

## Verdun's environmental data and health impact

*How the ground under your feet is affecting your health  
and housing — and what to do about it*

For owners, tenants, gardeners, parents,  
and anyone who lives in Verdun.

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A personal informational document — see disclaimer page

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# Key Takeaways

If you read nothing else, read this. The most important things every Verdun resident should know about the ground their home sits on, summarised.

## Health: the five risks that matter, in order

- ✓ Damp-building syndrome is the dominant respiratory risk in Verdun. Buy a hygrometer, target 30–55% humidity.
- ✓ Lead — from soil dust near painted walls and from old water service lines — affects ~4,671 dwellings. Use an NSF/ANSI 53 filter at any drinking-water tap.
- ✓ Radon is geology-driven and varies house by house. Test for 3 months between October and April; act if over 200 Bq/m<sup>3</sup>.
- ✓ Traffic air pollution falls off sharply within ~150 m of Highway 15 and the Champlain approach.
- ✓ Combined-sewer overflows make swimming unsafe for 48 hours after heavy rain.

## Property: what the geology does to buildings

- ✓ Champlain Sea marine clay underlies everything. It holds water like a sponge and shrinks in droughts — causing the classic stair-step cracks in old plexes.
- ✓ Pyrite in basement backfill is a real but localised risk. Buildings constructed or renovated between 1970 and 1998 should be tested if any star-shaped slab cracks appear.
- ✓ A backwater valve on the building sewer is the single highest-ROI flood defense for older plexes. Roughly \$1,200–\$1,800; RénoPlex subsidies available.
- ✓ Two registries — the provincial GTC and the city's contaminated-lots list — are free to consult before buying or renovating any property.

## If you use the river: swimming, paddling, fishing

- ✓ Call 514-280-0789 to check whether Verdun beach is open before going. Bans of 24–72 hours after combined-sewer overflows are routine.
- ✓ Quebec's safe-swimming threshold is 200 E. coli/100 mL; secondary contact (kayaking, paddling) is 1,000.
- ✓ Catching fish is fine; eating them needs care. Follow Quebec's Guide de consommation du poisson — limits are species-, size-, and location-specific.
- ✓ Mercury and PCBs are the main concerns. Smaller fish are safer than larger predators; trim fat and skin; pregnant residents and young children should be most cautious.

### Action items that cost almost nothing

- ✓ Open windows 10–15 minutes daily, even in winter, especially in bathrooms and kitchens.
- ✓ Run cold water for 1–2 minutes before drinking after periods of no use.
- ✓ Never use hot tap water for cooking or baby formula in pre-1970 buildings.
- ✓ Never store cardboard directly on a basement floor — use plastic bins with lids.
- ✓ Don't swim in the St. Lawrence for 48 hours after heavy rain.
- ✓ Wash hands after gardening; wash all produce thoroughly.

### If you're a tenant

- ✓ Persistent dampness, mold, or musty smells are habitability issues — the landlord's responsibility under Quebec law.
- ✓ Document everything with dated photos and written communication.
- ✓ The Comité d'action des citoyennes et citoyens de Verdun (CACV) provides free information: 514-769-2228.
- ✓ You can test your own unit for radon. A documented high reading strengthens any future habitability claim.

### If you're an owner

- ✓ Phase I Environmental Site Assessments (\$1,500–3,000) before purchase or major renovation flag historical contamination.
- ✓ Basement renovations are the cheapest moment to install radon-ready sub-slab piping and proper moisture barriers.
- ✓ Lead service line private-side replacement is now your legal responsibility under city by-law 20-030.
- ✓ Use closed-cell spray foam — not poly vapour barriers — on the inside of foundation walls.

### Climate change and insurance

- ✓ Extreme rainfall events are projected to increase 15–25% by 2071–2100 (Ouranos). Sewer backup risk is going up, not down.
- ✓ Champlain clay shrink-swell cycles will intensify as drought summers get hotter — foundation maintenance matters more than it used to.
- ✓ Sewer backup is rarely included in standard home insurance. An endorsement costs \$150–300/year and is essential in Verdun.
- ✓ Tenant insurance with sewer backup coverage costs \$15–25/month and protects your contents even if your landlord is covered for the building.

# Why this guide exists

Verdun looks like an ordinary Montreal borough: plexes with winding staircases, a lively commercial street, a long stretch of riverfront. But the ground that Verdun sits on — and the layers of history built onto it — shape residents' health and homes in ways that are mostly invisible. A wet basement on Wellington is not bad luck. A radon reading on Crawford Park is not random. A cracked foundation on Rielle is not surprising. They are products of the borough's geology, its industrial past, and the choices made to build a city on top of a glacial seabed.

This guide is written for everyone who lives here, regardless of whether they own a property or rent one. It covers the same physical realities for both, but the actions available differ. Owners can install systems and excavate; tenants can ventilate, test, request repairs, and document conditions. Where the response differs by tenure, this document spells out both.

Nothing in this guide is a substitute for a professional inspection, a doctor's advice, or a lawyer's interpretation of your lease. It is a starting point — a translation of the technical literature into something a resident can actually use.

## Part 1 — What you are sitting on

### The three-layer stack

Verdun rests on three distinct layers, and almost every issue in this guide traces back to one of them:

- **Topsoil and urban fill** (the top ~50 cm) — a century and a half of construction debris, old paint dust, road salt residue, vehicle emissions, and whatever was on the lot before.
- **Champlain Sea marine clay** (typically 5–30 metres thick) — fine grey silty clay deposited 12,000 years ago when a postglacial inland sea covered the St. Lawrence Lowlands. Holds enormous amounts of water and shrinks dramatically when it dries.
- **Ordovician bedrock** — mostly Trenton Group limestone, with patches of Utica Group black shale, sitting on Potsdam sandstone deeper down. The Utica shale contains uranium and is the main natural source of radon under the borough.

## Why the layers matter to daily life

The Champlain Sea clay is the single most consequential layer. It is what geologists call a *sensitive clay* — meaning its strength can collapse when disturbed, and its volume changes with moisture. It holds water like a sponge but releases it grudgingly. Verdun basements stay damp because they are essentially carved into a saturated clay matrix. Foundations crack in drought summers because the clay shrinks underneath them. Both phenomena are documented in the [regional engineering literature](#) dating back to the dry summer of 1983, when many lightweight buildings in the Montreal area suffered settlement damage.

The Utica shale below the clay is the natural source of radon — a radioactive gas that decays from uranium and can accumulate in basements and ground-floor apartments. The clay above acts as a partial barrier, but cracks, sumps, and plumbing penetrations give radon a path upward.

The top layer — urban fill and topsoil — is where most chemical contamination lives. This is the layer that affects gardens, children playing in yards, and dust drifting through open windows.

## Part 2 — Health

### The five risks that actually matter, ranked

Public discussions of urban environmental health tend to focus on dramatic but rare risks. In Verdun, the actual disease burden falls in a fairly predictable order:

Risk	Most affected	Severity in Verdun
Damp-building syndrome (mold, humidity)	Children, seniors, asthmatics, anyone living below or beside a damp basement	High — the dominant respiratory risk in the borough
Lead exposure (soil + water pipes)	Children under 6, pregnant residents	Moderate to high — depends on age of building and yard use
Radon	Long-term residents, smokers, basement-dwellers	Moderate — geology-driven, varies house by house
Traffic-corridor air pollution	Residents within 150 m of Highway 15 or Champlain approach	Moderate, local — falls off quickly with distance
Sewer-overflow exposure	Riverfront swimmers, flood-prone basements	Episodic — concentrated during heavy rain events

### Damp-building syndrome

This is the health issue almost every long-term Verdun resident has encountered, often without naming it. Chronic indoor dampness — above about 55% relative humidity — feeds mold, dust mites, and bacteria, and even in the absence of visible mold causes irritation of the eyes, nose, throat, and lungs.

The clinical consequences include adult-onset asthma, recurrent bronchitis, allergic rhinitis, and eczema flares. Children, seniors, pregnant residents, and anyone with existing respiratory conditions are at higher risk. The signature pattern in plex buildings is that tenants in different units independently report similar symptoms, because they are breathing air from the same damp basement that migrates up the shared stairwell.

**If you live in Verdun, do this:**

- Buy a hygrometer (\$15 at any hardware store). Place one in your lowest-floor living space and one on each upper floor. Target 30–55% relative humidity year-round.
- If summer humidity routinely exceeds 55%, run a dehumidifier. If winter humidity drops below 30%, run a humidifier — but maintain it (uncleaned humidifiers cause their own problems).
- Never store cardboard boxes directly on a basement floor. Use plastic bins with lids.
- Open windows for 10–15 minutes per day even in winter, especially in bathrooms and kitchens.
- Visible mold under 1 m<sup>2</sup> can usually be cleaned with soap and water and an N95 mask. Anything larger should be assessed by a qualified professional.

**If you rent in Verdun**

Persistent dampness, visible mold, or musty smells are the landlord's responsibility to address under Quebec's habitability requirements. Document conditions with dated photos. Send a written request (registered mail is strongest) before escalating to the Tribunal administratif du logement (TAL). The CACV provides free information sessions on tenant rights in cases of mold and unsafe conditions.

**If you own in Verdun**

Mold is rarely a paint problem; it is a moisture problem. Cleaning mold without fixing the moisture source guarantees its return. The four common moisture sources, in order, are: porous foundation walls (especially rubble stone), failed perimeter drainage (drain français), inadequate basement ventilation, and disconnected or misdirected downspouts. Address the source before remediation.

**Lead**

Lead has two exposure routes in Verdun: soil dust and drinking water through old service lines.

**Soil**

Anywhere within roughly 10 metres of a pre-1980 painted exterior wall, or along any street that carried leaded gasoline before 1990, will show elevated surface soil lead. Most Verdun plexes meet both criteria. Children ingest soil lead from dust on hands or unwashed garden produce; adults inhale it during gardening or yard work. There is no safe blood-lead level in children. Even low-level exposure has been linked in long-term studies to measurable effects on IQ, attention, and behavior.

## Water

Approximately 4,671 dwellings in Verdun still have lead water service lines, according to the [City of Montreal's most recent inventory](#). Lead leaches from these pipes — and from internal lead solder in pre-1990 plumbing — into drinking water. The city is replacing the public-side portion progressively, and as of 2021 the private-side replacement is legally the property owner's responsibility.

### If you live in Verdun, do this:

- Check whether your address is on a lead service line. The City of Montreal maintains a public map (search: 'plomb eau Montréal carte').
- If your building was built before 1970 and has not had its service line confirmed copper, request the city's free water test.
- Use an NSF/ANSI 53 certified filter at any tap used for drinking water or cooking. Pitcher filters (\$30) and faucet-mount filters (\$40) are both effective. Replace cartridges as directed.
- Always run cold water for 1–2 minutes before drinking after periods of no use (overnight, after work, after vacation).
- Never use hot tap water for cooking or making baby formula. Hot water dissolves more lead.
- If you have young children or are pregnant, this matters most — and the filter is the single highest-leverage action today.

Owners considering soil testing for the yard: a basic heavy-metals panel from a Quebec-accredited environmental lab (Eurofins, Bureau Veritas, Multitest) runs \$80–150 per sample. Sample separately from three zones — within 1 m of any painted exterior wall, the street-facing perimeter, and the planned garden area — to capture variability that single composite samples miss. Quebec's residential threshold for lead is 500 mg/kg, but health authorities consider 75 mg/kg the safe limit for growing food directly in the soil.

## Radon

Radon is a colorless, odorless radioactive gas produced naturally by the decay of uranium in bedrock. In Verdun, the Utica shale under parts of the borough is uranium-bearing. Radon enters buildings through cracks in foundations, sump openings, gaps around service penetrations, and unsealed slab-wall joints. It accumulates in the lowest levels — basements and ground-floor apartments — especially in winter when buildings are sealed.

The health risk is lung cancer. [Health Canada estimates](#) about 10% of lung cancer deaths in Quebec are attributable to radon. The risk multiplies dramatically with smoking. In major Canadian cities including Montreal, roughly [one in six homes test above the Canadian guideline of 200 Bq/m<sup>3</sup>](#).

**If you live in Verdun, do this:**

- Test. A long-term alpha-track detector costs \$30–60 at hardware stores or via the [Quebec Lung Association \(poumonquebec.ca\)](http://Quebec Lung Association (poumonquebec.ca)).
- Place the detector in the lowest level you regularly occupy, 1 m off the floor, away from windows and HVAC vents.
- Test for at least 3 months, preferably between October and April when windows stay closed.
- Under 100 Bq/m<sup>3</sup>: no further action. 100–200: retest the following winter. Over 200: install a mitigation system within one year.
- Mitigation typically costs \$2,000–4,000 and consists of a fan that vents soil gas from beneath the slab to above the roofline.
- Tenants: you have the right to know your unit's radon level. Ask whether the building has been tested. A documented high reading strengthens any future habitability claim.

## Air quality

Verdun's outdoor air quality is moderate by Canadian standards. Annual average PM<sub>2.5</sub> across Montreal sits around 8.1 µg/m<sup>3</sup>, somewhat above the World Health Organization's guideline of 5 µg/m<sup>3</sup> but well below problem cities globally. Verdun is not disproportionately polluted; the city's east end has historically had higher readings due to refinery and port activity.

Two location-specific qualifiers apply within the borough:

- Highway 15 runs along the borough's western edge. Within ~150 m of the highway, residents experience elevated nitrogen dioxide, ultrafine particulates, and black carbon. The childhood-asthma literature consistently shows a near-roadway gradient that fades within 150–200 m.
- The Champlain Bridge approach concentrates traffic into Verdun's southeast. The same gradient applies.

Winter thermal inversions occasionally trap emissions across the St. Lawrence valley, producing spike days. Wood smoke from legacy non-certified stoves contributes locally on cold nights.

**If you live in Verdun, do this:**

- Check the daily [Air Quality Health Index \(AQHI\) on weather.gc.ca](https://weather.gc.ca) before outdoor exercise, especially in summer ozone season and during wildfire smoke events.
- If you live within 150 m of Highway 15 or the Champlain approach and have asthma or a young child, consider a HEPA air purifier for the bedroom.
- Keep windows closed during smog and smoke advisories. Open them during cool overnight hours when air quality is best.
- If you use a wood-burning stove or fireplace, ensure it is EPA- or CSA-certified and properly maintained.

## River and sewer overflows

Verdun's St. Lawrence shoreline is one of the borough's defining features and one of its episodic risks. The combined sewer system — which carries both storm water and wastewater in the same pipes — overflows into the river during heavy rain. Sixty per cent of Montreal's sewer network is combined.

During the worst spill in July 2013, fecal coliform along Verdun's banks measured nearly 20 times the safe-swimming limit. Routine spills are smaller but happen multiple times per summer. The Verdun beach, opened in 2019, posts closures, and the city recommends waiting 48 hours after heavy rain before swimming anywhere along the shore.

The same combined-sewer system can back up into ground-floor units and basements during intense storms — bringing aerosolized E. coli and contaminated water into the living space. Climate change is increasing the frequency of the heavy-rain events that drive both overflows and backups.

**If you live in Verdun, do this:**

- Do not swim in the river for at least 48 hours after heavy rain. Check the [city's water-quality monitoring page](#).
- If you live on a ground floor or basement: watch weather alerts during summer. Move valuables off the floor when severe thunderstorms are forecast.
- Owners: install a backwater valve (clapet antiretour) on your building's sewer connection. RénoPlex subsidies are available.
- Tenants whose basement or ground-floor unit floods from a sewer backup should photograph everything before cleanup and ask the landlord about the backwater valve. Repeated backups are a habitability issue.

## River water quality: swimming and fishing

Verdun's relationship with the St. Lawrence is one of the borough's defining qualities. The Verdun urban beach, opened in 2019, was the first official municipal swimming site on the river in central Montreal in decades, and people kayak, paddle, swim, and fish along the entire 5 km riverfront. The water is usable, but it requires more attention than the average swimmer or angler realizes.

### Swimming and recreational contact

Quebec's standard for primary-contact swimming water is 200 E. coli colonies per 100 mL. The standard for secondary contact (kayaking, paddling, surfski) is more lenient at 1,000 CFU/100 mL. Verdun beach is sampled regularly during the summer season, and the borough closes swimming when the count exceeds the standard — typically 24 to 72 hours after a combined-sewer overflow event. To find out whether swimming is permitted on a given day, call **514-280-0789** or check the [Verdun beach page](#).

The risks of swimming in over-the-limit water are mostly gastrointestinal ("swimmer's ear," gastroenteritis, occasional skin or eye infections). Children, seniors, and immunocompromised people are at higher risk. Avoid swallowing river water. Shower afterward, especially before eating. Don't swim with open cuts.

Beyond the official beach, the rest of Verdun's shoreline is unsupervised. Currents in the St. Lawrence are strong and deceptive, the river bottom drops off sharply in many places, and the water-quality monitoring is concentrated at the beach itself. Treat the unsupervised stretches as wilderness swimming — appropriate for strong, informed swimmers; not appropriate for children or non-swimmers.

### Fishing and eating the catch

The St. Lawrence supports an active sport fishery, and Verdun has informal fishing spots all along the shoreline. Catching fish is generally fine. Eating the fish requires following Quebec's official consumption guide. Quebec and the Ministère de la Santé jointly publish the [Guide de consommation du poisson de pêche sportive en eau douce](#), which gives species-specific and size-specific monthly meal limits based on contaminant levels measured in fish flesh.

Two contaminants drive most of the consumption restrictions on the St. Lawrence near Montreal: **mercury** and **PCBs (polychlorinated biphenyls)**. Both bioaccumulate in fish flesh, with higher concentrations in older, larger, and more predatory fish. Government of Quebec monitoring documents an upward trend in mercury levels in some areas (Lac Saint-Pierre, Lac Saint-Louis) over the last decade.

Practical rules for eating St. Lawrence fish near Verdun:

- **Smaller is safer.** A 30 cm yellow perch carries far less contamination than a 70 cm walleye or northern pike. Predatory species (pike, walleye, lake trout, bass) accumulate more contaminants than herbivorous species.

- **Children and pregnant residents should be most cautious.** Mercury affects fetal and child neurological development. For these populations, treat St. Lawrence game fish as an occasional food, not a staple.
- **Trim the fat and skin before cooking.** PCBs concentrate in fatty tissue. Filleting carefully and removing the dark lateral line and belly fat significantly reduces exposure. Grilling or broiling (which lets fat drip away) is better than frying for the same reason.
- **Variety dilutes risk.** Eating different species from different locations is safer than eating the same species from the same spot repeatedly.
- **Check the official guide** before regular consumption. It is updated periodically and gives precise monthly meal limits by species, size, and waterway.

A [1995 Montreal Public Health study](#) of frequent ice fishers on the St. Lawrence found that those who ate their catch three or more times a week had measurably elevated tissue mercury and PCB levels, with 8% of high-consumption participants exceeding Health Canada PCB recommendations. Occasional consumption following the official guide did not produce these elevations.

## Drinking water

A separate matter: Montreal's tap water itself is treated to a high standard at the Atwater plant, which serves Verdun. The drinking-water risk in Verdun is not the source water — it is what happens in the last few metres before the tap, in old lead service lines and in pre-1990 internal plumbing. That is covered in the lead section above. The river itself is not your drinking water.

## Part 3 — Property and structural risks

These issues primarily concern owners, but tenants should also recognize the signs — they affect the safety of the unit and are legitimate grounds for repair requests.

### Foundation settlement in Champlain clay

Champlain clay shrinks when it dries and swells when it gets wet. Older Verdun buildings, especially plexes from the 1920s–40s, have shallow rubble or unreinforced concrete foundations that ride on this clay. The dry summer of 1983 caused extensive settlement damage across the Montreal region, and any drought summer since has produced similar though smaller-scale damage. Large trees within 15 m of a foundation accelerate the problem by drawing pore water out of the clay through their root systems.

The visible signs are stair-step cracks in brick or stucco above doors and windows, doors and windows that begin sticking in summer and freeing themselves in winter, and noticeably sloped or uneven floors. These signs do not necessarily mean the foundation is failing structurally — many older Verdun plexes have lived with low-grade settlement for decades. But progressive cracking warrants a structural engineer's inspection, not a foundation contractor's sales visit.

### Pyrite in backfill

Pyrite is an iron sulphide mineral that can be present in crushed-stone backfill under basement slabs and garage floors. When exposed to moisture and oxygen, it oxidizes, produces sulphuric acid, and causes the backfill to swell — cracking concrete slabs and sometimes foundation walls. The classic signature is star-shaped cracks in the slab and a white powdery efflorescence.

Verdun is not among the highest-risk zones — those are the South Shore, the eastern end of Montreal Island, and the West Island, where contaminated backfill from specific quarries was used heavily in the 1970s–80s. But pyrite tracks the source of the backfill stone, not the address, so it can appear anywhere. Buildings constructed or renovated between 1970 and 1998 are most at risk. A pyrite test (\$350–500) is appropriate if any visible signs appear, or as part of a pre-purchase inspection. Remediation costs \$15,000–40,000 for a basement, \$6,000–8,000 for a garage.

## Contaminated sites and the industrial legacy

Verdun was a working-class borough for most of the 20th century, and parts of it were industrial. The British Munitions Supply Co. ("La Poudrière") operated where LaSalle metro now stands. Tanneries, slaughterhouses, and small manufacturers lined the buried Rivière Saint-Pierre on the borough's northern edge. The 2014 incident in which 1,500 tonnes of creosote-contaminated soil were dumped at a former snow depot near the waterfront, and later cleaned up at municipal expense, is a more recent reminder that the borough's environmental history is not fully buried.

Two registries can be consulted, free, by any resident:

- The Quebec government's **Répertoire des terrains contaminés (GTC)**, with a cartographic tool called Repère GTC, accessible at [environnement.gouv.qc.ca](http://environnement.gouv.qc.ca). Searchable by address and lot number.
- The City of Montreal's **list of contaminated lots**, maintained under article 31.68 of the Loi sur la qualité de l'environnement, at [montreal.ca](http://montreal.ca) and [donnees.montreal.ca](http://donnees.montreal.ca).

Neither registry is exhaustive — they capture sites where contamination was formally documented, generally after 2003. The absence of a property from these lists is not proof that the soil is clean; the only definitive method is professional sampling. For owners considering purchase or major renovation, a Phase I Environmental Site Assessment (a documentary review costing \$1,500–3,000) is the appropriate first step.

## Urban agriculture and back-yard gardens

Many Verdun residents grow food — in back yards, on balconies, on roofs, or at community gardens. The borough's soil chemistry needs to be respected, but it does not preclude productive gardening.

Soil lead level	What you can grow
Under 75 mg/kg	Anything, including leafy greens and root crops, directly in soil
75–300 mg/kg	Fruiting crops (tomatoes, beans, zucchini) in soil; raised beds preferred for greens and roots
300–500 mg/kg	Raised beds with imported soil only, geotextile barrier underneath, mulched paths
500–1,000 mg/kg	Above Quebec residential threshold — raised beds with full barrier mandatory; consider hot-spot remediation
Over 1,000 mg/kg	Consult a professional; soil may require formal management

Practical guidance for any Verdun gardener, regardless of test results:

- Locate beds away from painted exterior walls and away from the street curb. The cleanest soil in most Verdun yards is the back of the lot, furthest from buildings and traffic.
- Maintain soil pH near neutral (6.5–7.0) by adding lime if needed. Lead bioavailability drops sharply at higher pH.
- Add compost and organic matter generously. Organic matter binds heavy metals and makes them less plant-available.
- Wash all produce thoroughly. Peel root crops grown directly in suspect soil.
- If you garden with children, supervise hand-washing. Soil ingestion is the dominant exposure pathway for kids.
- Community gardens managed by the borough have already been soil-tested. Private back yards have not.

## How climate change is changing the equation

The risks in this guide are not static. The provincial climate consortium [Ouranos](#), which produces projections for the Quebec government, has documented a set of trends that directly intensify almost every property risk described above. The shifts are not speculative — they are already being observed in Montreal's weather records, and they have specific implications for buildings on Champlain Sea clay.

Three trends matter most for Verdun residents:

- **Heavier rainfall events.** [Ouranos projects a 10% increase](#) in annual 24-hour rainfall maxima for southern Quebec by 2041–2070, and 15–20% by 2071–2100. Short-duration extreme rainfall — the kind that causes combined-sewer overflows and basement backups — is expected to increase even more, up to 15% by 2041–2070 and 20–25% by 2071–2100. The July 2024 Montreal flood, which saw more than 70 mm of rain fall in a few hours, is consistent with what models predict will become more frequent.
- **Hotter, drier summers alternating with wetter periods.** [Southern Quebec is projected to warm 2–3°C by 2050 and 4–6°C by 2080](#) relative to 1991–2020. Drought periods between rain events are expected to lengthen. For Champlain clay, that means more pronounced shrink-swell cycles — the exact mechanism that drives foundation settlement in older Verdun plexes. The 1983 drought damage is the historical reference; future drought summers are expected to produce similar damage more often.
- **Longer, more frequent wildfire smoke episodes.** The 2023 and 2024 wildfire smoke events that pushed Montreal's air quality index into hazardous territory for days at a time are now considered the new normal for late spring and summer. HEPA air filtration and indoor air management are no longer optional considerations for asthmatic or respiratory-sensitive residents.

The practical implication is that the property-protection measures described elsewhere in this guide — backwater valves, French drains, proper grading, foundation waterproofing, tree management near foundations, indoor air filtration — are going from "nice to have" to "increasingly essential." Owners

delaying these investments are betting that the next 20 years will look like the last 20. The data suggests that's the wrong bet.

## Flooding odds: what the maps actually say

Flood risk is the single most over-estimated and under-estimated property risk in Montreal at the same time — over-estimated by people who confuse "basement got wet" with "the river overflowed," and under-estimated by people who assume it can't happen to them. The two are completely different events, and they have completely different probabilities.

### Riverine (overland) flooding

Verdun proper sits behind a concrete-walled riverbank along the St. Lawrence. Unlike Pierrefonds-Roxboro, Ahuntsic-Cartierville, or the West Island — which have seen catastrophic flooding from the Rivière des Prairies and Lac des Deux Montagnes in 2017 and 2019 — Verdun has not experienced large-scale riverine flooding in living memory. The Communauté métropolitaine de Montréal's [2024 updated flood maps](#) confirm that almost no Verdun residential property falls inside the 0–20 year (high-risk) or 20–100 year (low-risk) flood zones.

Across Greater Montreal as a whole, the 2024 update *doubled* the number of flood-prone buildings on the island, from roughly 22,000 to 77,000 province-wide. The expansion is concentrated along the Rivière des Prairies, the Mille Îles, and the Lake of Two Mountains — not the St. Lawrence around Verdun. Verdun residents who are buying or selling property should still check the [official CMM flood map](#) by address before transactions, since mortgage lenders increasingly use it to evaluate risk.

### Pluvial flooding (the one that matters here)

This is the actual flood risk for almost every Verdun property. *Pluvial* flooding happens when heavy rain overwhelms the storm-sewer system, water pools in streets, backs up through floor drains, and infiltrates basements through window wells and foundation cracks. The 1987 Montreal flood, the July 2013 fecal-coliform event, and the August 2024 storm that put 70+ mm of rain on the city in a few hours were all pluvial events — not riverine ones.

Concrete odds are hard to pin down for a specific Verdun property because pluvial risk depends on hyperlocal factors: lot grading, neighbour's drainage, age of the building sewer, depth of basement, presence of a backwater valve. But three rough generalizations hold across Verdun:

- **If your building is on Wellington, Verdun, or LaSalle below de l'Église, your pluvial risk is materially higher than the borough average.** These low-lying corridors concentrate runoff during heavy rain.
- **If your basement has flooded once from a sewer backup, the probability of it happening again within 10 years is high.** The Insurance Bureau of Canada estimates that a previously-flooded basement has roughly a 5–10x higher likelihood of flooding again than one that has never flooded, all else equal.

- **Climate-adjusted, what was a 1-in-25-year storm in 1990 is closer to a 1-in-10-year event today, and projected to be a 1-in-5-year event by 2050.** The "100-year flood" terminology is misleading; the underlying probabilities have shifted.

The takeaway: riverine flooding is not Verdun's problem, but pluvial flooding is — and it is increasing. A backwater valve, basement drainage, and proper grading are the three highest-ROI defenses. None of them are riverine-flood-zone solutions; they are pluvial-flood solutions.

## Insurance — what's covered, what isn't

Home and tenant insurance in Quebec works on a layered model: basic policies cover some kinds of water damage automatically, while others require specific add-on coverages called *endorsements* (or *riders*). This is the source of most unhappy surprises after a flood. A [2019 survey by Square One Insurance](#) found that 69% of Quebecers wrongly believe their home policy automatically covers flood damage. In Verdun, with its combined-sewer system and clay-driven foundation issues, knowing what is and isn't covered is particularly important.

This is general information only — your specific policy may differ. Always read your contract and confirm with your broker.

### Typically included in a standard policy

- Damage from a sudden pipe burst inside the home (e.g., a frozen pipe splitting in winter).
- Damage from a sudden appliance failure (washing machine hose, dishwasher leak, hot-water tank rupture).
- Damage from severe weather like hail, lightning, or wind.

### Almost never included without an endorsement

- **Sewer backup** — the single most relevant risk for Verdun plexes. The endorsement typically costs \$150–300 per year and covers wastewater backing up through floor drains, toilets, or sinks during heavy rain. Without it, a backup that damages a finished basement is paid out-of-pocket — typically tens of thousands of dollars.
- **Overland flooding** — water entering from outside the home through windows, doors, or foundation cracks during heavy rain or snowmelt. A separate endorsement; eligibility and pricing depend on the property's flood-zone classification.
- **Groundwater infiltration** — slow seepage through foundation walls or floors. Often excluded entirely as it's classified as a maintenance issue rather than a sudden event.
- **Water service line break** — damage from your own incoming water line failing on the private-side portion. Important for Verdun owners with aging lead or galvanized service lines.

## Where mold sits in the coverage picture

Mold remediation is the most complicated case. Mold caused by a covered event — say, a sewer backup that you have an endorsement for — is generally covered, but often with low sub-limits (typically \$5,000–\$10,000) and only if you report and address the water incident quickly. Mold from chronic dampness, condensation, or gradual seepage is almost universally excluded as a maintenance issue.

In a tenant context, the landlord's building policy covers the structure; the tenant's own contents (furniture, electronics, clothing) are only covered if the tenant has their own tenant insurance policy with appropriate endorsements. Tenant insurance in Quebec typically costs \$15–25 per month and is one of the most cost-effective protections available.

## What to ask your broker (or your prospective broker)

- Is sewer backup coverage included or does it require an endorsement? What is the limit and the deductible?
- Does the policy include overland water coverage? What about service line break?
- Are there discounts available if I install a backwater valve or sump pump? (Many insurers offer 5–15% off.)
- What is the mold sub-limit, and what conditions trigger it?
- If I have a basement rental unit, is rental income loss covered if the unit becomes uninhabitable after a flood?

Finally, document. Take dated photos of your basement, foundation, and finished spaces annually. If a claim is ever filed, contemporary photo evidence dramatically speeds up the process and reduces disputes about pre-existing conditions.

## Part 4 — Resources and where to go

### Tenant rights and information

**Comité d'action des citoyennes et citoyens de Verdun (CACV)** — the borough's tenants' rights organization since 1975. Free information on rent increases, evictions, renovictions, and habitability issues including mold and unsafe conditions.

Phone: **514-769-2228** • [cacv-verdun.org](http://cacv-verdun.org)

**Tribunal administratif du logement (TAL)** — Quebec's housing tribunal. Adjudicates disputes between tenants and landlords including repair orders, rent fixing, and eviction contestations.

[tal.gouv.qc.ca](http://tal.gouv.qc.ca)

### Property and contamination registries

**Répertoire des terrains contaminés (GTC)** — Quebec's contaminated lands registry with searchable cartographic tool Repère GTC.

[environnement.gouv.qc.ca/sol/terrains/terrains-contamines](http://environnement.gouv.qc.ca/sol/terrains/terrains-contamines)

**City of Montreal's list of contaminated lots** — held under article 31.68 of the Loi sur la qualité de l'environnement.

[montreal.ca/sujets/terrains-contamines](http://montreal.ca/sujets/terrains-contamines) • Open data: [donnees.montreal.ca](http://donnees.montreal.ca)

### Water and drinking-water testing

**Lead in your water — City of Montreal program page**, including the lead service line map and replacement schedule.

[montreal.ca/en/topics/lead-your-water](http://montreal.ca/en/topics/lead-your-water)

**RénoPlex subsidy program (Montreal)** — covers backwater valves, lead service line replacement, and other moisture/flood-related renovation work.

[montreal.ca](http://montreal.ca) — search "RénoPlex"

### Radon

**Association pulmonaire du Québec** — sells radon test kits at cost and maintains a public radon map.

[poumonquebec.ca](http://poumonquebec.ca)

**Health Canada — Radon** — official guideline values, health information, mitigation methods.

[canada.ca](http://canada.ca) — [Radon](#)

**Canadian National Radon Proficiency Program (C-NRPP)** — list of certified measurement and mitigation contractors.

[c-nrpp.ca](http://c-nrpp.ca)

**Quebec — Residential radon page**

[quebec.ca/en](http://quebec.ca/en) — residential radon

## Air quality

**Air Quality Health Index (AQHI) for Montreal** — Environment and Climate Change Canada, daily forecasts and current conditions.

[weather.gc.ca/airquality](http://weather.gc.ca/airquality)

**Réseau de surveillance de la qualité de l'air (RSQA)** — City of Montreal's network of 13 air monitoring stations.

[montreal.ca](http://montreal.ca) — air quality

## Soil testing

Accredited environmental labs serving the Montreal area:

- **Eurofins Environnex** (Brossard / Montérégie) — [eurofins.ca](http://eurofins.ca)
- **Bureau Veritas Laboratories** — [bvlab.com](http://bvlab.com)
- **Multitest** (specialized in residential testing including pyrite) — [multitest.ca](http://multitest.ca)

Heavy-metals panels typically cost \$80–150 per sample; add \$80–120 for PAHs. For garden chemistry only (pH, organic matter, nutrients), local garden centres offer basic analysis at lower cost.

## Emergencies and general inquiries

**311** — City of Montreal services line, for sewer backups, contaminated soil reports, water-quality complaints, noise, and other municipal issues. [montreal.ca/311](http://montreal.ca/311)

**811** — Quebec's Info-Santé / Info-Social health-information line, for non-emergency medical questions including suspected exposure to mold, lead, or carbon monoxide.

**911** — for active flooding, structural collapse, gas leaks, or any immediate danger.

# References & Sources

Every claim in this guide is drawn from public sources. The list below identifies the primary references used, grouped by topic. All links were active at time of writing; click any underlined link to open the source in your browser.

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- Bekkouche, N. et al. (1991). Foundation problems in Champlain clays during droughts — Rainfall deficits in Montréal (1930–1988) and case histories. *Canadian Geotechnical Journal*.
- Locat, A. et al. (2011). Progressive failures in eastern Canadian and Scandinavian sensitive clays. *Canadian Geotechnical Journal* 48(11):1696–1712.
- Geology of Montreal, Province of Quebec, Canada — bedrock stratigraphy (Trenton, Utica, Lorraine groups) and the Montereian intrusions. McGill University Department of Earth and Planetary Sciences. [mcgill.ca](http://mcgill.ca)

## Contamination history and registries

- City of Montreal (2014). Contaminated soil dumped in Verdun waterfront park. [CBC News](#)
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- City of Montreal (2025). List of contaminated lots, open data. [donnees.montreal.ca](http://donnees.montreal.ca)
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## Lead in water and soil

- Shingler, B. (2016). 5 things to know about Montreal's plan to replace lead pipes — by-borough breakdown including 4,671 dwellings in Verdun. [CBC News](#)
- City of Montreal — Replacing your water service line is your responsibility. [montreal.ca](http://montreal.ca)
- Spliethoff, H.M. et al. (2016). Estimated lead (Pb) exposures for a population of urban community gardeners. *Environmental Geochemistry and Health*. [PMC](#)
- Bhatt, V. & Farah, L.M. (2016). Cultivating Montreal — including the 2008 city soil testing that closed 167 community garden plots. *Urban Agriculture & Regional Food Systems*. [Wiley](#)
- Quebec MDDEP — Policy on Soil Protection (criteria A/B/C). Background lead in natural Quebec soils averages ~15 mg/kg; residential criterion B is 500 mg/kg.

## Radon

- Health Canada (2024). Cross-Canada Radon Survey — ~1 in 6 homes in Montreal above 200 Bq/m<sup>3</sup>. [crosscanadaradon.ca](https://crosscanadaradon.ca)
- Government of Quebec — Residential radon: causes, testing and corrective measures. [quebec.ca](https://quebec.ca)
- McGill Office for Science and Society (2025). The invisible houseguest — radon. [mcgill.ca/oss](https://mcgill.ca/oss)

## Mold and indoor air

- Health Canada — Guide to addressing moisture and mould indoors. [canada.ca](https://canada.ca)
- Health Canada — Reduce humidity, moisture and mould. [canada.ca](https://canada.ca)
- American Lung Association — Mold and dampness: respiratory health effects. [lung.org](https://lung.org)

## Air quality

- Environment and Climate Change Canada — Air Quality Health Index for Montreal (AQHI). [weather.gc.ca](https://weather.gc.ca)
- IQAir — Montreal air quality data (annual PM2.5 ~8.1 µg/m<sup>3</sup>). [iqair.com](https://iqair.com)

## Water, sewer overflows, drainage

- City of Montréal — Drinking water and Atwater treatment plant. [montreal.ca](https://montreal.ca)
- CBC News (2014). Millions of litres of sewage spilled into Montreal rivers — Verdun fecal coliform readings 20x safe-swimming limit in July 2013. [CBC News](https://www.cbc.com/news/canada-montreal/2014/07/2014-07-23-verdun-sewage.html)
- Montreal flood of 1987 — combined sewer system capacity context. [Wikipedia summary](https://en.wikipedia.org/wiki/Montreal_flood_of_1987)
- Saint-Pierre River (Montreal) — buried river history along Verdun's northern edge. [Wikipedia](https://en.wikipedia.org/wiki/Saint-Pierre_River_(Montreal))

## Pyrite, foundations, construction

- Régie du bâtiment du Québec — Pyrite: causes, testing and solutions. [Centris reference summary](https://www.centris.ca/fr/ressources/actualites/2019/04/24/pyrite-causes-testage-et-solutions)
- Inspecteur Elite — Mold in Montreal duplexes: porous foundations and chronic dampness. [inspecteurelite.com](https://inspecteurelite.com)

## Recreational water quality, swimming, and fishing

- Government of Quebec — Fish consumption recommendations. [quebec.ca](https://quebec.ca)
- Plan St-Laurent — Toxic Contamination of Freshwater Fish (4th edition): mercury, PCBs, and PBDEs in St. Lawrence walleye, pike, and yellow perch. [planstlaurent.qc.ca](https://planstlaurent.qc.ca)

- MELCC / MSSS — Guide de consommation du poisson de pêche sportive en eau douce. [environnement.gouv.qc.ca](http://environnement.gouv.qc.ca)
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- Fondation Rivières — E. coli in water: how to know if swimming in rivers is safe. [fondationrivieres.org](http://fondationrivieres.org)
- Ville de Montréal — Verdun Beach: official page including swimming bans after sewer overflows (24–72 hr). [montreal.ca](http://montreal.ca)

## Climate change projections

- Ouranos — Extreme rainfall: projected changes for southern Quebec. [ouranos.ca](http://ouranos.ca)
- Ouranos — Temperatures: projected changes for Quebec. [ouranos.ca](http://ouranos.ca)
- Canada in a Changing Climate — Consideration of Climate Change Adaptation in the Regional Land Use and Development Plan of the Montreal Agglomeration. [changingclimate.ca](http://changingclimate.ca)
- Ouranos — 2025 year in review: heatwaves, flooding, wildfire smoke in Quebec. [ouranos.ca](http://ouranos.ca)

## Insurance coverage in Quebec

- CAA-Quebec — Home insurance and water damage: what's covered. [caaquebec.com](http://caaquebec.com)
- CAA-Quebec — Is flooding covered by home insurance? (Square One Insurance survey cited.) [caaquebec.com](http://caaquebec.com)
- Promutuel Insurance — Flooding in Quebec: what does your home insurance cover? [promutuelassurance.ca](http://promutuelassurance.ca)
- CBC News (2024). Flood damage: what to know about insurance claims and cleanup in Quebec. [CBC News](https://www.cbc.ca/news/canada/quebec/flood-damage-2024)
- Insurance Bureau of Canada — General reference on flood and water-damage coverage in Canada. [ibc.ca](http://ibc.ca)

## Verdun history and demographics

- Verdun, Quebec — borough overview, historical development, Crawford Park, La Poudrière. [Wikipedia](https://en.wikipedia.org/wiki/Verdun)
- Verdun | Ville de Montréal — official borough page, statistics, and services. [montreal.ca/en/about/verdun](http://montreal.ca/en/about/verdun)

*Additional peer-reviewed sources were consulted but not individually listed here, including engineering journals on Champlain Sea clay consolidation behavior, public-health literature on damp-building*

*syndrome, and Quebec ministry technical guides on soil criteria. Full bibliography available on request.*

## A note on equity

The risks described in this guide are not evenly distributed across the borough. Older plexes, denser buildings, and units closer to highways tend to be cheaper to rent — and they also concentrate the health risks. Lower-income residents, recent immigrants, and seniors on fixed incomes are most often the ones living with the chronic dampness, the lead pipes, and the highway-proximity air pollution.

The actions in this guide range from free (opening a window, washing produce) to costly (waterproofing a foundation, replacing a service line). The free actions are not consolation prizes; they meaningfully reduce risk. But the structural fixes generally fall on owners, and a significant portion of Verdun's housing stock is owned by people who do not live in the borough. Tenants asking for repairs are not making unreasonable demands. They are asking landlords to do what the building's geology and history require.

Verdun is a good place to live. It has the river, the boardwalk, three metro stations, a commercial street regularly listed among the best in the world, and a population that has built genuine community across language and income lines. None of that is contradicted by the realities in this guide. The point is to live here knowingly — to understand what the ground does, what the buildings do, and what residents can do about both.

— End of guide —

# About this document & legal disclaimer

## About the author

This guide was written by **Ivan Nonveiller**, a Verdun resident and marketing analyst by profession. Ivan is not a geologist, hydrologist, public health professional, environmental engineer, lawyer, doctor, or licensed home inspector. He is simply someone who is very good at comparing data — at gathering information from many public sources, cross-referencing it, and translating it into language that ordinary residents can use.

This document is a **personal project**, produced on Ivan's own time, intended strictly for **personal informational use**. It is **not** commissioned, endorsed, reviewed, or approved by the Borough of Verdun, the City of Montréal, any provincial or federal ministry, or any professional body. The author has **no affiliation** with any of the agencies, organizations, companies, products, or service providers mentioned anywhere in this document.

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The information here was compiled in good faith from public sources, including publications and websites of the City of Montréal, the Quebec Ministry of Environment (MELCC) and Ministry of Health, Health Canada, the Canada Mortgage and Housing Corporation, the Quebec Lung Association, peer-reviewed engineering and public health literature, and reputable Quebec-based environmental consulting firms. Some of these sources may have been updated, revised, or superseded since this document was prepared. Regulations, thresholds, programs, prices, contact details, and best practices change over time. The author makes no claim that this document reflects the current state of any law, program, or scientific guidance at the moment you are reading it.

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