

La Belle Province Says “Bon Voyage”

to Wastewater Via RCP Sanitary Sewer

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The cities of Brossard and St-Hubert, on the south shore of the St. Lawrence Seaway near Montréal, Québec, Canada have grown extensively since the mid 1980s. The topography of the south shore is very flat, posing a great challenge to provide adequate surface water drainage. Adding to this challenge is the management of wastewater for these two municipalities. The Baillargeon Collector is a trunk sanitary sewer that has accommodated flows from both municipalities, but it has now reached its full capacity.

The solution to the existing situation is construction of a new collector called the “Matte Intermunicipal Sanitary Phase II Collector” that is partially funded by provincial subsidy programs. This large-scale project includes overflow from the Baillargeon Collector. The Matte Collector is being constructed in certain sectors of the City of Brossard, and the major urban development zone of the City of St-Hubert.

Collecting and treating these wastewaters will result in major environmental benefits. The project provides both municipalities with a large diameter reinforced con-

crete sanitary sewer that can handle the increased demand from the urban development in the two cities. Phase I of the sanitary water management project was carried out in the early 1990s. Phase II is ongoing, and is scheduled to end in late Sep-

tember 2001. Sectors C, L and J of the City of Brossard, are included in Phase II, as well as part of the Daigneault Bassin in the area bordered by the northern part of Boulevard Cousineau. The project is carried out in the area bordered on the north by the Daigneault Bassin, on the south by Boulevard Matte, on the east by Autoroute 30-Rue Cousineau and on the west by the CN Railway.

The 6,900-meter (22,638-foot) Matte Collector, comprised of 1050-mm (42-inch), 1200-mm (48-inch) and 1500-mm (60-inch) diameter reinforced concrete pipe (RCP), was designed to accommodate the flows from sub-basins. Because of the length of the system, and connections with sub-basins, several manholes had to be installed along the collector.

High water tables, located approximately two to three meters (6 to 10 feet) from the surface, determined that the pipe joints and connections with manholes had to be watertight. This was a special requirement of the project specifications. In some places along the main trunk



6,900 meters (22,638 feet) of precast reinforced concrete pipe was used for the Matte Collector System. The line was designed to accommodate flows from sub-basins.

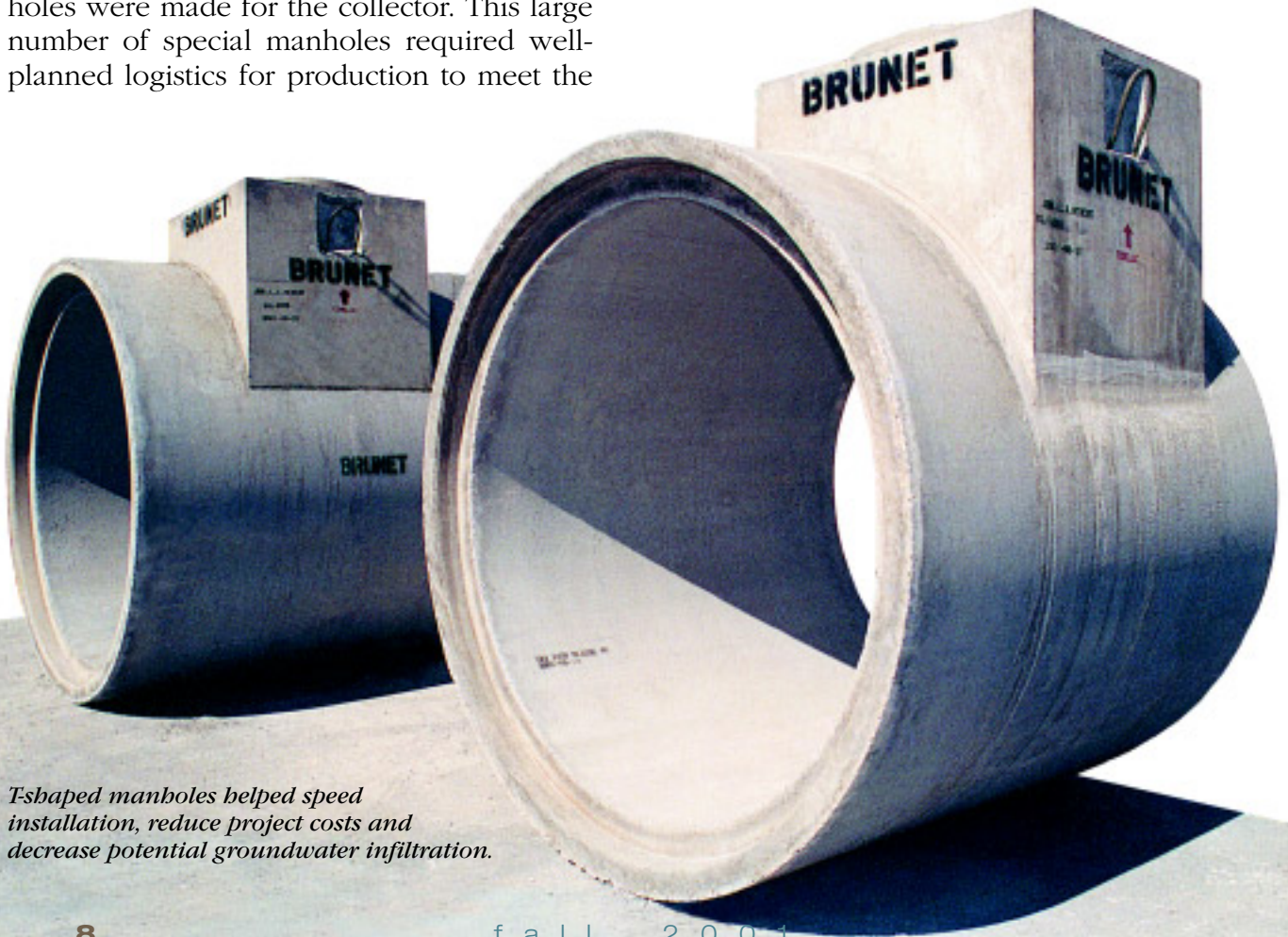
sewer, the RCP had to be buried approximately eight meters (25 feet) at its deepest point, in primarily clay soil. Therefore, Class V pipe was required for the project.

Béton Brunet Ltée, a member of the American Concrete Pipe Association and producer of precast concrete products in the Montréal region, worked closely with the project participants in finding innovative solutions that reduced costs and prevented potential groundwater infiltration. Instead of using traditional manholes, T-shaped manholes using RCP were proposed. To make manholes in the shape of a T, RCP was modified to accommodate an access well. Just like common manholes, the T-shaped manholes included all the necessary accessories for safely accessing the network (ladder or rungs, security levels, etc.). This solution provided four benefits: ease of carrying out work, better productivity for the contractor, reduced project costs, and watertight joints. Rubber gaskets were used for all joints and connections. A total of 45 T-shaped manholes were made for the collector. This large number of special manholes required well-planned logistics for production to meet the

contractor's rate of installation.

In Québec, the Bureau de normalisation du Québec (BNQ) is the agency responsible for drafting standards for manufacturing products. The standard governing the manufacture of concrete pipe is NQ2622-126, and the manufacture of manholes is NQ2622-420. The BNQ also manages certification protocols, and can act as auditor for plant certification programs. Béton Brunet Ltée has been certified for the manufacture of concrete pipes since 1977. The new certification protocol published in December 2000, bearing the number NQ2622-951, deals with pipes, manholes, sumps and valve chambers. Adding certification for manholes is a great improvement for the industry. Many clients already recognize the benefits of BNQ-certified pipe, and some have already set up a schedule for obtaining certification for manholes, sumps and valve chambers in their specifications.

Complying with BNQ standards was a prerequisite of the producer to be able to



T-shaped manholes helped speed installation, reduce project costs and decrease potential groundwater infiltration.



Stringent quality control efforts and exacting installation procedures yielded watertight joints at all manholes.

supply product to the trunk sewer project. Among other things, in the pipe and manhole standards, hydrostatic testing is paramount to ensure watertight products. Béton Brunet regularly demonstrates the quality of its products by performing these tests and others, stipulated in the BNQ standards.

To permit the municipalities of Brossard and St-Hubert to accept construction work for this project, rigid controls were put in place by BPR Groupe-Conseil, the project's consulting engineering firm. Inspections are routinely carried out to check the structural condition of the pipe, and to determine that installation of pipe is done according to specifications. Moreover, on-site tests are carried out to check for watertight joints and connections, and to confirm the performance of the network prior to backfilling the trench.

The Matte Collector is being constructed to the satisfaction of all members of the project team. According to Mr. Fedele, Engineer and Director of the construction company Construction F. Catania & Associates, Inc., the strength and watertight performance of the concrete

pipe has contributed to the success of the project. Mr. Racicot, Engineer and Director of the City of Brossard's engineering department, is satisfied with the work, since the concrete pipe collector provides a long-term solution to this major infrastructure investment. Durability and performance of reinforced concrete pipe was key to the solution. ☺

Project:	Matte Intermunicipal Sanitary Phase II Sanitary Water Collector
Owners:	City of Brossard Louis Racicot, Engineer/Director of Engineering Department City of St-Hubert Michel Brousseau, Engineer/Division Chief of Administration And Technical Services for Public Works
Designer/ Consulting Engineer:	BPR Groupe-Conseil Montréal, Québec Jean Charles Désy, Engineer/Project Manager
Contractor:	Construction F. Catania & Associates, Inc. Longueuil, Québec Pasquale Fedele, Engineer/Director
Quantities:	2,320 meters (7,612 feet)—1050-mm (42-inch) diameter Class V RCP 3,250 meters (10,662 feet)—1200-mm (48-inch) diameter Class V RCP 360 meters (1,181 feet) — 1500-mm (60-inch) diameter Class V RCP 45 units — T-shaped manholes
Producer:	Béton Brunet Ltée Valleyfield (Montréal), Québec Bernard Brunet, Owner

Béton Brunet Ltée is a family-run company, which has produced precast concrete products for over 70 years. Béton Brunet employs approximately 125 people in its Valleyfield and Sainte-Élisabeth plants. In addition to manufacturing pipes of varying diameters (250-mm to 3600-mm), Béton Brunet manufactures manholes, sumps, valve houses, rectangular box culverts, barriers and other custom products. Béton Brunet Ltée is an active member of the American Concrete Pipe Association, Tubecon, Inc. (Québec concrete pipe producers) and Canadian Concrete Pipe Association.