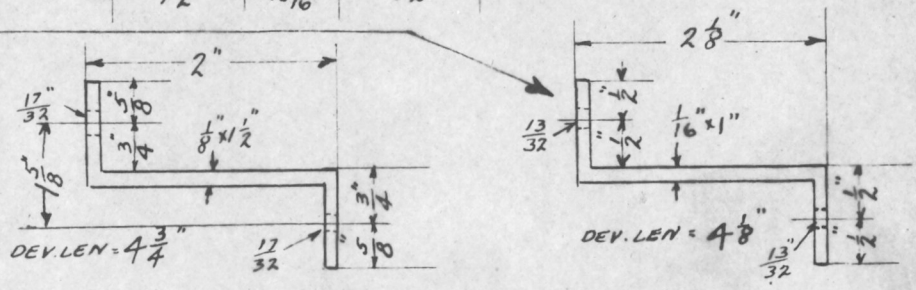
78 6 Selling



DEV. LEN = 10 1/8"

79 12 Selling

80 6 Selling



SUMMARY OF COPPER DETAILS. K1128594

FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION BRAINERD, MINN.

SB

COMPILED Bwalker June 12-1912 APPROVED INSPECTED JUN. 13-12

SHEET No. 8 CONTINUED ON SHEET No. 9

11

SW-2112-d 10m. 2-13-12



DATE ADDED OR CHANGED | MARK | QUANTITY

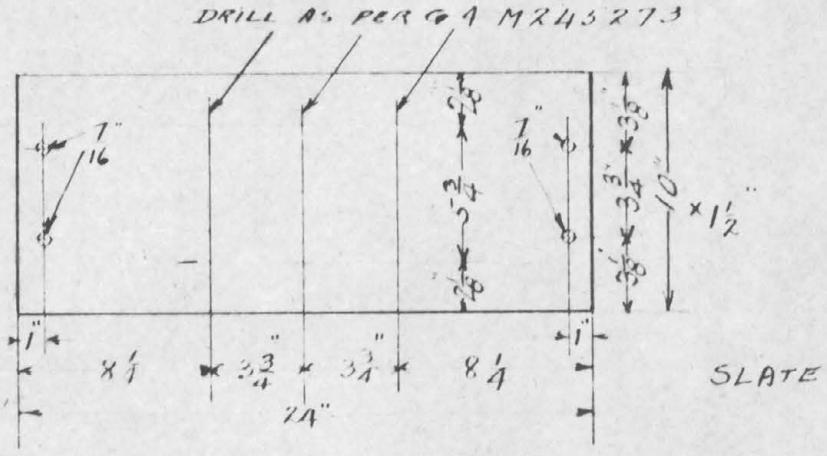
SUMMARY

S.O 964121 REQ. No. WE 49302

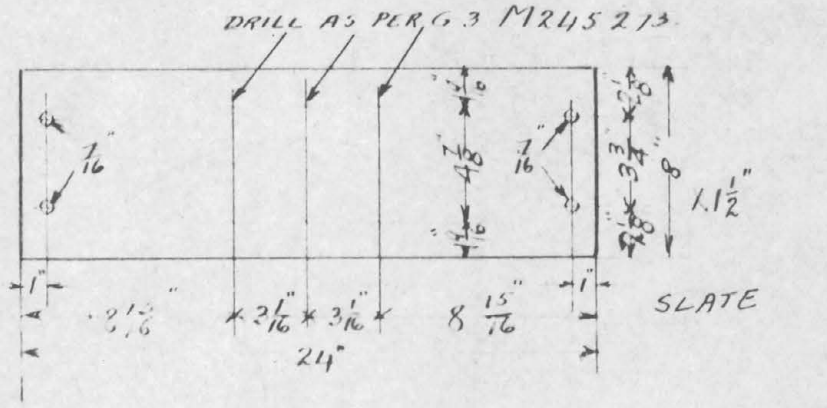
Wanted June 20-12. DESCRIPTION OF APPARATUS

FINISH

85 3 Littlefield



86 6 Littlefield



DRAWINGS

M 1140449 - SWITCHBOARD - FRONT VIEW

M 1140450 - SWITCHBOARD - BACK VIEW

K 1160516 - SWITCHBOARD WIRING

NO FURTHER SUMMARIES TO FOLLOW

SUMMARY OF SLABS. K 1128594.

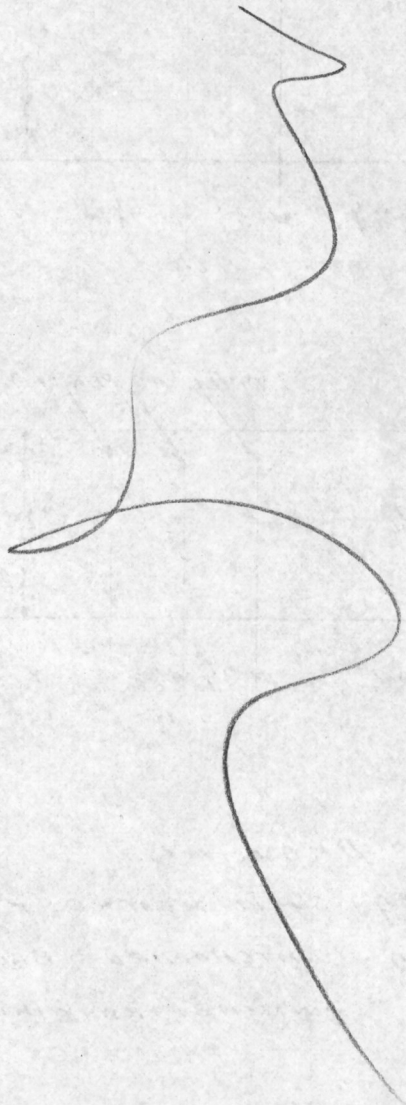
FIRST MADE FOR NORTHERN PACIFIC RAILWAY CO. AUBURN STATION. BRAINERD, MINN.

SB

COMPILED B.L.walker June 12-1912 APPROVED INSPECTED Jun 13 - 12

SHEET No. 9 FINAL CONTINUED ON SHEET No.

12



NOT TO SCALE

FIRST APPROVED FOR

ORDER NO.

OUR REQ.

SUPERSEDES

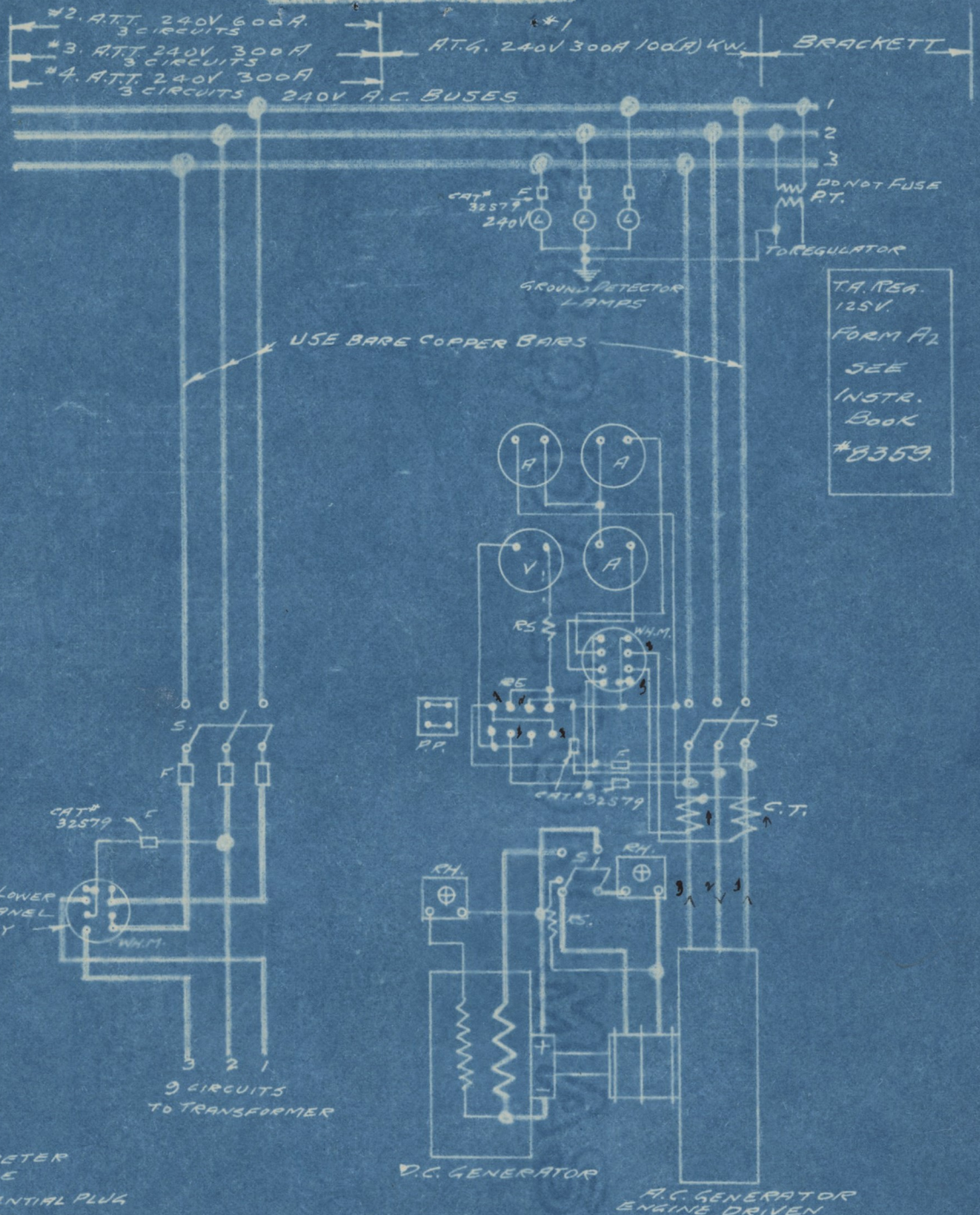
SENT YOU

PRINT IS LOANED SUBJECT TO RETURN UPON DEMAND
AND UPON THE EXPRESS CONDITION THAT IT IS NOT TO
BE USED DIRECTLY OR INDIRECTLY IN ANY WAY
DETRIMENTAL TO OUR INTERESTS.

GENERAL ELECTRIC COMPANY.
SCHENECTADY, N. Y.
U. S. A.

BY J. W. UPP

THIRD ANGLE PROJECTION



A. AMMETER
F. FUSE
P.P. POTENTIAL PLUG
RH. RHEOSTAT
RS. RESISTANCE
RE. RECEPTACLE
S. SWITCH
C.T. CURRENT TRANSFORMER
P.T. POTENTIAL TRANSFORMER
WH.M. WATTHOUR METER
V. VOLT METER
L. LAMP

FOR SMALL PANEL LEADS USE .081" DIA. WIRE #10 M871600
FOR P.T. PRIMARY LEADS USE .081" DIA. WIRE #12 M871600
SMALL LEADS FROM BELOW.

NOTICE TO PURCHASER.

REFER TO CONTRACT FOR MATERIAL TO BE SUPPLIED BY THE WESTERN ELECTRIC COMPANY. THE AMOUNT OF SUCH MATERIAL IS NOT INCREASED BY ANYTHING SHOWN UPON THIS DRAWING.

A1354

WESTERN ELECTRIC COMPANY, SCHENECTADY, N. Y.

SWITCHBOARD WIRING (BACK VIEW)

NORTHERN PACIFIC RWY. CO.
AUBURN STATION BRAINERD, MINN.

CLASS 3F
REQ. WE49302

K1160516

DRAWN BY T. TORGESSEN JUNE 7-12 INSPECTED Jun. 14-12.

SB.

SW-2135 5m 2-20-12

Office Mechanical Engineer,
ST. PAUL,
OCT 7 1912
MINN.
NOR. PAC. RY. CO.

NOT TO SCALE

FIRST APPROVED FOR

ORDER NO.

OUR REQ. NE 49310

SUPERSEDES:

SENT YOU

Print is loaned subject to return upon demand and upon the express condition that it is not to be used directly or indirectly in any way detrimental to our interests.

WESTERN ELECTRIC COMPANY,

By J. W. UPP.

BLUE PRINT DEPARTMENT
JUN 20 1912

Auburn

COPY.

Minneapolis, Minn. Sept. 20th, 1911.

Mr. W.J.Bohan,

Mechanical Engineer, Northern Pacific Ry.Co.

St.Paul,Minn.

Dear Sir:-

Your letter of the 19th inst., is received and we are pleased to note that you have definitely decided on the 150 H.P. units for your new installations, and believe that you will find this action to be a wise one.

Answering your inquiry, regarding space occupied by the blowing rig, would say that it will require approximately 15' in length, over all, and 4' or 4'6" wide for fan and engine to provide sufficient air for four boilers of 150 H.P. each. We enclose herewith a sketch showing such an equipment in the plant of the Electric Malting Co., in Minneapolis, in this case the boilers are of the return tubular type rated at 200 H.P., each, and they have provided air equipment large enough to take care of an additional boiler of the same size later on.

The writer does not have on hand here in Minneapolis prints showing B & W boilers but this print should give you the information required for laying out the plant, at least near enough for present purposes, in the meantime I will ask my Company to send you prints showing B & W boilers with the air equip-

ment in place, or better still if you will give us the data will make a correct layout for you, in fact we are more than pleased to furnish you with all the information you need.

Inasmuch as you are almost certain to install two more boilers in the future, and as it does not cost very much additional to provide a blowing rig large enough for the four boilers, we would strongly recommend the purchase of the larger rig at this time, by doing so it will materially reduce the cost of the second installation.

Our proposal dated 9-2-1911 includes a 5 x 7 engine and a 55" fan, we will substitute in its place an engine 6 x 7 and a 60" fan, for an additional sum of $35.00, and this fan and engine will have sufficient capacity to furnish air for four 150 H.P. boilers.

Thanking you for your consideration and trusting that we may soon be favored with your valued order for these stokers, we are,

Yours very truly,

THE UNDERFEED STOKER COMPANY OF AMERICA.

BY S.A.Williamson.

For prints see "Pasco File"

Sept. 19th, 1911.

Improvements 1911
Auburn
Pasco

9/21

Mr. S.A.Williamson,
#108 Hennepin Court,
Minneapolis, Minn.

Dear Sir:-

We are, as you know, figuring on the installation of some underfeed stokers on two or our new roundhouse terminals. The installations that we are figuring on consist of 2 - 150 horse power boilers in a single setting at each point with boiler room space for an additional setting of two boilers of the same capacity.

Will you kindly advise me as early as possible how much fan space we should provide for, and if you would recommend the purchase of a fan suitable for the four boilers, or of a fan of smaller capacity for two boilers. It will probably be some time before the additional boilers are installed.

Thanking you for your prompt attention to this matter, I am,

Yours truly,

6-MM

St.Paul,Minn., Sept. 21st, 1911.

Improvements 1911
Auburn
Pasco

5325-9
5325-10

Mr. W.C.Smith,

Chief Engineer Maintenance of Way.

Dear Sir:-

It has been decided to install at Pasco and Auburn, 2 - 150 horse power Babcock & Wilcox water tube boilers with Jones underfeed stokers, both boilers to be placed in one setting.

I have shown on the attached blueprints clearances necessary for this installation. Will you kindly arrange building accordingly, providing sufficient room at each place, as shown in pencil, for the installation of an additional battery of 2 - 150 horse power Babcock & Wilcox water tube boilers with Jones underfeed stokers.

Thanking you, I am,

Yours truly,

Mechanical Superintendent.

6-MM

C O P Y.

Saint Paul, September 15, 1911.

Improvements
Pasco & Auburn

File #5325

Mr. W.J.Bohan,

Mechanical Engineer.

Dear Sir:-

In connection with our recommendations which Mr. W.C.Smith has asked for relative to Auburn.

I am instructed to arrange to use Babcock & Wilcox water tube boilers in units of 150 h.p. each for power installation at the new terminal plants at Auburn and Pasco. The original installation should consist of two associated units of 150 h.p. each in a single setting, and the power house to be made sufficiently large to accommodate 300 h.p. additional boiler capacity of the same type and setting. There instructions should be transmitted to Mr. Smith.

Yours truly,

(Signed) H.M.Curry,

Mechanical Superintendent.

HMC-R

Auburn



MAIN OFFICE
35 LIBERTY STREET, NEW YORK

WORKS
BAYONNE, N. J. BARBERTON, OHIO

THE BABCOCK & WILCOX CO.

BUILDERS OF

BABCOCK & WILCOX-STIRLING-RUST

WATER TUBE STEAM BOILERS

STEAM SUPERHEATERS MECHANICAL STOKERS

BRANCH OFFICES

BOSTON, 35 FEDERAL STREET
PHILADELPHIA, NORTH AMERICAN BLDG.
PITTSBURGH, FARMERS DEPOSIT BANK BLDG.
CLEVELAND, NEW ENGLAND BLDG.
CHICAGO, 1207 MARQUETTE BUILDING
CINCINNATI, TRACTION BLDG.
ATLANTA, 1132 CANDLER BLDG.
PORTLAND, OREGON, WELLS-FARGO BLDG.
NEW ORLEANS, 533 BARONNE STREET
DENVER, 435 SEVENTEENTH STREET
SALT LAKE CITY, 313 ATLAS BLOCK
SAN FRANCISCO, 99 FIRST STREET
LOS ANGELES, 321 TRUST BUILDING
SEATTLE, MUTUAL LIFE BUILDING
HAVANA, CUBA. 116½ CALLE DE LA HABANA
HOUSTON, TEXAS, LAND & TRUST BLDG.

1207 MARQUETTE BUILDING
CHICAGO, ILL.

Sept. 18, 1911.

W. J. Bohan, Mechanical Eng.,
Northern Pacific Railway Co.,
St. Paul, Minnesota.

Dear Sir:-

16
(26th) The writer begs to acknowledge receipt of your favor of the 26th and also four blue prints, the latter of which, we return herewith. The arrangement of boilers as shown will give you a very satisfactory arrangement for burning the black lignite coal, the analysis and a sample of which you sent the writer some time ago. The only comments we would make on the drawings for both Pasco, and Auburn would be, if it were possible to give a space of 7' behind the boilers, instead of 6'5". By giving 7' you will be able to make your breeching somewhat wider and not so high and narrow.

Would also call your attention to the position of the post in the Auburn plant. This post, you will note, comes in the wall of the boiler setting and also in the hottest part of the wall, directly in the boiler furnace wall and we have marked in red pencil "If possible would move over to avoid this column" and would suggest, if it is possible move this pair of boilers over so as to avoid the post. We have had more or less experience with this sort of thing and find that it is difficult to keep the post from getting overheated even if ventilated, as the men in the plant allow the ventilating ducts to fill up and before one knows it he has a sprung column and a sagging roof truss to contend with.

You and the writer discussed the question of a stack and think

we agreed on that, that you want a good liberal stack to draft the boilers, whether you use Jones underfeed stokers or not, would say, from 75% to 80% in excess of Kent's Table, would be about right.

If there is any additional information that you desire in connection with these boilers, kindly let us knowand we will be only too glad to respond.

Yours respectfully,

HMB-EAH

THE BABCOCK & WILCOX CO.

H. M. Bowen.

Sept. 16th, 1911.

9/18

Improvements 1911
Auburn

Mr. H.M.Boon,
Mechanical Engineer, Babcock & Wilcox Company,
Marquette Building,
Chicago, Ill.

Dear Sir:-

I am attaching herewith marked blueprints of buildings in which we are considering installing 2 - 150 horse power Babcock & Wilcox water tube boilers, equipped with Jones Underfeed Stokers, in a single setting, and provisional space for an additional setting of 2 - 150 horse power boilers.

You will note I have shown on these prints outlines of the setting both in plan and elevation. If you can favor me, I will thank you very kindly to advise me with return of the blueprints, if arrangement as I have shown it will work out entirely satisfactory for burning the black lignite coal about which we corresponded.

Thanking you very much in advance for your kindness, I am,

Yours truly,

6-MM

Office Mechanical Engineer
ST. PAUL
SEP 6 1911
MINN.
CHI. MIL. & PAC. RY. CO.

St. Paul, September 5th, 1911.

Mr. W. J. Bohan:

When the question of fitting up the Babcock & Wilcox water tube boiler, specified for Auburn, with grates and other boiler settings, comes up, please have Mr. S. A. Williamson, of Minneapolis, a representative of The Under-Feed Stoker Company of America, confer with you as to the best arrangement of fire box to burn the low grade fuels (that are mined west of the Cascade Mountains) satisfactorily. The Jones Under-Feed stoker is well adapted to handle this fuel in connection with special boiler settings.

I hand you herewith a few blueprint of recent boiler settings worked out by that Company and the Northwestern Improvement Company.

W. H. Wilson.

encls.

MEMORANDUM

Improvements - General
Boilers
Auburn, Pasco, Centralia & Parkwater.

Length of new Babcock & Wilcox Boilers over-set, 19' 9".

Width " " " " " " " 14' 3".

Height " " " " " " " 17' 2"

3-200-H.P.

Form 'F'. 1M. (2d Ed.) 4-17-11. (D)

CONTRACT

BETWEEN

AND

The Under-Feed Stoker Company of America
Harris Trust Building
Chicago

Ship material covered by this agreement on or about

To

Via

Special Agreements covering installation herein referred to, same being made subject to the approval of an Officer of THE UNDER-FEED STOKER COMPANY OF AMERICA.

Paragraph thirteen (I3) page two (2) is modified as follows:- The Contractor will furnish free the services of an erecting engineer to superintend and assist in the erection of the stokers, and to instruct the Purchasers operators in the proper method of handeling the stokers.

The price named in this proposal is for equipping of three boilers of a rated capacity of 200 H. P. each, should the Purchaser decide to install but two boilers the price would be One thousand nine hundred and sixty (I960.00) dollars, in which case both the Contractor and Purchaser would furnish same items as mentioned in this proposal, with the exception, that they would then be adapted to the requirements for equipping two boilers of a rated capacity of 200 H. P. each.

It is agreed and understood that the specifications on page three (3) includes all the items nescessary for the complete instal lation of these stokers, and that on page two (2) is noted just what the Purchaser and Contractor is to furnish, and just which items are not needed for this installation.

DESCRIPTION OF BOILERS IN THE PLANT OF

Northern Pacific Ry. Co. of St Paul Minn.

Which are operated as per following report; which description and report are made a part of the following agreement.

BOILERS	MAKER'S NAME	Steam Pressure	Size and Number of Tubes	Rated Capacity	Sq. Ft. Heating Surface	FURNACE		Shell or Front Header to Floor Line	Diam. F'ce I. F. Boilers
						Width	Length		
Return Tubular									
" "									
" "									
3 Water Tube Horizontal	Babcock & Wilcox	150		200					
" " "									
" " "									
Water Tube Vertical									
" " "									
" " "									
Fire Tube Vertical									
" " "									
" " "									
Internally Fired									
" "									
" "									

NOTE.—Insert size of return tubular boilers in first column.

REMARKS:

SPECIFICATIONS

Covering material and labor for the complete equipment of Three 200 H. P. B & W. water tube boilers in the plant of Northern Pacific Ry. Co. at _____ (boilers being more completely described on page 1 of this agreement) with **JONES UNDER-FEED MECHANICAL STOKER**S.

ITEM 1—STOKERS. Three Jones Under-Feed Mechanical Stoker S, Standard type.

ITEM 2—DEAD PLATES. All Dead Plates adapting Stoker S to boiler furnace S.

ITEM 3—ENGINE. One vertical automatic self oiling 6 X 7 Jones-Troy Engine belted to

ITEM 4—BLOWER. One steel plate 3/4 House #60 Jones blower.

ITEM 5—AIR PIPING. Necessary Air Piping, placed in position, connecting Blower__ with each furnace, same to be made of Galvanized Iron, well soldered and riveted; all portions of same under ground to be properly protected.

ITEM 6—BLAST GATES. The necessary Blast Gates or Butterfly Valves for controlling the air to each furnace, same being placed in position.

ITEM 7—STEAM PIPING. The necessary Steam Piping and Exhaust Piping, placed in position, connecting stoker cylinder S and blower engine__with steam and exhaust mains.

ITEM 8—BOILER FRONT S.

(*a*) The necessary lower portion S of Boiler Front S erected, adapted to receive the Stoker S.

(*b*) The necessary changes in the Boiler Front__to adapt same to receive Stoker___.

ITEM 9—EXCAVATION. The excavation necessary for Air Piping, Steam Piping and all Foundations.

ITEM 10—BRICK WORK AND FURNACE ALTERATIONS. Material and labor necessary for adapting the furnace S to receive the Stoker S.

ITEM 11—FOUNDATIONS FOR ENGINE__AND BLOWER___. The necessary foundations for Engine__and Blower___.

ITEM 12—BELTING. All Belting necessary for complete stoker installation.

ITEM 13—FREIGHT. All material to be delivered f. o. b. cars Contractor's factory _____

ITEM 14—COMMON LABOR. All labor necessary for heavy lifting and work of like nature.

ITEM 15—AUTOMATIC FEED ATTACHMENT. The necessary Cole Automatic Attachment for each Stoker above mentioned.

ITEM 16—REGULATING VALVE___. One Fan Engine Regulating Valve__for controlling Speed of Blower Engine___.

ITEM 17—STEAM FITTING. The necessary openings in Steam Header and Exhaust Pipe, with necessary Valve S to which Steam and Exhaust Pipe connecting to Stoker Cylinder S and Blower Engine__shall be attached.

ITEM 18—LOWERING FLOOR LINE. _____

ITEM 19— _____

ITEM 20— _____

No Sales Agent of the Under-Feed Stoker Company of America has authority to change any of the matter herein above printed.

Memorandum of Agreement, made and entered into at Chicago, Illinois, this Second day of September 1911 19 ___, by and between THE UNDER-FEED STOKER COMPANY OF AMERICA, a corporation existing and doing business under and by virtue of the laws of the State of New Jersey (with general offices in the Harris Trust Building, Chicago, Illinois), hereinafter called and known as Contractor, and Northern Pacific Ry,Co. of St Paul Minn. hereinafter called and known as Purchaser.

The **CONTRACTOR** agrees to furnish all material and all labor necessary in accordance with specifications items as set forth on page 3 of this agreement numbered One (1) two (2) three (3) four (4) five (5) six (6) eight A,(8A) twelve (12) fifeteen (15) & sixteen (16).

The **PURCHASER** agrees to furnish all material and all labor necessary in accordance with specifications items as set forth on page 3 of this agreement numbered Seven (7) nine (9) ten (10) eleven (11) thirteen (13) fourteen (14) and seventeen (17).

said agreement consisting of four written and printed pages.

It is hereby expressly understood and agreed by and between the parties hereto that the specifications items as set forth on page 3 of this agreement numbered Eight B, (8B) eighteen (18) nineteen (19) and twenty (20). shall not be furnished for this installation.

Paragraph 1. ECONOMY. The Contractor warrants that by the proper use of the stoker equipment it (the stoker equipment) will effect a saving of not less than ten per cent (10 %) in fuel bills over the results that are regularly obtained in the ordinary running of the plant by hand firing on common grates, the fulfillment of this warranty to be based upon the cost of evaporating a given number of pounds of water by hand and stoker firing as provided by paragraph 7 of this agreement.

Paragraph 2. CAPACITY. The Contractor warrants that it can increase the capacity of the boiler S to be equipped at least twenty-five per cent (25%) beyond rated capacity, the hourly evaporation of 34½ lbs. water from and at a feed water temperature of 212 degrees F. into steam at atmospheric pressure constituting one horsepower, the rated horsepower of the boiler S being based upon 10 square feet of effective heating surface for water tube boilers, 12 square feet for return tubular boilers, and 7½ square feet for internally fired boilers, per horsepower.

Paragraph 3. SMOKE ABATEMENT. The Contractor warrants to practically abate the smoke nuisance unless the boiler S be forced greatly beyond rated capacity or when the fires are being started or cleaned.

Paragraph 4. It is expressly understood and agreed by and between the parties hereto that all the warranties made in the three last preceding paragraphs are conditioned on the operation of the stoker equipment in accordance with the Contractor's printed and written instructions, and it is further understood and agreed that said Purchaser is to operate the stoker equipment in accordance with the said printed and written instructions.

Paragraph 5. It is understood and agreed that the stoker equipment herein specified is sold with the understanding that bituminous coal be used for fuel and that the Contractor shall have the privilege of using any class of bituminous coal regularly obtainable in the local market to show the fulfillment of agreements concerning economy and capacity hereinabove made, the intention being to use the class of coal giving the best possible economy.

Paragraph 6. Purchaser agrees to furnish sufficient draft to properly distribute the products of combustion to the heating surface of the boiler S.

Paragraph 7. It is expressly understood and agreed that if the Purchaser so requests (said request to be in writing), for the purpose of determining the cost of evaporating a given amount of water by hand and stoker firing, evaporation tests shall be made before and after stoker installation; the representatives of both the Purchaser and of the Contractor to be present at each of these tests, the Purchaser's representatives operating the furnaces during the hand fired tests, the Contractor's representatives operating the stoker equipment during the stoker fired tests, the details of these tests to be agreed upon by the representatives of each of the parties hereto before stoker installation is commenced, the boiler S to be operated at or about rated capacity during each of the tests; hand fired tests above herein referred to to be made before stoker installation is commenced. The result of the test or tests above referred to shall fully and finally determine the fulfillment or non-fulfillment of the warranties made in paragraphs 1 and 2 on page 2 hereof.

Paragraph 8. The Purchaser shall, within thirty (30) days after the completion of the installation of the stoker equipment, give to the Contractor written notice of any claims he may have for non-fulfillment of any of the terms of this contract on the part of the Contractor, and unless such notice is given the terms of the contract shall be deemed to have been fully complied with by the Contractor. Failure to give said written notice shall act as a waiver of all warranties herein made.

PRICE AND TERMS OF PAYMENT

Paragraph 9. The Purchaser hereby agrees to pay to the Contractor the sum of Two thousand seven hundred & forty three and No-100 Dollars ($2743.00).

Paragraph 10. Payments to be made in the following manner; One-third (⅓) upon delivery of the stoker S, dead plates, blower___, and engine___, or such of these items as Contractor is to furnish; one-third (⅓) upon completion of installation, the remaining one-third (⅓) thirty (30) days thereafter. It is expressly understood and agreed that the Contractor shall have a lien on all of the stoker equipment, connections, etc. furnished under this contract, and the Contractor may remain in and have full possession thereof until the whole amount of the purchase price of said stoker equipment, connections, etc., shall have been fully paid to the Contractor or its assigns.

INSTALLATION

Paragraph 11. It is understood and agreed that the installation of the stoker S shall commence within thirty (30) days from date of delivery, and that the work shall be proceeded with continuously until completed, unless interrupted by strikes or other unavoidable delays. If said installation is not commenced within the time aforesaid and carried on continuously without interruption until completion, through no fault of the Contractor, then and in that event the final payment shall be due and payable ninety (90) days from the date of delivery.

Paragraph 12. It is mutually agreed by each of the parties hereto that the stoker equipment shall be installed and operated in accordance with the above agreements and in accordance with the plans and specifications of the Contractor.

Paragraph 13. The Purchaser hereby agrees to pay, in addition to all other amounts herein stated, for the services of an erecting engineer (whom the Contractor will furnish) Five Dollars ($5.00) per day and his traveling expenses to the point of installation and his living expenses until installation is completed and tests (if any) are made.

Paragraph 14. It is expressly understood and agreed that the erecting engineer is to superintend the erection only of such material as is furnished by the Contractor and of no other material, and the Contractor is not to be responsible for material or the erection of same furnished by others than said Contractor.

Paragraph 15. It is expressly understood that all agreements are herein made subject to strikes, fires, accidents or other causes which may be beyond the control of either of the parties hereto.

It is further understood and agreed that this agreement shall not take effect until approved by the said Contractor at Chicago, Illinois.

This agreement executed in duplicate.

Dated at Chicago, Illinois, this Second day of September 1911. 19 ___

THE UNDER-FEED STOKER COMPANY OF AMERICA,

By O. A. Williamson

By _____

Accepted and approved at Chicago, Illinois, this _____ day of _____ 19 ___

THE UNDER-FEED STOKER COMPANY OF AMERICA,

By _____

No Sales Agent of the Under-Feed Stoker Company of America has authority to change any of the matter herein above printed.

THE BABCOCK & WILCOX CO.

CHICAGO, ILL. June 19, 1911.

Mr. W. J. Bohan, Mechanical Engineer,

Northern Pacific Railway Company,

St. Paul, Minn.

Dear Sir:-

Your esteemed favor of the 15th asking for dimensions, etc., for three - 150 Horse Power Babcock & Wilcox water tube boilers, etc., is received and the same carefully noted.

We assume that in setting three - 150 horse power boilers that you would place two of the boilers in a battery and arrange to set one boiler singly.

In answer to your request we are sending you enclosed blue prints -

sheets: 25328
18345
18300

covering front, side and foundation for two - 150 Horse Power Babcock & Wilcox boilers (Each boiler 8 wide, 9 high, 18' long, with one - 42" drum) set in one battery, and from which you will kindly note-

First The width of the setting of two boilers of 150 Horse Power, including brickwork, will be 14'3".

Second That the length of the setting of these boilers on floor line will be 19'9".

Third That if these boilers are set at the standard height, the distance from floor line to steam nozzle will be 15'2".

Should you decide to raise these boilers up and make the distance from floor line to bottom of tube header more than 6', it will be necessary to make a corresponding addition to the distance from floor line to steam nozzle opening.

In most of our recent installations we have found it advisable to make it a greater height than 6' (shown on these plans) of furnace.

In reference to the matter of the space required for the

setting of a single boiler - The setting width of the same on floor line, including brickwork, would be 7'10", and the length and height would be the same as for battery above named.

Adding these two measurements of width, with proper space at sides and between boilers, we presume you will be able to determine the size of house which you will require for the setting of the same. We desire to say, however, that if there is any further information in connection with this matter which you wish we will be pleased to hear from you further and glad to furnish the same.

We are also sending you by this mail a copy of our illustrated catalogue "Steam", which may also give you some desired information upon the subject.

Awaiting your further requests in the matter, we are

Yours very truly,

THE BABCOCK & WILCOX CO.

(Signed) G. E. Palmer

GEP-HA.

ENCS.

(COPY)

(For original see file "Improvements 1911, Pasco")

June 15th, 1911.

Improvements 1911
Pasco

The Babcock & Wilcox Company,
#1207 Marquette Building,
Chicago, Ill.

Gentlemen:-

We are considering the design of a new boiler house, and wish to provide same of such dimensions that three 150 horse power Babcock & Wilcox water tube boilers could be installed, if desired.

Would thank you very much to send me such literature and blueprints as would show the principal dimensions of such boilers. Would like this as soon as possible.

Thanking you in advance, I remain,

Yours truly,

Mechanical Engineer.

10-MM

Mr. W.C.Smith:
This in reference to yours of June 14th. to Mr. Curry.

W.J.B.

THE UNDER-FEED STOKER COMPANY OF AMERICA

CHICAGO June 16th, 1911.

Mr. W. J. Bohan, M. E.,

Northern Pacific Ry. Co.,

St. Paul, Minn.

Dear Sir:-

We are in receipt of your letter of the 15th inst. and are pleased to send you general line of our printed matter. We are also sending our blueprint VP 444 showing longitudinal section of a Babcock & Wilcox boiler equipped with our stokers. We are not sending cross section and plan because of the varying widths of B. & W. boilers for any particular horsepower, and which width should be adapted to the class of coal to be consumed. Approximately 6' would be a favorable width - 5'7" is standard with them, however, and suitable unless very inferior coals are used. If the boilers are installed and you can give us these dimensions we shall be glad to send you plans for your particular boiler. If boilers are to be purchased we would like to know the location and coal to be used when we will undertake to offer our best suggestions.

Our Mr. S. A. Williamson is in Minneapolis today and we have endeavored to reach him by telegram so that he can call upon you this afternoon if possible. He will be in Chicago tomorrow and will return to Minneapolis in a few days when he will call upon

you. We hope that he has been able to see you today as he will be able to give you all the detailed information you desire and to advise no of such blue-prints as will apply to your conditions, which we will send you on his return if we have been successful in arranging a call.

We commend our printed matter to your most careful consideration. Stokers installed under various types of boilers are shown in line drawings in our catalog. The stoker itself extends out in front of the boiler about 4'8", occupying approximately 15" in width.

The blowing equipment, of course, depends upon the size which in turn depends upon the number and capacity of boilers to be served. It may be either belted or direct connected as the exigencies of the case demand.

We will take pleasure in going into details for any one or more of your particular plants if you will furnish us with full data. We are very desirous of figuring with you and can do so under positive guarantee of the results to be obtained in economy, capacity and smoke abatement as will absolutely protect you.

We also have stokers installed in an allied interest of your company, the Northwestern Improvement Co., at Roslyn, Wash. We hope that we may extend the installation of your company and some of the railway plants.

W. J. Bohan #3

Should you desire further information than we have already furnished we ask you to command us.

Yours very truly,

THE UNDER-FEED STOKER CO. of AMERICA

Per (Signed) F. M. Smith

Assistant Manager.

(COPY)

"For original letter and catalogs and print referred to, see file on "Improvements 1911, Pasco, Boilers")