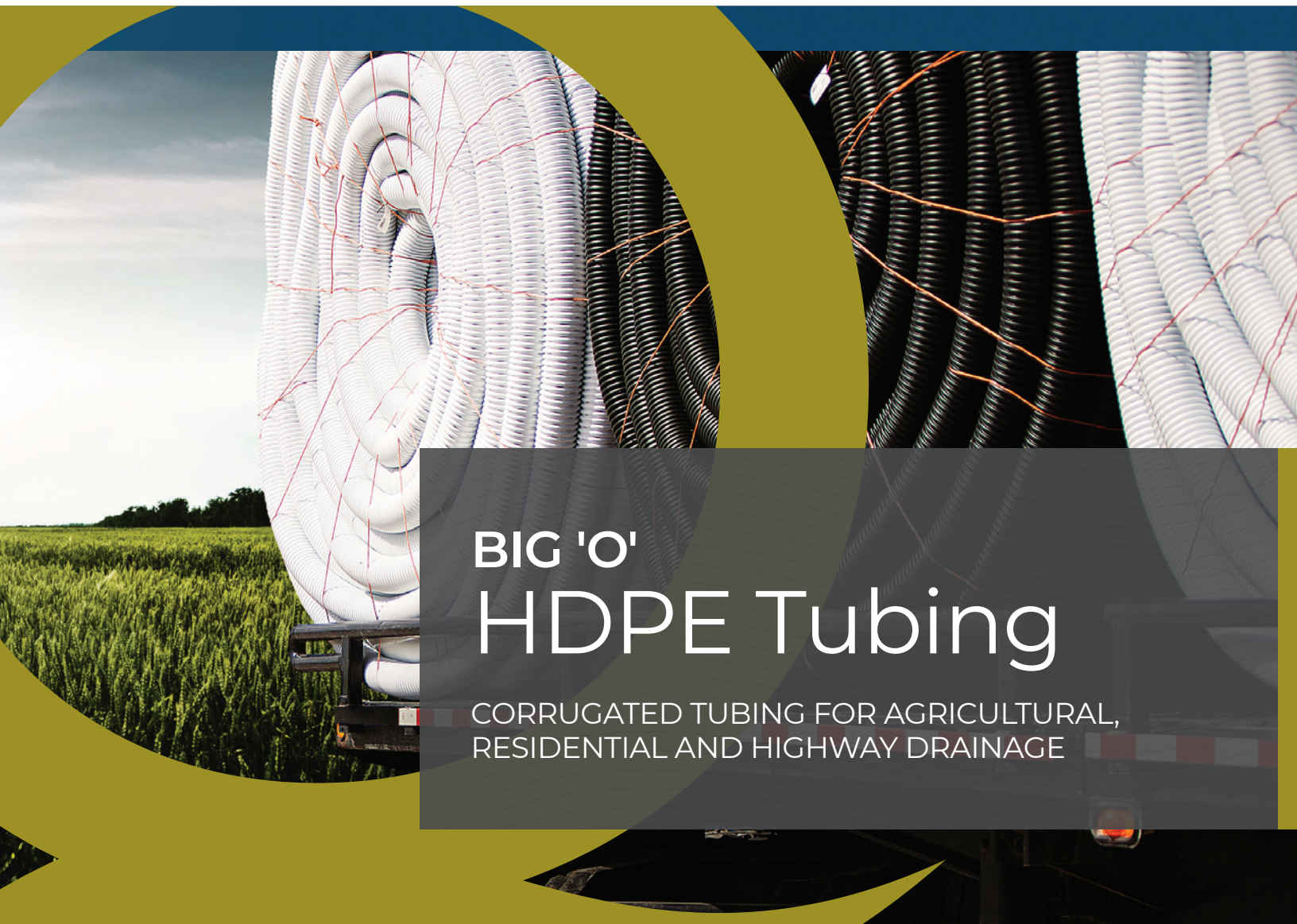


AQUA Q

Smarter drainage solutions.



BIG 'O' HDPE Tubing

CORRUGATED TUBING FOR AGRICULTURAL,
RESIDENTIAL AND HIGHWAY DRAINAGE

aquaq.ca



Proudly owned and operated
in Canada.

BIG 'O' HDPE TUBING



The most recognized brand name
for **HDPE TUBING IN CANADA!**

AQUA Q is Canada's leading producer of subdrainage tubing. For years our Big 'O' High Density Polyethylene (HDPE) tubing has provided superior performance and durability in the agricultural, residential building and highway sectors. It is the most dependable, cost effective material for subdrainage applications providing both low initial cost and ease of installation.

Using state-of-the-art manufacturing equipment, AQUA Q produces a full product line of solid and perforated tubing with optional polyester filter sock. The wide range of sizes, coil lengths and multiple fitting options make Big 'O' HDPE tubing your number one choice for subdrainage projects.

- TYPICAL APPLICATIONS**
- Agricultural Drainage
 - Foundation Drainage
 - Street and Highway Drainage
 - Subsurface Drainage
 - Water Collection
 - Conduits

NON-PERFORATED:

Tubing for point to point drainage

PERFORATED:

Tubing for subsurface drainage

PERFORATED TUBING WITH FILTER SOCK:

Polyester sleeve-wrapped tubing used in light soils to reduce sediment entry

SPECIALTY AND ACCESSORY ITEMS:

Special perforations (high-capacity and fine-cut) and a wide range of fittings available

DURABLE

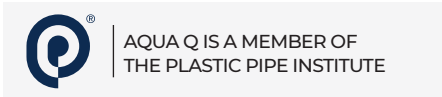
- Highly chemical and corrosion resistant
- Not affected by freeze and thaw cycles

IMPROVED PROFITABILITY

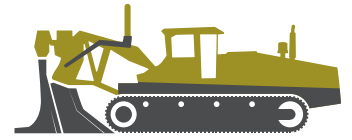
- Significant installation savings with 4 inch rolls available up to 3,500 feet
- Increase crop yields
- Reduce future maintenance costs

VARIETY OF OPTIONS

- Wide range of sizes and fittings
- Additional perforation patterns available
- Tubing available in black and coex



BIG 'O' HDPE TUBING FOR AGRICULTURAL DRAINAGE



Water logged fields can be a big problem for farmers, ruining crops and delaying production. AQUA Q's Big 'O' tubing provides a big solution. Installation of a Big 'O' drainage system ensures excess water is removed quickly and efficiently. Soil erosion and compaction is reduced, and wear and tear on equipment is minimized. Crops thrive with healthy root systems while planting and harvesting seasons are extended. With increased land values and improved productivity, investing in agricultural drainage will pay for itself many times over.

Increased Crop Yields

Healthy root systems are established in well drained, aerated soil improving plant quality and crop yield.

Lower Production Costs

Planting and harvesting times are reduced, decreasing fuel consumption and labour costs.

Increased Land Value

Investing in subsurface drainage increases land value providing a great return on investment.

Extended Growing Season

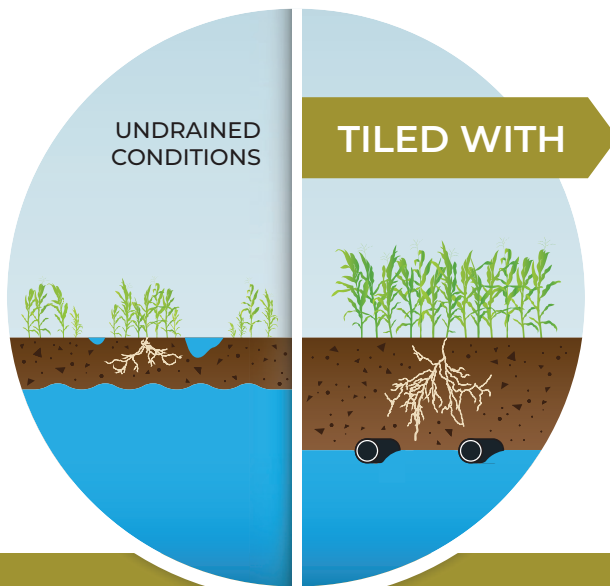
Spring and autumn flooding is reduced so fields are accessible earlier and later in the season.

Environmental Protection

Elimination of surface water prevents soil, fertilizers and chemicals from contaminating waterways and harming the environment.

Reduced Wear and Tear on Equipment

Improved surface conditions allow easier access for farm equipment and less soil compaction.



AQUA Q BIG 'O'

BIG BENEFITS

- Increase crop yields by an average of 30%
- Lower overall cost of production
- Increase the resale value of your land
- Decrease wear and tear on equipment
- Reduce soil erosion and compaction
- Earlier spring planting with lower water tables and warmer soil temperatures reduces the risk of delayed harvesting

Removing excess water quickly will reduce the potential for crop damage.

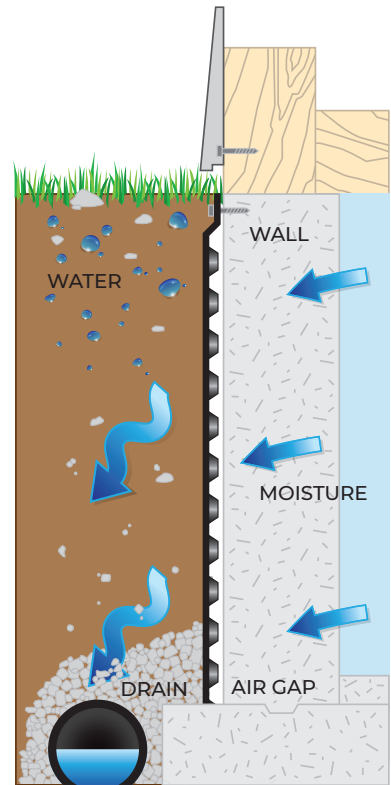


BIG 'O' HDPE TUBING FOR FOUNDATION DRAINAGE

A proven performer in the building industry, Big 'O' tubing is durable, lightweight and easy to install. A Big 'O' drainage system will prevent water from damaging your foundation and safe-guard your investment for years to come.

Big 'O' perforated tubing is an excellent choice for foundation drainage and other groundwater drainage applications such as retaining wall protection. Its spaced slits absorb water through the pipe and divert it away from structures. For locations where the surrounding soil is fine and requires filtration, Big O perforated tubing is available with a polyester filter sock.

Solid (non-perforated) Big 'O' HDPE tubing is the perfect choice for applications where water is diverted from one point to another, such as away from downspouts. Water cannot escape until it is discharged from the end of the tube to a safe location.



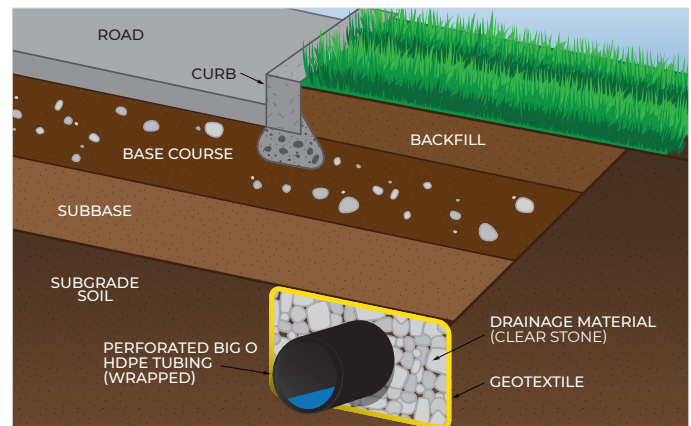
WATER IS DRAWN INTO THE PERFORATED TUBING AND DIVERTED SAFELY AWAY FROM THE FOUNDATION



BIG O TUBING COMBINES WITH PLATON FOUNDATION WRAP TO PROVIDE A COMPLETE FOUNDATION DRAINAGE SOLUTION

BIG 'O' HDPE TUBING FOR STREET AND HIGHWAY DRAINAGE

Big 'O' tubing is a cost-effective solution for street and highway drainage applications including edge drains, cross drains, and underdrains. It is available in long roll lengths, minimizing joints and reducing installation time. Big O's HDPE construction combines strength and durability in a lightweight product, and will stand up to the most challenging environmental conditions.



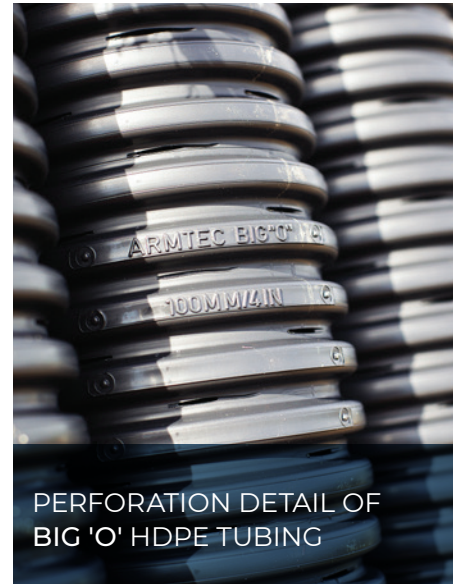
SUBSURFACE DRAINAGE EXTENDS THE SERVICE LIFE OF STREETS AND HIGHWAYS

PERFORATION DIMENSIONS – 4 Holes Per Corrugation

Diameter	Type	Perforation Length	Perforation Width	Perforation per Metre	Open Area
(mm)/(in)		(mm)	(mm)	(m)	(cm ² /m)
100/4	Slots	12	1.3	236	37
150/6	Slots	12	1.3	236	37
200/8	Slots	27	2.5	112	76

NOTE:

In addition to these generic perforation details, there are many different configurations of perforations available. Please contact an AQUA Q representative for more information.



PERFORATION DETAIL OF BIG 'O' HDPE TUBING

NOMINAL SIZES AVAILABLE

Product and Applications	50mm 2"	75mm 3"	100mm 4"	150mm 6"	200mm 8"	250mm 10"	300mm 12"	375mm 15"
Perforated All drainage requirements	•	•	•	•	•	•	•	•
Solid (non-perforated) Suitable for all applications that do not require collection through infiltration	•	•	•	•	•	•	•	•
Orangeline* (perforated on bottom only) Foundation drainage; limited use only in municipalities where specified			•					
Redline* (with fish tape) Solid wall pipe used as a conduit for electrical wires or water lines			•					
Perforated with Geotextile Filter Sock All drainage applications in fine grained soils; prevents clogging	•	•	•	•	•	•	•	•

NOTE:

In Quebec 50mm and 375mm tubing diameters are unavailable and perforated tubing is available in black only (except 100mm which is also available in coex).

*Orangeline and Redline are unavailable in Quebec.

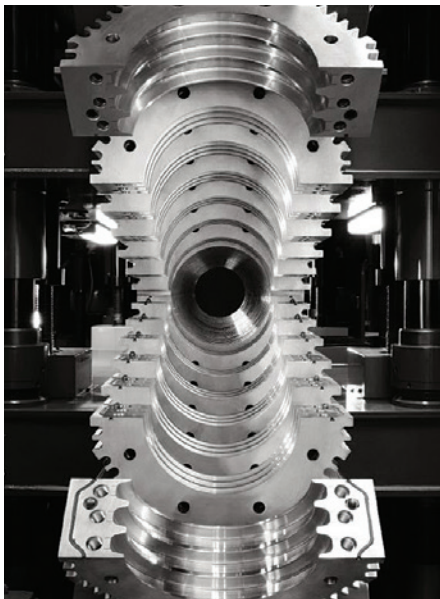
*Meets ONTARIO HYDRO ONE Standards

COIL LENGTHS AVAILABLE

Single Wall Tubing Diameter mm (in)	Lengths Available m (ft)
50mm (2")	152.40m (500'), 2133.60m (7000')
75mm (3")	30.48m (100'), 121.92m (400'), 670.56m (2200'), 1584.96m (5200')
100mm (4")	15.24m (50'), 30.48m (100'), 45.72m (150'), 76.20m (250'), 1066.80m (3500')
150mm (6")	30.48m (100'), 152.40m (500'), 304.80m (1000'), 518.16m (1700')
200mm (8")	6.10m (20'), 30.48m (100'), 121.92m (400'), 182.88m (600')
250mm (10")	6.10m (20'), 30.48m (100'), 121.92m (400')
300mm (12")	6.10m (20'), 30.48m (100'), 76.20m (250')
375mm (15")	6.10m (20'), 64.01m (210')

NOTE:

In Quebec 50mm and 375mm tubing diameters are unavailable and perforated tubing is available in black only (except 100mm which is also available in coex).

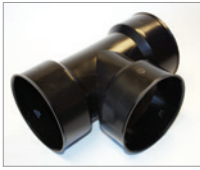


BIG 'O' HDPE MOLD BLOCKS UTILIZE THE LATEST IN HDPE PRODUCTION TECHNOLOGY



BIG O'S QUALITY AND RELIABILITY ENSURES WORRY-FREE INSTALLATION

FITTINGS



Snap Tee



Reducing Tee



Insert Tee



Tap Tee



Hickenbottom Surface Drain



Snap Adapter



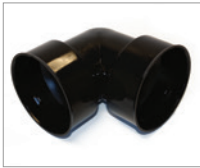
Downspout Adapter



Insert End Cap



45° Wye



90° Elbow



Insert Coupler



Split Coupler



Sumpwell - Catchbasin

DIMENSIONS

Description	Tubing Diameter								
	50mm 2"	75mm 3"	100mm 4"	150mm 6"	200mm 8"	250mm 10"	300mm 12"	375mm 15"	625mm 25"
Snap Tee		3 x 3 x 3	4 x 4 x 4	6 x 6 x 4	8 x 8 x (8-6) 8 x 8 x (6-4)	10 x 10 x (10-4)	12 x 12 x (12-4)		
Reducing Tee		3 x 3 x (3-2)	4 x 4 x (4-3)	6 x 6 x (6-4)	8 x 8 x (8-6)	10 x 10 x (10-8)	12 x 12 x (12-10)		
Blind Tee			4 x 4 x 4	6 x 6 x 6					
Insert Tee			4 x 4 x 4						
Tap Tee	•	•	•						
Hickenbottom Surface Drain			•	•	•	•	•		
Snap Adapter		•	•	•	•				
Split Adapter						•	•		
Downspout Adapter		• Rectangle Square	• Rectangle Square						
Insert End Cap	•	•	•	•	•				
Split End Cap						•	•		
Insert Coupler		•	•	•	•				
Split Coupler	•				•	•	•	•	
45° Wye			•	•					
90° Elbow			•	•					
Sumpwell - Catchbasin									•

NOTE:

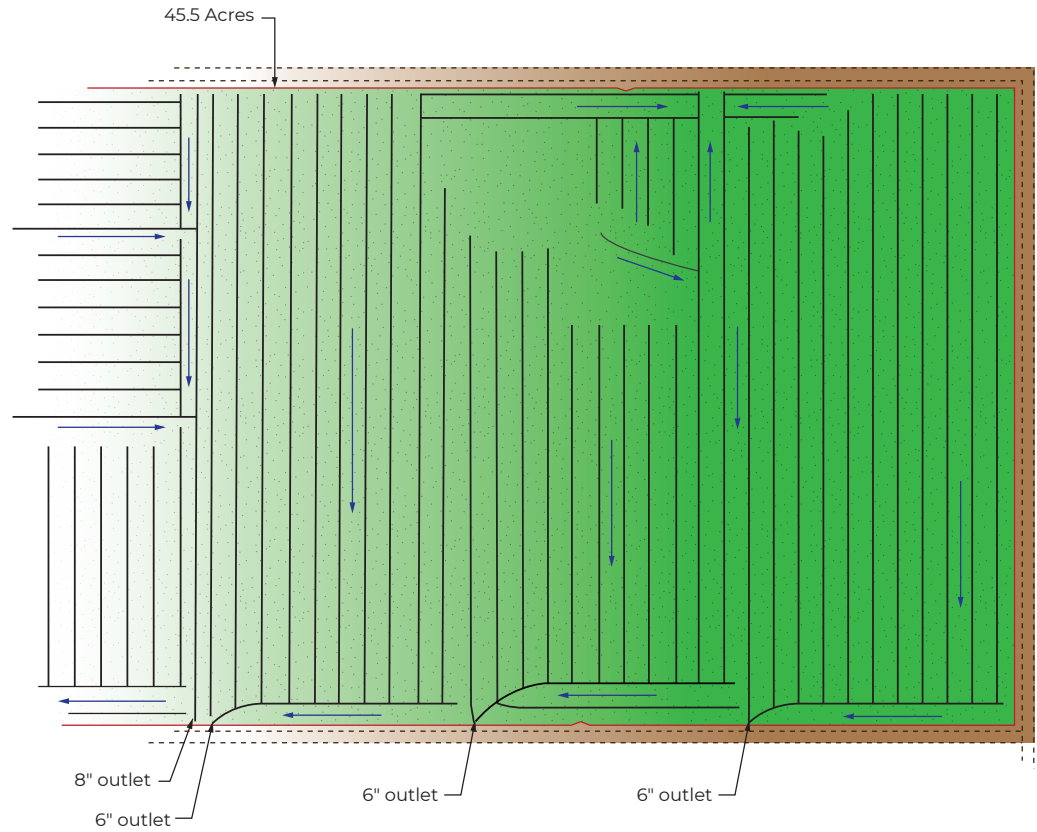
In Quebec 50mm, 375mm and 625mm fittings are unavailable.

AGRICULTURAL DRAINAGE INSTALLATION

General Guidelines

Agricultural drainage systems are custom designed for each location, taking into account a variety of parameters such as topography and soil composition. Design and installation should be performed by a qualified contractor. Please contact an AQUA Q Sales Representative for guidance.

A TYPICAL AGRICULTURAL DRAINAGE LAYOUT INDICATING FLOW DIRECTION



SPECIALIZED AGRICULTURAL TILING EQUIPMENT USES GPS TECHNOLOGY TO ENSURE ACCURATE INSTALLATION



AQUA Q IS A MEMBER OF
THE LAND IMPROVEMENT
CONTRACTORS OF ONTARIO
(LICO)

FOUNDATION DRAINAGE INSTALLATION

General Guidelines for Installation

By carefully following these installation guidelines, you will achieve an easy-to-install, safe, permanent and efficient Big 'O' drainage system. Some restrictions may apply. **Check with local authorities.**

1. Bedding

Tubing should be bedded in gravel or crushed stone however, selected soil backfill material may also be used with satisfactory results. The top and sides of the drain pipe or tile shall be covered with not less than 150mm of crushed stone or other coarse clean granular material. When selected soil bedding material from the trench excavation is used, choose small loose particles of soil that will flow around the tubing and minimize soil settling. Avoid large rocks that may damage the tubing or large clods of soil that cause voids and subsequent excessive settling.

2. Depth of cover

If vehicular traffic is expected over the tubing, there should be a minimum of 30cm (12") of cover over the tubing if gravel bedding material is used and 61cm (24") of cover if selected soil bedding material is used. Typical recommended gravel materials are pea gravel, granular A stone or pit run course sand and gravel mixes.

3. Proper grade

The grade, or fall, on which the tubing is laid is important in that reversals in grade will reduce the effectiveness of the system. Best drainage results are achieved with a continuous downhill fall, or grade, over the entire length of the drain line. A fall of 5cm (2") per 30m (100') of length is generally considered adequate. Greater fall will promote more rapid drainage.

4. Proper backfill selection

Choose your materials according to the application. If absorption and drainage are required, perforated tubing should be used. If tubing serves only to move water away from an area (such as a downspout run-off), non-perforated tubing is best because it won't dissipate water into the surrounding area. Non-perforated tubing should also be used if the line runs close to trees where root penetration may be a problem. If the soil being drained is sandy or silty, then a filter sock should be used to prevent fine particles from entering and blocking the drainage line.

5. Care during installation

Care should be taken to prevent damage to the tubing during the backfilling operation. Avoid dropping large soil clods or rocks directly on the tubing. Heavy loads of all types should be avoided until the soil around the installation area is properly settled.

Working with Big 'O' Tubing without a filter sock

- i. Dig a trench or series of trenches depending on how large the area is that you are draining.
- ii. Line the trench with a landscape fabric. Make sure that your fabric is wide enough to cover the gravel and pipe

installation – 91cm (36") wide should be adequate in most installations.

- iii. Add 2.5cm to 5cm (1" to 2") of gravel (crushed stone between 1cm to 2.5cm (2/5" to 1") in size, not pea gravel).
- iv. Once the gravel is in place, position the pipe in the trench and add more gravel until the pipe is covered by approximately 5cm (2") of gravel.
- v. Fold the fabric over the gravel and pipe to keep the dirt out. Once the fabric is closed, you may begin covering it with the excavated dirt.

Working with Big O tubing with a filter sock

The instructions are generally the same as they are when working with a pipe without a filter sock except you do not have to line the trench with landscape fabric. Please refer to the instructions above.

Downspout run-off

To carry rainwater away from the house and avoid water seeping down basement walls and creating wet basement problems, use Big 'O' non-perforated tubing from the downspout to a storm drain inlet, street curb or other disposal area.

Place a Big 'O' downspout adapter on the end of the downspout, snap the Big 'O' non-perforated tubing into the snap coupling end of the adapter and run the tubing to the disposal area. If a shallow line is needed from the downspout, a Big 'O' 90° elbow can be used. Big 'O' Tees, Ys and other fittings are available for connecting two or more downspouts to the same line.

Window wells

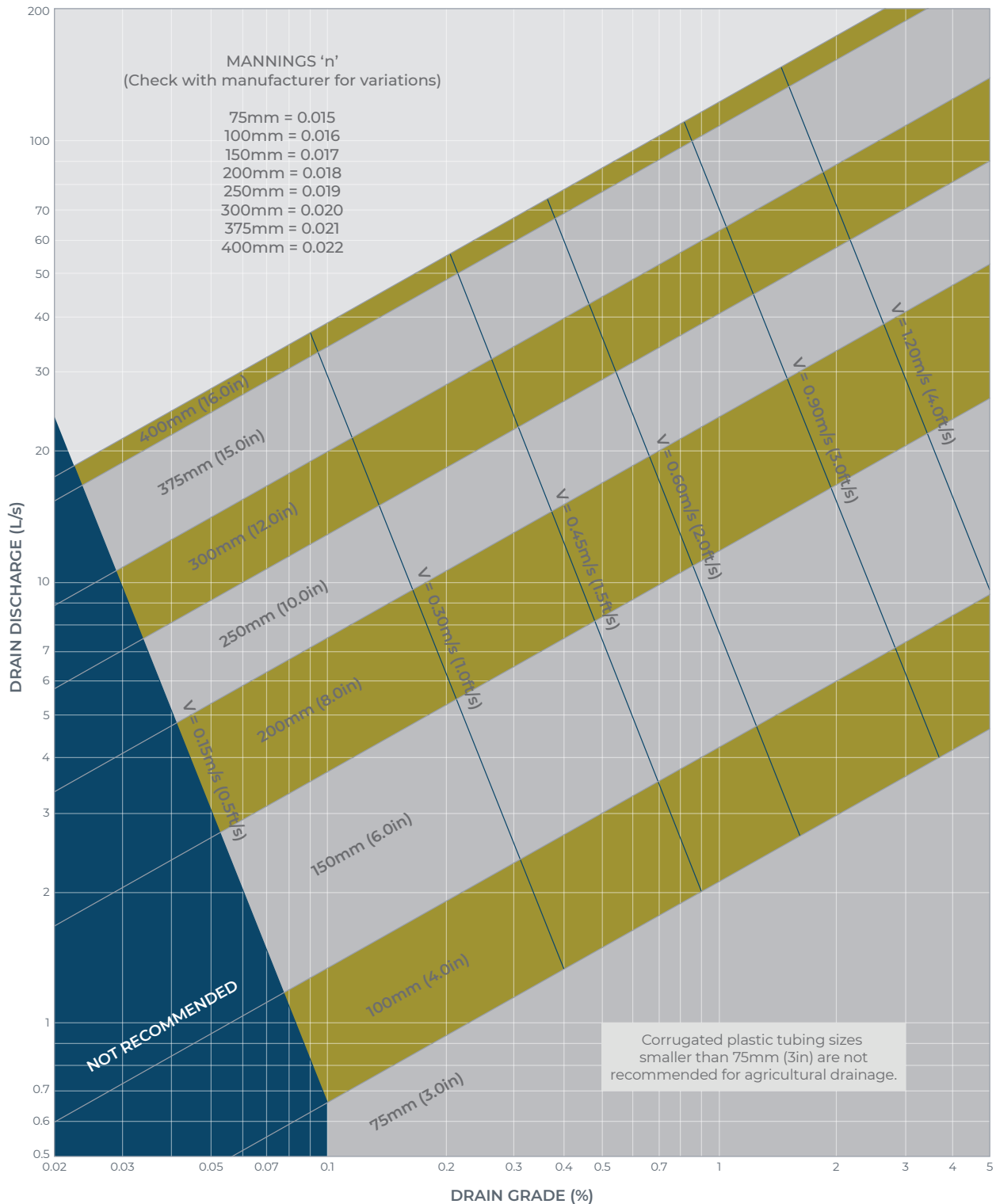
Basement window wells should be drained to prevent water from seeping down to the foundation wall and entering the basement. The window well can be easily drained by running a line of Big 'O' non-perforated tubing from a drain in the bottom of the well to a disposal area. The flexibility of Big 'O' tubing will be helpful in making grade changes and curves away from the well. Big 'O' 90° elbows are available for extremely sharp curves.

Low spots

For wet spots in lawns or other areas, use Big 'O' perforated tubing installed in gravel to pick up the water and carry it to a catch basin or other disposal area. In heavy clay soils, several lines of Big 'O' perforated tubing may be needed to speed drainage.

BIG 'O' SIZING CHART

Use the chart below to select the correct tubing size for your site conditions. For a given drain grade (%), discharge flow rates (L/s) and outlet velocities are plotted for various tubing sizes. The larger the tubing diameter the higher the discharge flow rate and velocity. Manning's 'n' numbers are included below. Corrugated tubing sizes below 75mm (3in) are not recommended for agricultural drainage.



Specification

Corrugated High Density Polyethylene Tubing for Subdrainage Applications

1. Scope

This specification covers the requirements of corrugated high density polyethylene tubing used in sub-drainage applications. Nominal sizes include 50, 75, 100, 150, 200, 250, 300 and 375mm diameters. Each size is available in solid, perforated or perforated with polyester filter sock.

2. Materials

Pipe shall be manufactured from good quality high density polyethylene resin.

3. Tube Dimensions

The nominal size of the tube is based on the nominal inside diameter of the tube. The tolerance on the specified inside diameter shall be + 3% / - 1.5%.

4. Joints

The pipes shall be joined with external 'insert' or 'split' couplers.

5. Tube Stiffness

The tube has a minimum stiffness of 210 kPa at 5% deflection. Tests shall be conducted in accordance with ASTM D2412.

6. Retest and Rejection

If failure to conform to these specifications occurs, the pipe or fittings may be retested to establish conformity in accordance with an agreement between the purchaser and the seller.

OTHER APPLICABLE STANDARDS

- AASHTO M252
- AASHTO M294
- ASTM F667
- BNQ 3624-115

Nominal Diameter (mm)	50, 75, 100, 150, 200, 250, 300, 375
Outside Diameter (mm)	63, 90, 120, 180, 240, 305, 375, 440
Recommended Drainage Depths (mm)	600mm minimum cover, 2,000mm maximum cover

NOTE:

50mm and 375mm tubing diameters are unavailable in Quebec.



SPECIALIZED AGRICULTURAL TILING EQUIPMENT

Find out how **BIG 'O' HDPE Tubing** can be used on your next project.
Contact us today.



Aqua Q™ helps build better communities by imagining, engineering
and delivering smart drainage solutions.

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