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CANADIAN CONTRACT RECORD

A WEEKLY JOURNAL

EVERY

PUBLIC WORKS • TENDERS •
ADVANCE INFORMATION •
AND MUNICIPAL PROGRESS

WEDNESDAY

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. 10.

SEPTEMBER 6, 1899

No. 32.

THE CANADIAN CONTRACT RECORD, PUBLISHED EVERY WEDNESDAY

As an Intermediate Edition of the "Canadian Architect and Builder."

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the Dominion regarding contracts open in
tender.

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should give prompt notice of same. In doing
so, give both old and new address. Notify the
publishers of any irregularity in delivery of paper.

CONTRACT FOR ELECTRIC LIGHTING

The Village of Shelburne, in the County of Dufferin, wants a Modern Electric Light Plant established in the village, and to that end the Council will enter into a ten-year contract for lighting the streets and Town Hall, provided a schedule of rates is embodied in the contract for private takers, agreeable to the Council, and the Village to have the privilege of purchase after three years by arbitration in the usual way. Further particulars may be obtained from the Clerk, and sealed tenders will be received, marked "Tenders for Electric Lighting," and addressed to the Clerk, up to SEPTEMBER 21ST NEXT. The lowest or any tender not necessarily accepted.

D. C. DUNBAR, Clerk.



SEALED TENDERS, addressed to the undersigned and endorsed "Tender for Heating Apparatus, Rat Postage, Ont.," will be received at this office until THURSDAY, 21ST SEPTEMBER, 1899, for the construction of a Hot Water Heating Apparatus at the Post Office, &c., Hurlingham, Rat Postage, Ont.

Plans and specifications can be seen at this Department and at the office of the Clerk of Works, Rat Postage, Ont.

Persons tendering are notified that tenders will not be considered unless made on the printed forms supplied, and signed with their actual signatures.

Each tender must be accompanied by an accepted bank cheque, made payable to the order of the Honorable the Minister of Public Works, equal to ten per cent. (10%) of the amount of the tender, which will be forfeited if the party decline to enter into a contract when called upon to do so, or if he fail to complete the work contracted for. If the tender be not accepted, the cheque will be returned.

The Department does not bind itself to accept the lowest or any tender.

By Order,

E. F. E. ROY,

Secretary.

Department of Public Works,
Ottawa, August 31st, 1899.

Newspapers inserting this advertisement without
authority from the Department will not be paid for it.



Notice to Contractors

TENDERS FOR ROADWAYS AND SIDEWALKS

Tenders will be received, by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to noon on MONDAY, SEPTEMBER 11TH, 1899, for the following works:

ASPHALT PAVEMENTS:

Spadina Avenue, from Knox College Crescent to Bloor Street.
Gifford Street, from Spruce to Carlton Street.
Lakeview Avenue, from Dundas Street to Churchill Avenue.
Front Street, from Jarvis to George Street.
Albert Street, from Yonge to James Street.

CEDAR BLOCK PAVEMENT:

Broadway Place, from Spadina Avenue to 159 ft. 3 in. west.

BRICK PAVEMENT:

110 Ave Avenue, from Foxley to Dundas Street.

MACADAM ROADWAYS:

Spadina Avenue, from King to Front Street.
Sackville Street, west side, from Wellesley Street to 106 ft. north.

CONCRETE SIDEWALKS:

Bleeker Street, east side, from Wellesley to Howard Street.

Cecil Street, south side, from Huron to Beverley Street.

Willcock Street, south side, from St. George to Huron Street.

Classic Avenue, both sides, from Spadina Avenue to Huron Street.

Shuter Street, north side, from Jarvis to George Street.

Front Street, north side, from York Street to 579 ft west.

Walmer Road, west side, from Bloor Street to Lower Avenue.

Sherbourne Street, east side, from 567 ft. 4 in. north of Queen Street to Wilton Avenue.

Adelaide Street, south side, from Bay to York Street.

Avenue Road, east side, from Bloor Street to Davenport Road.

Bay Street, west side, from King to Wellington Street.

Pembroke Street, east side, from Shuter Street to Wilton Avenue.

Queen Street, south side, from Bay to York Street.

Queen Street, north side, from 85 ft. 2 in. east of Gladstone Avenue to Hoverscourt Road.

Avenue Road, west side, from Bloor Street to Davenport Road.

Huron Street, east side, from Russell to Bloor Street.

Huron Street, west side, from Russell to Bloor Street.

BRICK SIDEWALKS:

Wellington Street, south side, from 92 ft. 10 in. east of York Street to 164 ft. 4 in. west of Bay Street.

Bay Street, east side, from Front to Esplanade Street.

Contents of envelopes containing tenders must be plainly marked on the outside.

Conditions and specifications may be seen and forms of tender obtained at the office of the City Engineer on after Friday, September the 1st, 1899.

A deposit, in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained.

Tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

Lowest or any tender not necessarily accepted.

JOHN SHAW (Mayor),

Chairman Board of Control.

City Hall, Toronto, August 29th, 1899.

PLANS WANTED

The Church of England Building Committee, Tilbury, Ont., will be pleased to receive, up to 9TH SEPTEMBER, 1899, Pencil Sketches of a Proposed New Brick Church, with a seating capacity of 175 to 200; to cost not more than \$1,000 exclusive of seats; to be erected on a lot 116 x 112 feet. Address all communications to

GEO. MUNRO,
Secretary of Committee,
Tilbury, Ont.

TENDERS

CHURCH AT PERCE, GASPESIA, QUE.

Tenders for the erection of a R C CHURCH will be received at my office or at the residence of the Rector, until SEPTEMBER 19TH prox. Plans and specifications may be seen at my office or at the residence of the Rector.

The lowest or any tender not necessarily accepted.

JOS. VENNE, Architect,
17 Place d'Armes Hill, Montreal.
Montreal, Sept. 2nd, 1899.



Notice to Contractors

TENDERS FOR SEWERS

Tenders will be received, by registered post only, addressed to the Chairman of the Board of Control, City Hall, Toronto, up to noon on FRIDAY, the 15TH INST., for the following works

12-inch Tile Pipe Sewer, Dupont Street, from Huron Street to Howland Avenue.

2 x 3 Brick Sewer, Spadina Road, from Dupont Street to Northerly City Limits.

Contents of envelopes containing tenders must be plainly marked on the outside.

Conditions and specifications may be seen and forms of tender obtained at the office of the City Engineer.

A deposit in the form of a marked cheque, payable to the order of the City Treasurer, for the sum of 2 1/2 per cent. on the value of the work tendered for, must accompany each and every tender, otherwise they will not be entertained.

Tenders must bear the bona fide signatures of the contractor and his sureties, or they will be ruled out as informal.

Lowest or any tender not necessarily accepted.

JOHN SHAW (Mayor),

Chairman Board of Control.

City Hall, Toronto, Sept. 5, 1899.

DATE OF PUBLICATION.

Architects, Engineers, Municipal Authorities and others are reminded that the CONTRACT RECORD is printed every Tuesday afternoon, and that advertisements should reach the office of publication not later than 2 o'clock p.m. on that day to ensure insertion in the issue of the current week. Advertisements are frequently received too late for insertion, to avoid which special attention is directed to this announcement.

CONTRACTS OPEN.

CARDINAL, ONT.—P. Leacy purposes enlarging the rink.

WOLFVILLE, N.S.—W. H. Chase is preparing to build a warehouse.

PORT COLBORNE, ONT.—The erection of a large summer hotel is talked of.

CARLETON PLACE, ONT.—W. Findlay has broken ground for new residence.

BUCKINGHAM, QUE.—The Buckingham Match Co. purpose enlarging their mill.

TWEED, ONT.—E. R. Huyck is preparing to rebuild his stable and sheds, of brick.

STRATFORD, ONT.—The Electric Light Company will probably install a new boiler.

NEW WESTMINSTER, B.C.—A movement is on foot to enlarge St. Barnabas church.

DELHI, ONT.—A brick hotel will likely be erected on the site of the one burned recently.

HULL, QUE.—The citizens have approved of spending \$4,000 for waterworks extension.

HUNTSVILLE, ONT.—Plans by Mr. Morgan have been accepted for a new school house.

BRADFORD, ONT.—John Curry purposes making extensive improvements to his residence.

SOUTHAMPTON, ONT.—It is rumored that Reid Bros., of Hepworth, will erect a saw mill here.

GRAND FORKS, B.C.—L. A. Manley will shortly begin the erection of a three-storey brick block.

WINDSOR, ONT.—The congregation of St. Alphonsus church purpose building a parochial residence.

PARRY SOUND, ONT.—The Parry Sound Copper Co. have finally selected a site for their proposed smelter.

BROOKFIELD STATION, ONT.—It is probable that a saw mill will be built here; name of promoter not learned.

SMITH'S FALLS, ONT.—W. Healy and A. Foster will build a skating and curling rink, 80 x 200 feet, cost \$6,000.

ST. THOMAS, ONT.—Johnston Bros., of London, have purchased property in this city on which to build a bakery.

LORETTE, QUE.—Reid, Craig & Co., of Quebec, have decided to convert their paper mill here into a cotton mill.

IROQUOIS, ONT.—Voting on the by-law to raise \$5,000 for laying an intake pipe will take place on September 27th.

SEAFORTH, ONT.—Wm. Elliott, town clerk, invites bids up to September 15th for purchase of \$7,000 of debentures.

WINCHESTER, ONT.—The council have signed an agreement with Eager & Sanderson to light the streets of the village.

LIVERPOOL, N.S.—The town wants tenders by 26th inst. for purchase of \$39,000 of debentures. Particulars from town clerk.

CARBERRY, MAN.—Bids are invited up to October 1st for purchase of \$3,000 corporation debentures. Address, W. Dickie, mayor.

WELLAND, ONT.—At council meeting last week it was decided to defer the question of purchasing a stone crusher for a week.

ST. JOHN, N.B.—W. R. Kinipple, civil engineer, has arrived from England to make surveys of the site for proposed dry-dock.

WESTON, ONT.—Voting on the by-law to raise \$8,000 for the installation of an electric light plant will take place on September 23rd.

QUEBEC, QUE.—As soon as the works of the Canadian Electric Light Co. are completed, it is the intention to operate the Chaudiere Valley Railway Co. by

electricity. Other lines will be constructed in the counties of Levis, Dorchester, Bellechasse and Lotbiniere.

DURHAM, ONT.—D. Campbell has purchased the foundry and machine shop of Charter Smith, and will convert it into a livery stable.

TROUT CREEK, ONT.—It is said to be the intention of Mr. Forbes to build a railway from Trout Creek to Loring, a distance of 40 miles.

SARNIA, ONT.—Tenders have been taken on building the new wire and nail works. These will be forwarded to Montreal for consideration.

GODERICH, ONT.—A meeting will be held to-night to discuss the proposal to give a loan of \$10,000 to assist the Kensington furniture factory.

PORT HOPE, ONT.—The Globe Manufacturing Co. purpose extending their file works and erecting a new brick building, two storeys, 108 x 45 feet.

MOOSE JAW, N. W. T.—Plans will be prepared by the Provincial Public Works Department for improvements to the court house here, and to the government buildings at Regina.

CHILLIWACK, B. C.—Tenders for 16 miles of dyking work close on Friday of this week. Particulars from E. A. Wilmot, engineer-in-charge, this place.

LINDSAY, ONT.—W. T. Ashbridge, town engineer, has recommended that new tenders be called for sewers on Cambridge, Wellington and Lindsay streets.

BRANTFORD, ONT.—Geo. Mills, architect, of Hamilton, has been instructed to prepare plans for an isolation hospital and for an annex to the general hospital.

BRAMPTON, ONT.—Tenders will be invited of once for renovating and reshingling the town hall.—A number of granolithic walks have been petitioned for.

ORILLIA, ONT.—It is rumored that Mackenzie & Mann may take over the Couchiching Beach Park hotel, and that they will spend about \$50,000 in re-modelling it.

LONDON, ONT.—The city engineer invites bids up to 5 p. m. of 7th inst. for filling in across the East Cove.—Tenders have been invited by the city for a tile sewer on Maple street.

BARRIE, ONT.—The tenders for new jailer's residence were opened last week and found to be too high. The county council instructed the architect to modify the plans and secure tenders.

KAMLOOPS, B. C.—On behalf of the city, J. Carment, city clerk, invites tenders up to Thursday, 28th inst., for purchase of \$28,000 waterworks debentures and \$10,500 electric light debentures.

ALMONTE, ONT.—Andrew Bell, C. E., and J. W. Wylie, of this town, went to Ottawa last week for the purpose of interviewing English capitalists regarding the building of the North Lanark railway.

WILKESPORT, ONT.—Orin Bishop, township clerk, will receive tenders up to Saturday, 30th inst., for construction of Babcock drain, cost \$392, and L'pish drain, cost \$452, in township of Sombra.

ST. HYACINTHE, QUE.—Plans have been completed for the new station to be built here by the Grand Trunk Railway Co., to be 100 x 48 feet, cost \$15,000. Work will be commenced in a few weeks.

ST. CATHARINES, ONT.—The Niagara Central Railway is about to be extended to Port Dalhousie, the company having decided to proceed with the work at once. The existing line will be converted to an electric road.

GUELPH, ONT.—Tenders are invited until to-day for alterations to court room in county court house. Plans by Wm. & Walter Stewart, architects, Hamilton.—Powell & Wideman, architects, want tenders by 6 p. m. of 7th inst. for alterations

to building, corner of Market square and Wyndham street, for the Dominion Permanent Loan Co.

INGERSOLL, ONT.—John B. Jackson, barrister, this town, invites tenders up to September 11th for erection of two-storey brick factory, 190 x 90 feet, in the county of Oxford. Plans at Mr. Jackson's office on King street.

GRAND FORKS, B. C.—B. C. Riblet, C. E., is preparing specifications for extension of waterworks system and for improvements to the electric light plant. For this purpose an issue of \$11,000 of debentures will be made.

VICTORIA, B. C.—W. J. Dowler, city clerk, invites proposals up to October 30th for the purchase of \$210,000 of debentures.—It is rumored that the dry dock at Esquimalt will be enlarged to accommodate first-class battleships.

FREDERICTON, N. B.—The York and Carleton Railway Co. have engaged Mr. Ruel, C. E., to prepare plans and specifications for the construction of the line from Cross Creek to Stanley. W. T. Whitehead, M. P. P., is one of the promoters.

LACHINE, QUE.—Although the Provincial Board of Health have refused to give the town authorities permission to drain the sewage into the government drain, it is understood that this step will not interfere with the immediate construction of the sewerage system.

VANCOUVER, B. C.—Plans have been prepared for large livery stable, cost \$10,000, to be built on Pender street.—Residents in the vicinity of Stanley ave. have petitioned for a permanent sewer.—A by-law was carried recently to raise \$150,000 for extending the sewerage system.

WOODSTOCK, ONT.—A Chicago company purposes establishing a condensed milk factory in this town or in Woodstock. An architect is now preparing plans for the buildings, which will cost \$70,000.—The Board of Works has been instructed to invite tenders for construction of cement sidewalks.

PETROLIA, ONT.—Tenders have been invited by James Smith, Colville, for the repair of the Mackenzie drain, on town line of Moore and Enniskillen townships.—The council intend to construct a granolithic sidewalk on north side of Petrolia street, cost \$845. Sidewalks in other portions of the town have also been recommended.

PORT STANLEY, ONT.—The Port Stanley Electric Railway Co. have applied to the Ontario government for a charter to build an electric railway from Port Stanley to St. Thomas and London. Should the charter be granted, it is proposed to commence work at once. The London and Port Stanley Gravel Road Company are the promoters.

PORT ARTHUR, ONT.—The Electric Railway and Light Commissioners have recommended the council to authorize the installation of a water power plant at Current River, the plant to be of a capacity of 300 horse power, divided into 200 h. p. for lighting and 100 h. p. for railway purposes, at a cost not exceeding \$5,000.

SAULT STE. MARIE, ONT.—The Lake Superior Power Company invite tenders for the construction of a stone mill building, with timber roof and floors.—Tenders for the erection of a sulphite pulp mill at this place are wanted by the Sault Ste. Marie Pulp & Paper Company up to September 20th. Plans by Tower & Wallace, Townsend Building, Broadway, New York.

KINGSTON, ONT.—The British American hotel may be rebuilt.—The congregation of Zion Presbyterian church have decided to build an addition.—Residents on Victoria st. have petitioned for waterworks extension along that street. A gentleman whose name is not disclosed is said to

have almost decided to build a large hotel on Princess street. — Mr. Storey, architect, is preparing plans for the new summer hotel to be erected at Stella Point by Major Maxwell, of Ireland. The building will be three storeys, cost \$6,000.

GREENWOOD, B.C.—The British Columbia Wholesale Liquor Co. (R. Greiger, manager) has been organized, and will erect a warehouse.—The council has decided to provide a new fire hall, fire alarm system, hose, hydrants and other requisites.—It is said that W. A. Campbell and J. McGregor purpose putting in a steam plant to generate electric light and power.

CHATHAM, ONT.—Property on Queen street has been purchased by R. S. Dunlop on which to build a store. Major Gray, C.E., of the Dominion Public Works Department, is about to prepare plans and specifications for repairing the piers and dredging the channel at Rondeau harbor. An appropriation of \$10,500 has been made for this purpose.—Tenders are being received this week for an addition to Ursuline academy. Plans at office of James Carswell, architect.—Plans by J. L. Wilson & Son have been accepted for residence for Mr. Lumley, of Tilbury.

FORT WILLIAM, ONT.—On August 28th the council passed by-laws to establish a high school, to build a new ward school (cost \$11,000), and to extend the waterworks system (cost \$25,000).—The plans for the Ogilvie buildings have arrived, and show a seven-storey brick mill, an 800,000 bushel elevator, and 100,000 bag storehouse.—The proposed improvements to waterworks plant include duplicate of present pump, cost \$1,850, and filtering crib, cost \$1,500.—R. Smith has acquired property on Simpson street and will erect a brick building 45 x 70 feet, two storeys, plate glass front, cost \$8,000.

WINNIPEG, MAN.—Robert Watson, Minister of Public Works, desires tenders by Friday, 8th inst., for excavation of a drain in municipalities of St. Boniface and Springfield; distance, 10 miles; amount of excavation, 75,000 cubic yards.—Tenders have just been taken on artificial stone walks on Assiniboine avenue and macadam pavement on Carlton street.—Commissioner E. C. Booth invites tenders up to September 9th for erection of Salvation Army barracks. Address, care of Major McMillan, Sproule block.—S. F. Peters, architect, is taking tenders on stone foundation and alterations, including heating and plumbing, in residence for C. Flexon.

HAMILTON, ONT.—The Volta Storage Battery Co., in which John Patterson, of this city, is interested, will erect a building and establish a plant east of Sherman ave. for the manufacture of storage batteries.—The Hoepfner Refining Co. last week selected ten acres of land in north-east part of city as a site for new works.—The directors of the Quebec, Hamilton & Fort William Navigation Co. have appointed a committee to secure estimates and plans for building two freight steamers.—The Hamilton Bridge Co. have asked that a sewer be built on Caroline street, between Barton and Stuart streets, cost about \$2,500.

OTTAWA, ONT.—An agitation is on foot to place all the telegraph, telephone and electric light wires underground.—It is reported that tenders will shortly be called for another section of the Trent Valley canal.—The contract will be let this week for the Britannia extension of the Ottawa electric railway.—Plans are being prepared for the new militia stores building, and tenders will likely be invited next month.—A representative of the Boiler Inspection & Insurance Co. has inspected the boilers in the various fire stations and has recommended that several of them be replaced by new boilers.—The construction of a number of granolithic

sidewalks is proposed.—E. F. E. Roy, Secretary Department of Public Works, invites tenders up to Wednesday, 20th inst., for the extension of the dry dock at Levis, Que., and for an extension to the wharf at Cacouna, Temiscouata county, Que. Plans at the above places and at the office of the Department of Public Works, this city.—The Canada Atlantic Railway authorities have decided to erect a new building at the Rideau roundhouse, to be of frame, three stories high.

MONTREAL, QUE.—The Dominion Government Act respecting the Harbor Commissioners of Montreal, assented to August 11th, states that \$250,000 is to be expended in building wharves and a dry dock in that part of the harbor below the point known as St. Mary's current, and \$500,000 in the construction of harbor improvements at the windmill point basin and wharf.—The Harbor Commissioners have instructed an architect to prepare plans for the renovation and repair of the harbor offices.—Maxwell & Chadwick, architects, of this city, are understood to be preparing plans for the new summer hotel to be built at Murray Bay by the Richelieu and Ontario Navigation Co. The building will contain some 200 rooms and the foundation will be put in this fall.—The erection of a Protestant church at Verdun has been talked of for some time. It is also probable that a Roman Catholic church will be erected there in the near future, a meeting to consider this step having been held last week at the residence of Mr. U. H. Vandurand.—Bids are invited up to 15th inst. for the supply of a number of automatic safety valves for drains. Address, P. W. St. George, city surveyor.

TORONTO, ONT.—Ground has been broken for a residence on north side Lowther ave., near Huron street.—R. A. Graydon will shortly erect a large residence on the east side of Madison ave., a short distance north of Lowther avenue.—Tenders are now being taken on an apartment building to be built in the Annex, the plans for which have been prepared by C. P. Thomas, architect, 511 Temple Building. The building will be fire-proof, and will include several elevators, iron stairs, steam heating, electric lighting, cut-stone porticos, fountains, etc.—Tenders are wanted immediately at 173 1/2 Borden street for building a house.—A petition has been presented to council against the construction of an asphalt pavement on Markham street, between Harbord and Bloor.—The council has given notice of its intention to construct the following works: Asphalt pavement on Palmerston ave., Arthur to College, cost \$11,824; reconstruction of macadam

roadway on Breadalbane street, cost \$1,100; cement concrete sidewalks on portions of Markham, Russell, and Groveron streets.—The city engineer will recommend the construction of the following roadways in Ward 5: College street, Bathurst to Clinton, asphalt; College street, Clinton to Lansdowne, cedar; Markham, College to Arthur, asphalt; Manning, Arthur to Bloor, asphalt; Henderson, Manning to Clinton, cedar; Mansfield, Clinton to Bellwoods, cedar; Claremont, Mansfield to Robinson, cedar; Bellwoods, Mansfield to Queen, brick on macadam; Sully, College to Arthur, brick; Shaw, Arthur to College, brick; Ossington, College to Bloor, brick on macadam; Shannon, Ossington to Dovercourt, brick on macadam; Dundas, Ossington to Lansdowne, brick; Farley, Niagara to Bathurst, brick on macadam; Mitchell, Niagara to Tecumseth, cedar; Niagara, King to Queen, cedar on plank; Tecumseth, south end to Queen, brick on macadam; Manning, Queen to Arthur, brick on macadam; Robinson, Manning to Bathurst, brick on macadam; Markham, Queen to Bathurst, brick on macadam.—Building permits have been granted as follows: M. Rawlinson, addition to warehouse, south-west corner Yonge and St. Joseph streets, cost \$2,000; Harry Webb Company, two-storey brick bakery, 23-29 Buchanan street, cost \$20,000; John Graydon, pair two-storey semi-detached brick dwellings, north side Claremont street, cost \$5,000.

FIRES.

International Hotel at Fort Steele, B.C., owned by R. G. Shier; loss \$5,000, partially covered by insurance.—R. J. Graham's cheese factory at Kingsville, Ont; loss on building, \$1,500.—Presbyterian church at Cantley, Que.; Rev Mr. Logan, of Chelsea, pastor.—Power house of the Niagara Falls Park & River Railway at Niagara Falls, Ont., building and machinery totally destroyed; loss on building, \$10,000, and on apparatus \$75,000.—Several buildings at Amqui, Que., owned by Price Bros. & Co.

CONTRACTS AWARDED.

FORT WILLIAM, ONT.—Public school: A. H. Dale, contractor.
ARNPRIOR, ONT.—Skating and curling rink: Stafford & Rudd, contractors.
SUSSEX, N. B.—Residence for J. M. McIntyre. Peter Patfield, contractor.
WOODSTOCK, ONT.—Erection of fire-hall: J. D. Tindale, successful tenderer, \$5,525.
BROCKVILLE, ONT.—Memorial and stained glass windows for St. John's

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hurch: H. Horwood & Son, of Ottawa, contractors. The contracts for organ and seats are still open.

CHATHAM, ONT. Gurney boilers and radiators will be installed in the court house.

PETROLIA, ONT. Granolithic sidewalks: P. L. Warden & Co., successful tenderers.

HAMILTON, ONT.—Tar macadam roadway in rear of post-office. Ald. Findlay, contractor.

NIAGARA FALLS, ONT.—Residence for Mrs. A. Doran: Waugh & Robertson, contractors.

EGLINTON, ONT.—Engineer's residence: Ramsay & Fisher, successful tenderers, \$1,085.

PORT ROBINSON, ONT.—Hotel for Mrs. M. A. Bennett: Rice & Nichol, of Welland, contractors.

MILLTOWN, N. B.—Large addition to St. Croix cotton mill: Mackenzie & Stevenson, contractors.

GUELPH, ONT.—Sinking two shafts for Guelph Mining & Development Co.: Wm. Husson, this city, contractor.

WINNIPEG, MAN.—Grading of C. P. R. extension westward from McGregor: A. B. McRae, this city, contractor.

KINCARDINE, ONT.—Iron bridge over Saugueen river: Hunter Bros., this place, successful tenderers; price, \$3,595.

VICTORIAVILLE, QUE.—Branch for Molsons Bank (Taylor & Gordon, Montreal, architects): Caron & Co., contractors.

COATICOOK, QUE.—Building for S. & S. Mutual Insurance Co.: D. G. Lonnis & Son, of Sherbrooke, contractors; price, about \$17,000.

SYDNEY, C.B.—The Dominion Iron & Steel Co. have let the contract for 400 coke ovens to the United Gas & Coke Co., of Philadelphia.

HALIFAX, N. S.—The plans for new residence for F. W. Green, referred to in last issue, were prepared by Messrs. Burke & Horwood, architects, of Toronto.

DARTMOUTH, N.S.—The tender of Thomas Ritchie for purchase of \$6,000 of debentures has been accepted. The following tenders have also been awarded: Austin Bros., Dartmouth, for 2,000 feet 6-inch water pipe, at \$33 per 100 delivered; T. McAvity & Sons, St. John, for one 6-inch motor gate, \$10.50; Stairs, Son & Morrow, for pig lead, at \$4 per 100 lbs., and oakum \$4.50 per 100 lbs.

MONTREAL, QUE.—New steps at entrance to Harbor Commissioner's office: Martineau & Prenoveau, successful tenderers, \$628; to be of gray Stanstead granite.—Taylor & Gordon, architects, have let the contract for summer residence for H. Montague Allen to Joseph Gosselin, of Levis.—A. F. Bury Austin, of this city, has secured the contract to supply the lumber and timber for the construction of the Dominion Iron & Steel Co.'s works at Sydney, C. B.

LINDSAY, ONT.—Tenders were received as follows for construction of granolithic sidewalks: J. E. Hayes, Peterboro', 14 cents per square foot for walk and 35 cents per lineal foot for granolithic curb (accepted); John McDonald, Lindsay, 22 cents and 65 cents; Fred Reeves, Lindsay, 23½ cents and 65 cents; Jas. Bogue, Peterboro', 22 cents and 65 cents.—The tender of Thos. Luscombe for the construction of sewers on William, Russell, Lindsay and Melbourne streets, has been recommended for acceptance.

WELLAND, ONT.—Tenders for granolithic walks were last week opened by the council as follows: Buffalo Marblethic Paving Co., 14½ cents for walks and 17

cents for crossings; M. Vanderburgh, Welland, 15 cents and 23 cents; E. D. Hofeller, Buffalo, 15 cents and 17 cents; Cockburn Bros. & Co., Buffalo, 12½ cents and 13½ cents; W. Buchner, Welland, 13½ cents and 18 cents; J. Reilly, St. Catharines, 13½ cents and 18 cents. The tender of Cockburn Bros. & Co. has been recommended for acceptance. The tenders for construction of Burgar street sewer were considered too high, and the work will be done by day labor.

BERLIN, ONT.—For purchase of \$11,000 debentures tenders were received by the council as follows: G. W. Wood & Son, Toronto, \$11,453; Central Canada Loan & Savings Co., Toronto, \$11,440; Ontario Mutual Life Assurance Co., Waterloo, \$11,430; Geo. A. Stimson & Co., Toronto, \$11,414; W. H. Brouse, Toronto, \$11,304; Bank of Hamilton, Berlin, \$11,177.10; R. Wilson Smith, Montreal, \$11,157.50.—The tender of E. A. Cawsey, of Stratford, has been accepted for a macadam roadway on Queen street north; price, \$4,900.—King street sewer: Boehmer & Bishop, contractors, \$1,025. Other tenderers: E. A. Cawsey, Stratford, \$1,319; J. M. Scully, \$1,350.

TORONTO, ONT.—Steel superstructure of bridge at the Don: Hamilton Bridge Co., successful tenderers, \$1,200.—The Board of Works last week accepted tenders for pavements as follows: Brick on Denison square, J. H. McKnight, \$1,099; Fuller street, Queen st. to Pearson ave., Dominion Paving and Constructing Co., \$4,195. Macadam on Crescent road, Yonge street to Rosedale road, \$3,134, and Pembroke street, Shuter to Wilton ave., \$1,800, Dominion Paving and Constructing Company. Asphalt on Churchill ave., Constructing and Paving Company, \$4,659. The contract for hardwood lumber has been let to Bryce & Co. at the following prices: 8,000 feet soft elm at \$35 per M; 9,000 feet rock elm at \$45; 1,700 feet white oak at \$54.

ST. MARYS, ONT.—\$40,000 water works debentures: Ontario Mutual Life

Insurance Co., of Waterloo, highest tenderer, \$41,505.—The council have accepted tenders as follows for work and supplies in connection with the water works system: Pipe laying, Harding & Leathorn, London, \$10,000; pipes and castings, Garthshore-Thomson Foundry Company, Hamilton, \$11,500; valves and hydrants, Kerr Engine Co., Walkerville, \$1,800; pumping machinery, Kerr Engine Co., \$3,060; construction of pump house, Robert Clyde, St. Marys, \$4,000; stone work of tower, Robt. Clyde, \$2,900; steel work not let. The estimates of the consulting engineer, Mr. Willis Chipman, of Toronto, were: Pipe laying, \$10,000; pipes and castings, \$11,650; valves and hydrants, \$1,870; pumping machinery, \$3,200; pump house, \$4,300; complete tower, \$5,700.

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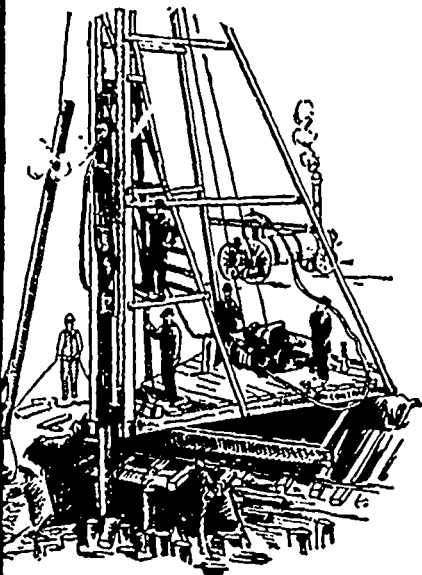
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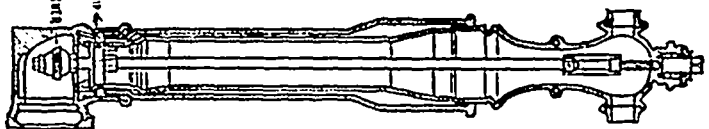
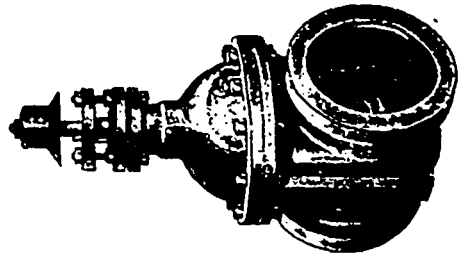
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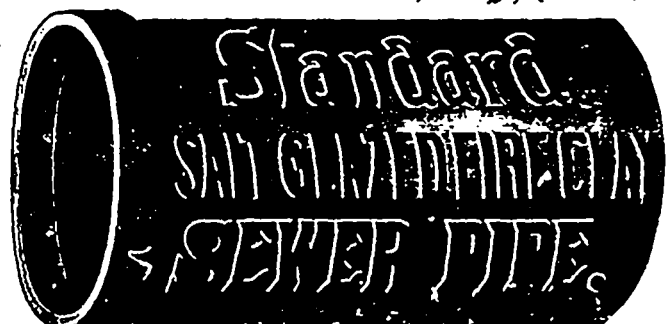
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HIGHWAY CULVERTS AND BRIDGES*

By A. W. CAMPBELL, Ontario Road Commissioner.
(Continued from last issue.)

MATERIALS.

The materials available for culvert construction, in addition to timber, are sewer pipe, concrete pipe, iron pipe, brick, stone and concrete. Culverts are sometimes made of one of these materials alone, or of two or more in combination. When the dimensions of a bridge are reached, concrete and stone abutments and piers, with iron or steel superstructure, or stone, brick, or concrete alone or in combination, are the materials gaining favor.

SEWER PIPE.

For the small culverts, sewer pipe is very economical and durable if well laid. To render them secure against the test of a Canadian climate, they should be laid with a good grade, and the ends protected with concrete, stone or brick headwalls with deep aprons. The joints should be made water tight with cement. These precautions will provide against the action of frost and will prevent the culvert being undermined by water passing along the outside of the pipe, either from the ends or through the joints. Care should be taken to excavate a concave bed for the pipe to rest in, always laying the spigot ends up grade.

The pipe at the outlet should be set flush with the surface of the ground. If set higher than the surface the fall of water will wash out a depression and will in time undermine the end of the culvert. A too rapid grade will cause the same result. It is frequently well to cobble-pave the outlet, where this undermining action is likely to occur.

CEMENT-CONCRETE PIPE.

Excellent culvert pipe of concrete can be manufactured in any gravel pit under the direction of the municipal engineer. The pipes are three or four inches in thickness according to diameter, which latter may safely and conveniently reach 3 ft.

The implements required are of the simplest kind. The most important are two steel spring cylinders, one to set inside the other, leaving a space between the two equal to the thickness of the concrete pipe. By "spring-cylinder," it may be explained, is meant such a cylinder as would be formed by rolling an iron plate into a tube without sealing the joint. With the smaller of these cylinders the edges overlap or coil slightly, but they are so manufactured that the edges may be forced back and set into a perfect cylinder.

These two cylinders with joints flush are set on end, the one centrally inside the other, and on a firm board bottom. The concrete, made of first class cement and well screened gravel, is then tamped lightly but firmly 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 few hours, 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 the joint and turning the edges so as to allow them to again overlap, returning to the shape of the 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. Culverts of concrete pipe are laid in a manner similar to those of sewer pipe.

ARCH CULVERTS OF STONE AND CONCRETE.

There is no departure which would enrich the highways more than the general use of stone and concrete for the construction of bridges and culverts. They last more in the first instance, but the longer life, the fewer repairs needed, the greater convenience, the lesser liability to accident, render them in every way desirable.

Concrete and stone are the only materials with which really permanent work of this nature can be constructed. Bridges and culverts of rubble masonry have existed in Scotland and Ireland with scarcely any repairs for more than a century, since before the time of Telford and Macadam. Concrete bridges and roadbeds built by the Romans nearly 2,000 years ago are still in use in spite of efforts to destroy them in military operations. The cost of this class of work is constantly decreasing through the cheapening and improving of cement, through the lessened expense of procuring stone and crushing it, and through growing experience in the use of cement. In Scotland it is common for farmers to contract for rubble-concrete bridges, provide the stone, and hire masons to do the work. In this way the entire expenditure is kept in the locality, among the people who pay the taxes, and is, therefore, in spite of a slightly greater cost, not unpopular. Up to forty foot spans, this construction is not difficult.

In the construction of a stone arch, the first consideration is the foundation. The depth to which the excavation must be made will depend chiefly upon the span

of the arch and the nature of the natural soil on which it will rest. The chief object is that it shall be secure. If bed rock comes to the surface it may be safe to rest the base of the arch upon it without any further excavation. A firm horizon may exist a short distance below the surface of the ground. But a quicksand, or other insecure footing, may necessitate the sinking of piles, or the placing of a wide, and perhaps deep, concrete base. But the foundation must be sufficient to provide that the washing of the water cannot undermine it, that the lateral thrust of the embankments cannot move it, nor the weight of loads cannot cause it to sink. No more definite rule can safely be given than to make the most of local circumstances, with always a fair margin for safety.

Full-centre arches, that is, entire semi-circles, are easily formed, possess great strength, and have little lateral thrust, but with wide spans they necessarily rise to a correspondingly great height, and cannot always be employed. A segmental or flat arch will lessen the rise, but has a considerable lateral thrust which necessitates very strong abutments. A compound arch, made up of a number of different circles, when rightly proportioned, combines the advantages of the two, reducing the height, and at the same time having an excellent appearance. The thickness of the arch and abutments depends on a number of details, the chief of which are the form and size of the arch, the quality of the material composing it, and the character of the workmanship. The haunches or shoulders should be built from the spring of the arch half way to the top.

(To be Continued.)

THE ENGINEERS' CLUB OF TORONTO.

The regular monthly meeting of the Engineers' Club of Toronto, which should have been held on Tuesday of this week, was cancelled on account of the Industrial Exhibition. The next regular meeting is announced to take place on Tuesday, October 3rd. Mr. Willis Chipman, 103 Bay street, is secretary of the club.



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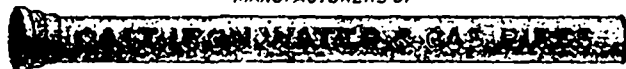
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Hard Building.....	6 00	11 50	
" Sewers.....	6 00	11 50	
Roofing Tiles, \$20 00 per 1,000, \$23 00 Montreal.			

DON VALLEY PRESSED BRICK WORKS.

	F.O.B.	F.O.B.	
	Don Valley.	Montreal.	
Red A.....	18 00	24 00	
Red B.....	16 00	20 00	
Red C.....	13 00	17 00	
Trojan and Corinthian.....	21 00	28 00	
Pompeian.....	22 00	29 00	
Athenian and Egyptian.....	25 00	31 00	
Tyrian.....	35 00	41 00	
Sicilian.....	40 00	45 00	
Roman.....	35 00	40 00	
Carthaginian.....	40 45	45 00	
Ornamental.....	30 00 100 00	30 00 100 00	
Common insides.....	6 00		
Hard sewers.....	7 50		
Vitrified pavers, 1sts.....	16 00	22 00	
" " 2nds.....	10 00	15 00	

COMMON BRICK, Per M.

	F.O.B.	F.O.B.	
	Toronto.	Montreal.	
Common Walling.....	7 00 8 00	7 50 8 00	
Good Facing.....	8 00 9 00	8 50	
Sewer.....	8 00 9 00	8 50 9 00	

STONE.

Common Rubble, per ton, delivered.....	10 00	11 00
Large flat Rubble, per ton, delivered.....	14 00	18 00
Foundation Blocks, per c. ft. Granite (Stanstead) Ashlar, 6 in. to 12 in., fine sand, per ft. Amherst Red Sandstone, Amherst, N.S., per cu. ft. Kent Free stone Quarries, Montreal, N.B., per cu. ft. River John, N.S., per cu. ft. Freestone, per cu. ft. Port Philip, N.S. Brown Sandstone.....	30 1 00 1 00 95 95 90	30 25 95 95 95

" Scorix" Paving Blocks, 8" x 3 1/2" x 5".....	55	
" Scorix" Paving Blocks, 8" x 3 1/2" x 4".....	45 00	
Masilion.....	30 00	
Quebec and Vermont rough granite for building purposes, per c.ft. f.o.b. quarry	40	1 00
For ornamental work, cu. ft.	40	
Granite paving blocks, 8 in. x 12 in. x 6 in. x 1/2 in. per M.		50 00
Granite curbing stone, 6 in. x 20 in. per lineal foot.....		70

CREDIT VALLEY STONE.

Rubble, per car of 15 tons.....	7 00
Brown Coursing, up to 10 in., per sup. yard.....	1 50 13 75
Brown Dimension, per cub. ft.	1 00
Grey Coursing, per sup. yard	45
Grey Dimension, per cub. ft.	

LONGFORD STONE.

Rubble, per 30 M. car.....	5 00
Ashlar, per cub. yd.	2 00
Dimension, per cub. ft.	18

SLATE.

Toronto. Montreal.			
Roofing (9 squares).			
" red.....	17 50	20 00	
" purple.....	8 50	10 00	
" unfading green.....	8 50	7 00 8 00	
" black.....	7 50	6 50	
Terra Cotta Tile, per sq.....	20 00	25 00	
Ornamental Black Slate Roofing.....	8 80	6 80	

CEMENT, LIME, etc.

Portland Cements -			
German per 11.....	2 90	3 10	2 55 2 65
London.....	2 95	3 00	2 25 2 45
Newcas le.....	2 70	3 00	1 95 2 10
" Jossco Bra Portland.....	3 05	3 25	2 70 2 80
" Dyerkerh.....	3 05	3 25	2 75 2 80
" North " Condor".....	2 95	3 10	2 65 2 80
English, artificial, per bbl.....	2 85	3 00	2 35 2 45
Belgian, natural, per bbl.....	2 50	2 75	2 00 2 20
Canadian, artificial, ".....	2 85	3 00	2 60 2 70
Roman.....	5 25	5 25	2 20 2 25
Panama.....	5 25	5 25	5 75 5 75
" Superfine.....	5 25	5 25	5 75 5 75
" Karlstadt" (German).....	3 05	3 25	2 75 2 90
" Germania" (German).....	3 05	3 25	2 75 2 90
" Rootter" (Belgian).....	2 15	2 20	2 15 2 20
" Keystone" (Belgian).....	2 15	2 20	2 15 2 20
" Anvil" (Belgian).....	1 95	2 05	1 95 2 05
" Burham" (English).....	2 95	3 00	2 25 2 45
Hydraulic Cements -			
Thorold, per bbl.....	1 50		1 65
Queenston, ".....	1 50	1 50	1 60
Napanee, ".....	1 50		1 50
Hull, ".....	1 50		1 50
Ontario, ".....	1 25		

Keene's Coarse "Whites".....	5 50	6 00	5 00	5 50
Fire Bricks, Newcastle, per M	30 00	35 00	16 00	21 00
" Scotch	30 00	35 00	19 00	21 00
Lime, 100 lbs., Grey.....		25		
" " White.....		30		30
Plaster, Calcined, N. B.		2 00		1 50
" " N. S.		2 00		1 50
Hair, Plasterers', per bag... 80		1 00		0 00

HARDWARE.

The following are the quotations to builders for nails at Toronto and Montreal:
Cut nails, 3/4 & 6/8, per keg 2 25 1 85
Steel " " " 2 25 1 95

CUT NAILS, FENCE AND CUT SPIKES.

4/8, hot cut, per 100 lbs....	2 15	1 85
10 to 12d, hot cut.....	2 25	1 95
8d, gd, " ".....	2 30	2 00
6d, 7d, " ".....	2 45	2 15
4d to 5d, " ".....	2 55	2 25
3d, " ".....	3 20	2 85
2d, " ".....	3 15	2 85
Cut spikes, 10 cents per keg advance.		
Steel Nails, 10c. per keg extra.		
Wire nails, 2.75 base price.		

Iron Pipe:

Iron pipe, 1/2 inch, per foot..	6c.	6c.
" " 3/8 " " ".....	7	7
" " 1/2 " " ".....	8 1/2	8 1/2
" " 3/4 " " ".....	12	12
" " 1 " " ".....	17	17
" " 1 1/4 " " ".....	24	24
" " 1 1/2 " " ".....	30	30
" " 2 " " ".....	43	43
Toronto, 65 per cent. discount. Montreal, 70 per cent. discount.		

Lead Pipe:

Lead pipe, per lb.....	7c.	25 per cent. dis
Waste pipe, per lb.....	7 1/2	cent. dis

Galvanized Iron:

Adam's-Mar's Best and Queen's Head and Opello:			
16 to 24 gauge, per lb.....	4 1/2c.	4 1/2c.	4 1/2
26 gauge, ".....	4 1/2	5	4 1/2
28 ".....	5	5 1/2	4 1/2
Gordon Crown—			
16 to 24 gauge, per lb.....	4 1/2	4 1/2	4 1/2
26 gauge, ".....	4 1/2	4 1/2	4 1/2
28 ".....	4 1/2	5	4 1/2
Note.—Cheaper grades about 1/2c. per lb. less.			

Structural Iron:

Steel Beams, per 100 lbs....	2 75	2 00
" channels, ".....	2 85	2 30
" angles, ".....	2 80	2 61
" tees, ".....	2 80	2 61
" plates, ".....	2 55	2 00
Sheared steel bridge plate..		1 30