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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL OF PUBLIC WORKS, TENDERS, ADVANCE INFORMATION AND MUNICIPAL PROGRESS

EVERY SATURDAY

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 Information solicited from any part of the Dominion regarding contracts open to tender.
 ADVERTISING RATES ON APPLICATION.

At its Convention held in Toronto, Nov. 20 and 21, 1889, the Ontario Association of Architects signified its approval of the CANADIAN CONTRACT RECORD, and pledged its members to use this journal as their medium of communication with contractors with respect to advertisements for Tenders.
 The following resolution was unanimously adopted at the First Annual Meeting of the Province of Quebec Association of Architects, held in Montreal, Oct. 10th and 11th, 1890: "Moved by J. Perrault, seconded by A. F. Dunlop, that we the Architects of the Province of Quebec now assembled in Convention being satisfied that the CANADIAN CONTRACT RECORD affords us a direct communication with the Contractors, Resolved, that we pledge our support to it by using its columns when calling for Tenders."
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NOTICE TO CONTRACTORS.

Tenders will be received by registered post addressed to the City Engineer, Toronto, up to 11 o'clock a. m. on FRIDAY, THE 7TH DAY OF OCTOBER, 1892, for the construction of the following works:

TRACK ALLOWANCE ONLY.
 On Avenue road, from Bloor street to north city limit, asphalt on concrete, with granite or scoria tootthing.
 On Queen street, from the G. T. R. crossing to Lee avenue, cedar blocks on concrete, with granite sets.
 On High Park avenue, from Roncesvalles ave. to High Park, cedar pavement with concrete and granite tootthing.
 Plans can be seen and forms of tender obtained at the City Engineer's office on and after Tuesday, October 4th, 1892.
 A deposit in the form of a marked cheque payable to the order of the City Treasurer, for the sum of 5 per cent. on the value of the work tendered for under \$1,000, and 2 1/2 per cent. for the value of the work tendered for over that amount, must accompany each and every tender, otherwise it will not be entertained. All tenders must bear the bona fide signatures of the contractor and his sureties (see specifications), or they will be ruled out as informal.
 The Committee do not bind themselves to accept the lowest or any tender.
 JOHN SHAW,
 Chairman Committee on Works,
 Committee Room, Toronto, Sept. 27, 1892.

TENDERS

Will be received at the office of the undersigned until 5 p.m., WEDNESDAY, OCTOBER 5TH, for taking down a building at the corner of Adelaide and Victoria Streets. Lowest or any tender not necessarily accepted.
 STRICKLAND & SIMONS, Architects,
 18 Toronto Street.

PRESERVATION OF STONE.

Limestones are for many reasons, eminently suitable for constructive purposes, being cheap and easily worked, but they readily absorb moisture. This, as it usually contains carbonic acid, gradually dissolves away the material of the stone, and in winter, serious injury is often caused by the freezing of this water and its consequent expansion. Several methods of rendering this material porous have been proposed, but not frequently has the remedy been worse than the disease. Alkaline silicates were at one time in favor for this purpose, but in its application, soluble hygroscopic alkaline carbonates are formed, which seriously affect the utility of the process. Moreover, unless care is taken in the application of these silicates, a hard impervious varnish is given to the surface of the stone, within which the water in dissolving the silicates is imprisoned, and on the first frost serious disintegration takes place. M. M. Faure and Kessler have recently been at work on this question, and as a result of their experiments recommend the use of metallic fluosilicates more especially those of aluminium, magnesium and zinc. The surfaces to be treated are brushed over with a solution of salt chosen, causing on the first application an abundant froth due to the liberation of carbonic acid gas. When dry the operation is repeated once or twice, depending on the quality of the stone, on an average for soft stones 1.7 pounds of solution to 40 Beaume are required, per cubic yard. The advantages are that the process is completed in twenty-four hours, it allows the stone to be polished, and by a suitable choice fluosilicate used, different colors can be communicated to it; and lastly, the process is cheap, and applicable not only to stone, but to all cements and mortars containing lime. The theory of the process is, that a double decomposition occurs, forming in the first place, silica, calcium and aluminium fluorides, and carbonic acid gas; secondly a reaction takes place between the limestone and the aluminium fluorides, producing aluminium fluorides, alumina, calcium fluoride, and carbonic acid. In this manner each grain of the limestone is covered with an insoluble coat, materially increasing its resistance to atmospheric influences.—*Engineering.*

CONTRACTS OPEN.

ST. JOHNS, QUE.—An improved system of drainage is badly needed.
 TRURO, N. S.—Mr. John Chisholm is preparing to erect a new house on Lorne street.
 LONDON, ONT.—G. Craddock, architect, will receive tenders until to-day for repairs to Burton's Hotel.
 OTTAWA, ONT.—Mr. G. F. Stalker, architect, is preparing plans for the new Parliament building in British Columbia.
 BROCKVILLE, ONT.—John Dargavel, Clerk, will receive tenders until the 3rd inst. for building an Isolated hospital in this town.
 ALLISTON, ONT.—Tenders are asked until the 15th of October for the purchase of waterworks debentures to the extent of \$15,000. J. C. Hart, Treasurer.
 MONCTON, N. B.—D. Pottinger, Chief Superintendent Intercolonial Railway, will receive tenders until the 18th of October for the construction of a steam ferry boat.
 CALGARY, N. W. T.—Mr. W. A. Proctor, a Canadian millionaire, has purchased \$30,000 worth of real estate in this town. He will erect a stone block next spring.
 AMHERST, N. S.—The Baptists have decided to erect a new church on the site of their present building. The new building will be of brick and stone, and will cost from \$30,000 to \$40,000.
 VANCOUVER, B. C.—A company to be known as the British Pacific Construction Company, with a capital of five million dollars, is to be formed to build the Canadian Western Railway.
 FORT ARTHUR, ONT.—A by-law has been read a first time in council to submit a by-law to the ratepayers to raise the sum of \$40,000 for the extension of the street railway to West Fort William.
 NANAIMO, B. C.—The plans submitted by J. J. Honeymoon, architect, of this place, have been accepted for the new fire hall. The building is to be situated at the corner of Nicol and Victoria streets, and is to be a two-story brick and stone building, constructed in the Gothic style of architecture.
 HALIFAX, N. S.—The foundations of eight new houses on Morris street will be commenced immediately. The cost of the whole work is over \$30,000.—The Nova Scotia Power Co. announces its intention to construct an electric street railway from the deep water terminus of the Intercolonial Railway to the south end of the city, by way of Water street.
 PORTLAND, MAINE.—Propositions for the construction of a line of railroad from Mechanic Falls to a connection with the Maine Central railroad at some point between Danville Junction and Auburn will be received at the office of the company, 34 Exchange street, until Saturday, October 8th, 1892. Frederic Danforth, Chief Engineer.
 TORONTO JUNCTION, ONT.—It has been decided to erect a large flour mill near the power house on the north side, with a capacity of 600 barrels daily. The building is to cost \$60,000. There will be a coöperage in connection. Citizens are agitating for a reservoir.—The sewer-

age Engineer has been instructed to advertise for tenders for materials for the construction of storm sewers.
 WINDSOR, ONT.—William M. Boomer, proprietor of the Windsor Street Railway, is negotiating with Detroit capitalists for an extension of the line. If negotiations now pending are carried out \$50,000 of new capital will be added, the line extended on the east to the wine house above Walkerville and on the west to the Michigan Central depot, and the road equipped with a fine electric system.
 WATERDOWN, ONT.—A meeting of the citizens of Waterdown and the adjoining municipalities was held this week for the purpose of discussing the advisability of aiding in the construction of an electric railway from Hamilton to Guelph. Those present seemed to be in favor of the scheme, and it is thought that a company will be formed at an early date to obtain a charter and proceed with the construction of the road.
 KINGSTON, ONT.—Tenders will shortly be asked for the extension of the water pipe. A number of citizens are talking of organizing a joint stock company to build a cable from Kingston Mills to the city to transfer power to the various manufacturing industries.—Negotiations between the Street Railway Company and the City Council in respect to the introduction of electricity have been cancelled, and the Committee on Street has been commissioned to negotiate for an electric car service on streets other than those occupied by the present company.
 WOODSTOCK, ONT.—It is understood that a prominent citizen of the East End is considering the erection of a flour mill in that part of the town with a capacity of 100 barrels daily. The ratepayers will vote on a by-law on the 12th of October to provide the sum of \$12,000 for the erection of a fire hall and the equipment of a complete fire alarm system.—The Water Commissioners have decided to extend the water mains as follows: on Graham street to the north side Brant street, on Mill to Russell street, on Hay to Bruce street, and on Bruce to Spencer.
 WINNIPEG, MAN.—The City Council has advertised its intention to construct a sewer on 2nd ave. south from 9th st. south to 11th street south, and on 10th st. south from 2nd ave. south to Central ave.—Tenders have been called for the constructing of pipe sewers on Main street north and Prairie street.—It is stated that Mr. James Billings, a Duluth capitalist, contemplates the erection next spring of thirty or forty dwelling houses in this city, the cost of which will be from \$1,500 to \$2,000 each. Robert Jaffray and Geo. A. Cox, of Toronto, who are interested in a Winnipeg property, contemplate erecting a handsome block here. The New York Life Assurance Company are considering the erection of a large building in this city.
 HAMILTON, ONT.—R. Clohery, architect, will receive tenders until to-day (Saturday) for the mason and carpenter work required in extensive additions and alterations to the Loretto Convent in this city. A building permit has been granted to Thomas Allen, for four two-story brick dwellings on Queen street and six on Pearl street, to cost \$10,800.—It is proposed to utilize a large

amount of electric power to operate a system of street and suburban railways and supply various small manufactories. Including the current required for lighting the city, it is claimed that as much as 15,000 H.P. can be profitably used. A company is being formed by Messrs. Jno. Patterson, E. B. Osler and others to develop the scheme.—Tenders were asked this week for the construction of a pipe sewer on Wilson street, between Ashley and Wentworth streets.

MONTREAL, QUE.—A number of capitalists are at present forming a company to undertake the construction of a railroad between Joliette and St. Lin. The road will pass through St. Paul, St. Esprit, St. Ignace, St. Julienne, St. Alexis and St. Jacques. Letters patent of incorporation are to be applied for at the next session of the Provincial Legislature.—A meeting of the congregation of Erskine church was to have been held on Thursday evening last to select a site for the new building.—The Parks and Farnes Committee have applied to council for an appropriation of \$2,000 with which to complete the Superintendent's residence.—It is said to be the intention of the City Council to call the tenders for lighting of the streets by electricity by the 1st of November.—Mr. J. F. Whitwell is surveying the line for the proposed railway between Stanbridge Station and Philipsburg. Operations will commence early in the spring.

TORONTO, ONT. At a meeting of the City Council held on Tuesday last, a by-law was introduced and passed providing for the raising of money for permanent pavements on the following streets: Dundas street, Soraraen ave. to Bloor st., cost \$12,000; King st., Sherbourne st. to River st., cost \$18,100; Spadina ave., Queen st. to Bloor st., cost \$32,650; King st., Dufferin st. to Roncesvalles ave., cost \$22,700; Queen st., Daves ave. to railway crossing, cost \$9,200; Howard Park ave., Dundas st. to Roncesvalles ave., cost \$3,800; High Park ave., Roncesvalles ave. to High Park, cost \$10,100; Avenue road, Bloor st. to North city limits, cost \$27,000; Queen st., from Railway tracks to East city limits, cost \$55,000.—Hon. Frank Smith is the promoter of a scheme for the erection of a large hotel to be undertaken by a joint stock company, the capital of which is placed at \$1,000,000. Mr. Smith has offered to take stock to the extent of \$25,000.—A new water main is to be laid to connect with the Isolation hospital.—The City Engineer will be asked to report as to the cost of the work necessary to strengthen the Queen street bridge over the Don in order to allow of the laying of heavier rails for the trolley cars. The Engineer will also be asked to consider the proposed extension of the street railway system in Roncesvalles avenue and Glen road.—It has been decided to advertise for tenders for the erection of buildings at the new rifle range and also for the sinking of a well. The buildings required include a caretaker's house, a shelter for the men and a storehouse for ammunition, the cost of which will be about \$5,000.—Building permits have been granted as follows: Geo. Gooderham, 14 story bk. stable, rear residence n. e. cor. St. George and Bloor streets, cost \$6,000; J. Wallace, 692 Euclid ave., pair s. d. 2 story and attic bk. dwellings, 437 and 479 Euclid ave., cost \$5,500; Wm. Hutchison, 27½ Seaton st., pair s. d. 2 story and attic bk. dwellings, 159 and 161 Sherbourne st., cost \$5,000; J. P. Clark, pair one story bk. and stone stores, 79 and 81 Queen st. w., cost \$5,000; Doty Engine Co., one story bk. foundry, Niagara st., near Bathurst st., cost \$5,000.—Messrs. Strickland & Symons, architects, 18 Toronto st., are about to let contracts for the new Albany Club building, having a frontage of 70 feet on Victoria street, and also for a new office building on the corner of Victoria and Adelaide streets. Both these buildings are to be of pressed brick and cut stone.

FIRES.

The residence of Mr. Thos. Hodgins, of Lyendinage, Ont., was destroyed by fire on the 24th ult.—A disastrous fire occurred at Mile End, a suburb of Montreal, last week, destroying the residence of the following persons: Rudolphe Reinhold, Nazaire Lord, Joseph St. Jean, Ferdinand Cliroux, Leandre Valliere, Andre Bernard, Hyacinthe St. Jaynes, Chas. Lebel, Geo. Hoyne and Mr. Mevard. The total loss is estimated at

\$10,000, the dwellings being all frame.—A fire occurred at Virden, Man., on Thursday last which destroyed the Grand Central Hotel, Virden Hotel, McDougall's implement warehouse, Higginbotham's, Wilcox's and Wyatt's stores and the C. P. Railway sheds.—Mr. Thos. Ecroyd's tannery, at St. Henri, Que., was totally destroyed by fire on the 29th ult., entailing a loss of \$50,000. The insurance was \$25,000.—Mr. H. Hempworth's woolen mill at Selkirk, Man., was destroyed by fire recently. The loss will be about \$3,000. No insurance.—The St. Croix cotton mill at Milltown, N. B., was destroyed by fire last week. Loss, from \$15,000 to \$20,000.—The Hensall House, at Hensall, Ont., owned and occupied by R. A. McIntyre, was burned on Saturday last. Loss, \$5,000; insurance \$3,000.

CONTRACTS AWARDED.

SMITH'S FALLS, ONT.—M. Ryan has the contract for enlarging and improving St. John's church, in this town. The price is in the neighborhood of \$13,000.

BRANTFORD, ONT.—The T. H. & B. Railway Company has let the contracts for the foundation and stonework of the new bridge to Mr. Wm. Gibson, of Beamsville.

CHATHAM, ONT.—Mr. John Piggott, of this town, has received the contract for supplying all the materials for the seven new railway stations on the extension of the Lake Erie and Detroit Railway between Leamington and Ridgetown.

TORONTO, ONT.—Mr. A. G. McIntyre has been awarded the contract for the galvanized iron work of the new Methodist church, Walkerville, also for the slating, felt roofing and galvanized iron work of three houses on Nassau street, this city.

OWEN SOUND, ONT.—Capt. John Simpson has secured the contract for the building of a fine new steamer for the North Shore Navigation Company, the cost of which is estimated at \$90,000. The contract for the new engines has not yet been awarded.

KINGSTON, ONT.—Tenders for alterations and additions to Mr. Hendry's residence have been awarded as follows:—Masonry, W. McCarney; carpentry, Messrs. McFarlane and Ackroyd; painting, Savage Bros.; plumbing and unsmithing, McKelvey & Birch.

PRESBOTT, ONT.—Messrs. Ross & Co., have been awarded the contract for furnishing the pews for the new Presbyterian church. The seating capacity will be 1000 and the pews will cost about \$1,000.—Messrs. Ward & Stelle have been awarded the contract for the improvements to be made to the Daniels Hotel.

VANCOUVER, B. C.—The tenders for the construction of the First Presbyterian Church have been opened, and the contract has been awarded to Messrs. Fraser Bros.—Mr. Horrobin has been awarded the contract for the erection of the brick and stone building to be erected by the Marquis of Queensberry on the site of the old St. Charles Hotel building.

TERMS OF ARCHITECTS' CERTIFICATES.

A curious case which turned upon the terms of an architect's certificate has been tried in Melbourne. The action was brought by a builder to recover the amount stated in a final certificate. In 1890 the plaintiff agreed to erect a house in St. Kilda, according to designs by Mr. Askew, architect, and to his satisfaction, for \$9,000. After the work was completed the builder applied for a final certificate, but the building owner at the same time sent in a protest against the granting of such a document on the ground that he had sundry claims to bring against the builder. The architect gave a certificate to the following effect:—"I hereby certify that the contractor is entitled to receive the sum of 660*l.* 19*s.* 10½*d.* as final payment of contract and extras in erecting residence at St. Kilda. This certificate is issued subject to any counterclaim you may have against him, this being the final instalment. At the same time the architect wrote to the builder saying:—"Herewith I forward you a certificate for 660*l.* 19*s.* 10½*d.* as final payment on account of contract and extras in erecting resi-

dence at St. Kilda. As owner has intimated to me that he has claim upon you for delay and other deductions and omissions than those in my statements of account dated July 16 and 28, the certificate is issued subject to his counterclaims, an account of which he will render to you direct without my intervention." The building owner declined to act on the certificate, and the action was brought to recover the sum named, together with 50*l.* 10*s.* for extras.

The defence brought forward was that the certificate was not valid within the meaning of the contract, inasmuch as it did not set forth that the work had been performed to the architect's satisfaction, that although it purported to be a final certificate, it could not be so, as it was issued subject to any counter-claim defendant might have against plaintiff; that it had been agreed that the contract price should be reduced by 85*l.*, upon certain parts of the plans and specifications being omitted, and that defendant was entitled to set off this amount against plaintiff's claim; and as to the extras claimed by plaintiff, that they had never been ordered, and that the work had never been done, or, if it had, it was part of the original contract. Defendant also claimed to set off against plaintiff's claim the sum of 96*l.*, being penalties for six weeks overtime, at 16*l.* per week, in finishing the work. A counter claim for 2,000*l.* damages was also preferred on the ground that the building had not been carried out according to plans and specification, and was therefore very much less valuable than it otherwise would have been. On behalf of plaintiff, it was replied that the certificate was a final one within the meaning of the contract, that the architect's satisfaction with the work, though not expressed in the document, must be implied from his issuing it as a final certificate, and that defendant was therefore debarred from going behind it to establish any counterclaim for overtime or defective work or material. It was further contended for plaintiff that all extras were ordered by either defendant or his architect, and that the contract time was exceeded on account of these extras and of the non-arrival of various fittings from England. It was held by Mr. Justice Williams that the certificate was a final one within the meaning of the contract and that defendant, by that fact, was precluded from pleading negligent or improper workmanship. He decided against defendant as regards penalties on the questions of both law and fact. A verdict was given for plaintiff for the final amount of the certificate, 660*l.* 19*s.* 10½*d.* with costs, but plaintiff's further claim for 50*l.* 10*s.* was disallowed, on the ground of both law and fact. There was a verdict for the defendant on the counterclaim for two small items, amounting to 42*l.* 5*s.* with costs. The judge said that there ought to have been no interference with the architect in the preparation of the certificate.

THE NEW EXPLOSIVE.

Herculite, says *Iron*, is the name of a new explosive, which, owing to its qualities of slow combustion and safety in handling, is claimed by its inventor, A. Pallé, to be superior to the best of the nitroglycerine compounds. It is yellowish-gray powder, and is said to be composed of sawdust, camphor, nitrate of potash and several other substances which are kept secret. Experiments conducted in a quarry with the new explosive showed that a shot could not be fired by sparks, flame or detonation. When burning, a flame similar to that of dynamite is produced which can only be extinguished with difficulty. In the tests, a small quantity of the powder was placed on a stone and struck with a hammer without explosion resulting. A half-pound charge of compound was inserted in a blast hole about four feet deep, which was then tamped with sand and earth, and the explosive was fired by means of a special igniter. The result was that a block of stone weighing 30 tons was displaced without being fractured. By the addition

of naphtha or ammonia to the ingredients of the power it can be made quick-burning. The price of herculite is stated to be only six cents per pound.

MUNICIPAL DEPARTMENT.

APPRECIATION OF "THE RECORD."

QUEBEC, Sept. 22, 1892.

Editor CANADIAN CONTRACT RECORD.

DEAR SIR,—Your CONTRACT RECORD is becoming very interesting and instructive. The article under the heading of "Municipal Department," on street grades and decisions of court therein, in a recent issue, is extremely important, and throws much light on a much debated question.

C. BAILLAIRÉ,
City Engineer.

EPIDEMICS OF TYPHOID FEVER.

It would appear that there has been too much haste in admitting that the spread of various epidemic diseases is due to germs in drinking-water exclusively. This very simple explanation is certainly seductive, but from time to time, facts related by observers whose competence is beyond dispute, appear to have been overlooked.

Among these contradictory observations, must be cited that by Mr. Arnould, of a grave epidemic of typhoid fever which originating in the garrison of Landrecies, on the 29th of January, 1891, broke out at Maubeuge in February, and on March 10th attacked the troops of Avesnes, where there were 370 cases and 35 deaths out of a force of 1,300 men.

It should be told that Mr. Arnould at first suspected the drinking-water of having engendered and diffused the malady. Yet the researches which were made on this theory, as well as the discussion of elements, brought into the question by the distribution of the cases observed, made it impossible for Mr. Arnould to maintain the accusation against the drinking water, which is so much the fashion at present.

On the one hand, the water of Landrecies, of recognized purity, is used in common by the soldiers and the townspeople, and among the latter there were but five cases of typhoid, while among the garrison there were sixty-three. Moreover, the practice of boiling the water, used from the beginning of the epidemic, was not discontinued. On the other hand, at Maubeuge, water from three different sources is used, yet among the inhabitants who drank the most suspected of these three, there was not a single case of typhoid. Finally, while at Avesnes the water was defective from all points of view, no one ever discovered in it the typical bacillus.

In the diffusion of the epidemic, the part played by man appeared considerable; either the sick persons or those coming from the seat of the disease contaminated healthy individuals by direct contact, or contagion was brought about by the intervention of clothes, food, air, or even water. Thus at Maubeuge, where there were 250 cases of typhoid fever, one physician and twelve hospital attendants out of fifty-five were attacked by the disease, when as yet but a single man of the garrison had been ill with it. Finally, there were some cases observed among those employed in the work of disinfection, and there were very clear proofs that the

MUNICIPAL ENGINEERS, CONTRACTORS, AND MATERIALS.

malady was carried to six neighboring localities by the intervention of third persons who were not taken ill themselves.

Be it understood that where there have been epidemics of typhoid fever in a garrison, it has always been recognized that an assisting cause of the disease, outside of defects of town hygiene, is the state of the atmosphere; but what appeared to demonstrate very clearly diffusion of the disease by the atmosphere is the fact that while the prophylaxis, based on the idea of a diffusion of the malady by germs contained in the water, was unsuccessful, the temporary abandonment of the seat of the disease by the troops, and the rigorous disinfection of places and objects were followed by the rapid and final distinction of the epidemic.—*Revue Scientifique.*

COUNTRY ROADS.

In the St. Thomas *Journal*, Mr. Geo. E. Casey, M. P., writes on the subject of country roads. We give his conclusions. In the first place there are certain principles of road making, on which, with proper advice, the municipal authorities should establish certain standards such a standard for main highways, such and such for side lines and concessions. Let the roads be made uniformly on these principles, not all finished at once, but all on the same plan as far as the money goes, "Commute" all statute labor as at present assessed on an uniform cash basis, adding what is now spent in grants. Let those who would rather work than pay cash hire their teams or themselves to the township and get some ready money in a slack season of the year. The pathmaster should make and mend like the section boss of a railway, guided by an uniform system of instructions and not by his own whim. He calls attention to the following among other advantages:—Roads should be so built that each year's work would bring them nearer to the standard established, whereas now it often makes them worse. They would be practically permanent when completed. When a road is once well made it takes a great deal of road-making to unmake it. Sometimes the roads badly need mending at seasons when it is not convenient to do road work. Under this plan they could be attended to without troubling the farmer. All this would involve no new cost unless, after trial, it was decided to incur it.

The durability of iron bridges is being investigated abroad, and the conclusions of the English and German experts seem to show that, under the most favorable circumstances, iron bridges are not safe for a period exceeding seventy-five years.

The York *Recorder* prints extracts from the Road Companies Act with the intent of showing that Reeve Humberstone of York township is right in disputing the authority of the County Council to grant street railway or other franchises over the roads within the township without first securing the consent of the Township Council. If this contention is held good the charters of the Metropolitan, the Mimico, the Junction and other electric railways running over country roads are valueless.

THOROLD CEMENT

WELLAND CANAL ENLARGEMENT,
RESIDENT ENGINEER'S OFFICE,
WELLAND, April 17th, 1884.

JOHN BATTLE, Esq., Thorold.
Dear Sir,—Yours of yesterday, relative to Thorold Hydraulic Cement, is received. In reply, I beg to say that my tests of the Thorold Hydraulic Cement have extended over a period of twenty-eight years, and have been on a large scale, as exemplified in the locks, bridges, culverts and other masonry on the Welland Canal and Welland Railway, and that the record, which has been invariably satisfactory, is to be found in examination of the structures. The necessary tearing down of masonry and concrete, during the Welland Canal Enlargement, has afforded abundant evidence of the reliability of the Thorold Hydraulic Cement, both in masonry and concrete, and above and under water. I desire no better cement for the class of work referred to.

I am, dear sir, yours truly,
W. G. THOMPSON,
Resident Engineer.

ISAAC USHER & SON,
THOROLD, ONT.
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Municipalities issuing debentures, no matter for what purpose, will find a ready purchaser by applying to
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PATENT CAST IRON GULLIES,
Vitrified Clay Sewers - Dust Bins - Sewer Pipe
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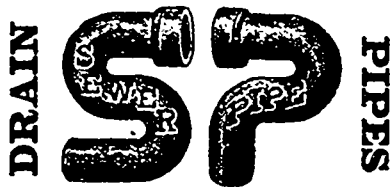
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We are prepared to do first-class work on WALKS, FLOORS, CELLAR BOTTOMS, &c., with ROCK ASPHALT, which is conceded to be the best for this class of work.

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For SEWERS, CULVERTS; also WATER
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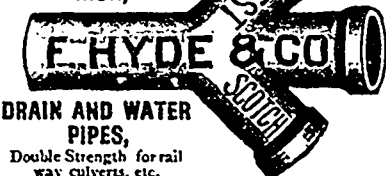
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Double Strength for rail
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Sever 1 1/2 tons or Invert Blocks, Cement.
Note.—Only pure SCOTCH unglazed Fire Clay
Linnings will be kept in stock; any other quality is
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Quotations promptly furnished.
Office: 31 Wellington St., Montreal.

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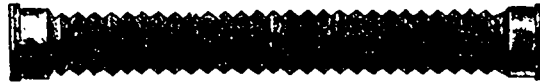
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Plans, Estimates and Specifications.
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CULVERTS,
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INVERTS
Fire Brick Sewers

Write for Discounts.

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MANUFACTURERS OF

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WORKS: LACHINE, QUE.

PRICES ON APPLICATION.

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Manufacturers of
Salt-Glazed,
Vitrified
SEWER
PIPES

Double Strength
Railway Cul-
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Inverts, Vents,

AND ALL KINDS OF FIRE CLAY GOODS.

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Architectural Ironwork a Specialty. Pleased to furnish estimates.

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Vitrified Terra Metallic Paving Brick

STABLE, COACH HOUSE, BOILER HOUSE, BREWERY FLOORS AND YARDS,
Also all places of heavy and light traffic.

The only Genuine Vitrified Brick. The best in the world for Sidewalks & Street Crossings
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Viaducts, Piers, Roofs, Turntables and Girders in Steel and Iron.

Tension members forged without welds. Riveting done by hydraulic or compressed air machines. Specialties: Good workmanship and strict adherence to specifications and drawings.

CAPACITY: 2,000 TONS PER ANNUM.

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Over 1000 Gulleys are now in use in the following towns: Montreal, Toronto, Ottawa, Quebec, St. Cune-ronde, St. Henri, Peterborough, Owen Sound, Sarnia, Cote St. Antoine, Sherbrooke, London, New Glasgow, N. S. A saving of \$22 on each gulley over the brick gulleys.



LEWIS SKAIFE, Engineer and Contractor,

New York Life Building, - MONTREAL. AGENT.

Prices of Building Materials.

LUMBER.

CAN OR CARGO LOTS.

Table with columns for Toronto and Montreal prices for various lumber types like clear picks, dressing, and shingles.

YARD QUOTATIONS.

Table listing yard quotations for mill cull boards, shipping cull boards, hemlock scantling, and various paint colors.

Toronto. Montreal.

Table listing prices for various building materials including planks, flooring, brick, and masonry.

SAND.

Table listing sand prices per load of 1/2 cubic yards.

STONE.

Table listing prices for various types of rubble and stone.

Art Woodwork.

Table listing prices for art woodwork.

Atabastine.

Table listing prices for atabastine.

Bellhanger.

Table listing prices for bellhanger.

Bricks (Pressed).

Table listing prices for pressed bricks.

Builders' Supplies.

Table listing prices for various builders' supplies.

Building Stone.

Table listing prices for building stone.

PAINTS. (In oil, 1/2 lb.)

Table listing prices for various paint colors.

Roofing (per square).

Table listing prices for different types of roofing.

Builders' Hard-ware.

Table listing prices for various hardware items.

Creosote Stains.

Table listing prices for creosote stains.

Toronto. Montreal.

Table listing prices for various oils and putty.

CEMENT, LIMES, etc.

Table listing prices for various types of cement and lime.

HAIRWARE.

Table listing prices for hairware.

CUT NAILS, PRICE AND CUT SPIKES.

Table listing prices for cut nails and spikes.

INDEX TO ADVERTISEMENTS

In the "Canadian Architect and Builder."

Large index table listing various contractors, suppliers, and services under categories like Architects, Cements, Galvanized Iron, etc.