COST OF INSTALLING PUMPING SUPPLY FROM CITY LIMITS AND 24-INCH DUPLICATE FORCE MAINS IN ORDER TO SUPPLY 10,000,000 CALLONS PER DAY, IN ACCORDANCE WITH PLAN, \$512,340.

Operating Cost.

To pump 10,000,000 gallons per day for low level supply requires 953 H.P., and for high level supply 238 H.P. Total horsepower, 1,191.

Above is for a head of 500 feet, assuming that low and high level is half this amount, or 250 feet head in each level.

*1,191 H.P. at \$15 Operating for 365 days at \$10 Incidental expenses per annum	\$17,805.00 3,650.00 500.00
Annual operating expenses	22,015.00
\$22,015.00 capitalized at 5 per cent. equals	· · / / / / /
a capital amount of Total capitalized cost of pumping scheme from city limits, delivering 10,000,000	440,300.00
gallons per day	952,640.00

*Note .- Power costs fifteen dollars per H.P. when consumption reaches 10,000,000 gallons.

Capitalized Cost of Cravity and Pumping Supplies Compared.

With 57 per cent. of the color removed:	1,4	432,819.00 952,640.00
Balance in favor of pumping \$ With 97 per cent. of the color removed :- Current River scheme \$ Pumping scheme	-	480,179.00 861,500.00 952,640.00
Balance in favor of pumping	B	908,860.00 644,319.00 952,640.00
 Balance in favor of gravity scheme Cost of gravity scheme apart from oper- ating expenses Cost of pumping scheme apart from operating expenses 	\$ \$	308,321.00 600,619.00 512,340.00
Balance in favor of pumping Cost of gravity scheme, capitalized operating expenses only Cost of pumping, operating expenses only	\$	88,279.00 832,200.00 440,300.00
Balance in favor of pumping	\$	391,900.00

The question has been raised as to what effect the choice of either of the above alternative systems may have upon the problem of the disposal of the city sewage.

At present the sewage of both Fort William and Port Arthur is discharged in a raw state into Thunder Bay. It has been felt that any decision to rely upon Thunder Bay water for purposes of domestic supply will entail the necessity, in the near future, of a large expenditure in trunk sewers and efficient disposal works for the purification of the sewage before it enters the bay. Fort William has a supply of water by gravity independent of the bay water, and it has been suggested that if Port Arthur could also obtain a similar source of supply, then the necessity for sewage disposal will cease to exist.

The real question to be asked is: Apart from any law of the land prohibiting the discharge of raw sewage into fresh water, will the citizens themselves be content to turn their harbor into a cesspool and sewage disposal area? Apart from the question as to any effect such a discharge of sewage may have upon the domestic water supply, is it not possible and very probable that as the Twin Cities grow in population and the amount of raw sewage increases and the effect upon surrounding waters becomes apparent to the senses, that the citizens will demand that the nuisance be removed.

The history of the pollution of Toronto harbor and the demand by the people that an apparent nuisance be removed by the construction of trunk sewers and disposal works, is an illustration to hand.

In Toronto there has recently been installed an up-to-date filtration plant to remove turbidity and bacteria from the water; also there has been constructed trunk sewers and sewage disposal works, not with the object of removing disease infection from the sewage and safeguarding the water supply, but simply for the purpose of removing from the bay what has been considered a nuisance and disgraceful condition in Toronto harbor.

With similar increase in population, conditions will gradually assume just as objectionable features at Port Arthur and Fort William as at Toronto.

Apart from the actual water consumed from the tap, there is also a summer floating population to be considered, which will at times consume the water direct from the bay.

The question of sewage disposal has not been gone into in any detail, but it is considered that when this problem is taken up, that a trunk sewer system should be constructed from north to south, with disposal works located west of the Canadian Pacific Railway, and north of the McIntyre River. The area suggested is hatched with black lines on Plan B.

Conclusions of the Report .- That owing to the density of color matter in the Current River and its branches, that this watershed does not present a character of water which can economically be presented as an efficient domestic supply to the city.

That a pumping supply be installed at the north city limits.

That duplicate 24-inch intakes be installed.

That the pumping units at the new pump-house consist of the present turbine pump, and a new 2,000 gallons a minute turbine pump.

That the routes for the new 24-inch duplicate force mains be adopted.

That the present water wheel driven pump be maintained at the present pump-house as an auxiliary supply.

That hypochlorite treatment apparatus be installed for use only when required.

The estimated cost of construction of scheme is \$512,340.

NEW GRAIN ELEVATOR FOR WEST ST. JOHN, N.B.

The Canadian Pacific Railway have recently concluded arrangements for the construction of a one-million bushel grain elevator at the above-mentioned point.

The elevator will be of reinforced concrete. It will be capable of unloading 160 cars in 10 hours, and of shipping to ocean vessels at several different berths. The elevator will be electrically-driven, a power plant for the generation of electric power being included in the contract. An extensive shipping gallery system will also be a part of the work. The elevator is to be ready for the winter shipping season of 1913 to 1914.

The approximate cost of this work is \$500,000, and the John S. Metcalf Company, Limited, of Montreal, have been awarded the contract to erect the structure.