Form C.K. 1218¾, La P.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That they have this day considered the accompanying outstanding accounts for Coal amounting to $2,614.98, and after due consideration of same Your Committee

Resolved. To report to the Council asking permission to pay the said accounts of the current years' appropriations.

Respectfully submitted,

Committee Room
City Hall,
Montreal Jan. 10, 1905.

I hereby certify that there are sufficient available funds to cover the expenditure herein specified.
Viz. $2614.98

C.C.&A.

Form CK 1219 La P.

A la Cité de Montréal.

La Commission de l'aqueduc.

a l'honneur de faire rapport

Qu'elle à ce jour pris en
considération les comptes ci-annexés pour charbon
au montant de $2,514.98 et apres mure deliberation
elle à resolu de faire rapport au Conseil recommandant que ces comptes soient payés à même les crédits
de cette année.

Le tout etc.

Chambre de la Commission
Hotel de Ville
Montreal le 10 Janvier 1905

232.

REPORT

FROM THE

WATER Committee

For permission to pay certai outstanding accounts out of current year's appropria tions.

Presented 16 Jany. *1905*

Adopted same day *190*

Entered vol. D.D. 1 *page* 108

and page 473 *of vol.* 11 *of Reports.*

232

REPORT

FROM THE

WATER Committee

Recommending the application of the "[redacted]" Stoker for the Low Level Station. and asking for a supplimental appropriation for the purchase of same.

Presented 28 Sept 190 6

Finance

Adopted 190

Entered vol. page

and page of vol. of Reports.

Form C K 1219½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered the advisability of applying [redacted] Underfeed Stokers to the new boilers now being constructed for the Low Level Pumping Station, and after due consideration of same and as the application of stokers to the boilers will effect a saving in labor and Fuel, it was RESOLVED To report to the Council asking for the sum of $5,200.00 for the purchase of Mechanical Stokers as above mentioned. Your Committee therefore ask that the said sum of $5,200.00 be placed at its disposal for the above purpose.

Respectfully submitted,

Committee Room
City Hall
Montreal Sept.20th 1904.

Form CK 1219 La P.

A la Cité de Montréal.

La Commission de l'Aqueduc

a l'honneur de faire rapport

Qu'elle a, ce jour, considéré l'opportunité d'adapter un ou plusieurs chauffeur automatique aux nouvelles chaudières que l'on est actuellement à construire pour l'usine élévatoire du niveau inférieur, et après mûre étude de la question, et après avoir acquis la certitude que l'adaptation de cet appareil aux chaudières aura pour résultat une économie de main-d'oeuvre et de combustible, votre Commission a résolu de faire rapport au Conseil pour lui demander la somme de $5,200 pour l'achat de chauffeurs mécaniques de ce modèle.

Votre Commission recommande par conséquent que ladite somme de $5,200 soit mise à sa disposition pour cette fin.

Respectueusement soumis.

Salle de la Commission,
Hôtel de Ville,
Montréal, 20 septembre 1904.

...tor of Steam Boilers' Office,

City Hall, Montreal, Septr. 21st. 1904.

To His Worship the Mayor
and to the Members of the City Council.

Gentlemen :-

At your request to report on the condition of the Montreal Water Works boilers at the low level Pumping Station , I respectfully call your attention to my last two reports on that subject addressed , the one to Ald. Robertson, chairman of the Fire and Light Committee, and the other to the chairman and members of the same Committee, and dated respectively the 11th, and 17th, of August last which both appeared in the Municipal Gazette, the first the 15th, of August, No. 28, page 616, and the second on the 22d, of August , No. 29, page 648.

Confirming these two reports , I may add that there is no possibility of a water famine by the failure of any of the boilers or steam pumps presently in use at the Montreal Water Works.

The whole respectfully
submitted. C. V. Champagne

Chief Boiler Inspector .

Montréal, le 2 septembre 1904

A Son Honneur le Maire et à MM. les échevins
de la Cité de Montréal.

Messieurs,

Conformément aux instructions contenues dans votre résolution en date du 18 août dernier, nous avons l'honneur de vous faire le rapport suivant sur les conditions actuelles du système d'aqueduc de la cité de Montréal: -

A Q U E D U C.

La source actuelle d'approvisionnement d'eau pour la ville de Montréal est le fleuve Saint-Laurent dans lequel l'aqueduc a son embouchure en amont et à 1 mille 1/2 des rapides de Lachine à 38 pieds au-dessus du niveau du fleuve dans le port.

Cet aqueduc aboutit à un bassin d'une contenance de 1,064,885 pieds cubes servant à la distribution de la force motrice aux machines hydrauliques et au puisage de l'eau d'alimentation de la ville.

A l'embouchure de l'aqueduc, une jetée d'environ 1000 pieds de développement sert à établir le courant d'orifice au large du fleuve. Des portes mobiles situées dans le parcours du canal, servent à en régulariser le niveau; 18 ponts traversent le canal et permettent le passage des chemins qui relient entr'elles les parties scindées des propriétés riveraines.

L'aqueduc actuel, depuis son embouchure jusqu'à sa jonction avec l'ancien aqueduc, a une largeur moyenne de 104 pieds

une profondeur de 14 pieds et une longueur de 4,800 pieds, il est continué par l'ancien aqueduc qui a une largeur moyenne de 30 pieds, une profondeur de 8 pieds et une longueur de 26,200 pieds. La pente de l'aqueduc est de 5 pouces par mille.

USINE ELEVATOIRE DU NIVEAU INFERIEUR.

L'élévation de l'eau se fait au moyen de deux systèmes: par machines hydrauliques pour environ 60% de la consommation, et par machines à vapeur pour le reste.

L'ensemble de l'eau élevée par cette usine durant l'exercice écoulé a été de 8,970,372,604 gallons.

Les constructions de l'usine élévatoire du niveau inférieur se composent de plusieurs bâtiments dont trois principaux: le premier contient les turbines actionnées par l'eau de l'aqueduc lui-même et dont le système comprend quatre séries de pompes, savoir: -

No. 1. - Une turbine Jonval avec deux pompes, à double effet, pouvant pomper 4,300,000 gallons par 24 heures, construite en 1864.

No. 2 - Une roue double horizontale "Samson" avec deux pompes à double effet et un réservoir à air, pouvant pomper 4,500,000 gallons par 24 heures, construite en 1894.

No. 3. - Une turbine Jonval avec trois pompes à double effet et deux réservoirs à air; pouvant pomper 2,500,000 gallons par 24 heures, construite en 1874.

No. 4. - Une turbine Jonval avec deux pompes à double effet et un réservoir à air; capacité 2,250,000 gallons par 24 heures, construite en 1876.

Toutes ces turbines sont actuellement en bon état. Elles cessent graduellement de fonctionner chaque année quand l'eau baisse dans l'aqueduc, et leur travail est progressivement remplacé par celui du "plant" à vapeur auquel il faut, alors, faire donner son rendement extrême.

Le trop plein du bassin de retenue et l'eau qui actionne les machines hydrauliques s'écoulent dans un canal déversoir, en aval du bâtiment, et après un parcours d'environ 3,500 pieds, se jettent dans le fleuve Saint-Laurent, vis-à-vis la pointe aval de l'Ile des Soeurs.

Le second bâtiment contient les machines actionnées par la vapeur, dont le système comprend 3 séries de pompes, savoir: -

No. 1 - Une machine Worthington à grand rendement, capacité: 10 millions de gallons par 24 heures, construite en 1886.

No. 2 - Une machine Worthington à grand rendement, capacité: 8,500,000 gallons par 24 heures, construite en 1893.

No. 3 - Une machine Worthington (Duplex) capacité: 7,500,000 gallons par 24 heures, construite en 1874.

Ces trois pompes, après avoir subi divers accidents dans le cours de la présente année, sont actuellement en bon état.

Le troisième bâtiment contient les générateurs à vapeur qui se composent de deux séries de trois chaudières Heiney.

En raison de la hauteur actuelle de l'eau dans l'aqueduc, qui permet encore le fonctionnement presque total des turbines, ces chaudières ne sont assujeties en ce moment qu'à un travail ordinaire qu'elles sont en état de faire après les réparations considérables qu'elles ont subi à la fin du printemps, à la suite du travail excessif qui leur avait été imposé durant le dernier hiver.

Une nouvelle batterie de 3 chaudières Caldwell ordonnée récemment par la cité est en voie de construction; elle est destinée à remplacer la batterie de 3 chaudières Lancashire condamnée en 1902, et à supplémenter les 2 autres batteries quand le travail des turbines décroit ou cesse.

Les autres bâtiments servent de magasins pour le charbon et le matériel, d'atelier de mécanique et de logements des employés.

De l'usine élévatoire l'eau est refoulée jusqu'au réservoir du niveau inférieur et dans les tuyaux de distribution par deux conduites de 30" de diamètre, ayant ensemble une longueur de 16,102 pieds, et par deux conduites de 24" ayant ensemble une longueur de 27,709 pieds.

L'une des conduites de 30" est encore inachevée et seulement branchée sur l'autre du même diamètre, après leur passage sous le canal Lachine.

L'autre conduite de 30" ne monte pas jusqu'au réservoir; au croisement de l'avenue du Collège McGill et de la rue Sherbrooke, elle est reliée avec les deux conduites de 24" qui, seules, montent au réservoir; après cette jonction, la dite conduite de 30" se prolonge sur la rue Sherbrooke jusqu'à l'avenue Delorimier, vers les limites de la ville. Ces conduites ont toujours été maintenues en bon état et le sont encore actuellement.

RESERVOIR DU NIVEAU INFERIEUR.

Les pompes de l'usine du niveau inférieur élèvent l'eau jusqu'au réservoir principal de la ville, situé à l'angle de la rue McTavish et du chemin Carleton, à l'altitude de 204 pieds au-dessus du fleuve et de 165 pieds au-dessus du bassin de prise d'eau de l'usine du niveau inférieur.

Ce réservoir creusé dans le roc vif, a pour fond le lit intégral de la carrière, et, en partie, les parois de cette carrière pour murs de périmètre; le surplus des murs est formé de

maçonnerie de pierres à bosse jointoyées au ciment.

Il est divisé en deux parties égales par un mur de maçonnerie de même nature que ceux du périmètre. Actuellement nous exécutons des travaux de cimentage du fond du compartiment ouest du dit réservoir afin de le rendre plus étanche.

Sa contenance est de 37,000,000 de gallons d'eau.

Une construction attenante au dit réservoir, contient les robinets et portes-vannes qui servent à régler la distribution et la réserve de l'eau pour la partie de la ville desservie par la basse pression; cette partie comprend toute la ville depuis le Saint-Laurent jusqu'aux limites suivantes (vers le nord) rues Sherbrooke, Université, Prince-Arthur, Durocher, Avenue des Pins, St-Laurent, Duluth, Cadieux et Mont-Royal.

USINE ELEVATOIRE DU NIVEAU SUPERIEUR.

Un bâtiment construit sur le terrain attenant au susdit réservoir contient les machines élévatoires du niveau supérieur qui se composent d'un système de deux pompes actionnées par la vapeur.

1o. Une pompe Worthington duplex à haute pression de 24 chevaux et d'une capacité de un demi-million de gallons par 24 heures (machine presque hors d'usage), construite en 1874.

2o. D'une pompe Gilbert, système compound à haute pression, de 250 chevaux, et d'une capacité de 3 millions de gallons par 24 heures. Construite en 1874. 1874

La vapeur est fournie par un générateur tubulaire sectionnel, système Caldwell, à haute pression de 200 chevaux-vapeur

construit en 1886.

3o. Une pompe Worthington, de 5 millions de gallons de capacité par 24 heures, actionnée par l'électricité, a été ajoutée l'année dernière. Le fonctionnement de cette pompe est actuellement arrêté par ordre de la Cour, en raison des inconvénients qu'elle cause au voisinage par ses vibrations.

Deux anciennes chaudières, type locomotive, de 120 chevaux chacune, sont encore utilisées durant les nettoyages ou les accidents qui peuvent arriver au générateur Caldwell.

Ces pompes prennent leau dans le réservoir du niveau inférieur et l'élèvent par une conduite de refoulement de 20" et 12" de diamètre et de 1674 pieds de longueur, passant par la rue McTavish, l'avenue des Pins et le Parc Mont-Royal, et aboutissant au réservoir du niveau supérieur situé sur le flanc de la montagne, vis-à-vis la rue Peel, à l'altitude de 434 pieds au-dessus du fleuve et de 230 pieds au-dessus du réservoir du niveau inférieur.

RESERVOIR DU NIVEAU SUPERIEUR.

Ce réservoir est construit à peu près de la même façon que celui du niveau inférieur. Il est composé d'un seul compartiment.

Sa contenance est de 1,750,000 gallons; il équilibre la

fourniture de l'eau et contient la réserve pour la partie de la ville desservie par la haute pression.

Le district ainsi desservi comprend toute la ville au nord des limites ci-dessus mentionnées pour la basse pression.

CANALISATION.

En outre des tuyaux de refoulement élévant l'eau dans les réservoirs, la canalisation de la ville se compose de:

28,500 pieds de tuyaux en fonte de 30 pouces de diamètre.
66,635 pieds de tuyaux en fonte de 20 pouces de diamètre.
13,040 pieds de tuyaux en fonte de 20 pouces de diamètre.
20,444 pieds de tuyaux en fonte de 16 pouces de diamètre
246,247 pieds de tuyaux en fonte de 12 pouces de diamètre
122,424 pieds de tuyaux en fonte de 10 poucesde diamètre
128,676 pieds de tuyaux en fonte de 8 pouces de diamètre
257,756 pieds de tuyaux en fonte de 6 pouces de diamètre.
329,990 pieds de tuyaux en fonte de 4 pouces de diamètre.
2,239 pieds de tuyaux en fonte de 3 pouces de diamètre.
694 pieds de tuyaux en fonte de 2 pouces de diamètre.
625 pieds de tuyaux en fonte de 1 1/2 pce.de diamètre.

Total: 1,217,270.

La distribution de ces conduites est réglée au moyen de robinets-vannes de divers diamètres.

Ces conduites desservent 1,780 bornes-fontaines publiques et 58 bornes-fontaines privées.

Ces conduites sont toutes posées sous terre, en tranchées, sauf une partie des conduites de refoulement de 24" qui sont contenues dans une galerie souterraine sur une longueur

d'environ 120 pieds à la traverse du chemin Carleton, jusqu'au réservoir du niveau inférieur.

REMARQUES.

A la date d'hier, 11 courant, l'eau était encore assez haute dans l'aqueduc pour actionner les 4 turbines sus décrites et leur permettre de pomper par 24 heures - - - - - - - - - - - - - 11,045,995 galls.
Le reste de la consommation est fourni par les pompes à vapeur sus-décrites, soit - - - 18,608,350 do
Total - - - - - 29,654,345 galls.

Chaque année la consommation de l'eau augmente pour différentes causes dont il est difficile de faire la part exacte; de 1902 à 1903 elle a augmenté d'environ 2 millions de gallons par 24 heures. Les statistiques, à date, montrent encore une augmentation plus sensible pour l'année courante. Cette augmentation nécessite des améliorations et des additions successives aux machineries et au système de distribution. C'est en conséquence de ces besoins que votre Conseil a mis à notre disposition, cette année, les fonds nécessaires pour construire de nouvelles chaudières et une pompe de 12 millions de gallons à la station du bas niveau et pour poser de nouvelles conduites principales dans diverses rues de la cité. La première amélioration qui va s'imposer quand une nouvelle pompe sera construite, consistera à augmenter la capacité des conduites élévatoires.

Respectueusement soumis.

Chas. Jarvis
Surintt de l'aqueduc.
J. N. Lesage
Assistant Surintt de l'Aqueduc

Montreal Sept. 12th 1904.

To his Worship the Mayor and Aldermen
of Montreal.

Gentlemen,-

Acting under instructions of the resolution of Council of the 18th August last, we have the honor to submit the following report on the exact condition of the Water Works System of Montreal.

AQUEDUCT. The source of water supply for the City is from the St Lawrence River, through an open aqueduct which has its entrance 1 1/2 miles above Lachine Rapids, 38 feet above the level of the water in the harbor..

The present aqueduct, from the entrance to the junction of the old aqueduct, has a mean width of 140 feet and a depth of 14 feet, for 4,800 feet; it is then continued by the old aqueduct, which has a mean width of 30 feet, a depth of 8 feet, and is 26,200 feet long. The fall is 5 inches per mile.

The aqueduct ends at a settling basin of a capacity of 1,064,885 cubic feet, used for the distribution of the motive power to the hydraulic pumps and for the drawing of the water supplying the City.

At the mouth of the aqueduct a pier 1,000 feet long has been built for the purpose of slackening the current of the river. Sluice-gates situated at the mouth, and 2 dams with movable gates, situated in the canal, regulate the level of the water; 18 bridges cross the canal and afford the means of circulating on the roads which connect the several portions of the riverside properties.

LOW LEVEL PUMPING Station.

The water is raised by means of two systems - by hydraulic pumping turbines to the extent of about 60 per cent of the consumption, and by steam engines for the balance.

The total quantity of water raised by the pumping apparatus of that station during the last fiscal year 1903 was 8,970,372,604 imperial gallons .

There are several buildings connected with the low level pumping station, of which there are several principal ones,-the first contains the turbines operated by the aqueduct water itself and 4 sets of pumps, namely:

No. 1.- A "Jonval" turbine with 2 double-acting pumps, which can pump 4,300,000 imperial gallons per 24 hours. Built in 1864.

No.2.- A "Samson" horizontal double wheel with 2 double-acting pumps and an air reservoir, which can pump 4,500,000 imperial gallons per 24 hours. Built in 1894.

No. 3.- A "Jonval" turbine with 3 double-acting pumps and 2 air reservoirs which can pump 2,500,000 imperial gallons per 24 hours. Built in 1874.

No. 4.- A "Jonval" turbine with 2 double-acting pumps and an air reservoir; capacity 2,250,000 imperial gallons per 24 hours. Built in 1876. All these turbines are in good working order. The work of the turbine pumps diminishes each season, as the water lowers in the aqueduct, and the pumping has to be done by the steam plant, this being worked to full capacity at extreme low water.

The overflow of the settling basin and the water operating the hydraulic machines falls into a waste channel, below the building, and after a course of about 3,500 feet flows into the St Lawrence River opposite the downstream point of Nun's Island.

The second building contains the steam-engines, comprising 3 sets of pumps, namely :

No. 1.- A high-duty Worthington engine of a capacity of 10,000,000 imperial gallons per 24 hours. Built in 1886.

No. 2.- A high-duty Worthington engine of a capacity of 10,000,000 imperial gallons per 24 hours. Built in 1893.

No. 3.- A high-duty Worthington engine (duplex) of a capacity of 8,000,000 imperial gallons per 24 hours. Built in 1874.

All of these pumps are in good working order at the present time.

The third building contains the steam generators, which consist of 2 batteries of 3 Heine boilers each.

A new battery of 3 Caldwell boilers recently ordered by the City is being built. These boilers are destined to replace the condemned battery of 3 Lancashire boilers, and to supplement the work of the other boilers when the turbine pumping decreases.

By reason of the present high water in the aqueduct which enables us to still work all the turbines, these boilers are at the present time only being worked to their ordinary capacity, which they are well able to do after the considerable repairs made to them last Spring. These repairs were necessitated by the excessive work imposed on these boilers during last Winter.

The other buildings are used as sheds for the storage of coal and supplies, machine shops, and employees' dwellings.

From the pumping Station the water is forced into the Low level reservoir and into the pipes through two mains of 30 inches diameter, having together a length of 16,102 feet, and through two 24 inch mains having a total length of 27,709 feet.

One of the 30 inch mains is still unfinished and only branched upon the other of the same diameter,after their passage under the Lachine Canal.

The other 30 inch main does not extend as far as the reservoir; at the intersection of McGill College Ave. and Sherbrooke street it is connected with the two 24 inch mains, which alone go as far as the reservoir; from that point, the said 30 inch main extends on Sherbrooke street as far as Delorimier Avenue, near the Eastern limits of the City. These force mains have always been maintained in good order and are so at the present time.

LOW LEVEL RESERVOIR. The pumps at the low level station raise the water up to the main reservoir of the City, situated at the angle of McTavish street and Carleton Road, at the altitude of 204 feet above the river and 165 feet above the intake basin of the low level pumping Station.

The said Reservoir dug into the rock, has its bottom on the uneven bed of the excavation, and its perimeter walls are partly formed by the sides of the excavation, the rest of the walls being composed of undressed stone masonry pointed with cement. It is divided into two equal parts by a masonry wall of the same character as the perimeter walls.

At the present time the bottom of one of the sides of the reservoir is being cemented to make it water-tight.

The capacity is 37,000,000 Imperial gallons of water.

A building attached to said reservoir contains the valves and sluice gates regulating the distribution and the reserve of water for the section of the City supplied by the low pressure; said section comprising all that part of the City extending from St Lawrence river to the following limits (Northwards): Sherbrooke,University,Prince-Arthur,Durocher,Pine Avenue, St Lawrence, Duluth, Cadieux, and Mount Royal Streets.

HIGH LEVEL PUMPING STATION. - A building erected on the land adjoining the above mentioned reservoir contains the high level pumping machines, which consist of 2 pumps operated by steam.

1.- A high pressure Worthington pump (duplex) of 24 horse power and of a capacity of 500,000 imperial gallons per 24 hours. (This pump built in 1875 is almost unfit for use.)

2.- A high pressure Gilbert pump (compound system) of 250 horse power and of a capacity of 3,000,000 Imperial gallons per 24 hours , and built in 1887.

3.- A Worthington power pump of 5 million gallons per 24 hours worked by electricity has been recently added . The working of this pump is at present prohibited by an order of the Court on account of the inconvienences to the neighborhood caused by its vibrations.

The steam is supplied by a sectional tubular boiler of the Caldwell high pressure type, 200 horse power. The pumps take the water from the low level reservoir and raise the same by a force main of 20 inches and 12 inches diameter and 1,674 feet long, passing through McTavish street, Pine avenue, Mt. Royal Park, and ending at the high level reservoir, situated on the slope of the mountain, opposite Peel street, at the altitude of 434 feet above the river, and 230 feet above the low level reservoir.

HIGH LEVEL RESERVOIR.- The reservoir is built about in the same way as the low level reservoir. It is composed of only one compartment.

Its capacity is 1,750,000 Imperial gallons; it equalizes the water supply, and contains the reserve for the section of the City supplied by the high pressure.

The district so supplied comprises all that part of the City lying north of the limits above mentioned for the low pressure.

DISTRIBUTION SYSTEM.- In addition to the force mains raising the water into the reservoirs, the distribution system of the City is composed of :

28,500	feet	cast-iron	mains	of	30	inches	diameter.	
66,635	"	"	"	"	24	"	"	
13,040	"	"	"	"	20	"	"	
20,444	"	"	"	"	16	"	"	
246,247	"	"	"	"	12	"	"	
122,424	"	"	"	"	10	"	"	
128,676	"	"	"	"	8	"	"	
257,756	"	"	"	"	6	"	"	
329,990	"	"	"	"	4	"	"	
2,239	"	"	"	"	3	"	"	
694	"	"	"	"	2	"	"	T O T A L
625	"	"	"	"	1 1/2"		"	1,217,270 feet.

The distribution of water by these mains is regulated by means of 3,082 valves of various diameters.

These mains supply 1780 public hydrants and 58 private ones.

They are all laid underground, in cut, with the excpetion of a portion of the 24-inch force mains, which are contained in an underground gallery for a distance of about 120 feet, from the Carleton Road crossing to the low level reservoir.

- R E M A R K S.-

Yesterday the 11th instant, the water in the aqueduct was still high enough to work the four turbine pumps above described, and allow for the pumping per 24 hours of [illegible] 11,045,995 Imp.Galls.

The rest of the consumption is made up by the work of the steam pumps above described viz: 18,608,350

Total.- - 29,654,345. Imp.Galls.

The water consumption is increasing rapidly year by year for different causes which it is difficult to clearly specify; from 1902 to 1903 the daily increase was about 2 million gallons; this year's record to date show a still greater increase over 1903. This increased consumption necessitates improvements and further additions to the pumping plant and the distribution system. It is to meet this increased demand that your Council has put at our disposal, this year, the necessary funds for the construction of new boilers and for a 12 million gallon pump for the low level system, also for the laying of new distributing mains in several

streets of the City. The first improvement which we will be called on to make after the new pump is built, shall be to increase the capacity of the force mains.

Respectfully submitted,

Geo. Janin

Superintendent M W W.

J.W. Lesage

Asst. Superintendent MWW.

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REPORT

FROM THE

WATER Committee

Recommending the adoption of the "CARROLL" non-freezing Hydrant device, and for a supplimentary appropriation for same.

Presented 28 Sept. *190* 4

Finance

Voir résolution du Comité de finances, 19 oct. 1904

Adopted *190*

Entered vol. ..... *page* .....

and page ..... *of vol.* ..... *of Reports.*

Forme 1226 A.

EXTRAIT

des minutes d'une assemblée de la Commission des Finances

Tenue le 19 Octobre 1904. *190*

Soumis le rapport de la Commission de l'Aqueduc au sujet de l'Adoption de l'appareil "Carroll" destiné à empêcher les bornes fontaines de geler.

RESOLU:- - - - De renvoyer ledit rapport à la Commission de l'Aqueduc.

(Certifié)

L. O. David

Greffier de la Cité.

Wpelée

City Hall

Montreal Oct 19th. 1904

To the Chairman and Members

of the Finance Committee,

City Hall.

Gentlemen,-

As requested by the Water Committee at a meeting held on the 18th. instant, I beg to hand you herewith, copy of my report presented to the Committee at the meeting of the 5th July last, on the Carroll Patent attachment to prevent hydrants from freezing.

Yours truly,

Geo. Janin

Superintendent M W W.

City Hall

Montreal 20th Sept 190x

To the Chairman and Members
of the Water Committee:-

Gentlemen:-

To give your city an opportunity to thoroughly test the "Carroll" Non-Freezing Hydrant Drains" I agree to the following arrangements, to wit

Provided that the city purchase this year the right to use 800 Carroll drains on their hydrants @ $5.00 each, or $4,200.00, and, if the use of these drains installed this year prove satisfactory, as we know they will, the city next year purchases the right to use 800 more Carroll drains on its hydrants @ $5.00 each, or $4200.00 more, making a total purchase price of $8400.00; I hereby agree to license, empower and grant unto the said city of Montreal, the right to manufacture and use upon any and all of the fire hydrants now owned by the said city or which may be owned by it in the future, within its present limits, or within the limits of any territory

City Hall

Montreal 19

which may be accepted to the present
city.

Respectfully submitted

Wm H. Lawson

Montréal le 5 juillet 1904

A M. le Président et à M.M. les Membres
de la Commission de l'Aqueduc.

Messieurs,-

Conformément à vos instructions, je me suis transporté, en compagnie des échevins Sauvageau et Bumbray à Detroit, Mich. et à St-Louis Mo. dans le but de recueillir le plus de renseignements possibles sur l'application du système Carroll aux bornes-fontaines et sur les pompes centrifuges perfectionnées dites pompes turbines.

Après une enquête minutieuse faite à Detroit et dans la banlieue et facilitée par les bienveillants offices des fonctionnaires de la Cité de Detroit, et notamment par M.M. Tassé échevin, Benjamin F. Guiney secrétaire du bureau des Commissaires de l'eau et Daniel W. Carroll Chef du 6eme. Bataillon du feu et Surintendant de l'eau, j'ai pu constater que le nombre des bornes-fontaines dans cette ville est de 3,834 dont 1,650 ont été pourvues, dans l'espace de 3 années, du système Carroll destiné à les protéger contre la gelée.

Ce système, comme vous le savez consiste à munir la borne-fontaine d'un tube intérieur ayant un orifice à l'extérieur et à appliquer à l'un des accouplages de la borne-fontaine le tuyau d'une pompe pneumatique afin de chasser par le tube sus-décrit, toute l'eau qui pourrait rester dans la dite borne-fontaine et pourrait faciliter la congelation de ses organes.

Avant mon départ je me suis assuré que le dit système était breveté au Canada et je joins au present rapport une copie des spécifications du brevet.

De l'enquête faite à Detroit il resulte que les autorités municipales sont très satisfaites de l'application de ce système breveté et qu'aucune des 1,650 bornes-fontaines munies de cet appareil n'a gelé durant l'hiver dernier qui a été l'un des plus rigoureux que la ville ait eu a subir de memoire d'homme.

D'Après les renseignements qui nous ont été fournis par M. Guiney secrétaire du bureau des Commissaires de l'eau, la plus basse température de l'hiver dernier a été de 15º au dessous de zéro tandis que les températures ordinaires ne dépassent pas 5º, la terre gele assez profondément pour un hiver vu le peu de durée de la neige: cette année la gelée a pénétré

6 à 7 pieds de profondeur.

Aucunes des bornes-fontaines munies de l'appareil Carroll n'ont gelé bien qu'elles descendent à 5' 6" de profondeur.

Il ne parait pas qu'aucun record soit tenu des bornes-fontaines qui gelent chaque année et tout ce que j'ai pu obtenir par renseignements verbaux c'est qu'environ 1,000 bornes-fontaines gelaient chaque année avant l'application du système Carroll.

Le contrôle des bornes-fontaines à Detroit est entre les mains des Commissaires du Feu, sous la direction d'un chef spécial qui a sous ses ordres un personnel de 7 employés pour l'inspection et l'entretien des dites bornes-fontaines.

Montreal July 5th 1904.

To the Chairman & Members

of the Water Committee.

Gentlemen,-

In compliance with your instructions I proceeded in company with Aldermen Sauvageau and Bumbray, to Detroit,Mich., and to St Louis,Mo. for the purpose of obtaining as much information as possible concerning the application of the Carroll devise to hydrants, and the improved centrifugal pumps known as turbine pumps.

After a careful investigation made at Detroit and in the outskirts of the City and facilitated by the kind offices of the officials of the City of Detroit, especially Messrs, Tassé, Ald. Benjamin F.Guiney, Secretary of the Board of Water Commissioners, and Daniel W. Carroll,Chief of the 6th Fire Battalion and Water Superintendent, I found that the number of Hydrants in that City was 3,834, of which 1,650 were provided, within 3 years, with the Carroll patent in order to protect them against frost.

This system as you are aware, consists in providing the hydrant with an inside tube, having an orifice outside, and in applying to one of the couplings of the hydrant the pipe of an air pump, so as to drive away, ——— by the above mentioned tube, all the water which might remain in the hydrant and cause it to freeze.

Before my departure, I ascertained that the said system had been patented in Canada, and you will find hereto annexed a copy of the patent specifications.

From the investigation made in Detroit, it appears that the municipal authorities are quite satisfied with the application of the patended devise, and that none of the 1,650 hydrants fitted with same, froze during the past Winter, which was exceedingly severe.

According to the information furnished us by Mr. Guiney, Secretary of the Board of Water Commissioners, the lowest temperature of last Winter was 15º below zero, while the ordinary cold weather does not exceed 3º. The ground freezes to quite a depth each winter owing to the fact that the snow disappears rapidly. This year the frost reached a depth of 6 to 7 feet.

None of the hydrants provided with the Carroll devise froze, although they were only at a depth of 5' 6".

It does not appear that any record is kept of the hydrants that freeze each year, and the only information I could get,by verbal enquiries, was that about 1000 hydrants froze every year, that was before the application of the Carroll device.

The hydrants in Detroit are under the control of the Fire Commissioners, and under the direction of a special Chief, who has a staff of 7 employees for the inspection and maintenance of said hydrants,

Form C K 1219½, I,a F.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That they have this day considered the adoption of the "Carroll" non-freezing hydrant Drainage system, and after hearing the report of the sub-committee sent to Detroit to get information as to the working of the device, your Committee after due consideration of the matter Resolved To report to the Council recommending the purchase of the right to apply the said system to 850 hydrants at a cost of $5.00 for each hydrant making $4,250.00, with the privilege of purchasing one year hence the equipment for the remaining hydrants belonging to the City at the same price Viz: $5.00 each.
The privilege to apply to all hydrants at present belonging to the City and that may be placed in position in future. Also to all hydrants in outside Municipalities that may be annexed to the City in the future. Your Committee therefore ask that the said sum of $4,250.00 be placed at its disposal for the above purpose .

Respectfully submitted,

Committee Room
City Hall
Montreal Sept.20th 1904.

Form CK 1219 La P.

A la Cité de Montréal.

La Commission de l'Aqueduc

a l'honneur de faire rapport

Qu'elle a ,ce jour,étudié la question d'adopter l'appareil "Carroll", destiné à empêcher les bornes-fontaines de geler,et après avoir entendu le rapport de la sous-commission envoyée à Détroit pour s'enquérir du fonctionnement de cet appareil,votre Commission ,après mûre délibération,a résolu de faire rapport au Conseil,recommandant l'achat du droit de munir 850 bornes-fontaines de l'appareil en question à raison de $5 chaque,soit $4,250 en tout,avec privilège d'en pourvoir,au même prix de $5 chaque,dans un an d'ici,le reste des bornes-fontaines appartenant à la Ville,et avec l'entente que la Ville pourra s'en servir pour toutes les bornes-fontaines qui lui appartiennent maintenant ou qui seront installées à l'avenirdans'les limites de son territoire ou dans les municipalités avoisinantes qui seront annexées à Montréal.

Votre Commission recommande en conséquence que ladite somme de $4,250 soit mise à sa disposition pour cette fin.

Respectueusement soumis.

Salle de la Commission,
Hôtel de Ville,
Montréal,20 septembre 1904.

Form C K 1219½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered tenders for the supply of 2000 tons ~~of~~ more or less of soft steam coal for the Low level Pumping Station, and after due consideration of the said tenders received

RESOLVED.- To divide the contract equally between Mess.J.O. Labrecque & Cie and Mess L.COHEN & Son. for Dominion Soft Steam Coal run of mine at $3.71 pet net ton.

Yours Committee therefore ask that the sad said contract be ratified by the Council.

Respectfully submitted,

Committee room
City Hall
Montreal Oct 31st 1905.

I hereby certify that there are sufficient available funds to cover the Contract herein specified.
Viz $7420.00

C.C & A.

3149

REPORT

FROM THE

WATER Committee

Asking Council to
ratify Contract for COAL.

Presented 6 Mar 190 1

Adopted Same day 190

Entered vol. D.D.3 *page* 209

and page 229 *of vol.* 12 *of Reports.*

Form C K 1319½, La P.

To the City of Montreal.

The Finance Committee

Respectfully Report

That they have considered a report of the Water Committee asking for $13.375 to lay mains in certain streets of the City and that after deliberation they have resolved to recommend to Council to vote the sum of $5,750 to lay mains in the following streets: Marquette, Colomb, Montgomery, Gagnon, Hochelaga & Cedar Avenue, said sum of $5,750 to be charged against the balance available in St Lawrence Street Expropriation, 1st Section. **

XX and that said variation be ratified

The whole respectfully submitted.

Committee Room
City Hall
Montreal 3rd. Nov. 1905.

S. D. Vallières
L. Lapointe
L. Payette
C. B. Carter

I hereby certify that there are sufficient available funds to cover the variation herein specified.
Viz $5750.00
[signature]
C. C. & A.

Form C K 1210½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered a report from the superintendent, showing the streets where the main pipes are required, the total cost of which amounts to $ 13,375.00

After due consideration of same, Your Committee

RESOLVED,— To report to the Council asking for an appropriation of the above amount to lay mains as per the said report of the Superintendent, hereto annexed.

Respectfully submitted,

Committee Room
city Hall,
Montreal Oct. 31st 1905.

EXTRACT

From the Minutes of a Meeting of the Water Committee

Held on the 17 th October, 1905 189

Submitted and read a petition from proprietors in Hogan and other streets in Hochelaga Ward, asking that main pipes be laid in the street. The Superintendent informed t the Committee that he had received applications for mains in several other streets for which he had no appropriation.

After some discussion it was :—

Resolved; That the superintendent prepare a report showing the streets where mains are immediately required, and that the report be sent to the Finance Committee.

Certified,

Frank Dawd.

Secretary Water Committee.

Montréal le 31 Oct. 1905.

A Monsieur le Président et M.M. les Membres

de la Commission de l'Aqueduc.

Messieurs,-

Conformément à la résolution de votre Commission en date du 17 courant, j'ai l'honneur de vous faire rapport que pour donner satisfaction aux demandes de nouveaux services d'eau enrigistrés à date et pour poser les conduites principales en consequence, il serait nécessaire d'obtenir le vote des crédits suivants à même les fonds destinés à exécuter les travaux permanents.

QUARTIER DUVERNAY.--Rue Marquette (environ 6 maisons) 96' de 8".--- $ 400.-

Chris.Colomb (" 8 ")114' " 12".--- 450.-

QUARTIER HOCHELAGA.- (Pour donner l'eau aux nouveaux groupes de maisons construites sur les terrains de la Succ. Hogan, dont les rues viennent d'être récemment reçues par la ville.)

Rue Montgomery.	(25 maisons)	350 pieds de tuyaux de 8".-		700.-
Hogan	(12 ")	350	do.	700.-
Hochelaga	(10 ")	900	do.	1600.-
DeLevis	(3 ")	125	do.	300.-
Wurtele	(4 ")	150	do.	350.-
Forsythe	(2 ")	200	do.	400.-
Browne	(1 ")	125	do.	300.-

Dans les autres rues du même quartier.

Rue Davidson	entre Duquette et Ontario.	30' de tuy.de 8".-	70.-
Forsythe	" Davidson et Cuvillier.	50' de 8".-	90.-
Hochelaga.	" do. " Joliette.	214' de 8".-	400.-
Aylwin	" Hochelaga et Sherbrooke.	400' de 8".-	750.-
Joliette.	" do. " do.	400' de 8".-	750.-
Aylwin	nord de Stadacona. - - -	80' de 8".-	175.-
Joliette	sud de Ste.Catherine. - - -	75' de 8" .-	90.-
do.	entre Duquette et Stadacona. -	100' de 8".-	200.-
		rapporter - -	$ 7725.-

De plus dans le même quartier Hochelaga il y a des demandes de services pour des maisons nouvellement construites.

rapporter.--- $ 7725.-

Sur la rue DeLevis au nord de la rue Hochelaga nécessitant la pose de conduites principales de 8" sur une longueur d'environ 550 pieds au coût approximatif de - - - - - - 1100.-

QUARTIER STE. MARIE.

Rue Iberville 300 pieds de tuyaux de 12". -- 700.-

do. 400 " " " " 8". -- 800.-

Ces nouvelles rues ne sont que tracées en travers de la côte et leur nivellement n'étant pas fait, il faudrait poser actuellement nos tuyaux à pas moins de 15 pieds de profondeur.

QUARTIER PAPINEAU.

Rue Dorion (4maisons) 600 pieds de tuyaux de 8".- 1150.-

QUARTIER ST ANDRE.

Avenue des Cèdres, pour approvisionner le "CHILDREN'S MEMORIAL HOSPITAL".- 1000 pieds de tuyaux de 8".-- 1900.-

Total, --- --- $ 13375.-

Les fonds qui nous restent disponibles sur les crédits des services et conduites principales pourront couvrir la dépense nécessaire à la pose des services enrigistrés à date.

Respectueusement soumis,

Geo. Janing

Surintendant de l'aqueduc.

750

REPORT

FROM THE

WATER Committee

Asking for an appropriatio
of $13,375.00 to lay main
pipe.

Presented 6 Mar 190 1

Adopted Same day 190

Entered vol. D.D.3 page 107

and page 244 of vol. 12 of Reports.

A LA CITÉ DE MONTRÉAL

LE COMITÉ DES FINANCES

A l'honneur de faire rapport

Que, suivant les instructions du Conseil, il a pris en considération le rapport ci-annexé du comité de l'Aqueduc recommandant de voter $6200. pour poser des tuyaux de distribution et qu'il a résolu de recommander de voter $1000. pour faire les travaux requis sur la rue St-Laurent à cause de l'expropriation, et $2500. pour les nouveaux services jusqu'à date,

~~et qu'il approuve dans la recommandation qui y est faite,~~

ladite somme de $3500. devant être prise comme suit: $1000; sur le fonds d'emprunt et $2500, sur la balance disponible sur le crédit voté pour l'expropriation de la rue St Laurent, 2e section,

Le tout néanmoins respectueusement soumis.

Chambre du Comité, Hôtel-de-Ville,
Montréal, 10 novembre 1905

I hereby certify that there are sufficient available funds to cover the appropriation herein specified.
Viz $3500
H. Pelletier
C. C & A.

L. D. Vallières
L. Payette
G. DeSerres
D. Lapointe

Form C K 12193, La P.

To the City of Montreal.

The W A T E R *Committee*

Respectfully Report

That they have this day considered a verbal report from the Superintendent asking for the following appropriation for Pipe Laying Services as under.

1000	1st.- To finish work on St Lawrence street, caused by the expropriation.	$ 1200.00
	2nd. New services required to date.	5000.00
		$ 6200.00

Your Committee after due deliberation

RESOLVED - To report to the Council asking for the said sum of $6,200.00 for permanent work as per the Superintendent's report.

Committee room
City Hall,
Montreal Nov. 10th 1905.

Respectfully submitted,

[signatures]

251

REPORT

FROM THE

WATER Committee

asking for an appropriation

of $6,200.00 to

finish work on P.L.Services.

Presented 13th Mar 190 8

Adopted Same day 190

Entered vol. DD 3 *page* 116

and page 266 *of vol.* 12 *of Reports.*

A LA CITÉ DE MONTRÉAL

LE COMITÉ DES FINANCES

A l'honneur de faire rapport

Que, suivant les instructions du Conseil, il a pris en considération le rapport ci-annexé du comité de l'aqueduc demandant un crédit additionnel de $ 7000 pour acheter du charbon à vapeur pour la station de pompe à bas niveau afin de finir l'année —

et qu'il Concourt dans la recommandation qui y est faite, le montant à être pris sur le compte distincts en que le montant de fonds requis soit autorisé.

Le tout néanmoins respectueusement soumis.

Chambre du Comité, Hotel-de-Ville,
Montréal, 24 Nov. 1905

I hereby certify that there are sufficient available funds to cover the appro. herein specified.
Viz. $ 7000.00
J. B. Pelletier
C. C & A.

S. D. Vallières
L. O. Lapointe
George W. Sadler
[illegible]

Form C K 1219½, L.a P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered a verbal report from the A sst Superintendent informing the Committee that there will be required a supplimentary appropriation of $7,000.00 to purchase steam coal for the Low level Pumping Station, to finish the year.

Your Committee after due consideration of same

Resolved To report to the Council asking for an appropriation of $7,000.00 for the purchase of Steam Coal.

Respectfully submitted,

Committee Room
City Hall,
Montreal Nov. 21st.1905.

752.

REPORT

FROM THE

WATER Committee

Supplimentary
Appropriation of $7000.
for the purchase of
Steam Coal.

Presented 27 Mar 190 6

Adopted same day 190

Entered vol. D 93 *page* 140

and page 283 *of vol.* 12 *of Reports.*

A LA CITÉ DE MONTRÉAL

LE COMITÉ DES FINANCES

A l'honneur de faire rapport

Que, suivant les instructions du Conseil, il a pris en considération le rapport ci-annexé du comité de l'Aqueduc, demandant un crédit de $1.000 pour la pose de tuyaux de service.

et qu'il approuve ~~ses~~ recommandation ~~qui est faite~~.

Ladite somme de $1.000 devant être prise sur les arrérages de taxes

Le tout néanmoins respectueusement soumis.

Chambre du Comité, Hotel-de-Ville,
Montréal, 7 Décembre 1905.

I hereby certify that there are sufficient available funds to cover the appropriation herein specified.
Viz. $1000.00
C. C. & A.

L. D. Vallières
Geo. W. Sadler
Louis Payette
[signature]

Form C K 3210½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered the verbal report from the Assistant Superintendent asking for further appropriations for Pipe Laying Services. Your Committee after due consideration ofthe matter

Resolved To report to the Council asking for the sum of $1,000.00 for Pipe Laying Services to finish the season.

Respectfully submitted,

[signatures]
F. Sauvageau

Committee Room
City Hall
Montreal Dec 5th 1905.

Fig. 3 is an enlarged view in detail and in vertical section, showing features of my invention.

Fig. 4 is a horizontal section through the stand pipe only, on the line 4-4 Figure 1.

Fig. 5 is a horizontal section through the stand pipe only, on the line 5-5 Figure 1.

Fig. 6 is a partial vertical section illustrating a modification.

Heretofore, as is well known, much trouble has been experienced from the liability of hydrants freezing in Winter, or in having the hydrant valve frozen to its seat, so that the hydrant cannot be operated without considerable trouble, to first thaw out the frost so as to get the hydrant into working order. To overcome this difficulty in cities provided with sewerage, it has been customary to connect the hydrant with the sewer. So desirable has drainage been heretofore considered, that the waste pipe has often been conducted a very considerable distance in order to communicate with the sewer, involving a very large expense for digging and piping. In order to secure proper drainage, and thereby prevent the freezing of the hydrant, the hydrant has frequently been located to disadvantage in other respects. In many places where hydrants are used there is no sewerage, as in the outskirts of cities and in smaller towns or villages, and of course such a connection is therefore impossible, and

no adequate and practicable means of relief has heretofore been employed to free the hydrant from waste water and prevent freezing. In many cases, to prevent freezing it has heretofore been common to leave an open waste orifice at the base of the hydrant to permit the water to leak away into the surrounding soil, but this has been thoroughly impracticable when the hydrant was placed in a low hard, or wet soil, for the reason, that such an open orifice only permits the surface water, or the water in the soil to run back into the hydrant, instead of giving any relief. But even when the hydrant is connected with the sewer or other drainage, it has been found by experience that the difficulty has by no means been effectually overcome. Where a hydrant is constructed to have the stand pipe screwed out of the ground, leaving the frost jacket, it is not practicable to connect a drain pipe leading to a sewer with the stand pipe directly, in a hydrant of this description, for, if a drain pipe were so connected, the stand pipe of the hydrant could not be screwed out of the ground. The drain pipe when used, has therefore been commonly connected to the hub or shoe supporting the stand pipe, the base of the stand pipe above and adjacent to the valve seat, being provided with a small opening near the adjacent end of the drain pipe, this construction obviously leaving a space between the drain or waste pipe, and the waste orifice in the stand pipe, affording opportunity for surface water, or water in the adjacent soil, to back up into the interior of the hydrant, which frequently occurs wherever the moisture in

the soil is of such quantity that the small waste pipe connected into the hub cannot carry it off. The water thus backing up into the hydrant often results in the freezing of the hydrant in cold weather, especially in the fall of the year when the rains have fallen, whereby the hydrant fills with surface water.

In consequence of such faulty constructions and arrangements, it has not infrequently been found necessary on occasion of a fire, to first thaw out the hydrant after the fire engine has reached the spot, or where, as in towns which do not use fire engines, but where direct pressure in the main is employed, it has been necessary in Winter to provide some device whereby the water may be heated and pumped into the hydrant to thaw it out when frozen, or to inject steam for this purpose, involving great delay in time of emergency, resulting in increased headway of the fire and greater destruction of property.

Moreover, where hydrants are connected thus with a sewer, the sewer gases are liable to back up into the hydrant often destroying the working parts. My invention relates therefore, more particularly, to new and useful improvements in fire hydrants, by which the hydrants may be relieved from all waste water which may remain in them upon closing the valve, controlling the admission of water from the main, or which may accumulate therein for any reason, the purpose of the invention being to relieve the hydrants of waste water, and to prevent all liability of their freezing in cold weather.

Accordingly, the object of my present invention is to provide a hydrant stand pipe with an interior waste pipe which may be readily engaged therein, through which all the water in the stand pipe can be forced out therefrom by pressure of air or steam admitted into the interior of the stand pipe, and whereby the hydrants may be effectually prevented from freezing and kept in constant readiness for use.

I accomplish my present invention as follows:-

The stand pipe or outlet pipe of a hydrant is indicated in the accompanying drawings at a, the hydrant shown herewith having a screw threaded engagement, as shown at b with a hub c, so that the stand pipe can be screwed out of the ground or out of the hub. A customary frost jacket is indicated at d. The stand or outlet pipe is constructed with the usual discharge nozzle, indicated at e, with which the hose may be connected, and through which the water from the hydrant is commonly discharged, said nozzle being provided with a customary cap f to close the same.

A valve is shown at g provided with a valve stem h and arranged to be seated and opened in the usual manner. These parts may be of any desired construction.

To apply my present invention to a stand pipe or outlet pipe already in use, in a simple and effective manner, I bore an orifice of suitable size toward the top thereof, as indicated at i. A drain pipe indicated at j,

preferably, provided with an elbow k at its upper end, has its elbow inserted through said bore or orifice at i, from the interior of the stand pipe, the end of the elbow projecting through the wall of the stand pipe to the exterior a sufficientdistance to receive a suitable gasket or packing l, a lock nut m, and a cap n, with an intervening gasket or packing r, the outer end of the elbow being threaded to receive the lock nut, and the cap The gasket or packing l, and the lock nut make the connection of the elbow with the stand pipe tight so as to prevent leaking. The cap is preferably made of brass, and is constructed with the gasket or packing r to effectually close the upper end of the pipe or outlet pipe j. The lock nut draws the upper end of the pipe j, up snugly against the inner surface of the stand pipe, and the upper end of the pipe j is thus firmly held in place. The drain or waste pipe j extends downward within the outlet or stand pipe into close proximity to the valve g. The lower end of the pipe or outlet j may be held in place by an I-bolt, or other suitable device, indicated at p, threaded or otherwise secured in the base of the stand pipe.

In the application of my invention to stand pipes already in use, having a waste orifice at bottom, the I bolt p may be secured in the customary waste orifice in the base of the stand pipe, thereby closing said orifice. The I- bolt of the stand pipe, thereby closing said orifice. The I-bolt or other similar device is, of course, designed to have a tight joint or connection with the stand pipe. The base of the pipe j will thus be held firmly in place, and prevented from vibration.

Pressure may be applied to the interior of the stand pipe in any suitable manner. Thus, as a matter of convenience, the cap f may be provided with a nipple q to which a suitable hose may be connected through which air or steam may be forced into the stand pipe, and thus the waste water may be effectually and entirely driven out of the stand pipe. In such a construction, it is obvious that there is no opening in the base of the hydrant through which surface water, or water from the soil, can back up thereinto, nor can any sewer gas back up into the stand pipe, for I am thus enabled to dispense with all sewer connections. The waste pipe j may be of any suitable material, and of any suitable dimensions.

It will be obvious, furthermore, since the upper end of the pipe j is effectually closed in the use of the hydrant when supplying water, that air is forced up within said pipe, the pipe forming an air chamber in the stand pipe preventing the waste pipe j being filled with water, so that there is no liability of said pipe freezing up when the hydrant is in use in supplying water. In a device of this character, there is no necessity of using a primed pump, as any ordinary air pump may be employed in forcing the water out of the stand pipe after it has been opened for a fire, or steam may be supplied for the purpose from the fire engine. Instead of locating the nipple q in the cap f, it might be located at any other point of the stand pipe, if preferred. By my invention, the waste pipe j may be of any desired size, and I am thereby

Finance et Aqueduc 2563

REPORT

FROM THE

WATER Committee

For appropriation of

$1000.00 for pipe

Laying services.

Presented 19 Dec *190* 8

Adopted Same day *190*

Entered vol. D.D.3 *page* 182

and page 305 *of vol.* 12 *of Reports.*

Form C K 1219½, La P.

To the City of Montreal.

The W A T E R *Committee*

Respectfully Report

That they have this day considered the accompanying report from the Superintendent asking that certain items of the appropriations be varied as follows:-

FROM:-

Salaries	$ 25.00	
Aqueduct	1204.00	
Wheel House	170.00	
~~Fuel~~	~~[illegible]~~	
Pipe Track	11.00	
Reservoirs	691.00	
Distribution Pipes	220.00	
Meters	289.00	
Public Fountains	37.00	
Hydrants	831.00	
Testing & Rep.Scales	125.00	
Horse Keep	16.00	
Contingencies	50.00	
Rent of telephones	67.00	
" " Poles	25.00	
Shops	630.00	
Tail Race	100.00	
Uniforms	8.00	
Purchase of horse.	200.00	$ 4699.00

TO:-

Engine House Low Level	$3343.51.	
do do High level	708.83	
do do Tools	646.66	$ 4699.00

I hereby certify that there are sufficient available funds to cover the within herein specified. Viz. 4699.00
J. Reeves
C.C. & A.

Your Committee after due consideration of said report,

RESOLVED.- To ask the Council's permission to vary the appropriations as above.

Committee Room
City Hall
Montreal December 28th 1905.

Respectfully submitted,
[signature]
F. Sauvageau
J. H. Stearns
C. Lemay

Montreal Dec 28th 1905.

To the Chairman & Members

of the water Committee.

Gentlemen,-

In order to adjust the accounts at the end of the present year, I have the honor to propose the following variations.

Vary from :-

Salaries	$ 25.00	
Aqueduct	1204.00	
Wheel House	170.00	
~~Fuel.~~	~~[illegible]~~	
Pipe Track	11.00	
Reservoirs	691.00	
Distribution Pipes	220.00	
Meters	289.00	
Public Fountains	37.00	
Hydrants	831.00	
Testing & Rep.Scales	125.00	
Horse Keep	16.00	
Contingencies	50.00	
Rent of Telephones	67.00	
Rent of Poles	25.00	
Shops	630.00	
Tail Race	100.00	
Uniforms	8.00	
Purchase of Horse.	200.00	$ 4699.00

TO:-

Engine House Low Level.	$ 3343.51	
do. do. High "	708.83	
do do Tools.	646.66	$ 4699.00

Respectfully submitted,

J. McIsaac

Asst. Superintendent M W&W

254

REPORT

FROM THE

WATER Committee

For permission to vary approriations.

Presented 27 Dec 1905

Adopted Same day 190

Entered vol. D.D.4 page 51

and page 315 of vol. 12 of Reports.

C O P I E

Montréal le 24 Janvier 1905.

M. le Président et M.M. les

Membres de la Commission de l'aqueddc.

Messieurs,-

Le prix de notre charbon est de $3.70 pour du charbon à vapeur Dominion Coal Co. de cette année par 2,000 livres au pavillon des Roues Bas Niveau.

Pour le coke le prix sera $4.75 par 2,000 livres au pavillon du Haut Niveau.

Dans l'esperance que vous trouverez ces prix satisfasants,

Nous nous suscrivons avec respect,

Vos etc,

(sig) J.O.Labrecque & & Cie.

EXTRACT from the minutes of the City Council of Montreal, Special Meeting, held on Monday, 30 January 1905.

- - -

Submitted and read the following report of the Water Committee to ratify contract for soft steam coal.

The Water Committee

respectfully report

That they have this day considered tenders for the supplying of about 4,500 tons of soft steam coal for the Low Level Pumping Station, & about 1,500 tons of soft steam coal or coke for the High Level Pumping Station. After due consideration of said tenders, Your Committee decided to award contracts as follows :-

To J. & A. Bourdon, for 1,500 tons of coke for the high Level Pumping Station at $4.48 per ton.

To J. O. Labrecque & Co, for 2,250 tons Soft Steam Coal "Dominion", run of mine, for the Low Level Pumping Station, at $3.70 per ton.

To. L. Cohen & Son, for 2,250 tons Soft steam Coal "Dominion" run of mine for the Low Level Pumping Station, at $3.70 pet ton.

Your Committee therefore asks that the said contracts be ratified by the Council.

The whole etc., (Signed) J. B. Clearihue, F. Sauvageau,
I. H. Stearns, J. Bumbray,
Committee Room, City Hall, Ed. Chaussé, C. Lemay.
Montreal, 26 January 1905.

(Certified) (Signed) J. Pelletier, C. C & A.

- - - - -

On motion of Ald. Clearihue,

Seconded by Ald. Bumbray, it was

RESOLVED :- That said report be received and adopted.

(Certified)

City Clerk.

2 30

REPORT

FROM THE

WATER Committee

Asking that contracts for Soft Steam Coal be ratified.

Presented 30 Jan 190 1

Adopted Same day 190

Entered vol. 001. *page* 48

and page 4 & 9 *of vol.* 11 *of Reports.*

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have thisday considered a report from the superintendent asking permission to vary appropriations Ex-Loan for Pipe Laying Mains and Services as follows :-

FROM	P.L.SERVICES.	$ 2,157.00
TO	P.L. MAINS.	2,157.00

After due consideration of same Your Committee

RESOLVED To ask the Council permission to vary said appropriations as above.

Respectfully submitted,

Committee Room
City Hall
Montreal Jan 10th 1905.

I hereby certify that there are sufficient available funds to cover the variation herein specified.
Viz. $ 2157
C.C & A.

936.

REPORT

FROM THE

WATER Committee

For permission to vary appropriations Ex-Loan.

Presented 31 Jan 190 1

Adopted Same day 190

Entered vol. 201. *page* 118

and page 488 *of vol.* 11 *of Reports.*

A LA CITÉ DE MONTRÉAL

LE COMITÉ DES FINANCES

A l'honneur de faire rapport

Que, suivant les instructions du Conseil, il a pris en considération le rapport ci-annexé du comité de l'Aqueduc demandant un crédit de $40.000 pour acheter du charbon ou pour obtenir de la force motrice pour le département

et qu'il concourt dans la recommandation qui y est faite.

Ladite somme de $40.000 devant être prise sur Arrérages de taxes.

I hereby certify that there are sufficient available funds to cover the appropriation herein specified.
Viz.
J. Cazavan
Asst C. C & A.

Le tout néanmoins respectueusement soumis.

Chambre du Comité, Hotel-de-Ville,
Montréal, 8 Mai 1905

L. S. Vallières
H. Lebeau
L. A. Lapointe
G. Desèrres

Pour le taux par millions de gallons, la Cie Montreal Light, Heat and Power soumet deux prix différents: l'un pour un service de 20 heures et l'autre pour un service de 24 heures; si j'ai bien compris la soumission en question, ces deux offres sont exclusives l'une de l'autre, c'est-à-dire que la cité devra faire un contrat pour l'une ou l'autre de ces deux offres et que, si elle choisit le service de 20 heures, il arrivera que durant la période où nos pompes actionnées par la force hydraulique de notre aqueduc cessent de fonctionner, elle n'aura pas le choix d'un service de 24 heures.

Pour que le situation soit clairement établie, je vous rappelle que la consommation de l'eau varie actuellement entre 27 et 30 millions par 24 heures, que cette eau est pompée par 3 pompes à vapeur de 11, 10 et 9 millions de gallons de capacité, soit, nominalement 30 millions par vapeur, et par 4 pompes actionnées par la force hydraulique (turbines) de 4, 4 1/2, 2 1/2 et 2 millions de gallons de capacité soit nominalement 13 millions par force hydraulique. Durant 2 ou 3 mois, chaque hiver, le défaut d'eau dans l'aqueduc expose nos turbines à s'arrêter successivement et même totalement; alors toute l'eau doit être pompée par vapeur, c'est-à-dire que durant cette période, il faut pouvoir disposer de toutes nos pompes à vapeur et ce, durant les pleines 24 heures. C'est du reste surtout pour faire amplement face à cette période que j'ai demandé l'achat d'une nouvelle pompe et c'est précisément à cette même époque que, d'après les propres informations du représentant de la Cie force électrique est restreinte et doit par conséquent être payée plus cher.

Ces considérations et l'examen particulier du tableau III ci-annexé qui résume le coût comparatif du pompage par force électrique et par vapeur pour le service de 20 et 24 heures, établissent avec ses désavantages, le taux le plus réduit (celui de 20 heures) il reste encore une petite marge en faveur de l'addition, au "plant" actuel d'une pompe à vapeur à haut rendement et que, pour ces raisons, je crois l'adoption de cette mesure, recommandable.

Je n'ai pas cru que la résolution du conseil comportait d'instructions pour l'étude d'une transformation complète à l'électricité du "plant" actuel du bas niveau, mais si telle étude devait être faite elle devrait comporter la considération du projet d'agrandissements de l'aqueduc dont je vous ai soumis récemment les grandes lignes, car je reste convaincu que l'utilisation de la force hydraulique réalisable par nos propres moyens coûterait meilleur marché que l'emploi de la force électrique et que l'exécution de ce projet serait plus conforme au vous points aux intérêts de la cité de Montréal, ~~[illegible]~~

En ce qui concerne l'achat d'une pompe mue par la vapeur, si le conseil décide de choisir ce système, le tableau comparatif ci-joint du coût d'installation et d'opération des diverses pompes offertes montre que suivant les cotations telles que déduites des soumission primitives, la pompe offerte par la Providence Engineering works occupe le premier rang. Mais malgré l'enquête soigneuse et impartiale faite en visitant différents "plants" aux Etats-Unis, il ne ressort pas clairement que l'application d'une notion très rapide aux pompes est entièrement sortie de la période expérimentale et il reste,

pour recommander cette pompe, un risque que le conseil ne devrait pas être avisé de prendre. En conséquence, les deux soumissions qui méritent considération en raison du type normal de pompes qu'elles offrent sont celles de la maison Davis de Leeds Angleterre et de la maison J. McDougall Caledonian Iron Works de Mont.

Telles que les soumissions se lisaient lors de leur ouverture, la pompe Hathorn Davis, présentait un avantage sur la pompe J. McDougall de $564. pour les charges annuelles de son fonctionnement et de l'intérêt du capital engagé.

Sur cette base Hath. D. était plus en avant celle de la Cie J. McD. C. I. W. et c'est ce qui a du la faire recommander par la majorité de la commission de l'aqueduc.

Si la commission et le conseil entendent prendre en considération les offres subséquentes de plus haut rendement faites par les deux soumissionnaires précités, lesquelles offres nouvelles sont calculées dans les tableaux ci-joints la différence revient en faveur de la pompe J. McDougall pour un montant annuel $61.

Je me crois obligé de faire remarquer que ces nouvelles [illegible] sont garanties par chaque soumissionnaire de la façon suivante:

Hathorn Davey and Co. $200. unités

J. McDougall Caledonian Iron Works $1000 [illegible]

[illegible] bonus en sa faveur de même sens

En conséquence si les nouvelles offres étaient acceptées, le conseil s'obligeant à se prononcer sur le mérite des soumissions, je ne pourrais que recommander l'achat de la pompe Worthington fournie par la maison J. McDougall C. I. W. [illegible] Iron Wks. Co.

Respectueusement soumis.

AQUEDUC DE MONTREAL

Prix comparatif du pompage par force électrique et par vapeur, avec des pompes telles que proposées, de douze millions de gallons par 24 heures.

Note - En comparant le pompage par électricité avec les pompes à vapeur, il faut tenir compte que le pompage par électricité se ferait d'après un contrat pour une force motrice coûtant pas moins de $14,600. par an ou $40. par jour. Un arrêt prolongé du pompage pour réparations etc. entraînerait la perte de ce montant chaque jour, en conséquence il serait indispensable de pourvoir à l'installation d'un "plant" électrique en duplicata pour assurer l'utilisation continue des avantages du dit "plant".

COUT D'ETABLISSEMENT	Electrique	à vapeur
Prix des pompes 2 à $16,000.- Electriques 2 à $54,000.- Vapeur	$32,000.00	$ 54,000.00
Prix des bâtiments et des fondations	7,500.00	12,000.00
Compteur Venturi pour pompes électriques	2,500.00	----------
Cout total de l'installation:	$42,00.00	$ 66,000.00
Fonctionnement des pompes:		
2 mécaniciens et huileurs		
1 jour et une nuit chaque à $1000. et $500	$ 3,000.00	$ 3,000.00
Fournitures, huile etc.	150.00	00.00
Reparations à 2%.	240.00	1,320.00
Dépreciation sur la machinerie 4%	1,300.00	2,160.00
Intérêt sur le cout de l'installation à 4%	660.00	2,640.00
Charges annuelles à l'exclusion de la force motrice électrique ou à vapeur.	$ 7,050.00	$ 9,520.00

Coût par jour ÷ 365 jours	19.31 ~~$ 1,931.00~~	26.08 ~~$ 2,608.[illegible]~~
Coût par million de gallons si la pompe travaille pendant 24 heures	1.61 ~~0.161.~~	2.18 ~~0.218~~
Coût par million de gallons si la pompe travaille pendant 20 heures	1.93 ~~0.193~~	------

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Prix de la force électrique par million de gallons par 20 heures	5.00
do do do do 24 heures	7.00

Coût de la force motrice à vapeur

La quantité nécessaire de charbon pour faire fonctionner la nouvelle pompe à vapeur est basée sur un rendement pratique de 110 millions de livres pieds de vapeur, lequel rendement est à peu près de 30% au-dessous du rendement garanti par les soumissionnaires des pompes; l'efficacité des chaudières est taxée à 8 pour un d'évaporation, ce qui donne 1.18 tonne de charbon par million de gallons pompés qui, au prix de $4.50 par tonne livrée sur les grils, compris toutes les charges de main-d'oeuvre, sortie des cendres, dépréciation et réparation des chaudières comme il est établi dans le tableau II (ci-annexé,) revient par million de gallons pompés au prix de $ 5.31

PRIX DU CHARBON LIVRE SUR LES GRILS POUR LE FONCTIONNEMENT DE LA NOUVELLE POMPE A HAUT RENDEMENT DE 12 MILLIONS DE GALLONS.

Au rendement de 110 millions de livres-pieds par 1,000 livres de charbon et avec une évaporation ordinaire de 8 livres d'eau par livre de charbon, il faudra, pour pomper 1 million de gallons d'eau 1.18 tonne de charbon ou 14.16 tonnes par jour, soit 5168 tonnes par an. (voir tableau III.)

Prix par tonne de charbon livré dans le hangar 3.45 $ 3.65

C O U T Q U O T I D I E N

14.16 tonnes à $3.65				$ 51.69
2 chauffeurs (un de jour et un de nuit) avec un aide pendant 6 heures à chaque équipe peut aisément manier 16 tonnes de charbon, et 20 heures de passeur de charbon par jour sont amplement suffisantes pour sortir cette quantité du hangar et sortir aussi les cendres, comme cela a lieu actuellement à la station du bas niveau:				
36 heures 2 chauffeurs, 12 heures chaque	@	17¢	$ 6.12	
Passeur de charbon, 20 heures	@	17¢	3.40	9.52
Dépréciation et réparation des chaudières:				
6% de $15,000 $900.00 par an, soit par jour				2.47
Coût total par jour				$ 63.68

Coût du charbon par tonne $\frac{63.68}{14.16}$ $ 4.50

may be allowed by the City. The duration of such temporary variation shall not exceed four (4) hours per week in all.

The motors to be operated from this power, shall be such that they shall not cause disturbances to the Power Company's system, and shall be so designed that the starting of these motors shall not cause an abnormal demand for power. To accomplish this the motors will be supplied with starting devices, which when starting will make a gradual demand for the power necessary to start and operate the motors.

FAILURE OF SUPPLY. Interrupted service must be carefully guarded against by the tendering company, and for this purpose, connection with more than one source of power supply must be provided for by the Company. Owing to the Water Works service being of great public utility, the Company must be prepared to give preference to the City over all other customers, in the event of a partial failure of its power. The tendering Company must be prepared to guarantee its service of power at all times and indemnify the City for damage that may be caused by the interruption or failure of supply, by an allowance equal to double the value of power during interruption.

HORSE POWER. A horse power under these specifications, shall mean seven hundred and forty-six (746) true watts, as indicated by integrating or indicating watt meters, of approved type.

All power measurements to be made under the joint supervision of the Company and the Superintendent of Water Works, or their representatives. All instruments used in the measurement of this power, shall be of the best design procurable, and satisfactory to the Engineers of the City and the Company supplying power.

POWER CHARGE. FLAT RATE BASIS.- The power may be sold on a flat rate basis, as follows:-

FIRST.- A stipulated sum per year, per horse power, for twenty (20) hour daily service. The four hours excluded, being from 4.P.M. to 8 P.M. and known as the "Peak load" hours.

SECOND.- A stipulated sum per year, per horse power, for twenty-four hours daily service.

RATE PER MILLION IMPERIAL GALLONS PUMPED.

FIRST.- The Power Company shall make a rate on the basis of so much per million imperial gallons water pumped during the twenty hours of each day between 8. P.M. and 4. P.M. , properly calibrated, a Venturi meter to be installed by the City on the discharge pipe to measure the water pumped.

SECOND.- A rate per million imperial gallons pumped daily during any or all of the twenty-four hours of each and every day during the year, it being understood that this rate is to be based on the understanding that there will be a minimum charge equivalent to 8,000,000 imperial gallons pumped per day, for each 12 million gallon pump unit installed.

STANDBY and METER RATE. The Company shall make a rate for power, on the basis of a fixed sum per horse power, per annum, for the number of horse power required to operate the pump, and this amount shall be paid for regardless of the operation of the pump.

If the pump is used, all power taken will be paid for at the rate of . . . per horse power hour, to be measured by integrating wattmeter. This rate being for twenty-four (24) hour service.

BEGINNING OF SERVICE. The flat yearly basis if accepted by the City will only start from the time the pump or pumps are put into regular operation; this will be reckoned, and the yearly power bills start from the time the pump or pumps have shown their ability to work effectively, during a whole day's run of twenty (20) hours at their stated capacity. The metered water rate will be reckoned from the start, by the registering of the Venturi meter.

TERMS of PAYMENT. Accounts will be rendered monthly, and payments made on warrant of the Water Committee.

~~The . . . . . Company be prepared to furnish power as required according to this specification, at the following stated rates and for the term of years as set forth, viz.~~

The MONTREAL LIGHT, HEAT & POWER . . . . . Company is prepared to furnish power according to this specification at the following stated rates and make a contract with the City for any term of years as set forth, with right of renewal by the City.-

POWER CHARGE FLAT RATE BASIS	3 YEARS.	5 YEARS.	10 YEARS.
1st. Price per H.P. per year 20 hours as above.	$20.00	$20.00	$20.00
2nd. Same 24 hours.	35.00	35.00	35.00
RATE PER MILLION IMPERIAL GALLONS PUMPED.			
1st 20 hour service.	$5.00	$5.00	$5.00
2nd. 24 hours service.	7.00	7.00	7.00
POWER CHARGE,			
Standby per H.P. per year.	X X X	$10.00	$10.00
Meter Rate per H.P. hour.	X X X	12.00	12.00

THE MONTREAL LIGHT, HEAT & POWER COMPANY.

W McNaughton

1ST VICE-PRESIDENT & CHIEF ENGINEER.

April 12-05

J.D. LABRECQUE & CIE

Essayez le Celebre CHARBON DIAMANT NOIR

Tel. Bell, East 1251
" Marchands 356

83 RUE WOLFE

MONTREAL 17 Avril 1905

A Monsieur Le President
et Messieurs les Membres
de la Commission de Eau

Messieurs

A votre dernière reunion qui a eu lieu le 14 Avril dernier vous nous avez demandé pour combien d'années nous delivrerions le charbon au prix de 3.01 la tonne de 2000 lbs.
Par la présente nous venons vous dire que ce prix est fait pour l'espace de cinq années avec la presque certitude d'un renouvellement de cinq autres années à l'expiration des cinq années

Avec respect nous sommes
Messieurs Vos très humbles serviteurs
J.D. Labrecque

J. D. LABRECQUE & CIE

Essayez le célèbre CHARBON DIAMANT NOIR

Tel. Bell, East 1251
" Marchands 358

83 RUE WOLFE

MONTREAL 13 Avril 1905

à Monsieur Le Président
à Messieurs Les Membres
de la Commission de l'Eau
Montréal

Messieurs

Pour couper court aux calculs qui se font, se basant sur le coût du charbon payé par votre commission dans le passé pour pomper l'eau nécessaire à l'alimentation de la population de la ville de Montréal, nous venons par la présente vous dire que nous sommes prêts à vous signer un contrat pour la fourniture du charbon nécessaire pour le pavillon des Roues au bas niveau pour le prix de $3.05 la tonne de 2000 lbs. pourvu que votre commission achète tout son charbon dans la saison favorable et qu'elle munisse ses foyers de "Stockers" qui d'après les statistiques produisent une économie de 15%. Si vous comparez ce prix de $3.05 avec celui de $3.65 qui a servi de base aux calculs de Mr. Janin votre surintendant vous verrez qu'il y a une différence notable en faveur du ~~[illegible]~~ charbon soit 4219.50 par année en [illegible]; mais comme il vous faudra payer 7 cts par 1000000 de gallons en [illegible] cela fera donc une différence de $10845.50 par année

J.O. LABRECQUE & CIE

Essayez le célèbre **CHARBON DIAMANT-NOIR**

Tel. Bell, East 1251
" Marchands 358

83 Rue Wolfe

Montréal 189

~~[illegible]~~ Par contre si vous employez l'Electricité au lieu et place du charbon vous aurez à considérer les pertes suivantes qui seront faites par des maisons de commerces de cette ville ainsi que par les lignes de bateaux, mains d'oeuvres Etc.

Savoir

Perdu par les charretiers qui transportent le charbon au Pavillon des Roues	$4500.00
Fret perdu par les Compagnies de bateaux qui transportent ce charbon des Provinces Maritimes à Montréal	$12500.00
Salaires perdus par les mains d'oeuvres que vous congédirez n'ayant plus besoin de leurs services	$4467.00
Perdu par la Commission du Havre par quaiage sur le dit charbon	$780.00
	$22247.00

Ajoutez à cela les pertes indirectes, comme par exemple la diminution de la capacité du fret de retour et la conséquence de l'augmentation des taux de frets de Montréal avec l'Isle du Prince Edouard et Terreneuve. Peut-être que l'on voudra faire entrer en ligne de compte le coût de l'entretient des "Stockers". A cela nous répondrons que le coût est, comparativement peu lorsque l'on s'en sert avec le charbon pour lequel

La pompe Gilbert que vous avez a votre station de haut niveau est en fonction depuis 19 ans de 60 a 62 movements de piston par minute, sans itemes excessive de reparages, et celanonnbstant le fait qué la pompe a ete bati pour 30 movements a la minute. Une pompe moderne specialement bati pour 60 movements sera sujet a seuelement qu'un-quart ou un-sixieme de la detoriation de cette vielle pompe qui a ete augmenter en vistesse avec success.

60 movements par minute nous aloues d'eteter a chaque movement la motie de l'eau qu'en marchant a 30 movements., consequement la tension sur tous les parties de l'engin a vapeur est moindre et les parties qui sont en movement sont sujet a moin d'usure., Nous pouvons par consequenee faire la partie de la vapeur plus legerte et augmenter l'efficacite sans pedre de pouvoir. Nous avons mis la pesanteur et les depenses dans le bout pour l'eau., elle est pesant amplement suffisant pour douze millions gallons et representant plus de valeur en temps et main-d'eouvre que aucune autre pompe soumis. Notre dessin de construction et les parties reciprocatives legertes garanti une action douce sans vibration, et de long durance amplement prouver par dix annes d'experience. Aucune construction inclus dans notre pompe sont nouvelle et non essayes, quand prit separement. La combination seulement est un peut indifferent.

Si vous ne voulez envoyer vos Ingenieurs pour examiner les differents constructions inclus dans notre pompe pour qu'ils puissent rendre un opinion basses sur experience en lieu de jugement de plan, pourquoi pas prendre nos garantis de notre compagnie, lesquelles sont supporter par 30 a 40 annes de succes etun expert en pompes qui a eu autant d'experience qu'aucun homme seule.

Estce-que il est juste de rejeter la plus haute pompe de rendement soumis par les plus bas soumission, avant une enquete complete. Notre dessin est un pas fait en avant sur tout autres, parceque nous avons embrasses dedans tous les points modernes.

Comme preuve de notre confidence nous batirons et installerons cette pompe sans paiement jusque ce que la pompe soit mit a l'epreuve comme specifier, et trouver d'etre en accord avec

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vos specifications et les termes de notre contrat.

Sur cet base, nous sollicitons une reconsideration de notre pompe, par votre Committee, ou bien par votre Honourable Corps.

Respectuusement a vous,

THE PROVIDENCE ENGINEERING WORKS,

Arthur A. Fuller, Supt.

Montreal March 27th 1905

MONTREAL WATER WORKS

Specification for a new Steam Pump for the Low Level Station.

1. Proposals and general data.

Sealed proposals will be received at the office of the City Clerk, City Hall, Montreal, until twelve o'clock noon on Tuesday, 31st January, 1905, for building and erecting at the Low Level Pumping Station of the said Montreal Water Works, one 12 million imperial gallons steam pumping engine.

The pumps shall be designed for an initial steam pressure of not over 140 pounds per square inch.

2. Capacity of pumps.

The capacity of the pumps shall be 12 million imperial gallons in 24 hours, or 8,333 imperial gallons per minute, safely and continuously pumped against a total pressure of 86 pounds per square inch, including the friction of the force mains. The suction lift shall be from 5 to 9 feet.

This pumping must be done with a guaranteed efficiency of not less than one hundred and forty million (140,000,000) foot pounds duty, per one thousand (1000) pounds of dry steam used.

2a. Price.

The tenders for the pumping engine complete as herein called for must be made for a lump sum price.

3. Requirements

The parties tendering shall be required to make their bids on their own design of pumping engine with a full description of how they intend to meet the exigencies of the service and fulfil the requirements of full pumping capacity of 12 million gallons with the pressure herein stated, and the efficiency they offer shall be clearly set forth.

Each proposal shall therefore be accompanied by general plans and complete specifications of the pumping engine offered, with its immediate appurtenances, as may be needed to enable the Water Committee to form a correct opinion as to its merit.

4. Experimental machinery.

No plan of pumping engine will be considered that is merely experimental in its nature. The bidders must be prepared to satisfy the Water Committee of the City of Montreal that the kind proposed has proven its ability to do what is claimed for the same.

5. Setting on foundations.

The pumping engine shall be delivered at the Low Level Pumping Station and set upon the foundations built by the Montreal Water Works Department, in the proposed extension of the existing pumping house, according to the annexed plan, the foundations to be previously approved by the Contractor.

6. Pump accessories.

PUMP VALVES.—The area of the suction and discharge valves shall be sufficient to ensure proper filling and discharging of the pumps under all conditions. The pump valves shall be designed and constructed to open and close promptly and quietly, shall be tight and of ample strength, and shall be especially designed for facility of repairs and renewals.

AIR CHAMBERS.—The pumps shall be provided with air vessels of sufficient capacity to ensure smooth, easy and equal action of the pumps. They shall also be provided with an efficient air priming device to maintain the proper pressure in the air-vessels.

SUCTION AND FORCE PIPE, VALVES, ETC.—The suction and force pipes (36 inches in diameter) to be furnished by the Contractor as far as it will be necessary to connect the new engine with the suction and force pipes inside the building. The Contractor shall also furnish the gate valves for the suction and discharge pipes of the engine, also a check valve for the discharge pipe.

STEAM VALVES.—The steam distribution valves shall be of a known reliable type. They shall be well balanced and so designed as to work with the minimum friction, to wear even, and steam tight, and to have proper facilities for refitting and adjusting.

The pump shall be provided with an automatic device to prevent racing in case of a broken pump main. The Contractor shall also make connection with the steam main inside the building.

The Contractor shall also furnish all necessary valves, all fixtures and appurtenances usually accompanying the most approved pumping engines,or that may be needed within the engine room, in order to fit the machinery for, and help it in, the full and satisfactory performance of its daily work ; and by this expression, is meant to include all necessary valves, gates, anchor plates, foundation plates, foundation bolts, stairs, platforms, hand railings, stanchions, water-pressure gauges and counters, also lubricators, oiling apparatus, cans, trays and drip pans, wrenches, hammers and all other tools, attachments and devices, irrespective of any omissions from this specification, all of which must be of a style, size, form, material and finish, best adapted to the purpose to which they are to be applied.

LAGGING.—The steam cylinders, steam chest, reheaters, steam and distribution pipe and other heated surfaces of the machinery where necessary, shall be protected by neat walnut lagging, securely fastened and held in place by brass bands and button headed brass screws, and bright finished false covers.

COVERING.—All steam pipes and heated surfaces shall be protected with reliable non-conducting covering at least 1 1-2 inches thick.

No non-conductors, lagging or false covers shall be applied until the engine has been thoroughly tested by working steam pressure, and all leakages and defects developed have been thoroughly remedied.

7. Oil cups and drip pans. All bearings to be provided with suitable oil cups and grease cups and drip pans, where required.

8. Gauges and counters. There will be furnished and erected by the Contractor one water pressure gauge graduated to show feet, head and pounds pressure, and to read to three hundred feet (300) and connected to the delivery main ; one vacuum gauge, to be connected to the suction main ; one round face revolution counter with eight figures, one eight-day clock, all to have large round deep nickle plated cases, and to be suitably mounted on an ornamental board.

9. Material and design. All parts of the pumping engine must be of suitable material adapted to the duty it is to perform, and of good workmanship, of neat design, and possess ample strength to render it reliable and durable. Such parts thereof as are liable to get out of order, must be easy of access and ready for repair, or replacement. Castings must be smooth and true to form. Such nuts as will be subject to frequent removal, must be case hardened. Every portion of the pumping engine except the bright or polished parts must receive three coats of good paint, the last two of which shall be of a color, or colors, to be designated by the Superintendent of the Montreal Water Works, or his representative. Moreover, each bidder must state in his specification what each part of his pumps, is to be made of. The inside surfaces of the suction and discharge chambers and pipes are to be given two coats of No.1 paraffine varnish hot.

10. Castings. All pump castings to be of sufficient strength to withstand a pressure of one hundred and seventy-five (175) pounds per square inch.

11. Working drawings. The successful bidder will be required, within thirty days after the letting of the contract, to furnish the Superintendent of the Montreal Water Works, a complete working plan of the foundations for the pumping engine with information as to the room the machinery and its appurtenances will occupy in the building ; also within eight weeks complete and detailed plans of the said machinery for the approval of the Superintendent of the Montreal Water Works; one copy of said plans and specifications to be attached to the notarial deed, the second copy to be deposited in the office of the Superintendent of the Water Works, and the third copy to be deposited at the Low Level Pumping Station.

12. Erection. The Contractor shall so conduct his operations as not to interfere with the work of other Contractors who may be at work on other parts of the engine house and the disposal of his tools and materials, during erection, will be subject to the approval of the Superintendent of Water Works.

The Contractor shall erect and remove all staging, scaffolding, trestle work for trucks, etc., needed in erecting the engine, and leave the engine room and premises neat and clean.

13. Test of materials. The materials used in the construction of the pumping engine must be the best of their class and quality, and meet with the approval of the Superintendent of Water Works or his representative, who for that purpose shall have free access to the foundry or workshop, where the Engine is being built. This inspection at shop or foundry will not relieve the Contractor of further responsibility, but he must remove and replace any defective material found at the erecting station.

14. Test of machinery. After erection has been completed the pumping engine shall be tested with hydraulic pressure. For this purpose the discharge valve shall be closed and a force pump shall be connected to the discharge pipe to allow of a pressure of 175 pounds per square inch to be applied in such manner as to test the pumps, pump valves, air vessels, discharge pipes of the engine.

The pump shall then be run for a period of at least thirty days to ensure the smoothness of working of the wearing parts of the engine and to allow for the detection of any defective details of workmanship, which must be repaired or made good upon discovery.

15. Duty test. After this period of running, the engine shall be submitted to a duty test of twenty-four hours continuous running. In this test the pumping engine must show a duty averaged over the whole twenty-four hours, equal to that specified in the Contractor's tender. This test must be based on the foot pounds duty per 1000 pounds of dry steam used by the engine. The water of condensation used in all steam jackets and reheaters shall be accounted for and charged against the engine in this test. The steam used in working the boiler feed pump during the test shall also be charged against the engine.

The duty test shall be carried on under the joint supervision of the Superintendent of Water Works or his representative and of an engineer in the employ of the Contractor. Should the two parties supervising the test not agree, they may choose a third expert, and the decision of any two of these three, shall be final.

16. Date of erection. The pumping engine as contracted for by the tenderer shall be set up complete, tested by hydraulic pressure and in regular running order twelve calendar months after the signing of the contract, under a penalty of one hundred dollars for every twenty-four hours delay thereafter.

17. Certified cheques. Each proposal must be accompanied by a certified cheque on an incorporated bank, for ($6,000) six thousand dollars payable to the order of the City Treasurer of Montreal.

This cheque to be forfeited if the tenderer whose offer has been accepted refuses to sign the contract based upon his specifications approved by the Water Committee when requested to do so, or if he does not faithfully carry out the terms of the said contract.

The Contractor to pay the cost of the notarial deed and a copy thereof for the City of Montreal.

18. Payments. The amount of the contract shall be paid by the City of Montreal, to the Contractor as follows:—to wit:

Forty per cent. (40%) of the said contract price and the deposit of six thousand ($6,000) dollars shall be paid on delivery of the entire plant at the Pumping Station.

Fifteen per cent. (15%) of the said contract price when the machinery is erected and ready to run.

Twenty per cent. (20%) after the successful tests as set forth in article 15.

The remaining twenty-five per cent. (25%) bearing interest at the rate of 4%, per annum, from the date of the first payment as above mentioned, to be kept by the City during one year after the successful test of the machinery as set forth in article 15.

This amount being held as a guarantee against all defects, breaks or damages that may ensue in consequence of defective workmanship, faulty material or imperfect design in or about the pumping engine and its appurtenances. It may also serve to indemnify the City of Montreal against any or all claims for royalty, duty, damages, fees, legal or other expenses, to which the said City may be subjected, on account of any patented appliances or devices which may be entitled to a patent which shall be used by him, (the said Contractor), upon or about the Machines or their appurtenances.

19. No extra charge.

The Contractor shall have no right to claim any indemnity or extra charge for pretended extra work under any pretence whatsoever, unless he shall produce a written order for the same signed by the Water Works Committee and endorsed by the Superintendent of the said Water Works.

20 Non-acceptance.

The Montreal Water Works Committee do not bind themselves by this specification or any part in connection therewith to the purchase of a pumping engine of any kind, type or make, but it is expressly understood that they are at full liberty to reserve and do hereby reserve, the right to reject any and all bids.

GEO. JANIN,

Chief Engineer
and Superintendent of Water Works.

Montreal, November 30th, 1904.

compagnie serait pas d'exiger la susdite somme de $48,790.00 au cas où la Ville passerait un contrat de 5 à 10 ans.

Il ne peut se concevoir qu'une seule façon d'examiner une offre de ce genre pour apprécier le coût réel du pompage: c'est de supposer l'achat du "plant" offert par la compagnie, et pour éviter d'avoir à le reprendre plus tard, déprécié par l'usage, il n'y aurait qu'à l'acheter immédiatement et de tenir compte du coût du dit pompage par la Ville, tel que nous le démontrons dans le tableau No 4 ci-annexé et qui ressort à $8.16 par million de gallons et de comparer la même opération:

1o. avec un "plant" installé par nous-mêmes, suivant la moyenne des offres qui nous ont été faites par divers soumissionnaires pour la machinerie électrique et qui se monterait à $9.13 par million de gallons, à la condition que la dernière offre de la compagnie soit bien seulement, comme elle le dit dans sa lettre du 1er mai, faite pour prouver la sincérité de ses chiffres, et si, par conséquent, elle est prête, au cas où nous installerions nous-mêmes notre "plant", à nous fournir le pouvoir seul, à $7.00 en n'importe quel temps et pour n'importe quelle quantité d'eau à pomper autrement que par force hydraulique;

2o. avec le pompage à vapeur tel qu'établi dans le tableau No 2 et qui ressort à $8.31.

Au taux de consommation quotidienne de 30 millions de gallons d'eau, 7,974 millions devront être pompés annuellement au moyen de l'électricité ou de la vapeur, tel

qu'indiqué dans le tableau No 1, et il en résulterait, d'après la dernière offre de la compagnie Montreal Light, Heat & Power et les chiffres cotés ci-dessus que: -

Le pompage électrique avec un "plant" installé par la dite compagnie coûterait, par an, environ $1200.00 de moins que le pompage par vapeur.

Et que le même pompage, avec un "plant" installé par nous, coûterait environ $1400.00 de moins que le pompage à vapeur.

Il y aurait à tenir compte, d'autre part, d'un certain montant à dépenser pour entretenir en état le "plant" à vapeur qui devrait, comme le dit la compagnie elle-même, être toujours prêt en cas de besoin; il est plus que modéré d'évaluer ce montant à $800.00 environ par an, qui viendrait en déduction des avantages ci-dessus cotés pour l'électricité.

Il est juste de mentionner que ces chiffres se modifieraient à l'avantage de l'électricité en proportion d'une augmentation progressive de la consommation de l'eau, mais, d'autre part, si l'on envisage l'avenir et non le présent, en comparant l'électricité à une autre force motrice, le Conseil de Ville devrait alors tenir compte du projet que j'ai eu l'honneur de lui soumettre pour l'exploitation de la force motrice hydraulique qui serait à notre disposition en agrandissant l'aqueduc, projet qui, toute charge payée pour intérêt, etc., permettrait de pomper jusqu'à 50 millions de gallons d'eau à moins de $6.00 par million de gallons. Sans compter que, même en adoptant le pompage électrique, l'agrandissement de l'aqueduc s'imposera tôt ou

ou tard pour satisfaire aux seuls besoins d'une alimentation d'eau potable en quantité suffisante. Ce projet aurait, entr'autres avantages, celui de maintenir la Ville en possession du contrat de sa propre force motrice sans crainte d'aucune fluctuation dans le prix de la dite force.

Des divers rapports que je vous ai soumis sur cette question, il résulte qu'elle est maintenant sortie du domaine technique pour entrer dans le domaine des affaires proprement dites, et qu'une faible différence en faveur de l'un ou l'autre des systèmes n'est peut-être pas la seule considération qui devrait déterminer un choix entre eux; mais néanmoins, comme par ordre du Conseil, la question m'est posée péremptoirement, je dois, suivant les chiffres ci-dessus, déclarer:

1o. que pour la durée du contrat qui pourrait être passé avec la compagnie Montreal Light, Heat & Power, le pompage au moyen de l'électricité reviendrait moins cher que le pompage à vapeur;

2o. que l'installation d'un "plant" par nous-mêmes serait moins coûteuse, si l'on peut réellement se baser sur l'offre de $7.00, tel qu'expliqué plus haut.

II. PROPOSITIONS D'ARRANGEMENT AVEC LA COMPAGNIE JOHN McDOUGALL CALEDONIAN IRON WORKS.

La dite compagnie, pour essayer de régler le différend qui existe entre elle et la Ville au sujet de la pompe électrique du haut niveau, présente, par sa lettre en date du 11 courant, quatre offres différentes: -

1o. Installer à la station du bas niveau trois pompes centrifuges à haute pression de 12 millions de gallons avec moteurs électriques; à la station du haut niveau une pompe et moteur d'au de 5 millions de gallon - reprendre la pompe électrique actuelle du haut niveau (en litige), le tout moyennant une somme de $50,235.00.

Cette offre représente un montant d'une douzaine de mille piastres au-dessous de la moyenne des prix qui nous sont offerts par les autres soumissionnaires pour des machines de même capacité et sur le choix desquelles il resterait à votre Commission à se prononcer; d'autre part, cette offre comporte la reprise par la compagnie John McDougall Caledonian Iron Works de la pompe électrique actuelle du haut niveau dont la valeur marchande est difficile à établir, mais sur laquelle un montant de $30,000.00 a déjà été payé. Cette pompe, cependant, vu les circonstances, n'aurait de valeur réelle pour nous que si elle était transportée au bas niveau au coût d'environ $10,000.00 à nos risques et périls et sur une fondation et dans un nouveau bâtiment qui nous coûterait environ $9,000.00.

2o. Installer à la station du haut niveau une pompe centrifuge à haute pression de 5 millions de gallons, (comme dans la proposition précédente), descendre la pompe électrique actuelle du haut niveau (en litige) à la station du bas niveau, après l'avoir transformée de telle sorte qu'elle ait une capacité de 6 millions de gallons, et construire et installer une autre pompe semblable de 6 millions de gallons de capacité, pour la somme de $73,6[illegible].00.

notre considération, il nous a paru que cette propo-sition ne nous offrait aucun avantage sérieux, et que, par conséquent, elle ne devrait pas être entretenue.

3o. Installer à la station du bas niveau la pompe à vapeur à haut rendement de 12 millions de gallons telle qu'elle a été, vu les circonstances, recommandée par moi dans mon rapport en date du 17 avril dernier; installer aussi, à la station du haut niveau, comme dans les propocitions 1 et 2, une pompe centrifuge de 5 millions de gallons, et descendre à la station du bas niveau, la pompe électrique actuelle du haut niveau, (en litige) pour la somme de $81,282.

Cette offre, en tenant compte du coût des bâtiments pour les pompes à vapeur, représente un montant d'environ $ 350.00 de moins que les plus basses offres considérées des autres soumissionnaires pour des machines de même capacité.

4o. Descendre au bas niveau, la pompe électrique actuelle du haut niveau (en litige), aux risques et périls de l'entrepreneur, pour la somme de $14,937.00.

Cette offre qui a déjà été étudiée par votre Commission et qui est maintenue par l'entrepreneur au même chiffre que précédemment, ayant été rejetée comme trop élevée à cette époque, n'a pas, je crois, raison d'être de nouveau entretenue aujourd'hui.

Comme toutes ces combinaisons sont sujettes au

M O N T R E A L W A T E R W O R K S

Montreal May 25th 1905.

To the Chairman & Members of

the Water Committee.

Gentlemen,-

In order to conform to the resolution of the City Council of the 1st. 15th and 22nd. instant, relative to the question of the system of water pumping, I have the honor to submit to you the following report.

PUMPING BY ELECTRIC OR STEAM POWER.

My last report on this subject of the 17th and 29th of April last, based on the Montreal Light Heat & Power Co's tender of the 12th April last, showed that for 24 hours pumping (the only kind we can consider for our service) the cost would be :

By electric and steam pumping combined the City operating only one 12 million gallon high lift centrifugal pump and utilizing its present steam plant for the balance of its pumping, $8.85 per million gallons.

By Steam alone the City purchasing a new 12 million gallon high duty pump and utilizing its present old plant for the balance of its pumping $8.40 per million gallons.

On the first of May the Montreal Light Heat & Power Co. came forward with an offer on a new basis which we proceeded to examine and study, whilst at work on this the First Vice-Pres. & Chief Engineer of the said Company asked of me an interview to explain the Company's offer, which as far as I could understand it, appeared to me less advantageous than the proceeding one, as a result of this interview the said Company sent a letter or offer to Council on the 8th May by which all former offers were set aside and a new proposition substituted. In this proposition the Company itself offers to install in a Fire proof building, 3 high lift centrifugal pumps and motors and do itself all the City's pumping, except what may be obtained from the hydraulic Wheels for the sum of &7.88 per million gallons and this on condition that the City could break the arrangement on payment of $60,000.00 the Company's value for the building and pumps and $ 10,930.00 for each of the 3 pump connections, or $32,790.00 in all for the special power wire connections. After the purchase the City would only have to pay the Company $7.00 per million gallons pumped.

O N T H I S twenty-fourth day of October one thousand nine hundred and five.

AT THE REQUEST OF THE CITY OF MONTREAL a body politic and corporate having its office in the East Ward of the city of Montreal.

I, ROBERT A. DUNTON the undersigned Notary Public for the Province of Quebec, residing and practising in the City of Montreal.

PERSONALLY WENT to the office in the Temple Building on St. James Street, in the said City of Montreal of JAMES BENNETT of Montreal, Electrical Contractor.

Where being and speaking to a grown person in charge.

I declared:-

That on the twenty-eighth day of August last (1905) the said James Bennett tendered for the work required for the installation of an electric lighting system in certain buildings of the Low Level Pumping Station of the said City and in the dwelling of the Chief Engineer and four dwellings of other employees of said Low Level Pumping Station, and agreed to perform the said work in accordance with the specifications issued and submitted by the Water Committee of said City for the sum of three hundred and eighty dollars.

That the said tender was accepted by saidcity.

That the said James Bennett commenced work onsaid electric wiring work under said contract, and after performing a certain amount of work dis-continued work, and has abandoned work thereon, and although frequently notified and requested by the officials of the said City to resume and continue work, and complete the contract undertaken by him he has wholly neglected and failed so to do.

That the completion of said electric lighting system is a matter of urgency and must be completed without

(further)

further delay.

Wherefore I the said Notary at the request aforesaid and speaking as aforesaid do hereby protest against the negligence of the said James Bennett, and against his failure to complete the work undertaken by him as above mentioned, and I do hereby nofity and call upon the said James Bennett to forthwith resume work on said contract and to prosecute work thereon with due diligence, and to have said electric wiring completed in accordance with the said specifications without delay. In default whereof the said City seeing that the completion of said work is a matter of great urgency will take the said work into its own hands and complete the same at the cost and expense of the said James Bennett, and will hold the said James Bennett liable and responsible as well for any additional cost that said City may be put to in the completion of said work as for all loss, damage, injury and costs sustained and incurred and that may be sustained and incurred by reason of the negligence and default of the said James Bennett in the premises.

For and against all of which I the said Notary do solemnly protest.

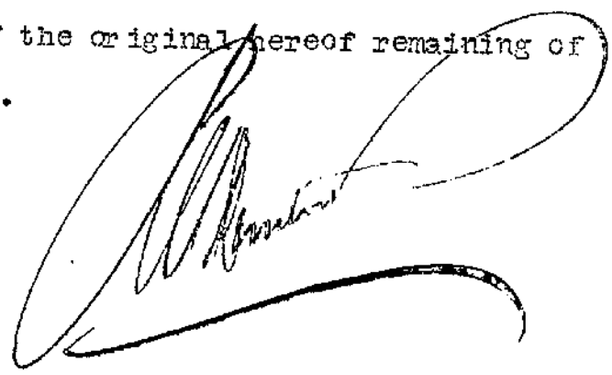
And in order that the said James Bennett may not have cause to pretend ignorance in the premises I have served a copy hereof upon him speaking as aforesaid.

(Thus)

THUS DONE AND PROTESTED at the City of Montreal, on the day month and year herein first written under the number twenty-four thousand one hundred and sixty-four of the original minutes of the undersigned Notary and I have signed in testimony of the premises.

(Signed) R.A.Dunton N.P.

A true copy of the original hereof remaining of record in my office.



241?

No.24164

24th.October 1905.

NOTIFICATION & PROTEST

at the request of

The City of Montreal

upon

James Bennett.

Copy 2.

R.A.Dunton N.P.

REPORT

FROM THE

WATER Committee

Asking Council to ratify contract for Steam Pump for the Low Level Pumping Statn.

Presented 20 Mar 1905
Mar
27 Mar 1905
deferred

Adopted 190

Entered vol. D. D. 2 *page* 102

and page 561 *of vol.* 11 *of Reports.*

Form C K 1219½, La P.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That they have this day considered tenders for a steam pumping engine for the Low Level Pumping Station, and after due consideration of the tables prepared by the Superintendent, Your Committee

Resolved To award the contract to the Hawthorn Davey Co, of Leeds England, for a 12,000,000 gallon steam pumping engine, for the sum of $53,497.00, and therefore ask the Council to ratify said contract.

Respectfully submitted,

H. Gagnier

J. Gattbray under Reserve

[illegible]

I. W. Stearns

Committee Room

City Hall,

Montreal Mch.20th 1905.

I hereby certify that there are sufficient available funds to cover the expenditure herein specified.
Viz. $53,497.00

J. Bellefeuille C. C & A.

MONTREAL WATER WORKS.

SPECIFICATION

FOR

CAST IRON PIPES.

1905

The NUMBER, WEIGHT and DIMENSIONS of the pipes required are shown in the following table.-

Internal Diameter in inches.	Quantities called for in Lengths.	Length of each pipe in feet	Thickness of metal in inches.	Mean Weight of each length in lbs.	Permitted deviation from mean weight in lbs.
12	60	12	.77	1210	30
10	10	12	.67	886	25
8	100	12	.58	630	20
6	100	12	.50	415	12
4	100	12	.42	260	8

No greater deviation in weight than stated in excess of the specified mean weight will be paid for, and all pipes which shall fall short of the mean weight by a greater number of pounds than the permitted deviation, will be rejected, and must be forthwith removed at the Contractor's expense.

The Water Committee reserves the right to diminish the above stated quantities by 25 % and also the right to increase the said quantities in certain sizes by 50 % should necessity arise. Due notice of such increase in the quantity required, will be given the Contractor.

The pipes are to be cast vertically, faucet downwards, without core nails or chaplets and are to be of uniform bore and thickness of metal throughout and are to be perfectly free from flaws or defects of any kind. Every pipe to have semicircular groove of 1/2 inch diameter cast in the faucet at a distance of 3/4 quarters of an inch from its outer end. To have faucets large enough to allow space all around for lead joints 3/8 of an inch for 20, 16 and 12 inch pipes, and 1/4 inch for 6 and 4 inch pipes. The inside of the faucets must not be conical.

Defective spigot ends on pipes may be cut off in a lathe, and a half-round wrought iron band shrunk into a groove cut in the end of the pipe. Not more than 12 per cent of the total number of accepted pipes of each size shall be cut and banded, and no pipe shall be banded which is less than 11 feet in length exclusive of socket. In case the length of the pipe differs from 12 feet, the weights given in the table shall be modified in accordance therewith.

The pipes to be dressed and cleaned under cover immediately after being cast, and before being allowed to rust in the slightest, to be coated (by immersion) when hot, with Coal tar pitch varnish. The Water Committee may require the cleaning and coating to be done in the presence and to the satisfaction of their inspector.

After having been coated the pipes are to be proved by the Contractor in the presence and under the direction of the Superintendent of Water Works, or his representative to a pressure of 300 lbs to the square inch, and whilst under thispressure to be smartly rung with a hammer, and must show no defect whatever during the test.

The inspection & proof at the works shall not relieve the Contractor of further responsibility, but the pipes may be tested by the Water Works after delivery, and any defective ones may be rejected at any time such defect may be discovered up to the closing of the contract.

WEIGHING and MARKING. The Contractor shall weigh each pipe in the presence of the inspector, and shall mark its weight near the faucet in plain figures with white lead.

DELIVERY The whole of the pipes to be delivered free of duty, freight or any charge whatever at the Montreal Water Works Shop, Grand Trunk street. Contractor must assume risk of breakage in unloading. Delivery to begin two weeks after the awarding of the contract as may be ordered by the Superintendent of Water Works, and to continue thereafter from time to time to meet the demands of the department.

TON. The price per ton will be for the ton of 2,000 lbs.

PAYMENTS. Each delivery must be accompanied by triplicate invoices and payments will be made monthly, after the acceptance of the pipes.

NOTARY'S CHARGES. The Contractor to pay the Corporation Notaries their charges for making the deed of contract, and a copy of same.

DEPOSIT:- A deposit of 500 dollars will be required with each tender as a guarantee for the fulfilment of the contract.

Geo. Janin
Superintendent M.W.W.

Superintendent's Office
City Hall
Montreal June 1904.

MONTREAL WATER WORKS

TENDER FOR CAST IRON PIPES

To the Chairman & Members

of the Water Committee.

Gentlemen,-

The Montreal Pipe Foundry Company,ltd. of Montreal, do hereby propose to supply the Cast Iron Pipes mentioned in the attached specification, in the quantities therein mentioned, or any portion of them, according in all respects to the true intent and meaning of said specification, and subject to the terms and conditions therein mentioned, at the following prices per ton of 2,000 lbs., - viz:

For each ton of 12" pipe,		$	
" " "	10" "	$	
" " "	8" "	$	$ 32.50
" " "	6" "	$	Thirty-two 50/00
" " "	4" "	$	dollars.-

Date... Montreal June 27th 1905. Signature, Montreal Pipe Foundry Co.ltd.

(Signed) T.J.Drummond

president.

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REPORT

FROM THE

WATER Committee

Asking Council to ratify contracts for Stove Coal Cast Iron Pipes, Special Cast ings, Lumber) Scrap etc.

Presented 10 July 1901

Adopted Same day 190

Entered vol. D D 2 *page* 159

and page 109 *of vol.* 12 *of Reports.*

Form C K 2219½, L.a P.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That at a meeting of your Committee held this day they have considered a verbal report from the Superintendent asking that the sum of $200.00 be varied from Pipe Track and applied to Contingencies, the latter appropriation being exhausted.

Your Committee after due consideration of the matter

RESOLVED, - To report to the Council for permission to make the variation asked for by the Superintendent

The whole etc.-

Committee room
City Hall,
Montreal June 27th 1905.

J. H. Stearns

I hereby certify that there are sufficient available funds to cover the variation herein specified.

C. C & A.

NOUVEAUX CREDITS A DEMANDER SUR LE FOND D'EMPRUNT.

Pose de nouvelle conduites principales, pour satisfaire aux demandes de services d'eau à date:

Rue Dessery de la rue Nolan jusqu'à environ 200 ' sud de la rue Sherbrooke, 1400' de tuyau de 8"	$2100.-	
Rue Hochelaga (de la rue Davidson à la rue Nicolet) 1400' de tuyau de 8",	$2100.-	
Rue deLevis 1000' au nord de la rue Forsyth.	$1500.-	
Rue Sherbrooke (200' à l'ouest de Frontenac).	300.-	
do. do. (300' à l'est de Frontenac).	450.-	
Rue Montgommery (1000' de tuyau de 8").	1500.-	$ 7 950.-
D'autres demandes de services sont enrigistrées pour des rues qui ne sont pas encore reçues par la ville mais qui sont en instance de l'être incessamment et dans lesquelles la pose de conduites principales nécessitera une dépense d'environ.	$8000.-	$ 8,000.-
Pour satisfaire à la demande de la Commission des Marchés, en date du 9 août en plaçant une borne-fontaine à l'extremité nord des remises débarcadères au marché aux bestiaux. 1500' de tuyau de 8"(déjà demandé et refusé le 14 avril de l'année courante).	$2300.-	$ 2,300.-
Pose de nouveaux services (suivant les demandes enrigistrées à date) 56 à $30.-	$1680.-	
Provision pour demandes à venir.	2000.-	3,680.-
		$ 21,930.-
à déduire le reliquat sur l'ensemble des crédits pour pose de conduites principales et de nouveaux services.		5,151.-
reste à obtenir.- - - -		$ 16,779.-

2145.

REPORT

FROM THE

WATER Committee

For supplementary appropriations to finish the year.

Presented 15 Sept 1901

Adopted same day 1901

Entered vol. D. D. 3 page 4

and page 166 of vol. 12 of Reports.

A LA CITÉ DE MONTRÉAL

LE COMITÉ DES FINANCES

A l'honneur de faire rapport

Que, suivant les instructions du Conseil, il a pris en considération le rapport ci-annexé du comité de l'Aqueduc demandant un crédit de $4.500 pour ~~remplacer par des conduites d'un plus gros diamètre, les conduites d'eau qu'il y a dans les rues Crescent, Bishop et Mackay~~ continuer la conduite principale de 12 bas niveau sur la rue Sherbrooke entre les rues Montagne et Guy

et qu'il concourt dans la recommandation qui y est faite.

ladite somme de $4.500 devant être prise sur le fonds d'emprunt

Le tout néanmoins respectueusement soumis.

Chambre du Comité, Hotel-de-Ville,
Montréal, 22 Sept. 1905

S. D. Vallières
L. Lapointe
C. B. Carter
H. Ekers

I hereby certify that there are sufficient available funds to cover the approp[n] herein specified.
Viz. $4500

L. Leclerc
C. C. & A.

Form C K 1219½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this considered the accompanying report from the Superintendent in regard to the Low water pressure in Crescent, Bishop and Mackay streets, on account of the above streets not being connected through to Sherbrooke street to a 12" main that should be laid from Mountain to Guy St. on the low level service. The cost of which would be about $4,500.00.

Your Committee after due consideration of the said matter

RESOLVED.- To report to the Council asking for an appropriation of $4,500.00 to carry out the work as per the Superintendent's report.

The whole respectfully submitted,

[signatures] H. Sauvageau, C. Lemay, J. Bumbray

Committee room

City Hall

Montreal Sept 19th 1905.

City Hall

Montreal le 21 Sept 1905. 19

A. M le Président at à M.M.les Membres

de la Commission de l'aqueduc.

Messieurs,-

Conformement à vos instructions j'ai l'honneur de vous faire rapport sur le défaut de pression d'eau qui se fait sentir sur la rue Crescent et qui existe sur les rues Bishop et Mackay.

Ces rues sont pourvues chacune d'une conduite principale de 6" de diamètre approvisionnée par le bas niveau, qui, faute de conduite principale du dit bas niveau sur la rue Sherbrooke, forment des bouts morts à la rencontre de la dite rue.

Le remplacement de ces conduites de 6" de diamètre pár des conduites d'un plus gros diamètre n'apporterait pas de remède sensible tant qu'elles se termineraient comme présentement, par des bouts morts. En conséquence, j'ai l'honneur de vous proposer de continue la conduite principale de 12" bas niveau sur la rue Sherbrooke, entre les rues Montagne et Guy, ce qui formerait un circuit complet du bas niveau par les rues de la Montagne, Sherbrooke, Guy et Ste. Catherine et produirait une amélioration notable dans la distribution de l'eau aux residents des rues en question.

Ces travaux exigeraient un nouveau crédit sur l'item: conduites principales, de $4,500.00.-

Respectueusement soumis,

Geo. Janin

Surintendant de l'aqueduc.

Montreal Sept21st.1905.

To the Chairman & Members

of the Water Committee,

Gentlemen,-

According to your instructions, I have the honor to report to you on the want of pressure that is felt on Crescent street and also on Bishop and Mackay streets.

Each of these streets is supplied by a 6" main from the Low level, which for want of mains for the said level on Sherbrooke street, forms dead ends at the junction of the said streets.

To replace these 6" mains by ones of larger diameter would not remdy the matter while the mains finish in dead ends as they do at present. In consequence I have the honor to propose that you continue the Low level 12" main on Sherbrooke street, between Guy and Mountain streets, which would make a complete circuit of the Low level, by Mountain, Sherbrooke, Guy and St Catherine streets, and would greatly improve the distribution of water to the residents in the streets in question.

This work will necessitate another appropriation on the item of Main pipes, of $4,500.00.

Respectfully submitted,

Geo. Janin

Superintendent M W W.

MONTREAL WATER WORKS.

SPECIFICATIONS FOR THE CONSTRUCTION OF A BUILDING TO BE ERECTED AT THE LOW LEVEL PUMPING STATION, POINT St. CHARLES.

JOINERY and TIMBER WORK, PAINTING and GLAZING, ROOFING.

GENERAL CLAUSES.

TENDERS AND GENERAL INFORMATION.

Sealed tenders addressed to the City Clerk, will be received at the Office of the City Clerk, City Hall, until 12 o'clock noon, on Tuesday, the 31st October instant, for the construction of a building for the new steam pumping engine at the Low Level Pumping Station, Point St.Charles.

Each tender must be accompanied by an accepted cheque of $250.00 on an incorporated bank, payable to the order of the City Treasurer. This cheque will be forfeited if the tenderer whose offer has been accepted refuses when required to do so, to sign the contract according to the specifications accepted by the Water Committee, or if he does not entirely carry out the work.

The Contractor to pay the notarial fees for the deed and a copy thereof for the City of Montreal.

The Specifications and quantities of the whole are merely intended to furnish information on the details of construction. Their object is to show the general design and style of the building. Consequently, it is agreed that for the price stipulated the Contractor shall perform in an

entire manner all the necessary works for the complete and perfect finishing of the construction, whether provided or not in the specifications, and all such works under the order of the Superintendent of Montreal Water Works.

In case of errors or omissions in the following descriptions, the Contractor shall perform all the works considered necessary in their general order, and in a like manner to what has been foreseen.

All the works shall be finished not later than 2 months after the awarding of the contract. A penalty of $10.00,* ten dollars per day shall be exacted for each day or delay beyond that time and the penalty shall be collected as stated hereafter.

The amount stipulated in the contract shall be paid to the Contractor, by the City of Montreal, as follows:

Fifty per cent (50%) when the building is roofed over.

Forty per cent (40%) and the deposit of $250.00 at the completion of all the works.

However, it is agreed that if the works are not finished until after the above mentioned date, the delay penalty stated hereinbefore, shall be deducted from this payment.

The balance of ten per cent (10%) shall be retained during 60 days as a guarantee for all accidents of damages which may be caused by defective construction or by faulty material, or bad workmanship, in the whole or in any of the details of construction.

No allowance for extra work will be allowed the Contractor except upon a written order from the Water Committee endorsed by the Superintendent.

The City does not bind itself by this specification or any part thereof, to accept the lowest or any of the tenders offered.

The laborers employed on the works shall not be paid less than 15 cents per hour per day, and the carters 22 1/2 cents per hour. All building permits, water, etc., shall be paid for by the Contractor and he must not expect to be exempt from any of these charges.

All accidents and damages caused to any person or property owing to the carrying out of the work, shall be charged directly to the Contractor, and the City is not to have any responsibility in the matter.

JOINERY and TIMBER WORK.

All the joinery and timber work shall be of new dry wood, sawn straight, cut in the best possible manner and according to the laws of station. The framings perfectly made, without bad knots, sapwood, shakes, rotten knag, etc., and when no special wood is designated for the general supply of wood, pine wood is understood.

The steel roof beams and floor beams shall be supplied by the Water Department, but shall be laid by the Contractor.

The hardware fittings shall be of the best quality, but nothing luxurious is called for in the present specifications.

The roofing shall be composed of timber of the following kinds, strengths and dimensions.

The wall plates shall be 3 x 4 inches.

The lintels 3 x 9 inches 2 or 3 pieces framed together as may be required.

The wall plates supporting the rafters shall be 3 x 6 inches.

The roof shall have a double flooring of tongued and grooved one-inch boards, plained on one side, with a piece 2" x 5" between the two roofs. The first of the roofs shall be covered with 2 plies of tar paper, the joints cimented with a composition of tar and pitch, the whole shall be coated with the same composition, &c as to be first class work.

The windows shall be of pine, with 2 transoms and 2" sashes; they shall be provided outside, with listing mouldings, and pitched oakum caulking. They shall also be provided with ropes, weights, and necessary pulleys.

Blinds, with two leaves opening on two-thirds their whole height, with frames and cross pieces two inches thick, shall be provided and put up, with their fittings and locks.

Each of the bays shall be provided with a double window which shall be fitted up with hooks and fastenings complete.

The outside main door shall be of the same design as the one giving access to the room of the existing engine house.

PAINTING and GLAZING.

The doors, windows, double windows and blinds shall be given 3 coats of white lead paint of the best quality. All the outside woodwork shall be painted with 3 coats of

paint well spread, and all the knots shall be previously shellacked. The roofing, timber and frame work shall not be painted.

All the glazing shall be double star glass, and free from defects. The Contractor shall bed, nail and putty them in the ordinary manner.

The roof shall be covered with sheet iron of the same quality and dimensions as that which cover the adjoining building, to which it will be joined.

The joining of the roof of the adjoining building to that of the new, with the necessary carpenter work, is part of this contract.

QUANTITIES FOR THE CONSTRUCTION OF A BUILDING FOR THE NEW Steam PUMP AT THE LOW LEVEL PUMPING STATION Pt.St.CHARLES.

The comtractor shall examine plans and specifications, visit the site and fix a price for the whole work, without having the right to take advantage of errors or omissions in the quantities given.

CARPENTER and JOINER WORK

1 front door with two leaves, with iron fittings and lock complete, 14' x 8'

5 English windows with double windows, blinds and fittings, 5' x 11' arched.

3 do do 4' x 8' - 2 do do 5' x 2'

120 lineal feet of wooden cornice similar to that of the djoining building.

40 squares of 1" tongued and grooved double flooring planed on one side.

200 lineal feet scantling 3" x 4" small trusses on steel beams 3" x 4" scantling with stays, braces, brackets, etc., according to plan.

Stairs with baluster, descending to pit, similar to that of adjoining building.

PAINTING and GLAZING.

400 cubic yards painting, 3 coats, according to specifications.

391 superficial feet of "Star" double glass.

ROOFING.

20 square tar paper roofing according to specifications.

20 square sheet iron roofing according to specification.

The ground flooring that will be of armed concrete, is not included in this contract.

Marion & Marion,
PATENTS and PATENT CAUSES.
UNITED STATES & FOREIGN PATENTS, TRADE MARKS & COPYRIGHTS.
SPECIALTIES: REJECTED APPLICATIONS, INTERFERENCES, VALIDITY REPORTS, INFRINGEMENTS, EXPERT TESTIMONY.
GRADUATES OF THE POLYTECHNIC SCHOOL OF ENGINEERING, REGISTERED PATENT ATTORNEYS, BACHELORS OF APPLIED SCIENCE, LAVAL UNIVERSITY, A.M. CAN. SOC. C.E.
MEMBERS AMERICAN WATER WORKS ASSOCIATION, N.E. WATER WORKS ASSOCIATION, SYNDICAT DES INGENIEURS-CONSEILS EN MATIERE DE PROPRIETE INDUSTRIELLE (FRANCE), CHAMBRE SYNDICALE DES CONSEILS EN MATIERE DE PROPRIETE INDUSTRIELLE (BELGIQUE).
CONSULTING ENGINEERS & EXPERTS.
CABLE ADDRESSES: "NORIAM" WASHINGTON, "MARION" MONTREAL.
OFFICES: MONTREAL, CAN. & WASHINGTON, D.C. U.S.A.
New York Life Building.
MONTREAL.

1904 - année

20 Juin 1904.

Monsieur G. Janin, I.C.,

Surintendant de l'Aqueduc de Montréal,

Hotel de Ville, Montréal, Que.

Cher Monsieur,

Il nous est agreable de vous envoyer ci-inclus copie du brevet Canadien No 72294, accordé le 16 Juillet 1901, à MM.Daniel W. Carroll et Edmund A. Chapoton, pour améliorations aux borne-fontaines.

Au commencement du présent mois, vous nous avez remis une circulaire de la American Hydrant Drainage Co., nous demandant de faire une recherche pour découvrir si la borne-fontaine décrite dans cette circulaire faisait l'objet d'un brevet Canadien. Le résultat de nos recherches a été de trouver le brevet Canadien No 72294, dont vous nous avez demandé copie.

Pour débours et honoraires nous avons débité la Corporation de Montréal $13.75.

Veuillez agréer, Monsieur, nos empressées civilités.

Marion & Marion
par V.G.C.

M/C

OFFICE OF

THE BOARD OF WATER COMMISSIONERS

OF THE CITY OF DETROIT.

H. S. STARKEY, General Manager.
BENJ. F. GUINEY, Secretary.

COMMISSIONERS.

EDWARD W. PENDLETON, President.
DARIUS D. THORP, Vice President.
JOSEPH J. CROWLEY.
JOHN SCHROEDER.
JOHN ZYNDA.

Patented Ottawa N° 78294
Carrol and Chapaton.

DETROIT, MICH. April 28th, 1904.

Mr. Geo. Janiu, Supt.,

Montreal Water Works,

Montreal, Can.

Dear Sir,-

Referring to your inquiry relative to the Carroll system of hydrant drainage and frozen hydrants, beg to say that the hydrants are under the charge of the Board of Fire Commissioners to whom your letter has been referred for reply.

Yours truly,

H. S. Starkey

General Manager.

City Hall

Montreal April 26th 1904 19

The Superintendent

Detroit Water Works,

Detroit, Mich.

Dear Sir,-

I understand you have the Carroll system of hydrant drainage applied to a number of your hydrants in Detroit, and that it has given you good results as a non freezing attachment, as I would like to get definite particulars about the matter, I write you to know if you have a statement of hydrants found frozen last season in Detroit, and how many of these had the Carroll attachment. Perhaps your annual report will show this, and I should be pleased to receive your latest one.

Thanking you in anticipation,

I remain,

Yours very truly,

Geo. Janin

Superintendent M W W.

per L.

Janin

Referred to the Commissioners for report

over

Detroit, April 29, 1904

We have a large number of hydrants equipped with the Carroll device. They did not freeze. Our trouble was that the freezing was in branches below the hydrants, and no drain in the world could prevent that.

Yours truly

G. W. Stockwell

Secy Fire Commission

Subject:

Office of the

Superintendent of Water Works,

Montreal, 15th March 1904 189

To the Water Committee
Montreal P.Q.

Gentlemen :-

I hereby make you the following proposition for the use of the Carroll Non Freezing Hydrant Draining System on Montreal hydrants.

Provided that this offer is accepted within the next thirty days, I will, for Five dollars each for the hydrants now in the ground or used, license, empower and grant unto your city the right to manufacture and use upon any and all the fire hydrants now owned or to be owned by your city the invention or improvement above referred to.

Wm St. Carroll

Executive Office.
Detroit, Mich.
William C. Maybury, Mayor
CLARENCE A. COTTON
SECRETARY

July 28th, 1903.

To Whom It May Concern:

I am asked to give my opinion concerning an invention of one of our Captains of Fire Companies, Mr. Carroll, designed to prevent the freezing of hydrants during the winter season.

The device is, in my opinion, one of very great merit and will, I believe, accomplish its purpose. Captain Carroll is an old fireman, thoroughly experienced in all the difficulties of keeping hydrants open and his invention is the result of his own observation and experience.

We consider it a success here in Detroit and cheerfully recommend it to the department of any city seeking such a device.

Yours respectfully,

William C. Maybury

Office of the Fire Commission,

LARNED AND WAYNE STREETS.

-OF THE-

City of Detroit.

Detroit, February 19-1904.

Mr. Wm. H. Carson,

American Hydrant Drainage Co., City.

Dear Sir:-

In answer to your query would reply as follows:

This department has used the Carroll Hydrant Drainage System for the past five years and it has never been found wanting. It is attached to about 1600 of our hydrants and is a valued adjunct to our equipment. Any of our inspectors can test a hydrant equipped with this system in fifteen seconds, and a hydrant which is full of water can be completely emptied in thirty seconds. This system is practically indispensable for hydrants and branches which are close to the surface as no water remains to freeze and delay the firemen.

During the unusually severe weather we have had this winter we have not had a single "Carroll" drain fail us, but we have been continually troubled with those drained to sewers, etc. The cost of maintenance alone will pay cost of equipping with the Carroll System and we are changing our hydrants and installing that system as rapidly as possible.

We can cheerfully recommend the Carroll Hydrant Drainage System to any department or institution needing it, as we feel that it merits the highest praise.

Yours very truly,

George W Stockwell

Secretary.

(29-5000-10-'02)

OFFICE OF THE

FIRE COMMISSION OF THE CITY OF DETROIT,

Headquarters Detroit Fire Department.

Corner Wayne and Larned Streets.

Detroit, August 1-1899.

To whom it may concern:

The Fire Commission of the City of Detroit has adopted the Carroll Patent Non-Freezing Hydrant Drainage System for use on all the fire hydrants in the City of Detroit, as it is considered indispensable, and can recommend it as being the best system yet introduced for this purpose.

By direction of the Commission.

G. W. Stockwell

SECRETARY.

Dominion of Canada.

PATENT OFFICE.

Certified to be true and correct copies of the original Specification & drawings remaining on record in this office, duplicate copies of which were attached to Patent No. 74294 bearing date the 16th day of July 1901 and granted to Daniel W. Carroll and Edmund A. Chapleau for eighteen years from the said date in the Dominion of Canada, for Fire Hydrants.

The Partial Fee for a term of six years has been paid on said Patent.

As Witness, the seal of the Patent Office, Secretary, affixed at the City of Ottawa in the Dominion of Canada this Fifteenth day of June in the year of our Lord one thousand nine hundred and four.

Geo. F. Galloway

Deputy Commissioner of Patents.

72.29

TO ALL WHOM IT MAY CONCERN:-

Be it known that I, Daniel W. Carroll, of the City of Detroit, in the County of Wayne, and State of Michigan, Gentleman, having invented certain new and useful Improvements in Fire Hydrants, for which I have obtained a patent in the United States, No. 649,159, bearing date May 8, 1900; do hereby declare that the following is a full, clear, and exact description of the same.

D.W.C. No. 1. No.

My invention relates to certain new and useful improvements in fire hydrants, and it consists of the construction, combination and arrangement of devices hereinafter, specified and claimed and illustrated in the accompanying drawings, in which:-

Figure 1 is a view partly in vertical section, and partly in elevation illustrating my invention.

Fig. 2 is a detail view showing the cap of the hydrant provided with a nozzle.

enabled to get a larger channel than where a hollow valve stem is employed. To apply the waste pipe j to the interior of a hydrant already in use, the stand pipe may simply be disonnnected from the hub of the water pipe, the valve removed and the waste pipe inserted and secured in place, and in some forms of hydrants, the pipe may be inserted from the top of the hydrant, without taking the same out of the ground or removing the valve, simply by taking the top off the hydrant.

This invention dispenses with the cost of sewer drainage, and effectually overcomes the difficulties of sewer drainage, even where such drainage is practicable, and effectually prevents any water standing in the stand pipe.

Instead of forming the elbow k integrally with the pipe j, any ordinary elbow or pipe connection may be employed with a nipple to extend through the case of the stand pipe. In the latter case, the orifice i in the stand pipe may be threaded, and a nipple s be engaged in the threaded portion of the stand pipe. The nipple might be secured through the case of the stand pipe, and an elbow t be engaged therewith. With this construction, a lock nut on the exterior of the nipple would not be required. This modification is illustrated in Figure 6.

Among the points of advantage and utility of the construction embodied herein, it will be noticeable that-----

The appliance can readily be attached either to new hydrants or to ordinary hydrants in common use in a simple and economical manner;

The application of the invention affords a simple, ready and positive means of testing the hydrants at all times to see whether they are in readiness for use or not, and this testing can be accomplished in a few seconds without opening it or turning the water on;

In any position it affords perfect relief to the hydrant, and with its use it does not become necessary to locate the hydrants with reference to sewers or other advantageous positions for drainage, and the hydrant can be placed in any desired position for its best employment;

At the approach of freezing weather, the hydrant can readily be drained and tested by means of a small hand air pump;

When through working on fires in freezing weather, steam pressure from the steam engines, or air pressure from the delivery hose of the engine, may be used instead of the hand pump to relieve the hydrant of waste water, if preferred;

The time necessary to thoroughly drain a hydrant by this system requires but a few seconds, and in case of clogging or stopping up of the drain pipe, the pressure can readily be reversed, and the obstruction readily blown out;

There is obviously no possibility of surface water getting into the hydrant, as the stand pipe has no waste opening at its base, but is securely closed, nor can any sewer gas enter to destroy the interior and working parts of the hydrant.

The apparatus herein described cannot get out of order;

By the use of my invention all sewer drainage, involving great expense, is entirely dispensed with, and thus a great saving is effected, while at the same time the invention is thoroughly reliable, positive and durable

I would have it understood that a pressure may be exerted upon the water within the stand pipe in any suitable manner, or by any suitable means, as by a hand air pump, or by steam or air pressure from an engine applied in any desired way. So also it will be evident that suction might be applied to the upper end of the drain pipe j to suck the water out of the stand pipe, the latter also being contemplated within the scope of my invention.

What I claim as my invention is:-

1. The combination with the outlet pipe of a fire hydrant provided with a controlling valve and valve stem, of a drain pipe made separate from the valve stem and the outlet pipe and located within the outlet pipe, the upper end of the drain pipe opening through the casing of the outlet pipe and having a tight connection therewith, means to close the upper end of said drain pipe and means whereby pressure may be applied within the outlet pipe to expel water through the drain pipe.

2. The combination with the outlet pipe of a fire hydrant provided with a controlling valve and valve stem, of a drain pipe made separate from the valve stem and the outlet pipe and located in the interior of the outlet pipe, the upper end of the drain pipe opening through the casing of the outlet pipe, and the lower end of the drain pipe extended into proximity to the valve, means to hold the upper end of the drain pipe in place and to form a tight connection with the outlet pipe, means to close the upper end of the drain pipe, and means whereby pressure may be applied within the outlet pipe to expel water therefrom through the drain pipe.

3. The combination with the outlet pipe of a fire hydrant, of a drain pipe located therewith having at its upper end an elbow extended through the casing of the outlet pipe, a gasket or packing, and a lock nut

engaged upon the outer end of the elbow to make a tight joint and hold the drain pipe in place, means to close the outer end of the drain pipe, and means whereby pressure may be applied within the outlet pipe to expel water therefrom through the drain pipe.

4. The combination with the outlet pipe of a fire hydrant provided with a controlling valve and valve stem, of a drain pipe made separate from the valve stem and the outlet pipe and located within the outlet pipe, said drain pipe having at its upper end an elbow opening through the casing of the outlet pipe, means engaging said elbow to make a tight joint with said casing and hold the drain pipe in place, means to close the upper end of the drain pipe, and means whereby pressure may be applied within the outlet pipe to expel water therefrom through the drain pipe.

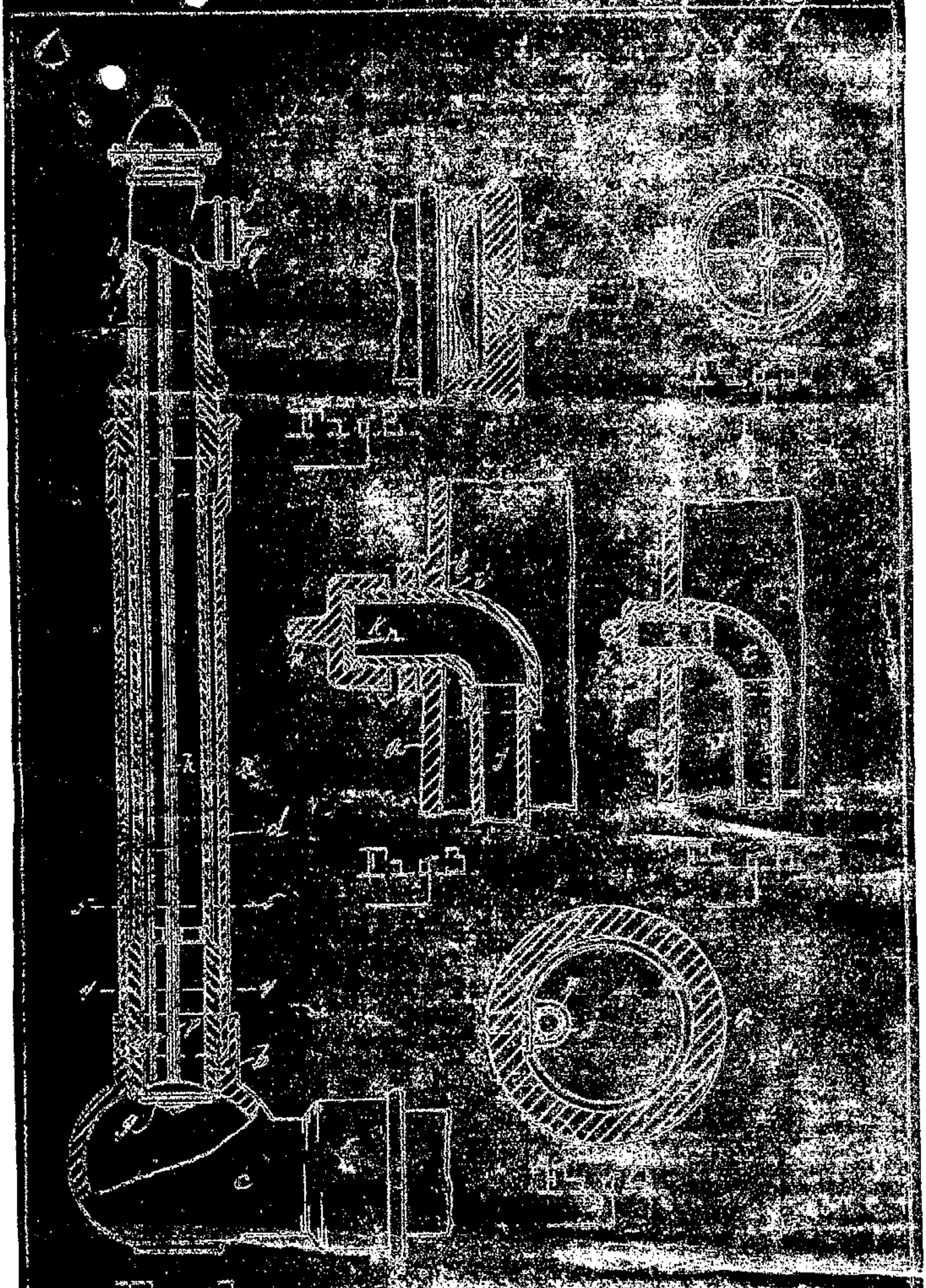
5. The combination with the outlet pipe of a fire hydrant provided with a controlling valve and valve stem, of a drain pipe made separate from the valve stem and the outlet pipe and located within the outlet pipe, the upper end of the drain pipe opening through the casing of the outlet pipe, means to engage the upper end of the drain pipe with the outlet pipe to make a tight joint and hold the drain pipe in place, means to close the outer end of the drain pipe, a device within the lower end of the outlet pipe to engage the lower end of the waste pipe therewith and hold the lower end of the

drain pipe in place, and means whereby pressure may be applied within the outlet pipe to expel water therefrom through the drain pipe.

In testimony whereof, I sign this specification at Detroit, Michigan, this 17th day of December, 1900.

(sgd) Daniel W. Carroll.

In the presence of:-
N.S.Wright.
M.Hickey.



Certified to be the Drawings referred to in the specification
Witnesses — Detroit Michigan
O B Barringer
M. Hickey

Form C K 1219½, 1,a P.

To the City of Montreal.

The WATER *Committee*

Respectfully Report.

That they have this day considered tenders for the supplying of about 4,500 tons of soft steam coal for the Low level Pumping Station, & about 1,500 tons of soft steam coal or Coke for the High Level Pumping station. After due consideration of said tenders Your Committee decided to award contracts as follows :-

J.A.Bourdon for 1500 tons of Coke for the High level Pumping Station at $4.48 per ton.

J.O.Labrecque & Co. for 2250 tons Soft steam Coal "Dominion" run of mine for the Low Level Pumping Station at $3.70 per ton.

L.Cohen & Son. for 2250 tons Soft steam coal "Dominion" run of mine for the Low Level Pumping station at $3.70 per ton.

Your Committee therefore ask that the said contracts be ratified by the Council.

The hole respectfuuly submitted,

H. Lavaqcan

J. N. Stevens

Committee Room
City Hall.
Montreal Jan. 26th 1905.

I hereby certify that there are sufficient available funds to cover the Expenditure herein specified.
Viz. 12337.00
C. C & A.

C O P I E.

Montréal le 24 Janvier, 1905

M. le Président et M.M. les Membres

de la Commission de l'aqueduc.

Messieurs,-

Nous vous fournirons le charbon requis par votre Commission pour la station du haut niveau aux prix suivants.-

1500 tonnes de Dominion R/M @ $4.25

1500 " " Coke. @ $4.48.

Ci-inclus notre cheque pour $600.00 tel que demandé.

Vos dévoués.

(sig) J.&.A.BOURDON.

#365 rue Ste Catherine,

COPY

MESSRS L. COHEN & SON.

Montreal Jan.24th 1905.

Geo.Janin Esq.

Superintendent M W W.

Dear Sir,-

We beg to offer to supply you with your requirements of coal as per your advertisement of the 12th instant, as follows:-

4,500 tons Dominion R/M Steam Coal same as supplied u usually by us @ $3.70 per ton of 2,000 lbs. and delivered at the Low level Pumping Station of the ^Montreal Water Works .

Trusting to be favored with your order and guaranteeing you satisfaction,

We are,

Yours truly,

(sig) L.Cohen & Son.

Form C K 1219½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That as the department's appropriation for Fuel is exhausted. Your Committee ask that an appropriation of say $40,000.00 be placed at its disposal for the purchase of Fuel or Power required by the department.

Respectfully submitted,

Committee Room
City Hall,
Montreal 2 May 1905.

239

REPORT

FROM THE

WATER Committee

For an Appropriation of
say $40,000.00 for Fuel.

Presented 8 May 1905

Adopted Same day 190

Entered vol. D.D. 2 *page* 60

and page 613 *of vol.* 11 *of Reports.*

Form C K 1218½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That at a meeting held this day Your Committee

Resolved, - To report to the Council for permission to vary certain items of the appropriations Ex Loan accounts as follows.-

FROM.-	Closing old Aqueduct.	$ 125.00
	Repairing old boilers.	229.00
	Cementing Basin St Louis Sq.	555.82
		$ 909.82
TO:-		
	Pipe Laying Services.	$ 909.82

I hereby certify that there are sufficient available funds to cover the .... herein specified viz $ 909.82

C. C. & A.

Respectfully submitted,

F. Sauvageau

I. H. Stearns

Committee Room

City Hall,

Montreal Ap. 14th 1905.

738

REPORT

FROM THE

WATER Committee

For permission to vary certain items of Ex-Loan appropriation.

Presented 8 May 1905

Adopted same day 190

Entered vol. D. D. 2 *page* 63

and page 612 *of vol.* 11 *of Reports.*

REPORT

FROM THE 239

WATER Committee

Submitting report of Superintendent, re pump for Low Level Pumping Station.

Presented 17 April 1901

Read

Adopted 29 May 1901

Entered vol. D.D.2. page 102

and page 29 of vol. 12 of Reports.

Form C K 121.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That, at a meeting held this day, they have considered the accompanying report from the Superintendent, made at the request of the Council, by a resolution passed on the 27th of March, in re the purchase of a 12 million gallon pump for the Low Level Pumping Station.

After due consideration of same, your Committee

RESOLVED :- To refer said report of the Superintendent to the Council for consideration.

The whole nevertheless respectfully submitted.

Committee Room, City Hall,

Montreal, 17th April 1905.

[signatures, some marked "under reserve"] H. Sauvageau ... I. H. Stearns

Montreal April 29th 1905.

To the Chairman and Members

of the Water Committee.

Gentlemen,-

In addition to my report of the 17th instant, I must inform the City Council that in the statement No. 1 as prepared, accompanying said report, there has been an error caused by a misplaceddecimal point, and this error affects the statement No. 3 to the extent that though the 24 hour pumping by electricity still remains higher than for steam pumping, still the comparison of 20 hour electric pumping offers in its favor a slight margin over steam.

Notwithstanding and as I explained in my report, the 20 hour pumping not meeting the wants of our Water Works system, the general conclusions of my report are not changed to any extent, and I believe it my duty to maintain them.

Reppectfully submitted,

Geo. Janin

Superintendent M W W.

Montréal le 29 avril 1905.

A M. le Président et à M. M. les Membres
de la Commission de l'aqueduc.

Messieurs,-

En addition à mon rapport en date du 17 courant, je dois informer le Conseil de Ville qu'il s'est glissé dans le tableau No. 1 accompagnant le dit rapport, une erreur causée par la transposition d'une virgule à un rang décimal inférieur et que cette erreur affecte les chiffres du tableau No. 3 de telle sorte que le pompage electrique par 24 heures reste toujours plus cher que le pompage à vapeur, mais que le pompage electrique pour 20 heures offre une légère marge en sa faveur.

Néanmoins, ainsi que je l'explique dans mon rapport, le pompage pour 20 heures ne convenant pas aux besoins du service de l'aqueduc, les conclusions de mon rapport ne peuvent être sensiblement changées de ce fait et je crois de mon dévoir de les maintenir.

Respectueusement soumis,

Geo. Gauvin

Surintendant de l'aqueduc.

Montréal, le 17 avril, 1905.

A M. Le Président et à MM. les Membres
de la Commission de l'Aqueduc.

Messieurs,

Pour vous permettre de vous conformer autant que possible, et de me conformer moi-même, à la résolution du conseil en date du 27 mars 1905, j'ai l'honneur de vous soumettre le rapport suivant:-

D'après un cahier de charges dressé par nous, la Cie Montreal Light, Heat and power a fait une soumission pour la fourniture de la force motrice destinée au pompage de l'eau à la station du bas niveau; cette soumission que j'ai reçue le 13 courant vous a été communiquée lors de votre dernière séance en date du 14 courant et pour me conformer à vos ordres, en dépit du court délai qui m'était accordé, j'ai étudié, de concert avec mon assistant, cette soumission; et nous avons dressé différents tableaux ci-annexés à l'effet d'établir aussi soigneusement et impartialement que possible la comparaison entre le pompage par force électrique et par vapeur de sorte qu'il me fut possible de vous éclairer sur le mérite des deux systèmes en ce qui concerne leur usage pour notre service. Je crois devoir vous faire remarquer que dans l'établissement de ces tableaux comparatifs, nous avons basé la dépense de charbon pour une pompe à vapeur non pas sur le rendement d'épreuve garanti par les soumissionnaires (160 Millions de livres pieds) mais

sur un rendement de 30% moindre (110 millions). Nous avons également tenu compte de toutes les charges qui peuvent incomber au fonctionnement des deux systèmes, telles que main-d'oeuvre, réparations, fournitures, dépréciation des chaudières, usure des pompes etc. Bien que d'après l'offre de J. O. Lamresque et Cie confirmé depuis, pour 5 années, par la Cie Dominion Coal, le prix du charbon eût pu être diminué dans nos calculs, nous avons conservé l'ancien prix, comme mesure de sureté en faveur de nos chiffres.

Je suis convaincu que nos états comparatifs peuvent subir avantageusement tout examen désintéressé et compétent et qu'ils justifieront les conclusions que je vais vous soumettre. Au préalable, je vous ferai remarquer que la soumission de la Cie Montreal Light, Heat and Power comporte deux différentes bases de prix, l'une pour la fourniture du pouvoir à un taux fixe par force, l'autre à un taux fixe par millions de gallons comprimés.

Nous avons cru devoir considérer de préférence cette dernière base qui pourrait permettre, par l'usage d'un compteur ad hoc, de contrôler aussi exactement que possible l'emploi du pouvoir fourni.

Le taux par force est, en apparence un peu plus bas, mais malgré la meilleure opinion que, dans ma récente visite aux Etats-Unis, je me suis faite sur le fonctionnement des nouvelles pompes centrifuges à haute pression, je ne crois pas la preuve de leur efficacité constante assez établie encore pour conseiller le risque de faire un contrat basé sur le rapport de leur dite efficacité avec la quantité de pouvoir fourni

E L E C T R I C P U M P I N G.

To pump 30 millions gallons per day- with electric pump of 12 million

24 hour service.

12 mill. galls. electric .		8.61 ~~$7.17~~	103.32 ~~$ 86.04~~
18 " " " Steam.		9.00	162.00
30			~~$248.04~~ 265.32

~~248.04~~ = ~~$ 8.27 per million.~~
30

$\frac{265.32}{30} = 8.85$

20 hour service.

10 mill. gall. electric.		6.93 ~~$5.20~~	69.30 ~~$ 52.00~~
20 " " steam		9.00	180.00
30			~~$232.00~~ 249.30

~~232~~ = ~~$ 7.74~~ per million.
~~30~~

$\frac{249.30}{30} = 8.31\frac{1}{4}$

STEAM PUMPING.

To pump 30 million gallons per day with new high duty 12 million gallon pump.

24 hours service.

12 mill. gall high duty steam.		7.49 ~~$5.53~~	89.88 ~~$ 66.36~~
18 " " present plant.		9.00	162.00
			~~$228.36~~ 251.88

~~228.36~~ = ~~$ 7.62~~ per million.
~~30~~

$\frac{251.88}{30} = 8.40$

Montreal April 17th 1905.

To the Chairman and members

of the water Committee.

Gentlemen,

In order that your Committee may conform to the resolution of Council of the 27th March 1905, and to conform with it myself, I have the honor to submit to you the following report.

Upon our specifications the Montreal Light Heat & Power Co'y has submitted a tender for furnishing electric power for pumping water at the Low Level Pumping Station; this tender which I received on the 13th instant, was submitted to you at your last meeting on the 14th inst., and with the short delay at my disposal I have studied it with my assistant and prepared the annexed statements, in order to arrive at a comparison as careful and impartial as possible of the pumping by electric power and by steam, to enable me to enlighten you on the merits of the two syatems as regards their use in our service.

I must draw your attention to the fact, that in the preparation of these comparative statements annexed, we have based our coal expenses for a steam pump not of the guaranteed trial duty of the tenderers (160 millions foot lbs.) but on a duty over 30% less (110 millions foot lbs.). We have also taken into a careful consideration, based on the data furnished by the working of our present plant, of all the charges which might affect the working of the two systems, such as labor, repairs, supplies, depreciation of boilers and pumping plant etc. Although in view of the offers reducing the price of coal made by the firm of J.O.Labrecque & Co. and confirmed since by the Dominion Coal Co. for a period of five years, we might have diminished the price of coal in our calculations, we have notwithstanding maintained our former price as a factor of safety in favor of our figures.

I feel convinced that the comparative statements prepared may advantageously be submitted to all disinterested and competent examination, and they will be found to justify the conclusions which I herein submit to you

At the outset I wish to remark that the tender of the Montreal Light Heat & Power Company contains prices on two different basis, the one for the furnishing of power at a price per Horse power, the other to furnish power at a stated price per million gallons of water pumped. We have thought fit to consider this latter basis preferable which would permit us by the use of a Venturi water meter to control as exactly as possible the use of the power furnished.

The price per Horse power is however slightly and apparently more advantageous, but in spite of the best opinions which I gathered on my recent trip to the United States of the working of the high lift centrifugal pumps, I do not believe their efficiency to be sufficiently firmly established to advise taking the risk of a contract based on reports I received of the power consumed per quantity of water pumped.

For the rate per million gallons pumped the Montreal Light Heat & Power Co submits two different prices, one for a 20 hour service and the other for 24 hour service; if I properly understand the tender prices these two prices are exclusive and separate one from the other, that is the City would have to choose and make a contract for one or the other of these two offers, and if the 20 hour service is chosen it will happen that during the low water period when our water wheels have been stopped the City will have no recourse to choose the 24 hour service.

In order that the situation may be clearly established I would remind you that at the present time the Water consumption for the City varies from 27 to 30 million gallons daily, that this water is pumped by three steam pumps of 11 and 10 and 9 millions equal to 30 millions nominal by steam power, and by 4 turbine pumps of 4, 4 ¼, 2 1/2 and 2 millions nominally, or 13 millions in all for the water wheels. For the two or three months each winter the scarcity of water in the Aqueduct is the cause that the Water Wheels are liable to be stopped completely and the total water required must be pumped by steam power, that is during this period the steam pumps must work the whole 24 hours to keep up the supply

It is especially in order to face this situation that I have requested the purchase of a new pump, and it is precisely during the same period that, from information of the representatives of the Company, the electric power is restricted and must therefore be paid for at a higher rate.

These considerations and a careful examination of the annexed statement No. 3, which shows the comparative cost of pumping by electricity and steam power for 20 and 24 hour services, will show that even in taking into consideration, with all its disadvantages, the cheaper rate of 20 hours, there is still a slight margin in favor of the addition to our present plant of a high duty steam pump and for these reasons I would recommend the adoption of it.

I have not understood that the resolution of council contained instructions for the study of a complete transformation of the pumping, changing our present Low Level pumping plant into electric pumping, but if such a study were made, it should take into account the consideration of the project of widening and enlarging the aqueduct, which I recently reported upon preliminarily, for I feel convinced that by the use of the Water power available under our own development, we could do our pumping much cheaper, than by any other means, and the carrying out of this project would be more in conformity in all points with the interests of the City of Montreal.

As regards the purchase of a steam pump, if the Council should decide to choose this system, the comparative statement of the steam pumps hereto attached giving the cost of installation and operation of the different pumps offered, it is shown therein that according to the quotations of the original tenders, the pump offered by the Providence Eng. Wks. stands first. But although a careful and impartial enquiry was made by visiting different plants in the United States, some doubt still exists whether the application of high speed to pumps is entirely beyond the experimental stage, and in recommending this pump, there remains a risk that the Council should not be advised to take Therefore the two tenders deserving of consideration by reason of the normal type pumps offered, are those of the firm Hathorn Davey & Co. of Leeds, Eng. and of the John McDougall Caledonian Iron Works, Co of Montreal.

When the tenders were submitted when they were opened the Hathorn

Co., pump showed an advantage over the John McDougall pump of $564.00 monthly in costs of operation and interest on cost of installation, for this reason the Hathorn Davey pump was classed ahead of the McDougall pump and it was recommended to Council by a majority of the Water Committee. If the Committee and Council intend taking into account the subsequent offers of high duty made by the tenderers in question, which new offers are calculated on the annexed statement, the theoretical difference shows favorable to the pump of the John McDougall Caledonian Iron Works Co. for the sum of $61.00 yearly.

I must remark to you that these new high duty offers are guaranteed by each tenderer as follows :-

Messrs. Hathorn Davey & Co. for $200.00 per million foot lb. penalty.

Messrs. The John McDougall Caledonian Iron Works Company for $1,000.00 per million foot lbs penalty, with bonus in his favor for the same amount.

Consequently if the modified offers are to be accepted and Council obliges me to pronounce on the merits of the tenders, I can do nothing but recommend the Worthington pump, furnished by the firm of John McDougall Caledonian Iron Works Co.

Respectfully submitted,

Geo. Janin

Superintendent W W

24th March 1908

MONTREAL WATER WORKS.

COMPARATIVE COST OF PUMPING BY ELECTRIC POWER OR STEAM POWER WITH PROPOSED 12 MILLION GALLON PUMPS FOR WHICH BIDS HAVE BEEN RECEIVED. -

NOTE:- In comparing pumping by electricity with steam pumps it must be borne in mind that pumping by electricity is under a contract for power of at least $14,600.00 per year or $40.00 per day. The protracted stoppage of the pumping for repairs, etc., would entail a loss of that amount each day, and it is therefore imperative to install a duplicate electric pump to ensure the utilization of the full advantages of the plant.

INVESTMENT COST.-	ELECTRIC	STEAM
Price of pumps { 2 x $16,000.- Electric / 1 x $54,000.- Steam	$ 32,000.00	$ 54,000.00
Price of buildings and foundations.	7,500.00	12,000.00
Venturi meter for electric pump.	2,500.00	
Total cost of installation	$ 42,000.00	$ 66,000.00
OPERATING COSTS EXCLUSIVE of ELECTRIC POWER or COAL		
Running 2 engineers & oilers @ $1000.-& $500.-	$ 3,000.00	$ 3,000.00
Supplies, oils &c.	150.00	400.00
Repairs at 2%.	840.00	1,320.00
Depreciation on Machinery 4%.	1,380.00	2,160.00
Interest charges on cost of installation 4%.	1,680.00	2,640.00
Annual charges exclusive of power or coal.	$ 7,050.00	$ 9,520.00
Cost per day ÷ 365	$ ~~1.931~~	$ ~~2.608~~
Cost per million gallons if pumps worked 24 hours.	19.31 / 1.61 / ~~0.161~~	26.08 / 2.18 / ~~0.218~~
Cost per million gallons for electric pump working 20 hours.	1.93 / ~~0.193~~	
Cost of electric power per million gallons for 20 hours pumping.	$ 5.00	
Cost of electric power per million gallons for 24 hours pumping.	$ 7.00	

Cost of power for coal for operating. The quantity of coal required is based on a station duty of 110 million ft. lb. per 1,000 lbs. of steam which is over 30 % less than the guaranteed duty of the pumps offered, and the boiler efficiency is rated on an 8 to 1 evaporative basis; this will give 1.18 tons coal per million gallons pumped which at the price of $4.50 per ton delivered on the grate bars and including all charges of handling, removing ashes, depreciation and repair of boilers, as set forth in annexed statement 2 will amount to per million gallons. $ 5.31

4.50
4.81
.36
5.31

$\frac{125 \times 1,000,000 \times 10 \times 2077}{110,000,000} = 1360$ livres de charbon

1.18 tons @ 4.50 = 5.31

[illegible] of coal delivered on grate bars for operating new 12 [illegible] gallons high duty pumping engine

[illegible] the stated duty of 110 millions ft lbs. per 1000 lbs. steam and an ordinary boiler evaporative efficiency of 8 lbs. of water per pound of coal, there will be required to pump 1 million gallons 1.18 tons of coal or 14.16 tons per day, equal to 5,168 tons per year:- (See III)

Coal delivered in shed costs $3.65 per ton.

DAILY COST.-

14.16 tons at $ 3.65.		$ 51.69
Two firemen (one by day and one by night) with a helper 6 hours each shift, can easily handle 15 tons of coal daily, and 20 hours of a coal passer daily is ample to take this quantity of coal out of the shed every day, besides attending to the removal of the ashes as usual:-		
2 firemen 12 hours ea. at 17¢ =	$ 6.12	
Coal passer 20 hours " 17¢ =	3.40	9.52
Depreciation and repair of boilers 6% of $15,000. = $900.00 per year ÷ per day		2.47
Total cost per day.		$ 63.68

Cost of coal per ton delivered on grate bars. $\frac{63.68}{14.16} = \$4.50$

E L E C T R I C   P U M P I N G.

To pump 30 millions gallons per day - with electric pump of 12 million

24 HOUR SERVICE.

1 - 12 mill. galls. electric	$ ~~7.17~~ 8.61		$ ~~86.04~~ 103.32
2 - 18 " " Steam.	9.00		162.00
30			~~$248.04~~ 265.32

~~248.04 / 30 = $ 8.27 per million~~

265.32 / 30 = 8.844

20 HOUR SERVICE.

1 - 10 mill. galls. electric.	$ ~~5.80~~ 6.93		$ ~~58.00~~ 69.30
1 - 20 " " Steam.	9.00		180.00
30			~~$ 238.00~~ 249.30

232 / 30 = $ 7.74 per million.

249.30 / 30 = 8.31

STEAM PUMPING.

To pump 30 million gallons per day with new high duty 12 million gallon pump.

24 HOUR SERVICE.

1 - 12 mill. galls. high duty steam	$ ~~5.53~~ 7.49		$ ~~66.36~~ 89.88
2 - 18 " " present plant.	9.00		162.00
30			~~$ 228.36~~ 251.88

~~228.36 / 30 = $ 7.62 per million.~~

251.88 / 30 = $ 8.396

8.84 / 8.40 / 0.45 — 8.27 / 7.62 / 0.65

MONTREAL WATER WORKS

SPECIFICATIONS

for

THE SUPPLY OF ALTERNATING CURRENT POWER, FOR OPERATING ELECTRIC MOTOR AT THE LOW LEVEL PUMPING STATION.

REQUIREMENTS. The power required is to drive one or two induction motors of about 750 h.p. each, directly connected to high lift centrifugal pumps.

The pump or pumps will have a capacity of not over twelve million (12,000,000) gallons per twenty-four (24) hours each, against a total head of from eighty-six (86) to ninety (90) lbs. per square inch. Plans and details of pumps and motors may be seen at the office of the Superintendent of Water Works.

WIRING and INSTALLATIONS. The Company tendering will be prepared to supply power required over its own wires and poles to the Low Level Station, of the City Water Works, St Gabriel Ward. The Company tendering is to furnish all necessary wiring, insulators, etc., as may be required to safely carry its current. The delivery point of the current, will be to the pumping station building, for which purpose the tendering company will carry the wires to the walls of the building at the point designated by the Superintendent of Water Works.

CHARACTERISTICS OF POWER, The power to be supplied under this specificatich shall be three phase alternating current, at a pressure of approximately 2200 volts, and a periodicity of approximately sixty-three (63) cycles, and should the Company require the use of transformers to deliver the power as above, the transformers shall be furnished by the Company supplying the power. The above stated voltage must be maintained as constant as possible, and the Company will specify within what percentage they are prepared to maintain the voltage of their current. The frequency of sixty-three (63) cycles must also be carefully maintained, and a temporary variation of not more than four per cent (4%) plus or minus

J.O. LABRECQUE & CIE

Essayez Le Célèbre CHARBON DIAMANT NOIR

Tel. Bell, East 1251
" Marchands 358

83 RUE WOLFE

MONTREAL 189

l'usage du "Stocker" a été inventée
Les Stockers sont faits pour utiliser les cassures et cela est tellement le cas qu'aux Etats Unis lorsque l'on se sert de charbon "Run of Mine" on a des accessoires pour briser les morceaux de charbon avant que de le brûler. On a donné à la Canadian Rubber Coy. les boyaux pour le département du Feu, les bouilloires à Messrs John Mc Dougall, la pierre pour les trottoirs des rues à des prix plus élevés parceque ces dites maisons payaient taxes à la ville, parce que ces marchandises, ces materiaux, ces machines étaient faites par des ouvriers de la ville de Montréal. De ces précédents nous nous permettront de demander à votre commission si pour dans ce cas ci il ne vaudrait pas mieux encore d'encourager, nos maisons de commerce, nos compagnies de bateaux, les gens tenant feux et lieux à Montréal plutôt que d'encourager Les Chutes Shawanigan, Les Rapides Lachine & Cie et pour établir un système qui quand même nécessite un "plant" de vapeur.

Humblement nous vous soumettons la présente dans l'espérance que vous voudrez lui donner toute l'attention que nous croyons qu'elle mérite.

J.D. LABRECQUE & CIE

Essayez Le Célèbre CHARBON DIAMANT NOIR

Tel. Bell, East 1251
" Marchands 358

83 Rue Wolfe

Montreal 189

Dans cette espérance nous nous souscrivons avec respect vos très humbles serviteurs.

J.D. Labrecque & Cie

OFFICES: CORNER WILLIAM AND SEIGNEURS STS. CABLE ADDRESS: "CALEDONIAN." WORKS: ST. GABRIEL LOCKS.

6

The John McDougall Caledonian Iron Works Co. Limited.

IN REPLY TO YOURS OF,

Montreal, CANADA Mar. 30th, 1905. CL/EM

SUBJECT.

DICTATED BY.

Messrs.
The Chairman & Water Committee,
The City of Montreal.

Dear Sirs:-

The recent test on Worthington pumping engines in the City of Chicago warrant us in making you a guarantee of One hundred and sixty million foot lbs. duty on the Worthington pumping engine we have tendered for, as marked #2 on Superintendent's blue print report. As our duty guarantees are based on actual results obtained from practice we will guarantee this duty under a penalty of $1000.00 for each one million we fail to get during the duty test as provided in City specifications below one hundred and sixty millions, provided the City will grant us a bonus of $1000.00 for each one million duty developed above one hundred and sixty million.

Respectfully submitted,

Yours very truly,

The John McDougall Caledonian Iron Works Co. Limited.

Per C. Lester

THE MONTREAL LIGHT, HEAT & POWER COMPANY.

OFFICE OF THE VICE-PRESIDENT AND CHIEF ENGINEER

OPERATING
THE MONTREAL GAS COMPANY.
THE ROYAL ELECTRIC COMPANY.
THE MONTREAL & ST. LAWRENCE L. & P. CO.
THE IMPERIAL ELECTRIC LIGHT CO.
THE LACHINE RAPIDS HYD. & LAND CO. LTD.
THE STANDARD LIGHT & POWER COMPANY.
THE CITIZENS' LIGHT & POWER COMPANY, LTD.
THE TEMPLE ELECTRIC COMPANY.

MONTREAL, MAR. 27TH. 1905.

HIS WORSHIP, H. LAPORTE,

MAYOR OF MONTREAL.

Dear Sir:-

We are informed that a report from the Water Committee of the City of Montreal, will be presented to your Council for approval recommending the installation of a steam pump at a cost somewhere in the neighborhood of $53,000., exclusive of boilers, buildings or foundations.

An electric pumping plant of the same capacity and under the same conditions, according to tenders in the hands of the City can be supplied for $12,687., with a guaranteed delivery of twenty (20) weeks.

The Montreal Light, Heat & Power Company some time ago offered very attractive rates for pumping, to the Water Committee, which rates, we believe, taking all costs into consideration, are very much cheaper than it is possible for the City to otherwise provide power.

We would draw your attention to the fact that according to tenders in the hands of the City, four plants of 12 million gallons each, aggregating 48 million gallons capacity could be installed for about or a little less than the cost of one steam pump installation of 12 million gallons.

Under the circumstances we would ask that the City of Montreal, before deciding upon the adoption of the steam pump, ob-

tain from its engineers, full particulars and details of the final cost of operating steam Vs. electric pumps.

This Company will be pleased to place such information and data as we may have, at the disposal of your Engineers.

Yours truly,

THE MONTREAL LIGHT, HEAT & POWER COMPANY.

Wm McLea Walbank

1ST VICE PRES. & CHIEF ENG'R.

DIC.W.McL.W.-S.

To

His Worship the Mayor,

and the Alderman of the

City of Montreal,

Gentlemen:-

We respectfully submit the following for your consideration:

On January 31st last we submitted in regular form a tender for a 12 million Imperial Gallon Pumping Engine. On March 18th a Sub-Committee of four, appointed by the Water Committee, recommended the purchase of the Providence Pumping Engine. On March 20th the Water Committee as a whole reversed that decision by a vote of four to three in favor of an English Pump costing,with buildings and foundation, four thousand dollars more than the same items with our pump.

The four pumps reported upon by your Superintendent to the Water Committee are as per attached list of Pumping Propositions, ~~copy of which has~~ made up from your Engineer's Report, Copy of this list has been placed at the disposal of each Alderman.

The estimate by your own engineer shows a saving by the use of our pump of $1698.,$1801., and $2162., per year over our respective competitors. The savings due to our high duty are equivalent to 6% interest on the following amounts - $28,300, $30,016, and $36,033 respectively, so that either with or without the items of building and foundation, our bid, with duty considered, is by far the lowest one tendered.

A moderate increase in piston speed is in line with modern engineering practice, amply proved by a number of cases.

The number of strokes per minute is an item much more

important than piston speed. Our strokes, sixty per minute, are moderate, and in no way endanger the life of the pump. The Gilbert Pump at your high level station has been running for about 19 years at 60 to 62 strokes per minute, without any excessive expense for repairs, and this, too, in the face of the fact that the pump was built to run only 30 strokes. A modern pump especially built for our 60 strokes would be liable to only one-quarter or one-sixth of the deterioration of this old but successfully speeded up pump.

60 strokes per minute allows us to lift at each stroke one-half as much weight of water as when running at 30 strokes, consequently the strains on all parts of the steam engine are less, and the moving parts are subjected to less wear. We can, therefore, make the steam end lighter, and increase the efficiency without losing in power. We have put the weight and expense into the water end; it is heavy, full 12 million gallon capacity, and represents more value in time and labor than any other pump tendered. Our design with heavy framework, and light reciprocating parts, insures smoothness of action, freedom from vibration, and long life, amply proved by the experience of the last 10 years. None of the constructions included in our pump are new and untried, when taken separately. The combination only is somewhat different.

If you will not send your engineers to investigate the various constructions involved in our pump, so that they can render an opinion based on experience instead of mere judgment of plan, why not take the guarantees of our company which are backed up by 30 to 40 years of success, and a pump expert who has had as much experience as any one ~~three~~ man.

Is it right to reject the highest duty pump tendered by the lowest bidder without thorough investigation? Our design is a step in advance over all others, because we have embodied in it every modern up-to-date feature.

As evidence of our confidence we will build and install our pump without payment, until the pump is tested as specified, and found to be in accordance with your specification and the terms of our contract.

On this basis we request a reconsideration of our pump by Your Committee, or this Honourable Body.

Yours respectfully,

THE PROVIDENCE ENGINEERING WORKS.

Arthur A. Fuller, Supt.

Montreal, March 27th, 1905.

PUMPING PROPOSITIONS

Providence Pump—Lowest Total Cost—Best Guarantees—Large Annual Saving

Name of Firm	Style of Pump.	Guaranteed Duty per 1,000 lbs. steam in foot pounds.	Penalty Assumed for Deficit in Duty per 1,000,000 feet lbs.	Price of Pump.	Engineer's Estimate of Cost of Building and Foundations.	Total Cost Pump, Building and Foundations.	Annual Cost of COAL Interest on Investment.	Annual Loss in DOLLARS when compared with Providence Pump.
PROVIDENCE ENGINEERING COMPANY	Vertical triple expansion, crank and fly wheels; surface condenser.	165,000,000	$250 or $500 bonus over 170,000,000 and $500 penalty under 160,000,000 Duty	(3) $54,800	$9,445	(1) $64,245	(1) $18,081	(1) —
HATHORN DAVEY & CO.	Vertical triple expansion crank and fly wheel; surface condenser.	150,000,000	$200	(2) $53,497	$14,729	(3) $68,266	$19,779	(2) $1,698
NORDBERG MAN'F'G CO.	Horizontal triple expansion crank and fly wheel; surface condenser.	150,000,000	$200	(1) $53,000	$17,808	(4) $70,808	$19,882	(3) $1,801
JOHN McDOUGALL CALEDONIA IRON WORKS CO.	Worthington horizontal triple expansion, with compensator. Jet condenser.	145,000,000	$200	(4) $59,107	$8,585	(2) $67,692	$20,343	(4) $2,162

Son Honneur le Maire,

et les Echevins de la

Cite de Montreal.

Cette lettre ne peut être publiée avant d'avoir été corrigée - ou plutôt il faudrait faire une autre traduction

Messieurs,-

Nous somettons respectueusement le suivant pour votre consideration,

Le 31 janvier passe nous avons soumis sous une forme reguliere une soumission pour une pompe Imperiale d'une capacite de douze millions gallons. Le 18 Mars un Sous-Committee de quatre ~~apointer~~ *nommé* par le Committee de L'Eau, a recommende l'achat de la Providence Pumping Engine. Le 20 mars le Committee de l'Eau a en somme renverser cette decision par un vote de quatre a trois, en faveur d'une pompe anglàise, coutant, avec battisse et foundations quatre mille dollars de plus que les memes itemes avec notre pompe.

Les quatres pompes sur lesquelles votre Surintendant a fait rapport au Committee de l'Eau sont, suivant la liste attachee de Propositions de Pompes, fait d'apres le rapport de votre Ingenieur. Copies de cette liste ~~ayant~~ *a* ete placée a la disposition de chaque echevin.

Estimations faites par votre Ingenieur lui-meme demontre une economie avec notre pompe de $1698, $1801, et $2162. chaque annee, de plus que nos competiteurs respectives. Les economies dus a notre pompe a haut rendement sont equivalents a 6% d'interet sur les montants suivants $28,300, $30,016, $36.033. respectivement, donc avec ou sans les itemes de batisses et foundations notre prix avec haut rendement considerer est par beaucoup le plus bas soumis.

Une augmentation en vitesse de piston moderer est en ligne avec les pratiques modernes d'Ingenieur, amplement prouver par nombres de cas.

Les nombres de movements de piston par minute est une iteme beaucoup plus important qu'une vitesse de piston. Le nombres de movements du piston *soixante* par minute sont moderes et dans aucune maniere mettent en danger la durance de le pompe.

OFFICES: CORNER WILLIAM AND SEIGNEURS STS. CABLE ADDRESS: "CALEDONIAN." WORKS: ST. GABRIEL LOCKS.

The John McDougall Caledonian Iron Works Co. Limited.

IN REPLY TO YOURS OF,

SUBJECT.

DICTATED BY:

Montreal, CANADA. March 24, 1905. CL:JMcK

The City Clerk,

Montreal, P.Q.

Dear Sir,

Our guarantee of economy is based on actual results obtained in practice from the same pump we are offering you, so that we agree to a penalty of $1,000.00 for each one million duty we fail to obtain in accordance with our tender during the duty test as called for in the City's specifications.

This is in accordance with our letter of March 17th, in which we stated that on enquiry from your Superintendent we were willing to accept any reasonable penalty to cover our guarantee.

We agree also to complete the installation within nine months from signing of contract under a penalty of $25.00 per day in accordance with the terms of our tender.

Respectfully submitted,

The John McDougall Caledonian Iron Works Co. Limited.

Per C. Lister

Form C K 1219½, La P.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That they have this day considered tenders for 7,000 tons more or less of soft steam coal for the Low Level Pumping station, and 3,000 tons more or less of coal or coke, for the High Level Pumping station. Your Committee after due consideration of said tenders,

RESOLVED. That the contract for 7,000 tons more or less of soft steam coal Dominion run of mine be equally divided between J.O.Labrecque Co and L.Cohen & Son @ $3.45 per ton and to J.O.Labrecque Co for 3,000 tons more or les of Coke for the High Level St'n. at $4.75 per ton.

Your Committee therefore ask that the said contract be ratified by the council.

Respectfully submitted,

[signature] under reserve

F. Gagnon [signature]

[signature] under reserve

[signature]

J. W. Stearns under reserve

Committee Room
City Hall,
Montreal 2nd.May,1905.

I hereby certify that there are sufficient available funds to cover the expenditure herein specified. Subject to the voting of the money by the Council. J. Cazavan Asst C. C. & A.

Forme C K 12195, La P.

A la Cité de Montréal.

Le Comité de l'aqueduc

a l'honneur de faire rapport

Qu'elle à prises en considération les soummissions pour 7,000 tonnes plus au moins de charbon mou à vapeur pour la station des pompes du bas Niveau, et 3,000 tonnes de charbon, ou Coke pour la station des pompes du Haut Niveau. Votre Commission après mure consideration à resolu, que le contrat pour les 7,000 tonnes plus au moins de charbon mou Dominion "run of mine" soit diviser entre M.M.J.O.Labrecque & Cie et M.M.L. Cohen & Fils @ $3.45 la tonne pour le bas niveau et à M.M.J.O.Labrecque & Cie pour 3,000 de Coke pour le Haut niveau @ $4.75 la tonne.

Votre Commission demande que ces contrats soient ratifiés par le Conseil de Ville.

Respectueusement soumis,

Chambre de la Commission

Hotel de Ville
Montréal le 2 mai 1905.

Hôtel de Ville

Montréal le 2 mai 1905. 19

A. M. le Président et à M.M. les Membres

de la Commission de l'aqueduc,

Messieurs,-

Nos prix pour charbon demandes sont charbon à vapeur of Mine "Dominion Coal CO. leur meilleur $3.45 pour 2,000 livres Pour sassures de première qualité importées directem nt des mines $3.05 par 2000 lbs. ces deux charbon sont pour le bas niveau.

Pour Coke $4.75 par 2,000 livres

Pour Charbon à vapeur $3.70 par 2,000 livres.

Ces deux charbon sont pour le Haut niveau.

Dans l'esperance que ces prix seront trouvés satisfaisants

Nous nous sousignons avec respect,

Vos tres humbles

(Sig) J.O.Labrecque & Cie.

Copy

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REPORT

FROM THE

WATER Committee

To ratify contract for
Soft Steam Coal and Coke
for the Pumping Stations.

Presented 8 May 190 1
next

Adopted 5 June 190 1

Entered vol. P.G. 2. *page* 114

and page 45. *of vol.* 12. *of Reports.*

REPORT

FROM THE

WATER Committee

Re Steam and Electric

PUMPS.

Presented 29 May 1901

Adopted 31st May 1901

Entered vol. D D 2. page 102

and page 30 of vol. 12 of Reports.

To the City of Montreal.

The WATER Committee

Respectfully Report

That in accordance with a resolution of the Council held on the 1st May. instant, referring to the Water Committee a letter received from the Montreal Light Heat & Power Co. offerring to erect a building, put in electric pumps, operate same etc., also requesting the Committee to consider the question of the electric pump at the high level pumping, the amicable settlement of the matter with the John McDougall Cal. Iron. Co. and the placing of the pump at the Low level Pumping Station etc.,

Your Committee after due deliberation beg to report in regard to whether steam or electric power be used at the Low Level Pumping Station, that they are unanimously in favor of placing a steam pump at the Low level pumping Station, and this after due consideration of the Superintendent's report hereto annexed.

In regard to the question of moving the electric pump at present at the High level to the Low level pumping station and placing an electric turbine pump at the High Level Pumping station, Your Committee beg to here annex an offer received from The John McDougall Cal. Iron Wks. Co. which offer was rejectd by a majority of your Committee.

The whole respectfully submitted,

Committee Room

City Hall,

Montreal May 29th 1905.

Montréal, le 25 Mai 1905.

A M. le Président et à MM. les membres
de la commission de l'aqueduc.

Messieurs

Pour me conformer aux résolutions du Conseil de Ville en date des 1er, 15 et 22 courant relatives à la question du système de pompage de l'eau, j'ai l'honneur de vous soumettre le rapport suivant: -

I. POMPAGE AU MOYEN DE LA FORCE ELECTRIQUE
ET AU MOYEN DE LA VAPEUR.

Mon dernier rapport à ce sujet, en date des 17 et 29 avril dernier, basé sur la soumission de la compagnie Montreal Light, Heat and Power, datée du 12 avril dernier, établissait que le pompage pour 24 heures, (le seul que nous puissions considérer propre à notre service) coûterait:

Au moyen de l'électricité et de la vapeur combinées, en achetant une pompe turbine de 12 millions de gallons. 8.85 par million de gallons.

Au moyen de la vapeur uniquement, en achetant une nouvelle pompe à haut rendement de même capacité ___ 8.40 par million de gallons.

Le 1er Mai suivant, la compagnie Montreal Light, Heat and Power faisait une offre sur de nouvelles bases que nous nous mîmes en devoir d'étudier; durant le cours de cette étude, le premier Vice-Président et Ingénieur de la dite compagnie me demanda une entrevue pour expliquer son offre qui, telle que je pouvais la comprendre, se

paraissait moins avantageuse encore que la précédente. Il résulta de cette entrevue une nouvelle lettre de la dite compagnie au Conseil, en date du 8 courant, par laquelle toutes les offres précédentes étaient annulées et une nouvelle proposition était faite. Dans cette proposition, la compagnie offre d'installer elle-même, dans un bâtiment à l'épreuve du feu, 3 pompes centrifuges à haute pression mues par l'électricité, et d'opérer, également elle-même, tout le pompage que nous ne pourrions pas opérer par nos machines hydrauliques, au prix de $7.88 par million de gallons, et ce, à condition que quand la Ville voudrait rompre le contrat, elle aurait à payer $60,000.00 pour les machines et le bâtiment, plus trois fois $10,930.00 par unité de machines, soit $32,790.00 pour les lignes de transmission de forces. Alors la Ville aurait à payer à la compagnie $7.00 pour chaque million de gallons pompés.

Nous avons figuré comparativement dans les tableaux Nos. 1, 2 et 3 ci-annexés, le coût du pompage par vapeur en achetant une pompe à haut rendement; ce coût aurait été:

Pour l'électricité	$ 8.32
Pour la vapeur	8.31

Après que cette comparaison eut été établie, le 15 courant, le 1er Vice-Président et Ingénieur de la compagnie Montreal Light Heat & Power, dans une nouvelle lettre adressée au Président de votre Commission et à moi-même, (lettre que le Conseil de Ville a ordonné de vous soumettre officiellement le 22 courant) déclare, comme nouvelle interprétation de sa nouvelle offre, que l'intention de la dite

We have shown in the annexed statement No. 1, 2 and 3 the comparative cost of pumping according to this proposition, with the cost of pumping by steam with a new high duty pump this cost would be:

For electricity	$ 8.32	per million gallons.
For Steam Pumping	$ 8.31	" " "

After this comparative statement had been prepared on the 15th instant, the 1st. Vice-Pres. & Chief Eng. of the M.L.H.&. P. Co. in a new letter addressed to the Chairman of the Water Committee and to myself, (letter that the City Council ordered to be transmitted to you on the 22nd. instant) declares as a new interpretation of the Company's last offer that the intention of the said Company is not to exact payment of the above mentioned amount of $32,790.00 for special wire connections provided the City make a contract for a term of from five to ten years.

There is but one way of examining an offer of this kind to arrive at the true cost of the pumping and that is to suppose the purchase of the plant offered by the Company, and to guard against purchasing a worn out plant later, it would have to be purchased immediately, and figure on the cost of the pumping at the $7.00 rate as shown on the annexed statement No. 4, which thus shown the cost to be $8.16 per million gallons and also to compare this operation :

1o. With the cost per million deduced from a plant installed by ourselves based on the average of the offers received by tender for the electric pumps which would thus show the cost to be $8.13 per million gallons, taking it for granted that the last offer of the Company is really, as the Company says in its letter of the 1st. May, made to prove the sincerity of its figures and therefore it is prepared in case we install our own plant to furnish us power alone for $7.00 for amy time of the day and for any quantity of water beyond what the Water Wheels will furnish.

2o. With the cost per million by steam power as set forth in statement No. 2 viz: $8.31 .

On a basis on a daily consumption of 30 million gallons 7974 million gallons would have to be pumped annually by electricity or steam power as shown on statement No. 1, this would show according to the last offer of the M.L.H.&. P. Company and the figures given above

that electric pumping with a plant installed by the said Company would cost annually about $1200.00 less than pumping by steam and that the same pumpage with a plant installed by ourselves would cost annually about $1400.00 less than steam pumping.

On the other hand there would also have to be taken into consideration a certain annual amount to be spent in keeping in fit service the present steam plant, which as the Company itself says would always have to be held in readiness; it is a moderate estimate to call this amount about $800.00 annually which would have to be deducted from the saving above quoted for electricity. It is proper to mention that these figures would have to be modified in favor of electricity according to the progressive increase of the Water Consumption, but on the other hand looking into the future and comparing electric pumping with other known means of power, the City Council would have to take account of the project which I had the honor to submit to it of developing our own water power by the widening of the aqueduct; by this project and including the payment of all interest charges on the cost we could do our own pumping, up to 50 million gallons daily, for less than $6.00 per million gallons; this without taking into account that even were electric pumping adopted the widening of the aqueduct must needs be carried out sooner or later, to provide wholesome water in sufficient quantity to supply the pumps. Among the other advantages of carrying out this project would be that the City would have absolute control of itsown motive power with nothing to fear from the fluctuation of the prise of electric power in the future.

From the various report that I have submitted to you on this question it may be now said to be beyong the phase of technical considerations and to have become strictly speaking a business proposition, and that a slight difference in favor of one or the other, is perhapd not the only consideration that should be allowed to determine the choice of that system. Nevertheless, as by order of the Council the question has been peremptorily put to me, I must according-to the above figures declare:

1o. That for the duration of the contract which might be entered into with the M.L.H.&.P.Co. the pumping bu electric power will be cheaper than by steam power.

2o. That the installation of a plant by ourselves will be less costly for us, if we can really adopt the basis of $7.00 per million gallons as explained above.

PROPOSITIONS WITH A VIEW TO SETTLEMENT WITH THE JOHN McDOUGALL CALEDONIAN IRON WORKS COMPANY.

The John McDougall Caledonian Iron Works Co. with a view of settling the differences existing between it and the City in the matter of the electric power pump at the High Level pumping Station, presents four different offers, in its letter of the 11th instant:

1o. Install at the Low Level Station 3 high lift centrifugal pumps of 12 million gallons capacity with electric motors, at the High level pumping Station a pump and motor of 5 million gallons capacity, and take back the present electric power pump in dispute, all for the sum of $ 50,235.00

This offer represents an amount of about twelve thousand dollars less than the average prices made to us by the other tenderers for machines of the same capacity from which your Committee will have to make a choice; on the other hand this offer includes the taking back by the John McDougall Company from the High level pumping station of the present electric pump, the commercial value of which it is hard to establish, but for which the City has already paid $30,000.00. This pump nevertheless, and under the circumstances, would only have real value for us if it was brought down to the Low level pumping station, at a cost of about $10,000.00 at our own risk, and placed in a building which together with the foundations would cost about $9,000.00 more.

2o. Install at the High Level Pumping Station a 5 million gallon high lift centrifugal pump and motor (as in the first proposition) and bring down the present electric pump in disputs to the Low level station, after having transformed it into a 6 million gallon pump, and furnish and install another similar pump of 6 million gallons capacity, all for the sum of $ 71,613.00.

After careful consideration it does not appear to me that this proposition offers any serious advantage , and consequently it should not be entertained.

3o. Install at the Low Level Station a high duty steam pump of 12 million gallons such as under the circumstances, I recommended in my report of the 17th Apr1 last; install also at the High level station as mentioned in propositions 1 and 2, a five million gallon high left centrifugal pump, and bring down to the Low level station the present electric in dispute from the High level all for the sum of $ 81,282,00 This offer if we take into account the cost of building for pumping engines is about $350.00 less than the lowest considered offers of the other tenderers for pumps of equal capacity.

4o. Take down and install at the Low Level station the present electric power pump in dispute at the risk of the contractor for the sum of $14,937.00.

This offer which has been already studied by your Committee and the price maintained by the Contractor though your Committee had already rejected it, as too high, offers nothing to recommend it, or entertain it further.

As all these combined offers are subject to the choice which shall be made by your Committee and the Council, of the motive power to be used, steam or electricity, it appears to me difficult to judge of the merits of one as against the others which may be considered before the choice of the motive power has been made.

Respectfully submitted,

Geo. Janin

Superintendent M W W.

As supplementary to the first part of the present report, I would beg to remark that in the calculations for comparison of steam pumping with electric pumping, we have taken as basis the cost price of coal at $ 3.65 per ton, whereas the last bids received since, offer the same quality of coal (run of mine Dominion) at $3.45. If this new price is taken into account, the cost of steam pumping would be greatly diminished.

STATEMENT - I.

SHOWING WATER PUMPED BY HYDRAULIC WHEELS AND AMOUNT TO BE PUMPED BY STEAM OR ELECTRICITY.

From the records of the last five years showing the work of the water wheel pumps it may be said, that these pumps will furnish a daily count for each month as under;

JANUARY	average	5	millions daily or	155 millions.
FEBRUARY	"	2	" "	56 "
MARCH	"	1	" "	31 "
APRIL	"	10	" "	300 "
MAY	"	13	" "	403 "
JUNE	"	13.5	" "	405 "
JULY	"	12	" "	372 "
AUGUST	"	10	" "	310 "
SEPTEMBER	"	9	" "	270 "
OCTOBER	"	8	" "	248 "
NOVEMBER	"	8	" "	240
DECEMBER	"	6	" "	186 "
			Total	2,976 millions.

The total pumpage of 1904 shows a daily average for the year of 27,716,000 gallons, against 24,576,363 the daily average for the preceeding year 1903, this is a daily increase of over 3,100,000 gallons. In 1904 however there were many days when the pumpage was equal to or above 30 million gallons daily, and it is therefore reasonable to fix our calculations on a basis of consumption of 30 million gallons daily, or 30 x 365 equals 10,950 millions per year, to be pumped as follows;

By Water Wheel Pumps	2,976	millions.
By Electric or Steam Pumps.	7,974	"
Total	10,950	millions.

MONTREAL WATER WORKS

STATEMENT showing daily average of water pumped by WATER WHEEL PUMPS
— in recent years —

	1900	1901	1902	1903	1904	1905
JANUARY	7.419.130	7.214.689	7.944.218	6.921.780	6.050.601	5.304.340
FEBRUARY	6.989.408	4.946.445	2.541 934	6.364.730	4.589.737	4.082.536
MARCH	3.268.022	3 188.150	7.467.493	7.868.579	3.969.218	815.464
APRIL	10.624.086	11.296.599	14 791.803	14.070.107	10 705 394	10.710.076
MAY	13.610.650	14.369.457	14.604.410	14.501.288	13.040.290	
JUNE	13.283.740	14 357.378	14.440.821	13.693.412	13.374 402	
JULY	12.443.550	11.392 349	13.588.753	13.048.268	12.958.540	
AUGUST	11 733 138	9.946.972	12.071.879	10.763.699	12.554.438	
SEPTEMBER	10,131.917	8.847.106	10.350.799	10.110.208	11.210.806	
OCTOBER	9.772.592	7.965.421	9.497.059	10.616.112	12.442.670	
NOVEMBER	9.437.373	6.839.228	10.212.466	8.349.389	10.260.626	
DECEMBER	9.240.865	7.548.832	8.575.439	[illegible]0.745	7.258.753	

M.W.W.

STATEMENT of water pumped annually by water wheel pumps and steam pumps from 1900 to 1904 inclusive, showing also the total yearly quantity and daily average.

	1900		1901		1902		1903		1904	
How Pumped	Total	Daily Average for the Year	Total	Daily Average for the Year	Total	Daily Average for the Year	Total	Daily Average for the Year	Total	Daily Average for the Year
Water	3.592.167.860	9.841.555	3.289.133.079	9.011.323	3.864.991.709	10.589.019	3.713.220.951	10.173.208	3.616.150.841	9.880.191
Steam	3.858.197.457	10.570.404	4.684.924.770	12.835.410	4.302.742.762	11.788.336	5.257.151.653	14.403.155	6.527.887.266	17.835.757
	7.450.365.317	20.411.959	7.974.057.849	21.846.733	8.167.734.471	22.377.355	8.970.372.604	24.576.363	10.144.038.107	27.715.948

STATEMENT - 2 -

COMPARATIVE YEARLY PUMPAGE FOR EACH MONTH TO BE PROVIDED BY STEAM PUMPS OR ELECTRIC PUMPS.-

The new 12 million gallon steam pump is reckoned at a duty of 116 millions ft.lbs. or over 30 % less than its trial duty of 160 millions ft.lbs. This pump is presumed to work ten months of the year leaving two months for overhauling and repairs, and it will therefore be reckoned as lying idle during June and July.

The present steam plant, 3 old pumps of 11, 10 and 9 millions nominal capacity is reckoned to do the pumping at $9.- per M. Gallons.

- BY STEAM. -

Months	Quantity millions daily	New Pump.	old Pumps
Jan	25	12 x 31 x $ 7.49 = $ 2,786.28	13 x 31 x $9.00 = $ 3,627.
Feb.	28	12 x 28 x 7.49 = 2,516 64	16 x 28 x 9.00 = 4,032.
Mch.	29	12 x 31 x 7.49 = 2,786.28	17 x 31 x 9.00 = 4,743.
Apl.	20	12 x 30 x 7.49 = 2,696.40	8 x 30 x 9.00 = 2,160.
May.	17	12 x 31 x 7.49 = 2,786.28	5 x 31 x 9.00 = 1,395.
Jun.	16½	——— ——— ——— ———	16½ x 30 x 9.00 = 4,455.
Jul.	18	——— ——— ——— ———	18 x 31 x 9.00 = 5,022.
Aug.	20	12 x 31 x 7.49 = 2,786.28	8 x 31 x 9.00 = 2.232.
Sep.	21	12 x 30 x 7.49 = 2,696.40	9 x 30 x 9.00 = 2,430.
Oct.	22	12 x 31 x 7.49 = 2.786.28	10 x 31 x 9 00 = 2.790.
Nov.	22	12 x 30 x 7.49 = 2,696.40	10 x 30 x 9.00 = 2,700.
Dec.	24	12 x 31 x 7.49 = 2.786.28	12 x 31 x 9.00 = 3,348.
		Total 3648 x $ 7.49 = $ 27,323 52	4326 x 9 = $ 38,934.

Total 7974 millions cost $ 66,257.52 = @ $ 3692 or $ 8.31 per million.

S T A T E M E N T -3-

COST OF PUMPING BY ELECTRICITY ACCORDING TO THE OFFER OF THE MONTREAL LIGHT HEAT & POWER COMPANY of the 8th May 1905.

3 Pumps and motors with Fire proof building	$ 60,000.00
Special wire connections for the transmission of the electric power	32,790.00
Venturi meters	6,000.00
Total cost of installation. - - -	$ 98,790.00

Running, 2 Enginners & Oilers(1 day & 1 night ea)	@$1500.-	$ 3,000.00
Supplies Oils &c		450.00
Repairs 1 1/2% (on $66,000.00),		990.00
Depreciation on Mchinery 4 % (on $54,000.00).		2,160.00
Interest charges on cost of installation @ 4%.		3,951.60
		$ 10,551.60

$\frac{10,551.60}{7974}$ = $ 1.32 per million gallons adding the stated rate of $7.00 makes it $8.32 per million gallons.

S T A T E M E N T - 4 -

Cost of pumping by electricity according to the offer of the MONTREAL LIGHT HEAT & POWER COMPANY of the 8th May 1905, and modified by their letter of the 15th of the same month.

	With Plant installed by the COMPANY.	With Plant installed by the CITY.
		48.000.00
3 Pumps and motors with Fire proof building.	$ 60,000.00	$ 8.000.00
Venturi meters.	6,000 00	6,000.00
Tota cost of installa ion.	$ 66,000.00	$ 62,000.00
RUNNING - 2 Enginners and Oilers.		
(1 day & 1 night each) @ $1500.00	$ 3,000.00	$ 3,000.00
Supplies - Oils etc.	450.00	450.00
Repairs 1 1/2% .	990 00	930.00
Depreciation on Machinery 4% (on $54,000.00)	2,160.00	2,160 00
Interest charges on cost of installation @ 4%	2,640 00	2,480.00
	$ 9,240 00	$ 9,020 00
$\frac{9,240}{7,974}$ = $1.16 + $7.00 per million galls.	$ 8.16	
$\frac{9,020}{7,974}$ = $1.13 + $7.00 per million galls.		$ 8.13

This calculation is based on the assumption that the Montreal Light Heat & Power Company will consent, if we ourselves install our own plant, to supply the electric power to the City at $7 00 per million gallons pumped, during any time of the day, and for any amount of pumping otherwise than by hydraulic power.

Form CK 1219 La P.

A la Cité de Montréal.

La Commission de l'AQUEDUC

a l'honneur de faire rapport qu'elle à ce jour pris en considération les soumissions pour une pompe à vapeur pour la station des pompes du bas niveau, et après avoir considéré les tables préparées par le surintendant Votre Commission a resolu d'accorder le contrat pour une pompe à vapeur de 12,000,000 à la Hawthorn, Davey Co. de Leeds, Eng. pour la somme de $53,497.00 et demande la ratification de ce contrat par le Conseil.

Le tout respectueusement soumis,

Chambre de la Commission
Hôtel-de-ville,
Montréal, le 20 mars, 1905.

HATHORN, DAVEY & CO. LTD.,
ENGINEERS.
REGD. TEL. ADDRESS: "HATHORN, LEEDS."
CODES USED {A B C 4TH EDITION. THE UNIVERSAL MINING CODE.
NATIONAL TELEPHONE: No. 524.

SUN FOUNDRY,
LEEDS.

March 17/05.

The Montreal City Water Works Committee,
City Hall,
MONTREAL.

Gentlemen:-

TENDER FOR PUMPING PLANT:-

With reference to the time required for the execution of the above contract-

TIME OF COMPLETION. - The actual date of completion, as specified in clause 16- of your printed specification was 12- months from the signing of the contract and it was upon this time that our price was based. However, if an earlier date for the starting of the engine is a matter of importance, we will undertake to have the Plant running by January 1/06- This is of course on the understanding that there is no delay on account of Buildings or Foundations, or your water or steam connections and that the order is placed shortly.

DELIVERY. And further we undertake, subject to the above conditions that should the engine not be ready by January 1/06- we will pay a daily penalty as and for liquidated damages for every day by which that date may be exceeded. We suggest in view of the fact already mentioned (viz., that no such penalty was considered at the time of making our estimate,) that the sum of $10.00 (ten dollars,) per day would be adequate, but if this is not satisfactory, we will be glad to discuss the matter with you.

TERMS OF PAYMENT.

We remain,
Your obedient servants,
HATHORN, DAVEY & CO., LTD.

Managing Director.

H.L./S.

HATHORN, DAVEY & CO. LTD.,
ENGINEERS.

REGD. TEL. ADDRESS: "HATHORN, LEEDS."
CODES USED {A B C 4TH EDITION. THE UNIVERSAL MINING CODE.
NATIONAL TELEPHONE: No. 584.

ALL AGREEMENTS ARE CONTINGENT ON STRIKES, ACCIDENTS, OR OTHER CIRCUMSTANCES BEYOND OUR CONTROL.

SUN FOUNDRY,
LEEDS.

18 January, 1905

To the Water Committee of the City of Montreal

Gentlemen,

We agree to supply the machinery herein specified *for £10,985. (Ten thousand, nine hundred and eighty-five pounds) in addition to the $6,000, deposited at the time of tendering.

*10985 x 4.87 = $53497

Extras.

Travelling Crane, as per clause 56,	£398.
Feed Pump, as per clause 57,	£74.
Feed Heater, as per clause 58,	£66.

TIME OF COMPLETION. TO BE COMPLETED IN OUR WORKS in 28 weeks from receipt of order to proceed after approval of drawings

DELIVERY. At the Low Level Pumping Station of the Montreal Water Works, Freight & Duty paid erected, started and tested, as per your Specification.

TERMS OF PAYMENT.

Forty per cent (40%) of the contract price and the deposit of six thousand dollars ($6,000) shall be paid on delivery of the entire plant at the pumping station.

Fifteen per cent (15%) of the contract price when the machinery is erected and ready to run.

Twenty per cent (20%) after the successful tests, as set forth in article 15.

The remaining twenty-five per cent (25%) bearing interest at the rate of 4% per annum, from the date of the first payment, as above mentioned, to be kept by the City during one year after the successful test of the machinery as set forth in article 15.

Yours faithfully,

FOR HATHORN, DAVEY & CO. LTD

LIFE BUILDING,
MONTREAL

A. Meysey-Thompson DIRECTOR.

941½

Form 501

Water Works Office

No. Circular

From Fire protection

Date Stables and Shops

Subject Of Incineration

Dept. in North

Eastern part

of City

Proceeds 19 Jun 05

Finances

see Supplement

10 July 08

Sent to Chief Engineer

Date 13 July 1908

Remarks

Form C K 12195, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered tenders for Stove Coal, Cast Iron Pipes, Special Castings Lumber etc.- and after due consideration of same awarded contracts to the following parties.-

153 tons of stove coal to be equally divided between the following firms.-

J.M.Macdiarmid.

John Elie.

National Coal & Wood Co.

Trancède Trudel.

L.Cohen & Son.

Lackawanna Coal Co.

Ernest Lemire.

For Cast Iron Pipe to The Montreal Pipe Foundry Co at $ 32.50 per ton.

Special Castings to P. Amesse at $60.00 per ton.

Scrap, to Mess. Sessenwein Bros.(as per annexed tender)

Lumber to J.T.Scanlan. (as per annexed tender)

The whole as per copies of tenders hereto annexed. Your Committee therefore ask that same be ratified by the Council.

Respectfully submitted,

[signatures]

J. N. Stearns

I hereby certify that there are sufficient available funds to cover the [illegible] herein specified [illegible]

C. C & A

Committee room
City Hall
Montreal June 27th 1905.

TENDER

TO THE

MONTREAL WATER WORKS COMMITTEE

FOR THE

Castings of Branches

Made by Pascal Amesse

Dated 27th June 1905.

The undersigned Contractor residing in Montreal

No. 144 Wellington street Street, do hereby declare that according to your advertisement dated June 1905.

have examined the Specifications and Patterns, as exhibited in the Water Works Office, and propose to your Committee to contract for the Casting of Branches, in the manner and on the conditions required by the said Specifications, and upon the following terms :—

	Tendering Price.			
For each Ton of 2000 lbs.....	60.00			

The Price to be stated in Dollars and Cents in figures well made, without erasure or alterations.

N.B.—In all cases, cartage included in the above prices.

Signed P. Amesse.

(SIGNATURE)

144 Wellington street.

City

Form 597a

MONTREAL WATER WORKS

Specification for the Casting of Cast Iron Branches, etc.

No special quantities are given. The Castings required will be ordered from time to time, to meet the requirements of the department. They include Service Box Covers; Valve Chamber Covers; Cast Iron Bodies of Valves, also special pipe laying Branches, such as Crosses, Tees, Tapers, Sleeves or Slip Sockets, etc., etc.

Every description of Castings to be cast in dry sand, according to the plans and patterns. Each Casting to be dressed and cleaned under cover, immediately after being cast, then coated by immersion for the requisite time with Coal Tar Pitch Varnish. The cleaning and coating to be done in presence and to the satisfaction of the Superintendent. Every piece to be warranted to stand a pressure of 250 lbs. to the square inch.

To be delivered free of charge, at the Montreal Water Works shops on St. Charles Borromee street, or at the Wheel House, or at the Water Works Press House, Point St. Charles, in such quantity as the Superintendent may direct.

All the patterns are furnished by the Corporation, and the Contractor after having completed his contract shall be obliged to deliver them at the Water Works yard, No. 60 St. Charles Borromee street, or at the Wheel House, free of charge, and in good order.

PAYMENTS: — Each delivery must be accompanied by triplicate invoices, and payments will be made monthly.

The Contractor to pay the Corporation Notaries their charges for making the deed of contract and a copy of it.

GEO. JANIN,

Superintendent M. W. W.

CITY HALL, MONTREAL,

Montreal June 21/05.

To the Water Committee

City Hall.

Dear Sirs,-

Per your Tender form dated 16th instant; we beg to quote the following for the coming year.

No. 1 Cast Iron	$ 12.00 per ton of 2000 lb
No. Wrot Iron.	11.60 " " "
Scrap Lead.	2.60 per 100 lbs.

All the above ex your department. Term cash.

Very truly, yours ,

(Signed) Sesswein Bros.

per. L. Sessenwein.

MONTREAL, June 27th 1905 190

To the Chairman and Members of the Water Committee.

I hereby tender to supply the Water Department with the articles in the following list at the prices which I have placed opposite to them, in accordance with the foregoing terms and conditions.

Signed J.T.Scanlan.

NAME AND DESCRIPTION OF LUMBER.	Estimated Yearly Consumption.	Rate. $ c.	Amount. $ c.
1.—3 in. Pine Planks, green, 4th quality, per 1000 ft., board measure, (Quebec culling)	50 M	17 00	
2.—2 in. Pine Planks, green, 3rd quality, 11 in. wide, per 1000 ft., board measure, (Quebec culling)	40 M	19 00	
3.—1 in. Rough Board, 3rd quality, per 1000 ft., board measure, (Quebec culling)	20 M	19 00	
4.—2 in. Pine Battens not more than 6 in. wide, 2nd quality, planed, tongued and grooved, per 1000 ft., face measure, (Quebec culling)	5 M	40 00	
5.—1¼ in. Planks planed, tongued and grooved, 2nd quality, per 1000 ft., face measure, (Quebec culling)	5 M	25 00	
6.—1 in. Pine Boards, 2nd quality, and dressed, per 1000 ft., board measure (Quebec culling)	5 M	22 00	
7.—1 in. Pine Boards, 2nd quality, and dressed, per 1000 ft., board measure, (Quebec culling)	5 M	22 00	
8.—Tamarac Planks, 1st qual., 3 in., per 1000 ft., board measure, (Quebec culling)	10 M	25 00	
9.—Sawn Ash, per 1000 ft. board measure	2 M	40 00	
10.—Pine Scantlings, 3 x 4 in., and 12 ft. long, per 100 pieces	200 pcs.	20 00	
11.—Square Pine, 2nd quality, in pieces from 15 to 30 ft., long and not more than 14 x 14 in., square, per 1000 ft., board measure	12 M	30 00	
12.—Square Pine, 2nd quality, in pieces from 30 to 50 feet long and not more than 14 x 14 in., square per 1000 ft., board measure	12 M	36 00	
13.—Square Pine, 2nd quality, in pieces not less than 10 ft., long and not more than 30 ft., long, and not more than 8 x 6 in., per 1000 ft., board measure	12 M	26 00	
14.—Square Tamarac, 2nd., quality, in pieces not less than 15 to 30 ft., long inclusive, and not more than 12 x 12 in., square per 1000 ft., board measure	15 M	35 00	
15.—Square Tamarac, 2nd., quality in pieces not less than 10 ft., and not more than 30 ft., long, and not more than 6 x 6 in., per 1000 ft., board measure	15 M	35 00	
16.—Round cedar, not less than 8 in., per lineal feet	2000 lin. ft.	12¢	
17.—2 in. Pine, for service boxes, consisting of 4 pieces 6 feet long, sawn to proper size, as shown on blue print furnished, price per box complete	300 boxes.	26¢	

Carting along the Aqueduct per 1000 ft. ..... 75¢

MONTREAL WATER WORKS.

TENDER FOR LUMBER

190 .

Tenders for Lumber, required by the Water Department, will be received according to advertisement in the public press.

The Water Committee do not bind themselves to take any particular quantity in the annexed list, but will simply order from the contractor what may be required from time to time.

For the guidance of parties tendering, the quantities usually consumed are given in the annexed list.

Lumber to be delivered free of charge in any part of the City to which it may be ordered. *Parties tendering shall fix a price for the cartage of lumber to the banks of the Aqueduct, should necessity arise.*

Each tender to be accompanied by a deposit with the City Treasurer of the sum of one hundred dollars, which shall be retained by the City as a guarantee for the due fulfilment of the contract.

In the case of rejected tenders, the deposit will be refunded on application.

Payments :—Each delivery must be accompanied by triplicate invoices, and payments will be made monthly.

Further information if desired may be had on application at the office of the superintendent at the City Hall.

The Contractor to pay the Corporation Notaries their charges for making the deed of contract and a copy of it.

By order,

GEO. JANIN,
Superintendent of W. W.

CITY HALL,
MONTREAL, June 18th 190

(SEE OTHER SIDE.)

243

REPORT

FROM THE

WATER Committee

For permission to vary $200.00 from Pipe track to Contingencies.

Presented 10 July 1901

Adopted same day 190

Entered vol. D. D. 2 *page* 159

and page 110 *of vol.* 12 *of Reports.*

Form C K 12191/4. La P.

To the City of Montreal.

The WATER *Committee*

Respectfully Report

That your Committee hereby ask the Council's permission to vary appropriations as under:-

FROM:-	Pipe Track	$ 300.00	
	Aqueduct	300.00	$ 600.00
To:-	STAFF		$ 600.00

The above to be applied for the wages of two additional water inspectors.

Committee room

City Hall,

Montreal July 11th 1905.

The whole respectfully submitted,

I hereby certify that there are sufficient available funds to cover the matter herein specified.

Viz. $ 600 00

C. C. & A.

2414

RAPPORT

DU

Comité WATER

To vary appropriations.

Présenté 11 Juillet 190 5

Adopté Même jour 190

Entré vol. D.D. 2 *page* 159

et page 108 *du vol.* 12 *des Rapports*

Forme C K 12095, La P.

A la Cité de Montréal.

Le Comité de Finance

a l'honneur de faire rapport

The Finance Committee
Respectfully Report
That they have considered a report of the Water Committee asking for the sum of $33.077.00 to carry out the works of the Department - and that they have decided to recommend to Council to vote as revenue $12.000 as follows; $8.700 for distribution purposes, $1.000 for meters, $300 for public fountains, $2.000 for hydrants and as loan $3.000 for laying new main pipes and $2.000 for new services

15th September 1905 — Arrears of Taxes collected to date.

I hereby certify that there are sufficient available funds to cover the approp. herein specified.
Viz. $17000.00

[signature]
C. C & A.

[signatures] Vallières, L. Lapointe, G. A. Ferris, George W. Sadler

18000
5000
——
13.000

Form C K 1219½, La P.

To the City of Montreal.

The WATER Committee

Respectfully Report

That at a meeting of your Committee held this day they have considered the accompanying report of the Superintendent informing the Committee that some items of the appropriations for administration and permanent works are exhausted, and that there will be required to finish the year about $ 16,300.00 for Administration purposes, and $ 16,779.00 for permanent works, making a total of $33,079.00.

16300
16779

Your Committee after due consideration of said report,

RESOLVED,- To report to the Council asking for the sums amounting to $33,079.00 to carry out the works of the department as per the Superintendent's report hereto annexed.

Committee Room
City Hall,
Montreal Sept. 12th 1905.

The whole respectfully submitted,

H. B. Ekers (?)
F. Sauvageau
J. Lamlimy (?)
J. H. Stearns

Montreal Sept 12th 1905.

To the Chairman & Members of the

Water Committee,-

Gentlemen,-

As a certain number of our appropriations are nearly exhausted and in some cases entirely so, I have the honor to submit to you a statement of amounts which will be necessary to obtain to continue the indispensable works of our department.

On examining the requirements of the other appropriations, I find that no amount sufficient in itself can be varied , and that consequently without stopping some of the principal works of the department, other appropriations will have to be voted in accordance with the attached statements.

Respectfully submitted,

Geo. Janes

Superintendent M W W.

N E W A P P R O P R I A T I O N - from REVENUE.

For DISTRIBUTION PIPES- (Maintenance,Repairs,Accidents Thawing &c.).

This appropriation is entirely exhausted principally due to the cost of thawing and repairs on account of the rigorous winter, and to the renewal of service pipes under the new permanent sidewalks, cost of which to date amounts to $33,758.-and by keeping well under the average monthly expenditure that this sum represents during the last 8 months, I estimate that to continue this indispensable work it is necessary to have $12,000.-

For the maintenance and repairs to meters there remains but $383.- for the requirements of the year,whereas there has been spent $2,617.- up to the end of August. I estimate the amount necessary of no less than. - - - - - - - - - - - - 1,000.-

For maintenance of Public Fountains (Appro'n exhausted) -- 300.-

For maintenance,Inspection and Thawing of Hydrants,there remains but $494.- whereas there has been spent $10,505.- up to the end of August, I therefore estimate an amount to finish the year,of - - - - - - - - - - - - - - - - - - 3,000.-

$ 16,300.-

N E W A P P R O P R I A T I O N S ON LOANS.

LAYING OF NEW MAINS TO SATISFY THE DEMAND FOR NEW SERVICES TO DATE :-

Desery street, from Nolan street to about 200' south of Sherbrooke street, 1400' of 8" pipe. - - - - - - - - -	$ 2100.-	
Hochelaga street, from Davidson to Nicolet streets, 1400 feet of 8" pipe . - - - - - - - - - - - -	2100.-	
DeLevis street, 1000' North of Forsyth street.- - - -	1500.-	
Sherbrooke street, -200' West of Frontenac street.- - -	300.-	
do. do. 300' East " " "	450.-	
Montgomery street, 1000' of 8" pipe. - - - - - - - - - -	1500.-	$ 7,950.-
Other demands for services already received, but on streets not yet accepted by the City, which when said streets are taken over, will necessitate an expenditure for main pipe laying of about, - - - - - - - - - - - - - - - -		8,000.-
To grant a demand from the Market Committee, dated Aug.9th, to place a hydrant at the North end of the Cattle market, 1500' of 8" pipe (already asked for and refused on the 14th April last.) -		2,300.-
Laying of new services already applied for to date. 56 @ $30.00. - - - - - - - - - - - -	$ 1680.	
Provision for future applications. - - - - - - -	2000.	3,680.-
		$ 21,930.-
Deducting the remaining amounts on the different appropriations for Pipe Laying Mains and Pipe Laying Services. -		5,151.-
Necessary to obtain. - - -		$ 16,779.-

Montréal le 12 Sept. 1905.

A M. le Président et à M.M. les Membres

de la Commission de l'aqueduc.

Messieurs,-

Un certain nombre de nos crédits étant épuisés ou près de l'être j'ai l'honneur de vous soumettre un état des sommes qu'il serait nécessaire d'obtenir pour continuer les travaux indispensables de notre département.

L'examen des autres crédits et des besoins auxquels, ils sont destinés à faire face démontre qu'aucune somme importante ne peut en être détournée par virement et que par, consequent, à moins d'arrêter quelques uns des principaux services de notre département il est nécessaire que de nouveaux crédits nous soient accordés conformement aux états ci jointe.

Respectueusement soumis,

Surintendant de l'aqueduc.

NOUVEAUX CREDITS A DEMANDER SUR LE FOND D'ENTRETIEN.

Pour les tuyaux de distribution (entretien, réparations d'accidents, dégelage etc,).

Ce crédit est complètement épuisé principalement par suite des dépenses de dégelage et de réparations de tuyaux occasionnés par la rigueur de l'hiver, et de renouvellement de tuyaux sous les trottoirs permanents, la dépense à date monte à $33,758.- et en me tenant bien au dessous de la moyenne que represente cette dépense faite pendant 8 mois, j'estime la somme nécessaire pour continuer ces indispensables travaux à environ. - - - - - - - - - $ 12,000.

Pour l'entretien et la réparation des compteurs il ne reste plus que $383.- pour subvenir aux besoins de l'année tendis qu'il en a été dépensé jusqu'à la fin du mois d'août, $2,617.-, j'estime la somme nécessaire à pas moins de. - - - - - - 1,000.

Pour l'entretien des fontaines publiques, (crédit épuisé). 300.

Pour l'entretien, l'inspection et le dégelage des bornes-fontaines, il ne reste plus que $494.- tandis qu'il en a été dépensé $10,505.- jusqu'à la fin du mois d'août, j'estime en conséquence la somme nécessaire pour achever l'année à . - - - - - - - - - 3,000.

$ 16,300.

246,

REPORT

FROM THE

WATER Committee

Asking for an appropriation to lay 12" on Sherbrooke St. Mountain to Guy streets.

Presented 28 Sept 190 5

Adopted Same day 190

Entered vol. D.D.3 *page* 24

and page 177 *of vol.* 12 *of Reports.*

Form C K 1219½, La P.

To the City of Montreal.

The W A T E R *Committee*

Respectfully Report

That they have this day considered the accompanying report from the superintendent asking permission to vary the sum of $6,500.00 from the appropriation for Pipe Laying Mains and apply same to Pipe Laying Services.-

Your Committee after due consideration of same,

RESOLVED

To report to the Council for permission to vary as per the Superintendent's report.

The whole respectfully submitted,

[signatures]

Committee Room

City Hall

Montreal Oct 17th 1905.

I hereby certify that there are sufficient available funds to cover the variation herein specified.
Viz. $6500.00

[signature]

C. C & A.

City Hall

Montreal Oct 18th 1905. 19

To the Chairman & Members

of the water Committee.

Gentlemen,-

As our appropriation for Pipe laying services is exhausted, I would ask that a report be sent to the Council for permission to vary $6,500.00 from Pipe Laying Mains and applied to Pipe Laying Services, both of these appropriations being practically used for the same purpose viz: to supply water to tenants.

Yours truly,

Geo. Janin

SUperintendent M W W.

2414

REPORT

FROM THE

WATER Committee

For permission to vary certain items of the appropriations.

Presented 30 Oct 1905

Adopted Same day 1905

Entered vol. D D 3 *page* 97

and page 227 *of vol.* 12. *of Reports.*

248

REPORT

FROM THE

WATER Committee

Asking Council to ratify
contract for the erection
of a new Pump building, L.L.St

Presented 6 Mar 190 5

Adopted Saturday 190

Entered vol. D.D. 3 page 109

and page 233 of vol. 12 of Reports.

To the City of Montreal.

The WATER Committee

Respectfully Report

That they have this day considered tenders for the erection of building for the new pump at the Low Level Pumping Station, Point St Charles, and after due consideration of the said tenders

RESOLVED To award the contract for the wood work, roofing, painting and etc. to Mr. Chas. Bernard for the sum of $920.00 and for the masonry and brick work to Mess. Côté & Marsan for the sum of $3486.00. The whole in accordance with the department's plans and specification.

Your Committee therefore ask that the said contracts be ratified by the Council.

Respectfully submitted,

Committee room
City Hall,
Montreal Oct. 31st.1905.

I hereby certify that there are sufficient available funds to cover the contracts herein specified.
Viz. #920.00 x #3486.00

C. C. & A.

MONTREAL WATER WORKS

SPECIFICATIONS FOR THE CONSTRUCTION OF A BUILDING TO BE ERECTED AT THE LOW LEVEL PUMPING STATION, POINT ST CHARLES.

EXCAVATIONS, CONCRETE FOUNDATIONS, BRICK WALLS etc.

GENERAL CLAUSES.-

TENDERS AND GENERAL INFORMATION.

Sealed tenders addressed to the City Clerk, will be received at the Office of the City Clerk, City Hall, until 12 o'clock noon on Tuesday the 31st October instant, for the construction of a building for the new steam pumping engine at the Low level Pumping Station, Point St Charles.

Each tender must be accompanied by an accepted cheque of $450.00 on an incorporated bank, payable to the order of the City Treasurer. This cheque will be forfeited if the tenderer whose offer has been accepted refuses when required to do so, to sign the contract according to the specifications accepted by the Water Committee, or if he does not entirely carry out the work.

The Contractor to pay the notarial fees for the deed and a copy thereof for the City of Montreal.

The Specifications and quantites of the whole are merely intended to furnish information on the details of construction. Their object is to show the general design and style of the building. Consequently, it is agreed that for the price stipulated the contractor shall perform in an entire manner all the necessary works for the complete and perfect finishing of the construction, whether provided or not in the specifications, and all such works under the order of the Superintendent of Montreal Water Works.

In case of errors or omissions in the following descriptions the contractor shall perform all the works considered necessary in their general order, and in a like manner to what has been forseen.

All the works shall be finished not later than 2 months after the awarding of the contract. A penalty of $10.- ten dollars per day shall be exacted for each day of delay beyond that time and the penalty shall be collected, as stated hereafter.

The amount stipulated in the contract shall be paid to the Contractor, by the City of Montreal as follows:-

Twenty per cent (20%) when all the excavations are made and the foundations of the walls are completed up to floor level.

Fifty per cent (50%) when the building is roofed over.

Twenty per cent (20%) and the deposit of $450.00 at the completion of all the works.

However it is agreed that if the works are not finished until after the above mentioned date, the delay penality stated herein before shall be deducted from this payment.

The balance of ten per cent (10%) shall be retained during 60 days as a guarantee for all accidents or damages which may be caused by defective construction or by faulty material, or bad workmanship, in the whole or in any of the details of construction.

No allowance for extra work will be allowed the contractor except upon a written order from the Water Committee endorsed by the Superintendent.

The City doesnot bind itself by this specification or any part thereof, to accept the lowest or any of the tenders offered.

The laborers employed on the works shall notbe paid less than 15 cents per hour per day, and the carter 22 1/2 cents per hour. All building permits, water, etc., shall be paid for by

the contractor and he must not expect to be exempt from any of these charges.

All accidents and damaged caused to any person or property owing to the carrying out of the work, shall be charged directly to the contractor, and the City is not to have any responsability in the matter.

EARTHWORK. The contractor will take the ground as he finds it. He shall make all the excavation necessary for the foundation walls, doors-sills or stone steps. He shall also if required, shore up the earth of adjoining walls sa as to avoid accidents or land slides. Should the contractor neglect to provide for such support or shoring, he shall be held responsible for all pecuniary or material damages resulting from such neglect.

The excavation for trenches shall have the minimum width of 3 feet at the bottom. The bottom shall be perfectly level and the earth from these trenches shall be carted away by the contractor.

FOUNDATIONS. Thess foundations shall be built of concrete. The concrete shall be made in moulds of planks, all the visible surface of this concrete shall be finished off with a coating of pure cement evenly laid and smoothed.

The concrete shall be composed of one part of Portland cement (briquettes of which guaged stiff and put into water within 24 hours to have a minimum tensile strength of 350 lbs. to the square inch after 7 days in water) two parts of clear river sand, well mixed dry, then made into mortar with the smallest possible quantity of water, four parts of broken stones, of a size to pass through a 2" ring, free from dust or impurities, the whole saturated with water, without any due excess when the mixture is filed into heaps to be immediately incorporated with the above mentioned mortar. Each batch of concrete mixed in this manner, shall be quickly spread and well tamped into place until the mortar shows at the surface.

The contractor shall provide for all holes, grooves etc and shall place and fasten all the bolts shown on the foundation plan.

An outside frontage 4" thich of ashlar cut stone similar to that of the adjoining building shall be furnished and laid, said cut stone shall be laid in regular courses on wooden garettings with good mortar joints, each stone shall be joined th the concrete by iron cramps.

All holes, borings, calkings connections and openings for the placing of timbers, iron girders etc., required for the due completion of the works shall be made at the expense of the contractor.

BRICKWORK. The walls of the building above the foundations shall be of good hard bricks from Montreal brick yards, and shall be of the thickness as shown on plan.

The bricks shall be wetted and sufficiently saturated with water when used .

The mortar shall consist of quick lime and river sand in the ordinary proportions. The contractor shall see that all voids are completely filled with mortar. The mortar to be prepared in moulds at least 8 days in advance.

Blind butresses shall be used to tie the front and back courses of the wall facings at every fifth course.

All of the walls shall be truly vertical and shall not batter or bulge out, and shall not have any visible structural defect.

The joints are not to have a greater thickness than 1/4 of an inch as a maximum, and 4 courses of brick work shall not have a greater height than eleven inches.

The inside and outside joints of the walls shall be pointed with a round smoothing tool, so as to appear convexed.

The contractor shall supply all scaffolding and tools necessary for the proper execution of the works.

He will also put in place the stone lintels and window and door sills, and make a lime mortar and cement joint around the openings.

The raising of the South West brick wall of the existing building up to the new roof , forms part of the contract, to do this the contractor shall demolish the cornice and window, and the part of the existing roof now covering said wall.

Office of the Superintendent of Water Works,
C i t y H a l l ,
Montreal October, 1905.-

QUANTITIES FOR THE CONSTRUCTION OF A BUILDING FOR THE NEW STEAM PUMP AT THE LOW LEVEL PUMPING-STATION, Pt. St. CHARLES.

The Contractor shall examine plans and specifications, visit the site and fix a price for the whole work, without having the right to take advantage of errors or omissions in the quantities given.

- EARTHWORK -

130 cubic yds. of excavation. The earth to be removed to a dump

- CONCRETE -

160 cubic yds. of concrete, according to specifications.

250 lineal feet of cut stone 1 1/2' high, bush hammered for coursing stones.

3 window sills bush hammered stone of 4'6" x 6'1"

1 do do do do do 6' x 6" x 1'

1 do lintel do do do 10' x 1' x 1'

1 sill of 8' x 8" x 1'8"

1 step of 5' x 8" x 3' 6"

3 do " 10' x 8" x 1' 6"

2 Ramps " 9' x 1' x 9" x 2'

BRICK MASONRY.

60 thousand bricks laid in lime mortar, according to specifications, with joints pointed, outside and inside.