

Supporting Documents

re

Request to Address Council, Item D-2

Michael P. Doherty: Recycling – Proposed Amendment to Bylaw No. 12-086

Thursday, January 26, 2023, 6:00 p.m.

1. Letter from Michael Doherty to Mayor and Council, December 30, 2022
2. Analysis and Proposed Amendment
3. City of Victoria *Solid Waste Bylaw*, Bylaw No. 12-086 (consolidated version)
4. Bill Cleverley, "For Greater Victoria, recycling can be a pain in the glass", *Times-Colonist*, January 3, 2019
5. Bio, Michael P. Doherty



Michael Doherty [REDACTED]

**Recycling - glass and other recyclable materials**

1 message

Michael Doherty [REDACTED]

Fri, Dec 30, 2022 at 11:05 AM

To: "mayorandcouncil@victoria.ca" &lt;mayorandcouncil@victoria.ca&gt;

Dear Mayor and Council,

I am writing to suggest an amendment to Bylaw No. 12-086, the Solid Waste Bylaw, to require that large residential buildings meet the same requirement as smaller residential buildings of not putting recyclable materials in the garbage.

My letter is prompted by the fact that in the large residential building where I live, a change was recently made to our recycling system. While glass was previously put in the same bin as other (plastic and metal) containers, signs were put up telling us to *not* put glass in those bins and instead instructing us to put glass in the garbage bin. I have observed that large amounts of glass, including glass beverage containers for which deposits are charged, are now put in the garbage.

Under s. 4 of the bylaw, a residential property that contains less than four residential units shall have its solid waste collected by the City. For those smaller residential properties, "garbage" is defined as not including recyclable materials, while s. 6 states that larger residential properties may arrange to have their solid waste collected by a private waste removal company.

For these smaller residential properties that have collection by the City, "garbage" is defined as not including recyclable materials such as glass bottles and jars, and under s. 13 the placing of recyclable materials in a solid waste bin issued by the City to a residential unit – *i.e.* in smaller residential buildings – is prohibited, while s. 23(d) prohibits the occupiers of such smaller residential buildings from disposing of recyclable materials at the City's disposal site.

Clearly, the policy goal inherent in the bylaw is to avoid having recyclable materials treated as garbage and placed into the waste stream. In my own building, however, and presumably in other large residential buildings as well, this policy goal is not being met, with the result that materials that *should* be recycled are *not* being recycled.

Please close the gap in this bylaw.

Sincerely,

Michael Doherty

402 – 848 Yates Street

Victoria, B.C V8W 0G2

Sent from Mail for Windows

### **ANALYSIS AND PROPOSED AMENDMENT**

The *Solid Waste Bylaw* reflects the policy goal of ensuring that recyclable materials, including glass, from residential properties are recycled rather than being consigned to the landfill. The City has the authority to implement measures in pursuit of this goal since the City is responsible for the collection of solid waste from residential properties (s. 3(1))

Glass bottles and jars are defined as “recyclable materials” and “garbage” is defined as excluding recyclable materials (s. 2). All “garbage” that is collected and removed from within the City limits is deposited at a landfill (s. 21), while occupiers of residential properties for which the City provides solid waste collection must not dispose of recyclable materials at the landfill (s. 23(d)) and no person shall place recyclable materials into a solid waste bin (s. 13(2)).

In properties from which the City actually collects solid waste, recyclables – including glass – are not treated as “garbage” and do not go to the landfill. Sections 5 and 6, however, allow residential properties with mixed commercial use and residential properties with more than four residential units to have their solid waste collected by a private waste removal company. Because the Bylaw is drafted to keep recyclables out of the waste stream by regulating what goes into the “solid waste bin” – a defined term – and because private waste removal companies do not use those “solid waste bins” but instead use dumpsters, glass is lawfully being put into dumpsters and disposed of at the landfill.

Because glass is inert, disposing of it in the landfill does not pose a risk of introducing dangerous chemicals into the environment. It does, however, increase the political, economic, and social costs associated with creating, operating, and remediating landfill sites. These costs are largely borne by local governments, and local governments – as well as the general public – benefit from the diversion of recyclable materials into recycling programs. In addition, the energy cost of recycling glass and other materials is lower than the costs of creating new glass from virgin materials, thereby reducing carbon emissions that contribute to global climate change. It would therefore be desirable if all glass was recycled rather than just glass that is discarded from buildings with four or fewer residential units.

While the choice of how to redraft the Bylaw to achieve this goal is a matter for the City’s solicitors, a simple change to ensure that larger buildings are subject to the same requirement to keep recyclables out of the waste stream would be to add a new s. 7(c):

7. Where an owner pursuant to section 5 or 6 makes alternate arrangements for its solid waste to be collected by a private waste removal company, the owner shall:

...

- c) ensure that no recyclable materials are treated as garbage and that recyclable materials are not deposited at a landfill.



## **SOLID WASTE BYLAW**

### **BYLAW NO. 12-086**

This consolidation is a copy of a bylaw  
consolidated under the authority of  
section 139 of the *Community Charter*.  
(Consolidated on January 1, 2016 up to  
Bylaw No. 15-088)

This bylaw is printed under and by  
authority of the Corporate Administrator  
of the Corporation of the City of Victoria.

NO. 12-086

**SOLID WASTE BYLAW**

## A BYLAW OF THE CITY OF VICTORIA

(Consolidated to include Bylaws No. 13-051, 13-093, 15-019 and 15-088)

The purpose of this Bylaw is to establish and maintain a system for the collection of solid waste.

Under its statutory powers, including sections 64 and 194 of the *Community Charter* and other enabling powers, the Municipal Council of The Corporation of the City of Victoria enacts as follows:

- 1 This bylaw may be cited as the "SOLID WASTE BYLAW".

**Definitions**

- 2 In this bylaw,

"account"

means an account with the City for one or more residential units, or for a residential property, with respect to solid waste collection services;

"account holder"

means either an occupier or an owner that maintains an account with the City;

"animal"

means any member of the animal kingdom, other than a human being;

"appliance"

means a device or instrument, usually electrical, which is used to perform a household task, and includes air conditioners, clothes washers, clothes dryers, dishwashers, freezers, hot water tanks, microwave ovens, ovens, ranges, refrigerators, and stoves;

"City"

means The Corporation of the City of Victoria;

"construction waste"

- (a) means waste resulting from or produced by the alteration, renovation or construction of residential structures such as buildings, houses, sheds, garages, driveways, and other related improvements; and

- (b) includes any waste associated with the construction trades;

"corrugated cardboard"

means any Kraft paper board product, consisting of rippled Kraft paper inserts and liners, that is free of contaminants such as blood, grease, oil, chemicals, food residue, and wax;

"Director"

means the Director of Engineering and Public Works, or a City employee designated by the Director of Engineering and Public Works;

"garbage"

- (a) means ash, refuse and other noxious, offensive or unwholesome matter that is discarded and normally associated with the use of a residential property; and
- (b) includes plants that are identified by the Capital Regional District as invasive species; but
- (c) excludes construction waste, kitchen scraps, prohibited waste, recyclable materials, and yard waste;

"garbage bin"

- (a) means a plastic bin issued by the City to a residential unit for the containment of garbage to be collected by the City; and
- (b) includes a spacesaver bin issued by the City to a residential property with more than one residential unit;

"kitchen scraps bin"

means a plastic bin issued by the City for the containment of kitchen scraps to be collected by the City;

"kitchen scraps"

- (a) means organics, described by the Capital Regional District from time-to-time as being acceptable material for kitchen scraps collection, and includes:
  - (i) raw or cooked food waste such as fruit, vegetables, meat, fish, giblets, bones, dairy products, butter, mayonnaise, eggshells, breads, cereals, grains, pasta, pizza, baked goods, candies, coffee grounds, solidified fats and grease, baking ingredients, herbs, spices, nuts, and shells of nuts;

- (ii) compostable paper products such as soiled paper towels, soiled tissues, soiled paper food packaging, used paper cups, used paper plates, flour bags, sugar bags, coffee filters, tea bags; and
- (iii) household plants and dead flowers; but
- (b) excludes yard waste, garbage, recyclable materials, plastic bags, food wrappers, food containers, cotton pads, cotton swabs, cotton balls, dairy cartons, dental floss, rubber bands, bandages, gauze, diapers, baby wipes, sanitary hygiene products, condoms, dryer sheets, lint, cigarette butts, vacuum bags and their contents, human feces, pet and animal feces, and any material described by the Capital Regional District from time-to-time as not acceptable for kitchen scraps collection;

"occupier"

means

- (a) the owner(s) of a residential property if they occupy a residential unit within their residential property; or
- (b) the adult occupant(s) of a residential unit within a residential property, which is not occupied by an owner of the residential property;

"owner"

means the registered owner in fee simple of a residential property;

"prohibited waste"

includes

- (a) explosive material, radioactive substances, hazardous waste, petroleum products, and industrial chemical waste;
- (b) furniture, appliances, motor vehicle tires, motor vehicle bodies, and farm tools or equipment;
- (c) anything that is on fire or is smouldering;
- (d) dead animals, or parts thereof, including:
  - (i) road kill, wildlife, or pets; but
  - (ii) excludes what is considered food waste by the Director at his or her sole discretion acting reasonably; and
- (e) any other matter that is so considered by the Director at his or her sole discretion;

**"recyclable materials"**

means materials collected by the Capital Regional District, as part of its Blue Bag and Blue Box programs, and includes corrugated cardboard, newspaper, mixed paper products, rigid plastic packaging, rigid plastic containers, plastic and metal lids, glass bottles and jars, aluminum and tin cans, poly-coated cartons and containers, pizza boxes, foil and foil plates;

**"residential property"**

means a property within the City limits that is used for residential purposes, and includes single-family homes, duplexes, townhouses, multi-family apartments, condominiums, and co-ops;

**"residential unit"**

means a self-contained dwelling unit within a residential property with separate living, cooking and sleeping facilities;

**"solid waste"**

means garbage and kitchen scraps;

**"solid waste bins"**

means garbage bins and kitchen scraps bins;

**"spacesaver garbage bin"**

- (a) means a garbage bin that the Director may, at his or her discretion, issue to a residential property with more than one residential unit in lieu of smaller garbage bins;

**"yard waste"**

- (a) means plant trimmings resulting from or produced by the landscaping or maintenance of lawns and gardens, and includes leaves, grass trimming, plants, small brush, hedge clippings, small tree limbs, dry seed pods, and Christmas trees; but
- (b) excludes plants that are identified by the Capital Regional District as invasive species.

**City's Responsibilities**

- 3 (1) The City is responsible for the collection of solid waste from residential properties.
- (2) The City is not responsible for the collection of any type of waste other than solid waste.



- (3) The City is not responsible for the collection of construction waste, prohibited waste, recyclable materials, or yard waste.

- 4 Subject to section 5, a residential property that contains less than four residential units shall have its solid waste collected by the City.

#### **Alternative Collection Services**

- 5 An owner of a residential property with a mixed commercial use may arrange to have its solid waste collected by a private waste removal company.
- 6 An owner of a residential property with four or more residential units may arrange to have its solid waste collected by a private waste removal company.
- 7 Where an owner pursuant to section 5 or 6 makes alternate arrangements for its solid waste to be collected by a private waste removal company, the owner shall:
  - (a) provide the City with written notice of the alternative arrangement at least two months prior to the commencement of any solid waste collection by the private waste removal company; and
  - (b) ensure that any solid waste is collected by the private waste removal company at least 25 times per year, at regularly intervals, occurring approximately every two weeks.

#### **Solid Waste Bins**

- 8 Subject to section 9, a residential unit within the City limits will be issued one garbage bin and one kitchen scraps bin by the City.
  - (1) An account holder may elect to be issued a garbage bin of 80 litres, 120 litres, or 180 litres in size. Where the City does not receive notice of an account holder's election, the account holder will be issued a 120 litre bin.
  - (2) The only available size for a kitchen scraps bin is 120 litres.
- 9
  - (1) The occupiers of residential property with more than one residential unit can jointly request that the City issue a 240 litre spacesaver bin in lieu of two 120 litre garbage bins or three 80 litre garbage bins, which issuance is at the sole discretion of the Director.
  - (2) Each residential unit sharing a spacesaver garbage bin may have a separate account with the City, but will share the bin.
- 10
  - (1) An occupier must at all times ensure that any solid waste to be collected by the City is securely contained in the appropriate solid waste bin, save and except any extra garbage as provided for under section 24.

- (2) An occupier must ensure that:
  - (a) only garbage is placed into the garbage bin issued to their residential unit; and
  - (b) only kitchen scraps are placed into the kitchen scraps bin issued to their residential unit.
- 11 An occupier must at all times maintain a solid waste bin issued to their residential unit so that:
  - (a) it is operable;
  - (b) it is clean and sanitary;
  - (c) its lid is securely fastened to prevent access by an animal; and
  - (d) its lid is securely fastened so that solid waste cannot spill out or otherwise escape.
- 12 Solid waste bins shall, at all times, remain the property of the City.
- 13 (1) No person shall place anything other than solid waste into the appropriate solid waste bin.
  - (2) No person shall place construction waste, prohibited waste, recyclable materials, or yard waste into a solid waste bin.
- 14 No person shall place any damp or wet garbage into a garbage bin unless the garbage is drained, securely wrapped and sealed, so as to not leak.
- 15 No person shall place kitchen scraps into a kitchen scraps bin unless the kitchen scraps are securely contained in a paper bag or a compostable bag meeting ASTM Standard No. D6400.

#### **Solid Waste Collection Services by the City**

- 16 Subject to section 7, solid waste collection services by the City shall be provided as follows:
  - (a) The City shall collect solid waste from residential properties at least 25 times per year;
  - (b) The City's solid waste collections shall occur at regular intervals occurring approximately every two weeks, with the exception of statutory holidays;
  - (c) The City shall collect the contents of one garbage bin and one kitchen scraps bin for a residential unit during a collection, save and except any extra garbage as provided for under section 24;

- (d) The City will only collect solid waste bins that:
  - (i) have their lids securely fastened;
  - (ii) do not exceed the weight limit marked on the lid of the bin; and
  - (iii) are placed in a position, at ground level, that is easily accessible to City employees between 7:00 a.m. and 4:30 p.m. on collection days.
- (e) City employees are not required to climb stairs, open gates, or access enclosed areas to collect solid waste;
- (f) Notwithstanding subsections (d)(iii) and (e), the City may collect solid waste at any location on a residential property at the written request of an occupier who requires assistance, which collection shall be at the discretion of the Director;
- (g) Kitchen scraps that cannot be reasonably contained in a secured kitchen scraps bin will not be collected by the City;
- (h) Subject to section 24, garbage that cannot be reasonably contained in a secured garbage bin will not be collected by the City;
- (i) Solid waste bins will be left by City employees at the curb after collections, and an occupier must retrieve them from the curb by the end of the collection day; and
- (j) Collections will not occur during any work stoppage of City employees resulting from a strike, lockout, or other industrial dispute.

### **Fees**

- 17 (1) An account holder shall pay to the City the fees set out in Schedule "A" of this Bylaw.
- (2) An account holder shall pay the fees for one garbage bin and one kitchen scraps bin for each residential unit in his or her account.
- 18 When a solid waste bin requires repair or replacement, an account holder shall pay the fees outlined in Schedule "C" of this Bylaw for the repair or replacement.
- 19 (1) Where the fees for an account have not been duly paid, the Director may, after providing thirty (30) days notice to the account holder, cease solid waste collection service to any residential units that the account corresponds to.
- (2) Until paid, the account is a lien or charge on the residential property in which the residential unit is contained.
- (3) The account becomes delinquent if unpaid on December 31 of the year in which the account was levied, and is considered to be taxes in arrears with interest at

the prescribed rate referred to in section 245 of the *Community Charter* accrued from January 1 of the following year.

### Exemptions

- 20 The Director, at his or her sole discretion, may exempt an owner of the following residential property, that has more than one residential unit, from the requirement for one garbage bin and one kitchen scraps bin to be issued to each residential unit within their residential property:
- (a) a single-family home with a secondary suite;
  - (b) a boarding house;
  - (c) a single-family home with light-housekeeping rooms; and
  - (d) any other similar residential property identified by the Director from time-to-time at his or her sole discretion.

### Disposal Sites

- 21 All garbage that is collected and removed from within the City limits shall be deposited at a landfill operated by the Capital Regional District, or another landfill or disposal site designated by the Director.
- 22 All kitchen scraps that are collected and removed from within the City limits shall be deposited at a compost facility designated by the Capital Regional District, or another compost facility or disposal site designated by the Director.
- 23 An occupier of a residential property for which the City provides solid waste collection:
- (a) may also dispose of yard waste at the City's disposal site located at 417 Garbally Road on any Saturday during the designated operating hours, or at another site designated by the City for the disposal of yard waste;
  - (b) [Repealed]
  - (c) an occupier shall load the yard waste into the truck or trailer designated for that purpose as directed by the City's attendant at the disposal site;
  - (d) must not dispose of kitchen scraps, prohibited waste or recyclable materials at the City's disposal site;
  - (e) may only dispose of one pickup truck load or two car loads per day at the City disposal site; and
  - (f) may authorize a contractor to dispose of their yard waste by providing the contractor with a letter of authorization acceptable to the Director.

- 24 An occupier may have extra garbage, in excess of the garbage bin issued to their residential unit, collected if:
- (a) the extra garbage is contained in a secured plastic bag not weighing more than 15 kg when filled;
  - (b) the extra garbage is placed near the garbage bin for which service is provided under section 16; and
  - (c) a ticket purchased in the amount set out in Schedule "C" is affixed to each bag containing extra garbage.
- 25 Waste of any type that is associated with a business must not be disposed of at any City disposal site.

### **Public Garbage Receptacles**

- 26 No person shall deposit solid waste from a residential property or a business into a City garbage receptacle located in a public areas.

### **Offence**

- 27 (1) A person commits an offence and is subject to the penalties imposed by this Bylaw, the Ticket Bylaw and the *Offence Act* if that person:
- (a) contravenes a provision of this Bylaw;
  - (b) consents to, allows, or permits an act or thing to be done contrary to this Bylaw; or
  - (c) neglects or refrains from doing anything required by a provision of this Bylaw.
- (2) Each day that a contravention of a provision of this Bylaw occurs or continues shall constitute a separate offence.
- 28 Bylaw No. 91-236, the "Garbage and Recycling Bylaw", is repealed.

### **Consequential Amendments to Other City Bylaws**

- 29 Bylaw No. 04-040, the Administration Fees Bylaw, is amended by deleting in Schedule A "Garbage and Recycling Bylaw" immediately after "Water Works, Sewer User Charge or" and replacing it with "Solid Waste Bylaw."
- 30 Bylaw No. 06-061, the Inspection Bylaw, is amended by deleting in section 3(h) "Garbage and Recycling Bylaw" and replacing it with "Solid Waste Bylaw."
- 31 Bylaw No. 10-072, the Consolidation Authorizing Bylaw, is amended by deleting in Schedule A "Garbage and Recycling Bylaw, No. 91-236" and replacing it with "Solid Waste Bylaw, No. 12-086."

READ A FIRST TIME the	<b>22<sup>nd</sup></b>	day of	<b>November</b>	2012
READ A SECOND TIME the	<b>22<sup>nd</sup></b>	day of	<b>November</b>	2012
READ A THIRD TIME the	<b>22<sup>nd</sup></b>	day of	<b>November</b>	2012
ADOPTED on the	<b>13<sup>th</sup></b>	day of	<b>December</b>	2012

**"ROBERT G. WOODLAND"**  
CORPORATE ADMINISTRATOR

**"DEAN FORTIN"**  
MAYOR

**Schedule "A"****Solid Waste Bylaw**

The fees for the collection of solid waste from each residential unit by size of bin under Section 16 are:

<b>Size</b>	<b>Annual Fee</b>
80 Litre Bin	\$190.02
120 Litre Bin	\$211.02
180 Litre Bin	\$235.02

**Schedule “B”**

**Solid Waste Bylaw**

[Repealed]



**Schedule "C"****(Solid Waste Bylaw No. 12-086)**

The fees or costs for a change in the size, or to replace lost bins, or to repair damaged bins are:

Change of Bin Size	\$30.00 per request
Lost or Damaged Bin	Actual cost of replacement or repair of a bin
Extra Garbage Tickets	\$4.00 each
Compostable Bags	\$10.00 plus tax per roll

JOIN OUR NEWSLETTER

## For Greater Victoria, recycling can be a pain in the glass

Bill Cleverley

Jan 3, 2019 6:00 AM



*Blue recycling boxes near Hillside Avenue. Glass from many Greater Victoria condos, townhouses and apartment buildings is no longer being collected for recycling. | ADRIAN LAM*

Glass from many Greater Victoria condos, townhouses and apartment buildings — everything from wine bottles to jam and sauce jars — is no longer being collected for recycling.

And while some is making its way to collection depots for recycling, a portion is ending up in the dump — even though glass is a banned material.

### **Recommended reads for you:**

- [Nanaimo drug consumption site declared a nuisance by city council](#)
- [Nanaimo drug consumption site declared a nuisance by council](#)

“It’s not that we’re letting in huge truckloads of glass, but we’re trying to understand where that enforcement makes sense. Enforcing it without actually having a market for it to go to isn’t necessarily logical either,” said Russ Smith, senior manager of environmental resources for the Capital Regional District.

Discretion has to be used in enforcing the glass ban because there is no market for recycled glass, Smith said.

The CRD manages the residential blue-box recycling program for single family homes on behalf of the provincial organization Recycle B.C. But the CRD program does not cover multi-unit buildings such as condos, apartments and townhouses, which rely on private contractors to collect garbage and recyclables.

Glass is still collected from most single-family homes through the blue box program but, in recent months, haulers have notified many multi-family complexes that they will no longer collect glass for recycling.

“I think responsible haulers tend to say: ‘We don’t have a market for this stuff, so we’re not going to tell you we’re recycling it and then throw it in the garbage. We’re just going to stop collecting it as recyclables because we want to be transparent about the market conditions,’ ” Smith said.

Stew Young, owner of Alpine Disposal, said it doesn’t make economic sense to collect glass.

Glass is also problematic in that it breaks during collection and contaminates other materials, making them worthless.

Lyndsey Chauhan, director of marketing and communications with Recycle B.C. agrees that contamination of other materials is a problem with glass.

“When it breaks and is collected in the same container as other packaging or paper, shards of glass get embedded in and mixed with the other recyclables and cannot be separated again,” Chauhan said.

“This means that neither the glass, nor the other recyclables, can be recycled.”

Young believes the region should get glass out of curbside recycling altogether and instead deal with it through a combination of deposit and depot collection.

"If you put a deposit on it, then it's source separated and people get money for it right off the bat."

Frank Leonard, who was chair of the CRD's environment committee when the blue box program was introduced in 1989, said the market for glass has always been marginal.

"Everybody was trying to come up with a desperate way to get rid of it but, symbolically, we thought it would be a blow to the blue box to take it out," Leonard said.

Leonard said people were working hard to get materials out of the waste stream and telling them to put glass back into that waste stream could hurt the credibility of the recycling program and maybe even damage the culture of what had been established.

Traditionally, most glass collected has been ground up and used as construction aggregate. There was even a period when the CRD was paying haulers to collect glass through the blue-box program, then buying back the crushed glass to use as fill at the landfill.

Smith said the CRD will soon be soliciting views from the public about a host of issues on garbage and recycling, including how to best address issues such as glass collection.

A move to depots may be an option. Another effort could be to try to change peoples' buying habits so they don't buy glass containers in the first place.

"Maybe it's about buying things not in glass now, understanding glass isn't being recycled. Maybe it's just understanding that, unfortunately, like in most regional districts, it's something that people have to take to depots," Smith said.

Leonard said he would still argue against pulling glass out of the blue box. He feels that eliminating glass in collections could lead to a situation where people might start thinking that recycling doesn't matter, that you just put material in a landfill.

"You want a culture of recycling and reuse and composting and everything in every single house, in every single townhouse, in every single condo and every single business," Leonard said.

[bcleverley@timescolonist.com](mailto:bcleverley@timescolonist.com)

### **Bio**

**Michael P. Doherty**, B.A., M.A., LL.B., M.Jur., Ph.D., has been a lawyer for more than three decades. Since being called to the Bar of British Columbia, he has been litigation counsel in private practice, for public interest law organizations, and for attorneys general. He has appeared before trial and appellate courts as well as regulatory and administrative tribunals.

Dr. Doherty's environmental work has included a period working for the Sierra Club in its Victoria office in the early 1980s, as well as conducting litigation and administrative hearings on environmental matters while working for the BC Public Interest Advocacy Centre and for Ecojustice. He has served as a director on the boards of the Sierra Club of Western Canada (as it then was) and West Coast Environmental Law Association. He taught Environmental Law for a decade at Langara College, and also for several years at Kwantlen Polytechnic University. His books include *British Columbia Environmental Law Statutes*, 1<sup>st</sup> through 5<sup>th</sup> editions (Carswell) published in the 1990s.