

# CANADIAN Contract Record

*A Weekly Journal of Public Works, Tenders,  
Advance Information and Municipal Progress*

This Paper Reaches Every Week the Town and City Clerks, Town and City Engineers, County Clerks and County Engineers, Purchasers of Municipal Debentures and Leading Contractors in All Lines Throughout Canada

VOL. 15.

TORONTO, MONTREAL AND WINNIPEG, AUGUST 24, 1904

No. 28.

## THE CANADIAN CONTRACT RECORD

**PUBLISHED EVERY WEDNESDAY**  
As an Intermediate Edition of the Canadian Architect and Builder.  
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**THE C. H. MORTIMER PUBLISHING COMPANY**  
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## WATERWORKS CONSTRUCTION

Town of East Toronto, Ontario

Sealed tenders will be received by the undersigned until 8 p.m., MONDAY, AUGUST 29th, 1904, for furnishing all material and labor in constructing the following:

**Section A—Force and Supply Main**  
5,220 feet of 12 inch Cast Iron Pipe, 1,750 feet of 10 inch Cast Iron Pipe, also all necessary Valves, Valve Boxes, Chambers and special Castings, etc.

**Section B—Intake Pipe and Pump Well**  
1,500 feet of 12 inch Cast Iron Pipe, also all necessary Flexible Joints, Valves, Steel Pump Well and Sided Intake screen.

Plans and specifications may be seen and tender forms obtained from the undersigned, or at the head office of John Galt, C.E. & M.E., Chief Engineer, Toronto. A certified bank cheque for \$1,000 must accompany each tender.

W. H. CLAY, Clerk,  
Town of East Toronto, Ont.

## Sewer Construction

PALMERSTON, ONT.

Sealed tenders will be received by the undersigned until MONDAY, 8 p.m., 29th AUGUST, 1904, for furnishing all materials and labor in constructing the following sewer system:

1,000 feet of 20 inch Pipe Sewer,  
9,700 feet of 16 inch Pipe Sewer,  
6,375 feet of 15 inch Pipe Sewer,  
644 feet of 12 inch Pipe Sewer,  
600 feet of 10 inch Pipe Sewer,  
500 feet of 8 inch Pipe Sewer.

Plans and specifications may be seen and tender forms obtained at Palmerston or at the head office of the Chief Engineer, JOHN GALT, C.E. & M.E., Toronto. A certified bank cheque for \$500 must accompany each tender.

H. HYNDMAN, Jr., Clerk,  
Palmerston, Ont.

## TENDERS

Tenders will be received by the undersigned until WEDNESDAY, AUGUST 31st, 1904, for the construction of 56,000 feet Cement sidewalk and 3,000 feet Curb. Plans, specifications and instructions to bidders and all other necessary information can be obtained by applying to the Town Clerk. The lowest or any tender not necessarily accepted.

THOS. I. TRUEMAN,  
Clerk of Midland, Ont.

## TENDERS

Tenders will be received by the undersigned up to NOVEMBER 1st, 1904, for the construction of a System of Waterworks and sewerage for the Town of Summerside, P.E.I., according to plans and specification made by Mr. R. C. Lea, C.E., of Montreal. Plans and specifications may be seen at the Town Clerk's office, Summerside. The lowest or any tender not necessarily accepted.

H. J. MASSY, Town Clerk,  
Town of Summerside, P.E.I., Aug. 10, 1904.

## Bridge Tenders

Sealed tenders are requested by the Corporation of the County of Hastings, addressed to me, up to MONDAY NOON, 12th SEPTEMBER, 1904, with plan, strain sheets and specifications for a steel overhead truss highway bridge, to be erected upon abutments and piers at the site of O'Brien bridge, about eight miles north of Belleville.

Four Span Bridge:  
South Span, 101 1/2 feet long from pin to pin.  
Next " 70' 8" " " "  
Next " 70' 8" " " "  
North " 107 feet " " "

Roadway 16 feet wide in the clear; steel joists and cement and expansion metal floor; bridge to carry moving load of 120 pounds to each square foot of floor.

The piers and abutments will be up by first October.  
The steel structure and floor to be finished by 15th November, 1904.

Conditions of payment to be stated in tender. The lowest or any tender not necessarily accepted.

WM. R. AYLA WORTH, County Clerk,  
Belleville, Ont.,  
August 19th, 1904.

## CONTRACTS OPEN.

WHITBY, ONT.—R. M. Saxby intends building a new residence.

GRANBY, QUE.—Palmer Cox is having plans prepared for a fine residence.

HUNTSVILLE, ONT.—W. Dupere will erect a brick residence on Main street.

MAGOOO, QUE.—Lewis Archambault intends building a brick residence next spring.

ST. JOHN, N. B.—The McLean Oil Company intend building a large storage warehouse.

SYDNEY MINES, N. S.—Excavations are being made for a new Anglican church on Clyde Ave.

BROOKDALE, M. N.—Tenders

have been taken by F. G. C. Seymour for erection of a school house.

BRADFORD, ONT.—A deputation will ask the Dominion Government to construct a new wharf here.

HARROW, ONT.—T. B. Adams will receive tenders up to 31st inst. for building a new Anglican church.

FREDERICTON, N. B.—An engineer has been engaged to report fully on a water supply for the town.

OWEN SOUND, ONT.—Mr. Chandler, who purchased the C. P. R. elevator here, will likely build a corn mill in town.

CARLETON PLACE, ONT.—There is a probability of the old Caldwell saw mill being converted into a stove factory.

WINDSOR, ONT.—The Co-Operative Telephone Co., of Detroit, are seeking a telephone franchise from this town.

STRATHROY, ONT.—D. B. Campbell wants tenders for 40 miles of wire fencing on the Guelph & Gaderich Railway.

JORDAN, ONT.—M. A. Ball, Township Clerk, has just taken tenders for the construction of granolithic walks in this village.

DUNGANNON, ONT.—J. M. Roberts has just taken tenders for the construction of 3,960 square feet of concrete walks.

EAST TORONTO, ONT.—It is now stated that the Globe Furniture Co., of Walkerville, will not build a factory in this village.

ST. GEORGE, N. B.—Tenders for building a Baptist church in this town will be received by John Dewar & Sons up to September 1st.

NIAGARA FALLS, ONT.—The Council have decided to issue \$15,000 bonds for the purpose of improving the electric light plant.

WELCOME, ONT.—Mr. Dickinson will receive tenders up to October 1st for erection of a brick school house for School Section No. 9, Hope.

COLLINGWOOD, ONT.—P. C. Pain, architect, desires tenders by 27th inst. for alterations and additions to the Presbyterian Sunday school.

HALIFAX, N. S.—Herbert E. Gates, architect, has completed plans for a cold storage building to be built here by the Canso Cold Storage Company.

WINGHAM, ONT.—The Grand Trunk Railway have arranged for the building of a new depot here, and it is said the C.P.R. will build also.

PORT STANLEY, ONT.—It is understood that government engineers will shortly make surveys for a breakwater to be constructed here.

STRATFORD, ONT.—W. J. Ire-

land has completed plans and let contracts for a red brick residence on Downie street south for James Player.

**ST. CATHARINES, ONT.**—W. B. Allan, architect, is taking tenders for the brick and carpenter work of buildings to be erected for the J. Ross, Sons & Co.

**ST. JOHNS, QUE.**—Philip Sidney, architect of the Singer Sewing Machine Co., has arrived in town to superintend the erection of their new buildings here.

**NORTH TORONTO, ONT.**—Frank Williams has purchased 100 feet of property on the north side of Murton street, on which he will build a couple of residences.

**BRIDGEWATER, N. S.**—The Davison Lumber Co. have completed surveys for their logging railroad and will let the contract at once; length, 25 miles.

**YORKTON, N. W. T.**—The Hudson's Bay Co. contemplate expending several thousand dollars for the enlargement and improvement of their stores here.

**EXETER, ONT.**—The ratepayers are considering a proposition to loan \$5,000 to A. J. Gauld, of Cleveland, to establish a factory here for the manufacture of tacks.

**MONTMORENCY, QUE.**—W. St. Pierre, secretary of municipality, desires bids by 27th inst. for a loan of \$25,000 issued for construction of waterworks and drainage systems.

**LOUISE BRIDGE, MAN.**—G. T. Hoyes, Secretary-Treasurer of the municipality, will receive offers up to September 3rd for purchase of 20 debentures to the amount of \$8,500.

**RENFREW, ONT.**—Tenders for the construction of a skating rink will be received by W. A. Mackay up to Saturday, 27th inst.—The Renfrew Milling Co. intend building a new dam.

**DELHI, ONT.**—H. Crysler will receive tenders up to 29th inst. for construction of 2,500 square feet of cement walk and for building a water tank with a capacity of 100 barrels.

**WIARTON, ONT.**—Negotiations are under way looking to the remodeling of the electric light plant with a view to giving a better service. The plant may be acquired by the town.

**SANDRINGHAM, ONT.**—R. C. McGregor, Clerk Township of Roxborough, will receive tenders up to September 1st for constructing a drain on Lot 1, Concession 10, Roxborough; estimated cost, \$1,562.

**GRAND VALLEY, ONT.**—Bids will be received by William McIntyre, Clerk Township of East Luther, up to September 1st, for purchase of \$182.90 4 year, \$362.01 8 year, and \$1,872.91 10 year debentures.

**PETERBORO, ONT.**—Work has just been commenced on the foundation of a flour mill, 96 x 400 feet, 3½ stories, to be built on the Otonabee river, the promoter of which is W. H. Meldrum, who also proposes to build a cereal mill of the same size and an elevator 46 feet square.

**FORT FRANCES, ONT.**—W. W. Sloan has purchased the property between the English and Presbyterian churches on which he will build a residence.—Contractors are figuring on the power dam to be built here.—George A. Stethan is about to build a new house.

**FORT WILLIAM, ONT.**—Architect Stinson has completed plans for several houses to be built here by H. J. Tharle, of Buffalo.—The Town Clerk is this week taking tenders for construction of a 10-foot granolithic sidewalk on Simpson street.—J. C. Stinson, architect, desires tenders by 27th inst. for erection of a residence for R. Strachan.

**MOYIE, B. C.**—R. E. Kinsey has decided to develop a water power at Lamb Creek and install a plant to generate electricity for lighting the village; estimated cost, \$18,000.—A new Catholic church will be built on Travistock street, 70 x 28 feet, cost \$3,000. The Methodist congregation have also decided to build.

**CALGARY, N. W. T.**—H. E. Gillies, City Clerk, desires tenders by 30th inst. for laying about 12,000 lineal feet of tile sewers. Plans at office of F. W. Thorold, City Engineer.—The directors of the Alberta Condensed Milk & Cream Co. will commence the erection of buildings at an early date.

**MONTREAL, QUE.**—The Market Committee have approved of plans for a new stable at the East End Cattle Market.—The Polytechnic School have asked for a roadway in front of that institution and on the two sides of St. James square leading to St. Denis street, cost \$1,200.

**VICTORIA, B. C.**—The contract for the excavation for the C. P. R. hotel will probably be let this week.—Permanent sidewalks are to be constructed on Pandora avenue, Birdcage walk, Superior street, Hillside avenue, Quebec street, King's road, Packington street, Douglas street, Pemberton road, and Montreal street, at a cost of \$18,470.

**NEW WESTMINSTER, B. C.**—The New Westminster & Burrard Inlet Telephone Co. are figuring on the laying of cable between Vancouver and Victoria.—The British Columbia Electric Railway Company have decided to rebuild their car shops in this city at once.—The Dominion Government will commence work immediately on the construction of a fish hatchery on Harrison Lake.

**BUCKINGHAM, QUE.**—The Estate of the late James MacLaren purpose carrying out a scheme for the conservation of water so as to have a sufficient supply for the operation of their mills the year round. It is proposed to construct several dams at the outlet of the lakes on the Upper Lievre river.—McCalum & Labale have purchased a site on which they will build a new store.

**VANCOUVER, B. C.**—The Council of North Vancouver are taking tenders for clearing the waterworks pipe line from Lynn creek to Lonsdale avenue.—The City Engineer states that about \$100,000 is required for waterworks purposes, as another pipe across the Narrows is necessary.—The First Baptist church congregation have purchased a site for a new church at corner of Burrard and Nelson street.—Work will be commenced early in September on a new Y.M.C.A. building.

**BRANTFORD, ONT.**—The Board of Works will shortly take up the question of storm drainage for the entire city.—The Council have given notice of their intention to construct asphalt block or vitrified brick pavements on the following streets: Colborne street, from Market street to Lorne bridge; Dalhousie street, from Market street to King street; George street, from Darling street to Wellington street. The total cost for asphalt blocks will be about \$48,000, and for vitrified brick \$32,000.

**SYDNEY, N. S.**—The Dominion Tar & Chemical Co. are considering the erection of a plant here for the creosoting of timber.—The Cape Breton Coal, Iron & Railway Co., composed largely of English capitalists, has been organized. It is proposed to operate mines situated between Sydney and Mira Bay, where a modern and expensive plant will be erected. Thomas Lancaster, of this place, is manager of the company.—The Board of Trade have instructed the secretary to ascertain the probable cost

of installing an electric and gas lighting plant for this town.

**QUEBEC, QUE.**—It is stated that the Quebec Electric Co. purpose constructing an electric railway from St. Anne to Murray Bay.—J. G. Scott, manager of the Quebec and Lake St. John Railway, announces that he has succeeded in making final arrangements for the immediate construction of a branch line of railway to the headwaters of the St. Maurice river at La Tuque.—The directors of the Montmorency Cotton Co. have decided to erect a bleaching plant in connection with their mills at Montmorency Falls; brick, 100x70 feet.

**HAMILTON, ONT.**—The Board of Governors of the City Hospital have decided to build another addition.—The Ontario Pipe Line Co., whose head office is at St. Catharines, have applied to the city for a franchise to use the streets for laying pipes for the distribution of gas. The company have natural gas wells at Grimsby.—The City Clerk wants tenders by noon to-day (Wednesday) for supply of brick, sand and castings required for one year.—F. J. Rastrick has been granted a building permit for a \$2,000 store for Mrs. Dafoe on Barton street.

**OTTAWA, ONT.**—The Oddfellows Society are considering the question of erecting a building of their own.—It has been decided to build the new Royal Mint building at the corner of Cathcart and Sussex streets. Tenders for the construction of this building, as well as the National Museum and Archives building, will shortly be invited.—The W. McArthur Estate have sold four lots in Janeville to local parties for the erection of small houses.—F. Gourdeau, Deputy Minister of Marine and Fisheries, will receive tenders up to 27th inst. for construction of a steel and concrete beacon at Beaujeau Bank, south of Crane island, in the St. Lawrence river.

**SARNIA, ONT.**—The Grand Trunk Railway have decided upon plans to employ electric power to operate the trains through the tunnel here. The plans call for the three-rail system, and the cost is figured at \$400,000.—Alex. Kelly has purchased the Moore property on Davis street and will build a residence thereon.—Thomas Grace and Albert Hodgkins contemplate building several dwellings on Wellington street.—William Virgo, of Watford, will build a modern dwelling on south side of Davis street.—The Baptist church congregation intend erecting a mission chapel on east side of Napier street.—Charles Sweet, builder, is about to erect three modern dwelling houses on west side of Mitton street.

**WINNIPEG, MAN.**—James Chisholm, architect, is asking for tenders by 27th inst. for erection of a brick stable for the Manitoba Cartage Co.—V. W. Horwood, architect, is this week taking tenders for erection of a residence for James Colclough.—Tenders have just been taken by J. H. G. Russell, architect, for a brick warehouse on Adelaide street, and by A. & W. Melville for additions and alterations to the Oriental Hotel for A. W. Reidle.—It is reported that the Bank of Montreal have secured an option on the Queen's Hotel with a view to erecting a new banking building on the site.—Joseph Greenfield, architect, has taken tenders on a large warehouse on Logan street west for A. Carruthers & Co.—D. Smith, architect, has prepared plans for a brick and stone block, 4 stories and basement, to be built on Garry street for Bardill Bros. The ground floor will consist of stores and the three upper floors of residence suites.—John E. Agnew, Provincial Treasurer, will receive bids up to September 10th for the purchase of \$40,000 of debentures of the Southern Judicial District.

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**MONTREAL, P. Q.**

TORONTO, ONT. — The property known as the Commercial Buildings, 65 and 67 Yonge street, has been purchased by the Traders Bank, who will next spring erect a new building on the site.— P. E. Ryan, Secretary Temiskaming & Northern Ontario Railway Commission, is asking for tenders by Friday, September 2nd, for the construction of stations at Temagami, Haileybury and New Liskeard. Plans on application at the office of the Chief Engineer, North Bay.—Symons & Rae, architects, are about to let contracts for a warehouse on Wellington street west.—Tenders are wanted at 214 Oak street to build two rough-cast houses.—The Yonge Street Mission will build a \$10,000 structure on Yonge street, nearly opposite Walton street, plans for which have been prepared by G. M. Miller, architect.—The City Engineer is preparing plans for the proposed breakwater for the protection of the Lake Shore road. He proposes a concrete wall with foundations sunk 4 feet in the sand.—It is rumoured that George Graham, of the Iroquois Hotel, is behind a project to acquire the property west of that hotel and extending to the Princess Theatre for the purpose of building thereon a large modern hotel.—Property owners on Blecker street, from Wellesley to Howard, have petitioned for a bitulithic pavement on that street.—Building permits have been granted as follows: Jas. H. Wickett, one pair and three attached one storey and mansard dwellings, brick fronts, north side Sackville street, near Bowman street, cost \$4,200; S. J. Graydon, 2 storey and attic stone and brick dwelling, Spadina ave., near Bernard, cost \$5,000; John Foley, pair semi-detached 2½-storey dwellings, cement, brick and rough-cast, 40 and 42 Brooklyn avenue, \$2,500; G. T. Graham, pair semi-detached two storey and attic stone and brick dwellings, east side of Wilson avenue, \$4,500; R. E. Kennerer, two pair semi-detached two storey brick dwellings, 35 to 41 Simpson avenue, \$4,800; George Kellam, two-storey dwelling, roughcast, brick foundation, Palmerston avenue, near London street, \$2,600; Wm. Williamson, pair semi-detached two-storey and attic brick dwellings, Adelaide street west, near Brant street, \$3,800; George Wellings, two-storey brick factory, south side Richmond street, near Church street, \$2,000; M. A. Marshall, pair semi-detached two-storey and attic brick dwellings, concrete foundation, Montrose avenue, \$4,500; Vokes Foundry and Steel Co., one-storey

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A. G. C. DINNICK, Managing Director  
A. M. WICKENS, Chief Engineer

foundry, timber covered with galvanized iron, corner Jarvis and Esplanade, \$3,000; John A. Walker, pair semi-detached two-storey and attic brick dwellings, west side Beatrice street, near Arthur street, \$4,000.

FIRES.

Planing mill of McEachren & Cumming, Brandon, Man; loss \$2,500.—Sash and door factory of Ronald Gillis, Sydney, N. S., damaged to extent of \$5,000.—Queen City Curling Rink, corner Church and Hayden streets, Toronto, totally destroyed; loss \$20,000.—Q.C.R. station at Back Lake, Que.—General store of Harley Bros. and hardware store of Cheney Bros. at Lyleton, Man.—Car works of the British Columbia Electric Railway Co., New Westminster, B. C., damaged to extent of \$25,000, covered by insurance.

CONTRACTS AWARDED.

CALEDONIA, ONT.—Residence for Dr. Morrow Mr. Cook, contractor.  
SYDNEY, N.S.—Addition to Brookland hos. A. D. Falconer, contractor.  
KINGSTON, ONT.—Enlargement of dairy school: McKelvey & Birch, contractors, \$6,900.  
NORTH BAY, ONT.—Enlargement of Registry office: W. A. Martyn, contractor, \$2,000.  
AMHERSTBURG, ONT.—Residence for J. J. Ryan: James Wilderspin, contractor.  
GUELPH, ONT.—\$30,000 sewerage debentures: Aemilius Jarvis & Co., Toronto, purchasers.

PERTH, ONT.—Hunter drain debentures: William C. Brent, Toronto, purchaser, \$1,756.

FORT FRANCES, ONT.—New Presbyterian church: George Lucas, contractor, cost about \$4,000.

LONDON, ONT.—New G. T. R. round house: John Hayman & Sons, successful tenderers, \$50,000.

INGERSOLL, ONT.—Stone and concrete bridge at Canterbury street: John Radford, successful tenderer.

WIARTON, ONT.—Decoration of interior of Methodist church: F. McQueen, of Chesley, successful tenderer.

FREDERICTON, N. B.—Gymnasium building for the University of New Brunswick: John Maxwell, contractor.

VICTORIA, B.C.—Large residence on Charles street for G. A. Kirk: F. M. Rattenbury, architect; Calder & Mason, contractors.

MOOSE JAW, N.W.T.—Erection of new city hall and power house: Dennis & Co., of Minot, N.D., successful tenderers, \$41,260.

CALABOGIE, B. C.—Superstructure of second bridge over the Madawaska river: Dickson Bros., of Campbellford, successful tenderers.

WINCHESTER, ONT.—Construction of 8th Concession and Castore extension drains: Frank Elliott, of Morewood, contractor, \$12,650.

STRATHROY, ONT.—D. B. Campbell, of this place, has secured the contract for 4 sections of the new C. P. R. line from Guelph to Goderich.

LEVIS, QUE.—The Provincial Bank having purchased the waterworks debentures, the construction of the system will

now be proceeded with. Dussault & Power are the contractors.

WINNIPEG, MAN.—Laying underground water pipes for new C.P.R. shops in this city: Lessard & Harris, Montreal, contractors, price \$40,000.

OTTAWA, ONT.—The Separate School Board have accepted the tender of Caisse D'Economie of Quebec for purchase of \$100,000 of 30 year debentures.

CORNWALL, ONT.—Machine shop at foot of Cornwall canal for the Dominion Government: James C. Johnstone, of this town, contractor. Building will be brick and steel, 92x47 feet.

CHATHAM, ONT.—Residence for Thomas Campbell: A. M. Piper, architect; Blonde Lumber Co., contractors.—Brick block and grain elevator for S. Glenn: Blonde Lumber Co., contractors.

WINGHAM, ONT.—Post office building: J. A. Cooper, of Clinton, successful tenderer.—Zeland, Stanlake and Black Creek bridges: Superstructure, Hunter Bridge Co., Kincardine; abutments of Zeland bridge, W. Barber; abutments of other bridges, Naegle & Looby.

ST. CATHARINES, ONT.—For \$96,000 4 per cent. debentures tenders were received as follows: Dominion Securities Corporation, Toronto, \$90,254 (accepted); Jarvis & Co., Toronto, \$89,775; Bank of Hamilton, 93.50 for the waterworks, Ross and Bridge bonds and 91.85 for the sewer bonds; Montreal City Savings Bank, \$28,100 for \$30,000 sewer bonds and \$18,750 for \$20,000 waterworks bonds.

GALT, ONT.—The tender of Mr. McLaughlin, of Ottawa, has been accepted for Sections 1 and 4 of the sewerage system, his tender being \$14,401.09 for

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Section 1 and \$4,372.51 for Section 4. The only other tender was Mr. Hartnett, of Toronto. The contract for Sections 2 and 3 has not been awarded, owing to the tenders being considerably in excess of the engineer's estimate.—Scott & Hogg have secured the contract to supply about 1,000 barrels of cement for the new steel bridge over the Grand river.

**SARNIA, ONT.**—For construction of brick pavement, tenders were received by the town as follows: Ross & Simpson, \$2.35 7/8 per square yard for pavement, 52 cents per foot for curb; Wm. Elis, (two classes of brick), \$2.42 and \$2.50 for pavement, 60 cents per foot for curb; A. J. Murphy, Port Huron, \$1.95 for pavement, and 60c. for curb (accepted); Corrick & Son, \$2.47 for pavement, and 56c. for curb; G. S. Germain & Co., Port Huron, \$1.85 for pavement, and 60c. for curb, excavation 27c. per cubic yd.; Walter Clark (two classes of brick), \$2.70 and \$2.75 for pavement, and 35c. for curb.

**MONTREAL, QUE.**—Three boilers for waterworks purposes: John McDougall Caledonian Iron Works Co., successful tenderers, \$15,350.—Mr. Brown, architect, has awarded contracts as follows for a warehouse on St. James street, west of Victoria square, for H. Hellert & Sons, wholesale clothiers: Stone and brick, George W. T. Nicholson & Co.; steel work, Dominion Bridge Company; carpenter, D. M. Long; plumbing, J. W. Hughes & Son; plastering, John McLean; painting, John Murphy & Son; cement work, J. S. Cuthbertson; roofing, F. F. Powell & Co. The building will be 5 stories, of steel and Laprairie pressed brick, equipped with sprinkler system and other modern improvements. The staircase will be encased in brick and the offices on the ground floor will be finished in oak.

**TORONTO, ONT.**—The Consumers' Gas Co. have awarded a contract for a gas tank of 3,000,000 cubic feet capacity to C. & W. Walker, Limited, Midland Iron Works, England.—The Board of Control last week awarded contracts as follows: Concrete sidewalks—King street, north, Power to Sackville, 13 cents per square foot; Woodlawn, both sides, Yonge to 1,331 feet west, \$1.03 per lineal foot, to the Warren Bituminous Company. Wilson ave., north, Jarvis to Mutual, 75 cents; Richmond street, Victoria to 126 feet west of Church street, \$2.33, A. Gardner Company. King street, south, Bathurst to Niagara, 80 cents, R. A. Rogers & Co. King street, south, John to 333 feet east, 18c.; Kendall ave., east, Bernard to 150 feet south of Dupont, \$1.12; Kendall ave., west, Bernard to Wells, \$1.12; Margueretta, east, Dundas to College, 56 cents; Spadina ave., west, St. Patrick to 200 feet north, 84 cents, City Engineer. Summerhill ave.,

north, Yonge street to 1,115 feet east, 80 cents, to the Constructing & Paving Co. St. Patrick street, east, Spadina to Esther, 82 cents, Crescent Constructing Company. Alice street, both sides, Yonge to Teraulay, 67 cents, to the Crescent Constructing Company. Gilead place and Coatsworth place, east, King street to Eastern ave., 40 cents, Godson Contracting Company. Bitulithic pavement—Walker ave., Yonge street to western terminus, \$6,980, City Engineer. Tar macadam pavement—Tiverton ave., First ave. to 743 feet south, \$2,690, Godson Contracting Company.

#### BIDS.

**GALT, ONT.**—Three tenders were received by the North Dumfries Council for construction of abutments for bridge, but the contract was not awarded at last meeting.

**OTTAWA, ONT.**—The Separate School Board have sent back the three contracts for new schools to the Building Committee for reconsideration.

**NIAGARA FALLS, ONT.**—Tenders for construction of south end sewers were received by the City Council as follows: Sheppard & Co., Sec. 11, \$13,100 and \$4 for rock excavation; Sec. 12, \$16,300 and \$3; Sec. 13, \$11,300 and \$3; Sec. 14, \$10,000 and \$3. Stewart & Langley, Sec. 11, \$16,446.95; Sec. 12, \$16,736.34; Sec. 13, \$9,092.62; Sec. 14, \$8,733.44, and \$3 for rock in each—or \$48,500 awarded all four. John O'Leary, Ottawa, Sec. 11, \$12,500 and \$3; Sec. 12, \$18,400 and \$3; Sec. 13, \$12,650 and \$3; Sec. 14, \$9,980 and \$5. Fraser & Ward, Sec. 11, \$16,208 and \$4.25, and Sec. 13, \$14,919 and \$2.25. Barry & McMorris, Sec. 11, \$14,000 and \$4.50; Sec. 12, \$16,000 and \$10; Sec. 13, \$13,800 and \$10; Sec. 14, \$9,850 and \$10. Peter Lorenz, Sec. 13 only, \$11,012.35 and \$3. The lowest tender in each case will likely be accepted.

#### NEW COMPANIES.

Williams Quarry Company, Limited, Winnipeg, Man., incorporated, capital \$100,000. Alexander Davidson, contractor, John Dolmer, contractor, Joseph William, manager, and others, of Winnipeg.

Western Cordage Company, London, Ont., incorporated, capital \$300,000. Directors, D. J. Cowan, T. H. Pardom, John Geary, William Pickard, and others.

International Roller Bearing Company,

Limited, Victoria, B. C., incorporated, capital \$125,000, to acquire the patent rights for roller bearings granted to John Kincaid.

British Columbia Box Company, Limited, Vancouver, B. C., incorporated, capital \$25,000.

McLachlan Bros., Limited, incorporated, capital \$25,000, to acquire the hardware business now carried on at Vancouver, B. C., by McLachlan Bros.

The Southern Light and Power Company, Limited, Toronto, incorporated, capital \$300,000; directors, F. J. A. Davidson, C. A. Stone, and D. A. Dixon.

#### BUILDING STRIKE IN TORONTO.

No material change has taken place in the strike of builders' laborers in Toronto. A few of the contractors are said to have conceded to the demands of the laborers, but the Secretary of the Builders' Exchange states that perfect harmony exists among the builders and that no disposition is shown to pay the higher wages demanded. It is claimed by the builders that the supply of brick was running short and that the present cessation of work will enable the brickmakers to accumulate a supply to keep things going steadily when work is resumed. Nevertheless, the strike is seriously interfering with building operations, and the situation is felt all the more keenly on account of the pressing demand for both business premises and dwellings.

The largest concrete chimney in the world has just been completed at Bellevue for the Burt Portland Company's plant now in course of construction. The chimney is 182 feet in height, with an inside diameter of eight feet, and is built entirely of sand and Portland cement, reinforced with steel bars. The chimney is a single piece from top to bottom and weighs 390 tons.

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**PALMERSTON BOULEVARDE, AVENUE ROAD AND WALKER AVENUE, TORONTO,** are now being paved with the Bitulithic pavement. Petitions have been presented from Woodlawn Avenue, Blecker, Gerrard and other streets for this pavement. Investigate it before deciding on other kinds. Estimates furnished by

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IRA G. HEDRICK, Mem. Can. Soc. C. E. Mem. Inst. C. E. Mem. Am. Soc. C. E.

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Montreal Office: 185 St. James Street.

## BUSINESS NOTES.

James Moran, contractor, London, Ont., died last week.

Charles Hermas, plumber, Charlottetown, P.E.I., is dead.

F. Morrison, plumber, Winnipeg, has removed to St. Boniface, Man.

Gratton & Tellier, plumbers, etc., St. Henri, Montreal, have dissolved.

Vachon & Guay, painters, Quebec, Que., have dissolved partnership.

Hyman Sapery has incorporated the Montreal Copper Company, Montreal.

The Williams Quarry Company, Limited, has been incorporated at Winnipeg, Man.

W. F. Lawrence has sold his lumber business at Maple Creek, N. W. T., to A. A. Menely.

L. E. Asselin and Alphonse Lacombe have started business in Montreal as painters, under the name of Asselin & Lacombe.

The Canadian Casualty & Boiler Insurance Company, of Toronto, have opened an office in Winnipeg, in charge of W. O. Tassie.

A Pittsburg report states that the United States Steel Corporation has put into effect a cut ranging from \$6 to \$12 a ton in the price of wire products.

Cement prices in Montreal are slightly lower, due to the weakening of the European market. English brands are quoted at \$2 to \$2.10, and Belgian at \$1.70 to \$2.10 per barrel.

Rapid progress is being made with the construction of the new cement works at Saarich Arm, B. C., the promoter of which is R. P. Butchart, of Owen Sound, Ont. The Victoria Machinery Depot, of Victoria, B. C., are supplying three large boilers for the plant.

Owing to the death of Mr. Alexander Gartshore, a re-organization of the Gartshore-Thomson Pipe & Foundry Company, of Hamilton, Ont., has taken place, the officers now being: President, James Thomson; vice-president, J. G. Allan; secretary, J. A. Thomson; treasurer, John Gartshore.

A number of the leading slate producing firms in Vermont and Northern New York have entered into an agreement to limit the production of roofing slate to 300,000 squares annually for the next five years. The production will be controlled by the American Pea Green Slate Company, incorporated under New York laws, with a capital of \$150,000.

The Galt Art Metal Company, Limited, Galt, Ont., have commenced the manufacture of a complete line of sheet metal building material, such as metal ceilings, sidings, roofing, and everything in the line of interior and exterior sheet metal work and decoration. The officers of the company are: President, D. Spiers; vice-president, Hugh McCulloch, jr.; secretary-treasurer and managing director, F. H. Hayhurst.

Thomas S. Rubidge, one of the most eminent civil engineers of Canada, died at Cornwall, Ont., a few days ago. His professional career was about as follows: 1844-48, on engineering staff Williamsburg Canals, and resident engineer at Iroquois; 1852-60, engineering staff Grand Trunk Railway, in charge of surveys and

construction between Cornwall and Prescott; 1860-63, engineering staff Board of Works in charge of harbor and other surveys in Ontario; 1865-72, Intercolonial Railway surveys and construction in New Brunswick and Nova Scotia; 1872-82, St. Lawrence Canals, engineer in charge of surveys for a 14-foot navigation, Lake St. Francis to Kingston; 1881-88, superintending engineer in charge of Trent Canal's surveys and construction; 1888-1904, superintending engineer St. Lawrence Canals, for 14-foot navigation, including intermediate river reaches. It was, however, as an hydraulic engineer that Mr. Rubidge was best known, and it was the improvement of the navigation of the River St. Lawrence, between Montreal and Kingston, to which his great experience and ability were principally directed.

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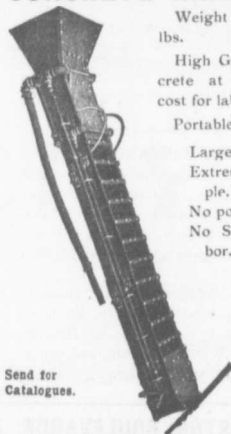
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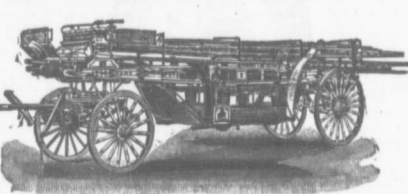
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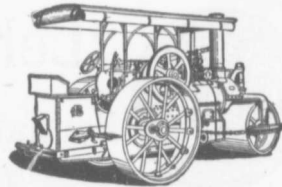
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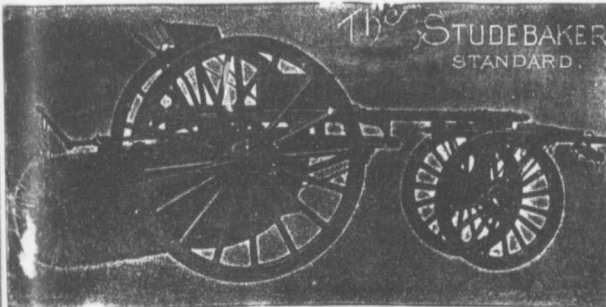
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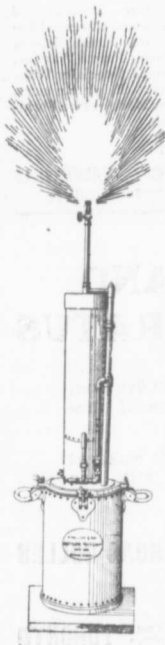
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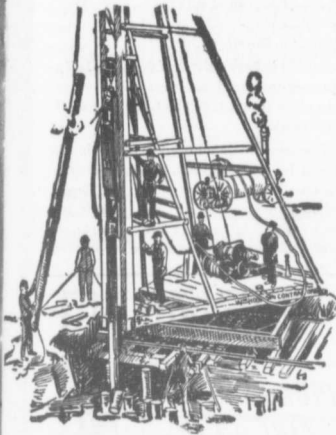
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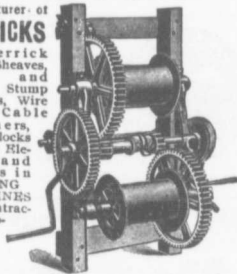
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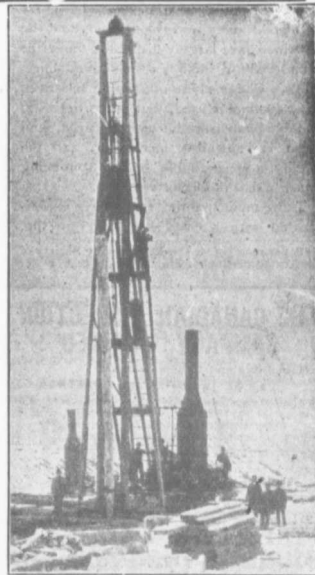
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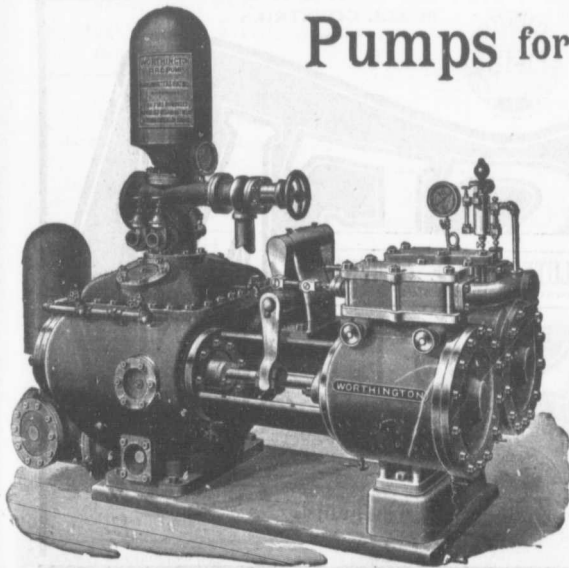
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# MUNICIPAL DEPARTMENT

## CONCRETE CULVERTS.\*

By A. W. CAMPBELL.

A great many townships throughout the Province have largely discarded timber as a material for small culverts and sluiceways. Cedar where obtainable has been most commonly used, but all varieties of suitable lumber are becoming scarce, and price is constantly increasing, and the quality now available is far from being equal to that of former years.

Those municipalities which have experimented with vitrified and concrete tile,

\*Paper read before the Engineering Society of the Toronto School of Practical Science.

have with very few exceptions been favorably impressed with the new materials. Failure and some dissatisfaction are occasionally reported, but this in every case can be traced to the causes not in any sense condemnatory to the new materials.

Excellent culvert pipe of concrete can be manufactured cheaply in any gravel pit under the immediate direction of the road overseer. The pipes are from two to four inches in thickness, according to diameter, which latter may safely and conveniently reach three feet, in lengths of two and one-half feet.

The implements required are of the simplest kind. The most important are two steel spring-cylinders, one to sit inside the other, leaving a space between the two equal to the thickness of the thinnest concrete pipe. By "spring-cylinder" it may be explained is meant such a cylinder as would be formed by rolling a steel plate into a tube without sealing the joint. With the smaller of these cylinders the edges

overlap or coil slightly; but are so manufactured that the edges may be forced back and set into a perfect cylinder. Accompany these moulds are bottom and top rings, which shape the bell and spigot ends of the pipe.

The two cylinders with joints flush are set on end, the one centrally inside the other and on the bottom ring, which in turn rests on a firm board base. The concrete, made of first-class cement and well-screened gravel, in the proportion of one of cement to three of gravel, is then tamped firmly but lightly into the space or mould between the two cylinders. The tamping-iron used to press the concrete into place is so shaped as to fit closely to the cylinders.

The concrete is allowed to stand in the mould for a short time, when the cylinders are removed; the outer and larger cylinder by inserting an iron wedge into the joint and forcing the edges apart; the inner cylinder by inserting the wedge into

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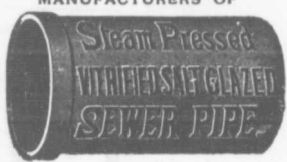
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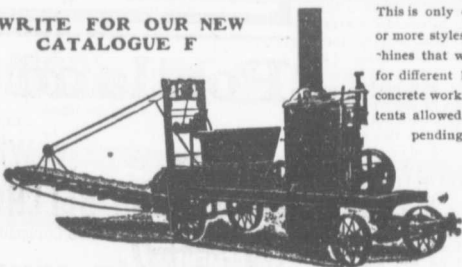
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the joint and turning the edges, so as to allow them to again overlap, returning to the shape of a coil. The outer cylinder having thus been made larger and the inner one smaller, they can readily be taken away, and the concrete pipe is then left until thoroughly hardened.

Just such a number of pipe as are actually required for the season's work need be manufactured; the implements required are inexpensive, and the pipe may be made by the municipality for actual cost, which, after a little experience, can be reduced to a very small amount.

If cement concrete pipe are employed, they must be of first-class quality. They must be well shaped, as with sewer pipe, and all the rules for making a good concrete must be observed—that is, the material composing the concrete (cement, sand and stone) must be of good quality, and properly mixed. The making of good concrete is not a difficult matter, but it is sometimes difficult to find men who will follow directions. Dirty sand or gravel, too much water, careless and insufficient mixing, neglect to see that the materials are used in the right proportions, are the defects most commonly found. Concrete cannot be mixed like common mortar, and an attempt to do so is far too often made. It is affirmed by cement manufacturers that masons are the greatest offenders in this respect; that it is almost impossible to get them to follow any system other than that to which they have been accustomed in the use of common lime, and that therefore an entirely inexperienced but practical man, who will follow directions, will often make the best concrete.

To meet with success in the use of tile culverts they must be put in place properly. They should be laid with a good fall on a regular grade to a free outlet, in such a way that water will not stand in them. The tile should be laid with the spigot end down grade, and the joints made tight with cement mortar. If the joints are open water will work its way along the outside of the culvert, and finally make a considerable channel which will allow the culvert to get out of line and finally result in a "cave-in." To prevent the water finding its way along the outside of the pipe, it is advisable to protect the ends with concrete, stone or brick head walls. Care should be taken to excavate a concave bed for the pipe, with depressions for the bell of the pipe to rest in, thus securing an even bearing, without which a heavy load passing over before the culvert has properly settled into place, may burst the tile. Tile cannot be used in very shallow culverts, but must have a sufficient depth of earth over them to protect them from the direct pressure of heavy loads. The depth of covering necessary increases with the size of the pipe. At least a foot of earth over the top is advisable in every case, but for culverts of two feet in diameter, or over, this should be increased to at least eighteen inches.

The earth should be well packed and rammed around the tile to secure a firm bearing, and light soils should not be used immediately over or around the culvert. A heavy clay, a firm gravel or a compact sand or gravel will answer, but vegetable mould, water sand, and light loams are subject to wash-outs. At the outlet the culvert should be set nearly flush with the surface of the ground. If set higher than the surface, the fall of water will wash out a depression, and in time will undermine the end of the culvert. A too rapid grade will have the same effect, and it is well to cobble-pave an outlet where this undermining action is liable to occur.

Culverts, in many townships, are very numerous, and necessarily so. Water should be disposed of in small quantities, along natural watercourses, otherwise if gathered in large bodies along the roadside, it gathers force and headway, resulting in extensive washouts, and in every way more costly to handle. Water should be taken away from the roads as quickly as possible, for it is excess water that is the great destroyer of roads.

Culverts, in addition to being a matter of considerable expense to municipalities, are too often in a bad state of repair, sometimes dangerous, and when not level with the roadway, are an annoyance and interruption to traffic. Good road making is largely a matter of good drainage, and culverts are a detail of drainage upon which municipal councils should bestow a good deal of attention, with a view to a greater permanency, increased efficiency, and a reduction of cost.

The concrete arch culvert is, in a number of municipalities, replacing the old

form of timber structure. Greater in first cost, the concrete culvert, if rightly constructed, is a permanent saving in road expenditure. The greater portion of the annual road appropriation is, in many townships, spent in repairing and re-building wooden culverts and sluiceways. The life of timber in this work is very short. Wooden culverts are quickly upheaved by frost, warped by sun, and decayed by penetration of moisture. Wherever concrete culverts have been fairly tested they give satisfaction, and their general use by a township will mean, in the course of a few years, a marked reduction in this branch of roadwork.

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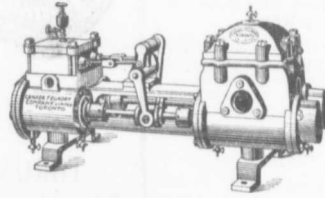
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