THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON

DEVELOPMENT MANUAL

Please note that amendments to the Development Manual are common. Accordingly, all information contained herein should be confirmed with Municipal Staff.

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i) REVISIONS

The following table summarizes the revisions to this manual since its approval on _____ 2001. Please ensure your manual is up-to-date and you have all revisions. If you are uncertain, call the Director of Development Services office at 326-5761 to confirm the last revision date.

Revisions (Date/No.)	Description	Page Numbers Revised
	Original Manual	No Revisions

ii) INTRODUCTION

In an effort to streamline the development process, the Municipality has consolidated its development requirements in this Development Manual.

It is hoped that the Municipality's rate payers, developers, contractors, lawyers and consultants will find this a useful document. Any suggestions on improving this document should be addressed to the Director of Development Services of the Municipality of Leamington.

This manual will be updated from time to time. The date of the revisions are noted at the bottom of each page and in the revision section of this manual. You should confirm with the Director of Development Services office that you have the most up-to-date revision prior to making use of the contents of this manual.

Throughout the remainder of this document, the Corporation of the Municipality of Leamington will be referred to as the Municipality.

This Development Manual also refers to Ontario Provincial Standard Drawings (OPSD) and Specifications (OPSS). Unless noted otherwise in the revision section of this manual, the latest edition of these documents apply.

Finally, nothing in this manual shall supersede the requirements of senior levels of government (Provincial, Federal) or conflict with other agencies including the Essex Region Conservation Authority (ERCA), Ontario Hydro, Union Gas, Essex Power Corporation, Cogeco and Bell Canada. Kindly report any conflicts to the Director of Development Services office.

The initial cost of the manual will be as set out in the Municipal Fees Bylaw. Updates will be sent out to all manual holders registered with the office of the Director of Development Services.

iii) ABBREVIATIONS

To assist the manual holder, a summary of all abbreviations used in this manual is provided for your information and assistance.

CSP	steel pipe Corrugated
ERCA	Essex Region Conservation Authority
FBC	Farming Building Code
ITE	Institute of Transportation Engineers
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
MSD	Municipal Standard Drawing
MTO	Ministry of Transportation for Ontario
OBC	Ontario Building Code
OPSD	Ontario Provincial Standard Drawings
OPSS	Ontario Provincial Standard Specifications
PEO	Professional Engineers of Ontario
PVC	Polyvinyl chloride
SWM	Storm Water Management

1.0 DEVELOPMENTS UNDER SUBDIVISION AGREEMENT

1.1 GENERAL INFORMATION

1.1.1 Construction Drawings

All development documents shall include design and servicing drawings.

Drawings shall be prepared in accordance with the latest guidelines prepared by the Professional Engineers of Ontario entitled "Guidelines, Professional Engineers Providing Land Development/Redevelopment Engineering Services, 1994".

In general, the drawing shall be on "C" size paper (550mm x 850mm), shall be signed and sealed by a Professional Engineer licensed in Ontario, and shall include the following:

i) Benchmark Location and Description (referred to geodetic elevations)
ii) Key Plan
iii) Legend and Index
iv) Existing Conditions and Removals
v) Road Alignment, Road Elevations, Pavement Widths
vi) Plan and Profile Sheets (showing road grades, sewer grades, watermain grades, manhole locations)
vii) Utility Cross Sections
viii) Grading Plans (including lot grading)
ix) Power Distribution and Road Lighting Plans
x) Miscellaneous Details (including bedding and backfill)

The drawings shall refer to Ontario Provincial Standard Drawings (OPSD) wherever applicable, except as amended or extended by the Corporation's requirements.

Municipal Standard Drawings are presented in Appendix D.

1.1.2 Development Agreement

All developments must proceed in accordance with the requirements of this Development Manual and the Development Agreement.

The Development Agreement will set out specific requirements for the particular development. Where in conflict, the Development Agreement will supersede the requirements of this manual.

The Development Agreement is prepared by the Municipality in consultation with the Municipality's Administration Staff. The Developer will be required to submit the following documents for approval and to assist with the preparation of the Development Agreement:

- contract drawings
- contract specification
- copy of tender (or a certified cost estimate for services as provided by the Developer's Engineer and approved by the Manager of Engineering Services).

No work can proceed in the development until the agreement is executed by both parties and all financial securities and insurance are provided. The agreement will be registered against the lands by the Developer's Solicitor who will then send a confirmation of the registration to the Director of Development Services.

Flow charts illustrating the steps in the development process for consent/minor variance, zoning by-law amendments, official plan amendments, site plan control, and plan of subdivision are included in Appendix A.

A typical Development Agreement is included in Appendix B. This typical Development Agreement should be used for format only. Specific details of the Development Agreement will be set out as part of the process that is outlined in this manual.

1.1.3 Acceptance and Approvals

Developers are required to obtain all approvals under the respective Provincial planning processes.

The following is a partial list of approvals that are required in addition to the Municipality's approval. Developers should contact the various approving agencies to ascertain permit and approval fees and time periods to obtain these approvals. The development cannot proceed until these approvals are received and copies of the approvals have been filed with the Municipality.

Partial List of Approvals	Approving Agency
Draft Plan of Subdivision	Province
Final Plan of Subdivision	Province
Fish Habitat	Federal (Administered by ERCA)
Shorelines, Fill and Floodlines	ERCA (Essex Region Conservation Authority)
Storm Water Management	Province, MOE; ERCA
Storm and Sanitary Sewers	Province, MOE
Watermains	Province, MOE
County Road Connections	County Engineer
Provincial Road Connections	Province, MTO
Development Adjacent to Railways	Railway Companies

1.1.4 Construction Completion Certificates

Upon completion of the works set out in the Agreement, the Developer's Consulting Engineer shall write to the Municipality certifying completion of the works including correction of the deficiencies and requesting acceptance of the works.

The letter shall summarize any outstanding works and their value.

1.1.5 Securities (Performance and Maintenance)

The Municipality shall accept the following forms of security:

- certified cheque
- irrevocable letter of credit (self renewing and without burden of proof)

The Municipality will not accept any assigned Contractor's bonds.

1.1.5.1 Performance

Developer shall provide:

Securities in the amount of 50% of the value of the work to ensure due and proper performance of the work.

The value of the work shall be established as the full amount of construction costs including all taxes. If there is no tender, the Consulting Engineer shall provide a certified estimate of the value of the work. The Municipality reserves the right to verify the value of the work and amend the Consulting Engineer's estimate accordingly. The Consulting Engineer's estimate, as amended by the Municipality, shall be used for establishing the amount of the security.

1.1.5.2 Maintenance

Unless otherwise noted in the Development Agreement, Developers shall, upon acceptance, provide a maintenance bond in the amount of 25% of the value of the work. The maintenance period shall be one year after the acceptance of all services. Developers shall note that if the Municipality requests that some of the work be delayed (ie., surface asphalt, sidewalks), the value of the maintenance security will be increased to cover the outstanding value of the delayed work once the maintenance period for the work that was not delayed has expired. *Performance Securities for 100% of the delayed works will be required.*

1.2 STREET DESIGN STANDARDS

For reference purposes, the minimum geometric design standards have been summarized in Table 1.2.

It is a goal of the Municipality to encourage the application of the latest techniques and planning considerations for road design (i.e. traffic calming, environmental considerations, bikeways, etc.). The Municipality and the Developer shall co-operate to develop more creative subdivision plans through the roadway design.

1.2.1 Major Collector Streets

1.2.1.1 Definitions

a) Functions:

A major collector is an intermediate street classification for use where traffic volumes exceed the daily service volumes for a minor collector but do not warrant the construction of a full arterial road and access control. They serve secondary traffic generators much the same as collectors and may be used as bus routes.

b) Right-of-Way Width:

- 27.5 metres

c) Driving Lanes:

- 2 or 4

TABLE 1.2
Minimum Geometric Design Standards

Road Classification	Design Year AADT	Lanes Through	Roadway Width f/c to f/c	Road Use	Design Speed (Km/h)	Minimum Radius (m)	Maximum Super Elevation (m/m)
Major Collector	5,000-10,000	2 or 4	10 or 15	through road	60	90	0.04
Minor Collector	1,000-5,000	2	9.1	through road	30-50	90	0.04
Residential	1,000 or less	2	8.5	through crescent, cul-de-sac	30-50	80 15	none
Industrial	1,000 or less	2	9.1	through industrial, commercial	30-50	90 ?	none

d) Daily Service Volume (Environmental Capacity):

- 5,000 - 10,00 vehicles/day

e) Access Conditions:

Access to abutting properties is permitted subject to traffic and design conditions. Access, however, is generally restricted to right turns in and out. Minimum acceptable intersection spacing under extreme circumstances on major collector roads is 60 metres between centrelines of collector streets. Wherever possible, a desirable spacing of 400 metres should be provided for a major collector to arterial.

f) Traffic Features:

Major collectors are roadways with traffic signals at major intersections. Pedestrian crosswalks may be prohibited subject to traffic conditions. Posted speeds are generally from 50 kilometres per hour. Sufficient width is provided for two to four driving lanes. The curb lanes may be used for parking depending on the traffic conditions in the area.

1.2.1.2 Alignment Design Standards

a) General

Major collector streets in the Municipality of Leamington shall be designed to a minimum design speed of 50 kilometres per hour.

i) The length of major collectors before feeding onto arterials should not be excessive (maximum number of dwelling units 1,000).

ii) Major collector streets may intersect with residential streets, collector streets, other primary collector streets and arterial roads.

b) Horizontal Alignment

i) Radius of Curvature

The minimum centreline radius for major collector streets is 90 metres (maximum superelevation 0.04 m/m for 90 metre radius).

ii) Intersections

The desirable spacing of intersections on major collectors is 120 metres. The minimum acceptable spacing is 60 metres.

Intersection angles of less than 75^0 are unacceptable.

Intersections on the inside of curves are undesirable and should be eliminated wherever possible.

iii) Medians

The minimum median width is 4.0 metres from the edge of the travel lane to the edge of the travel lane. Standard curb with 0.3 metre gutter per OPSD 600.04.

c) Vertical Alignment

Vertical curves shall be used when grade changes exceed 1 percent.

All elevations are to be referenced to Geodetic Datum.

i) Minimum Stopping Sight Distance

- 65 metres

ii) Maximum and Minimum Grades

Maximum Grade = 8%
Minimum Grade = 0.35%

Note: Grades shall be struck on the lip of gutter.

iii) Superelevation Rates

The maximum superelevation rate for a major collector street shall not exceed 0.04 m/m (50 kilometres per hour).

iv) Grades at Intersections

The grade line of the minor intersecting street shall tie to the lane line of the major collector. That is, the two (2) percent crossfall of the major collector will intersect the grade of the minor street such that the resulting vertical curve, (min. 30 metre curve), ends at the lane line of the major collector. The maximum percent grade on the minor intersecting street, at the intersection, will be four (4) percent and a minimum grade of 0.35 percent.

1.2.2 Minor Collector Streets

1.2.2.1 Definitions

a) Functions:

To collect and distribute traffic to roads of lesser traffic volume. They serve secondary traffic generators, such as neighbourhood commercial centres, parks and golf courses, etc., and traffic from neighbourhood to neighbourhood within the community. Collectors may also function as bus routes.

b) Right-of-Way Width:

- 22 metres

c) Driving Lanes:

- 2 (may be increased by the use of parking restrictions)

d) Daily Service Volume (Environmental Capacity):

- 1,000-5,000 vehicles/day

e) Access Conditions:

Direct access is permitted to abutting properties subject to traffic and design conditions. Minimum acceptable intersection spacing under extreme circumstances on collector roads is 60 metres between centreline. Wherever possible, a minimum desirable spacing of 80 metres should be provided.

f) Traffic Features:

Collector streets are undivided roadways with traffic signals at major intersections when warranted. Pedestrian crosswalks are at grade. Parking is permitted, except in bus zones, but may be restricted during peak hours depending on local traffic conditions. Posted speeds are generally from 30 to 50 kilometres per hour.

1.2.2.2 Alignment Design Standards

a) General

The road pattern should coincide with the layout shown under the appropriate approved

design brief or area plan. This will assure logical collector street ties to adjacent subdivision areas and bus route continuity. In the event that the adjacent street system has not been developed, interim access arrangements shall be provided. The following criteria are to be incorporated in the subdivision layout of streets:

i) The length of collectors before feeding into arterials should not be excessive (maximum number of dwelling units being 500).

ii) Collectors may intersect with residential streets, other collectors, and with arterial roads at acceptable minimum spacing according to the standards of roads that they are connecting to. The spacing requirement (220 metres) will provide back to back left turn bays on the arterial road.

iii) Offset intersections are acceptable on collectors if the offset is 60 metres or greater between centrelines.

iv) Intersection angles of less than 75^0 are unacceptable.

v) Intersections at the inside of curves are undesirable and should be eliminated wherever possible.

vi) A standard corner cut of 4.5 metres by 4.5 metres shall be provided at all street intersections other than major street intersections.

vii) Every public roadway to be created by a proposed subdivision must, if it comes to a dead end, have a cul-de-sac with sufficient turning space for emergency and maintenance vehicles.

viii) All collectors designated as bus routes must have a 22 metre right-of-way.

b) Horizontal Alignment

i) Rights-of-Way

- 20 metres where the road serves no more than 500 dwelling units.
- parking is permitted on one side only. This collector standard may be used only where residential and/or commercial frontage occurs on one side of the road only and where no bus route is planned.

ii) Minimum Centreline Radii

Minimum curve radii on collector streets should only be used where restrictive conditions will not permit the use of larger radii.

Minimum centreline curve radius for collector streets is 90 metres. (Maximum superelevation 0.04 m/m for 90 metre radius).

iii) Intersections

Residential With A Collector

- A collector street intersecting with a residential street shall have minimum corner curb radii of 9 metres.

Collector With A Collector

- A collector street intersecting with another collector street shall have minimum corner curb radius of 12 metres or as required to accommodate truck turning movements where truck traffic is permitted.

Collector With Arterial

- An arterial road intersecting with a collector street shall have a minimum corner curb radius of 12 metres or as required to accommodate truck turning movements where truck traffic is permitted.

c) Vertical Alignment

Vertical curves shall be used when grade changes exceed 1 percent.

All elevations are to be referenced to Canadian Geodetic Datum.

i) Maximum and Minimum Grades

Maximum Grade = 8%
Minimum Grade = 0.35%

Note: Grades for collector streets will be struck at the lip of gutter. (The maximum allowable street grade to any particular area of a subdivision is 8%).

ii) Grades at Intersections

The maximum approach grade on the collector to an arterial intersection is 4% and the maximum approach grade of a lesser category street approaching a collector is 4%.

1.2.3 Residential Streets

1.2.3.1 Definitions

a) Functions:

Residential streets provide direct access to abutting residential properties. They collect and distribute traffic from residential properties to higher traffic volume roadways. No residential road shall connect to an industrial area. A connection from a residential area to a commercial area is permitted.

b) Right-of-Way Width:

- 20 metres (or 15 metres with 2.5 metres easements where approved).

c) Driving Lanes:

- 2

d) Daily Service Volume (Environmental Capacity):

- 1,000 vehicles/day

e) Access Conditions:

Direct access is permitted to abutting residential properties. Where "cross" intersections are not possible, minimum acceptable intersection spacing between centrelines is one residential lot depth.

f) Traffic Features:

Undivided roadway with intersection controlled by signage. Parking is permitted on both sides of the road but may be restricted under special circumstances. Posted speeds are generally from 30 to 50 kilometres per hour.

1.2.3.2 Alignment Design Standards

a) General

In the event that the adjacent street system has not been developed, interim access arrangements shall be provided.

It is the policy of the Municipality to minimize the use of cul-de-sacs by utilizing through streets and crescents within the road system. Temporary situations will be permitted with the approval of Engineering Services:

i) The maximum length of a permanent cul-de-sac shall be 150 metres to the start of the bulb. If this length is exceeded, a secondary emergency access is to be provided. This shall include 'P' loops.

ii) The cumulative length of residential streets before feeding onto collectors should not be excessive. Length is to be based on the results of a Traffic Impact Study.

iii) Residential streets may intersect with other residential streets and with collectors.

iv) If cross intersections are not possible, offset intersections are acceptable on residential streets if the offset spacing is at least one residential lot depth or greater between centrelines.

v) Intersection angles of less than 75^0 are unacceptable.

vi) Intersections at the inside of curves are undesirable and should be eliminated wherever possible.

vii) Every public roadway to be created by a proposed subdivision must, if it comes to a dead end, have a cul-de-sac with sufficient turning space for emergency and maintenance vehicles.

b) Horizontal Alignment

i) Rights-of-Way

- 20 metres in residential subdivisions

ii) Minimum Centreline Radii

Minimum curve radii on residential streets should only be used where restrictive conditions will not permit the use of larger radii.

Minimum centreline curve radius for residential streets is 80 metres. Radii less than 80 metres are acceptable on a residential street if accompanied by acceptable pavement widening (e.g. bulb).

Minimum cul-de-sac radius is 18.5 metres on the property line. Minimum radius on the property line for cul-de-sac returns (corner bulb) is 18 metres.

iii) Intersections

- Residential with a Residential

A residential street intersecting with another residential street shall have a minimum corner curb radii of 9.0 metres.

- Residential with a Collector

  A residential street intersecting with a collector street shall have a minimum corner curb radii of 9.0 metres.

iv) Cul-de-Sac

- 15 metres radius to the edge of pavement in new residential subdivisions.
- 9 metres radius to the edge of pavement for residential infill areas.
- 20 metres radius for curb return.

c) Vertical Alignment

Vertical curves shall be used when grade changes exceed 1 percent.

All elevations are to be referenced to Canadian Geodetic Datum.

i) Maximum and Minimum Grades

Maximum Grade = 8%
Minimum Grade = 0.35%

Note: Grades for residential streets will be struck at the lip of gutter. (At least one access to any particular area of a subdivision must be less than 8% grade).

1.2.4 Industrial Streets

1.2.4.1 Definitions

a) Functions:

Industrial streets provide direct access to adjacent industrial and commercial properties. They collect and distribute traffic from industrial and commercial properties to higher standard roadways.

b) Right-of-Way Width:

- 20.0 metres

c) Driving Lanes:

- 2

d) Daily Service Volume (Environmental Capacity):

- 1,000 vehicles/day

e) Access Conditions:

Direct access is permitted to industrial and commercial properties. Minimum acceptable intersection spacing is 60 metres between centrelines.

f) Traffic Features:

Undivided roadway with intersections controlled by signage or signals where warranted. Temporary parking may be permitted depending on local traffic conditions.

1.2.4.2 Alignment Design Standards

a) General

The following criteria are to be incorporated in the subdivision layout of industrial streets. In the event that the adjacent street system has not been developed, interim access arrangements shall be provided.

It is the policy of the Municipality to minimize the use of cul-de-sacs by utilizing through streets and crescents within the road system. Temporary situations will be permitted with the approval of Engineering Services.

i) Intersection angles of less than 75^0 are unacceptable.

ii) Intersections at the inside of curves are undesirable and should be eliminated wherever possible.

iii) A standard corner cut of 15 metres by 15 metres shall be provided at all street intersections other than arterial street intersections.

iv) Beam and post guarding (OPSD 902) is required along all lanes and streets parallel to and adjacent to arterials.

v) Every public roadway to be created by a proposed subdivision must, if it comes to a dead end, have a cul-de-sac with sufficient turning space for emergency and maintenance vehicles.

vi) Service roads adjacent to arterial streets are to have a minimum separation of 36 metres between property lines where the service road intersects a street which ties to the arterial thoroughfare. A more acceptable alternate would be to turn the service road such that it runs parallel to the connecting street, until access is gained from an

intersecting street.

b) Horizontal Alignment

i) Rights-of-Way

- 20 metres

ii) Minimum Centreline Radii

The maximum curve radius shall be 90 metres.

iii) Intersections

- Industrial with Industrial

An industrial street intersecting with another industrial street shall have a minimum curb radius of 20 metres or a compressed radius of 36-12-36.

iv) Cul-de-Sacs

- 28 metres radius to the edge of pavement.

c) Vertical Alignment

Vertical curves shall be used when grade changes exceed 1 percent.

All elevations are to be referenced to Geodetic Datum.

i) Minimum Stopping Sight Distance

- 65 metres (based on 50 km/hr)

ii) Maximum and Minimum Grades

Industrial:

Maximum Grade = 6%
Minimum Grade = 0.35%

Note: Grades for industrial streets will be struck at the lip of gutter.

1.2.5 Corner Radius - Sight Lines

See Sections1.2.1 to 1.2.4 for corner cutoff requirements.

1.2.6 Drainage

Pavements shall be designed to provide adequate drainage of storm water runoff as well as drainage of the granular road base. Accordingly, the following minimum standards shall apply:

- subdrains - 100mm dia. HDPE perforated pipe wrapped in filter cloth (Big 'O' or approved equal)

Subdrains will be constructed continuous along the back of curbs at a gradient equal to the longitudinal pavement slope (or minimum 0.30 percent) and connected to roadway catchbasins or other appropriate outlet.

- Catchbasins placed at intersections for proper drainage and spaced for road drainage from no more than 90 m per catchbasin per lane. Subdrains are to enter the sides of the catchbasin.

1.2.7 Sidewalks

a) Concrete sidewalks shall be constructed in accordance with OPSS 351 and the Municipal Standard Drawing R004, R006, R007, R008 and R009. Sidewalks shall be constructed through driveways.

b) Sidewalks will be required in the following instances:

i) on one side of collector streets
ii) on both sides of arterial roads
iii) on one side of residential streets from collector or arterial to the location of the school or park.
iv) where there is a possibility of a requirement to provide continuity of sidewalk to future development
v) the standard location is 300mm from the property line
vi) all sidewalks shall be handicap accessible and include handicap access ramps at all intersections and curbed driveway approaches
vii) where required, school bus "pick-up" pads shall be constructed in consultation with the respective school boards

c) Thicknesses

All sidewalks will be 130mm thick, 30 MPa concrete on 100mm Granular 'A' base. Sidewalks shall be constructed through driveways 150mm thick, 30 MPa concrete on a 150mm Granular 'A' base. Sidewalks in commercial/industrial areas will at a minimum match the thickness of the asphalt or concrete approach.

d) Widths of Sidewalks:

Residential	1.2 metre
Collector	1.5 metre
Primary Collector	1.5 metre separate
Arterial	1.5 metre separate

1.2.8 Sound Attenuation

Where residential subdivisions are constructed adjacent to arterials or major collectors, a noise analysis is required.

1.2.9 Geotechnical Requirements

A geotechnical report prepared by a geotechnical consulting engineering firm to support the roadway design and construction of underground services is necessary for new developments. The geotechnical report is to establish geotextile, pavement structure design, sewer bedding, backfill and construction methods required.

Pavement structures shall consist of the following minimum material thicknesses:

Residential Roads:

Granular 'A' Base	300mm
HL4 Base Asphalt	50mm
HL3 Surface Asphalt	40mm

Collector Roads and Industrial Roads:

Granular 'A' Base	450mm
HL4 Base Asphalt	60mm
HL3 Surface Asphalt	40mm

unless otherwise determined based on the results of a geotechnical investigation.

Granular 'A' materials shall meet the minimum requirements of OPSS 1010 and shall be compacted to a minimum 100 percent of the Standard Proctor Maximum Dry Density.

Recycled material shall not be used for granular road base. If subgrade condition requires additional granular, recycled material, approved by a certified geotechnical engineer may be used.

1.2.10 Curb and Gutter

Barrier curb and gutter is the only accepted type of curb and gutter. All concrete curb and gutter shall be built to OPSD 600.04. All underground works including but not limited to watermains and sewers (but excluding hydro and private utilities) shall be tested and approved (including flushing and sewer video inspection) before curb and gutter may be constructed in the field.

1.2.11 Asphalt

Asphalt materials shall consist of asphalt cement having a penetration grade of 85-100 and shall conform to OPSS 1101. A qualified geotechnical consulting engineering firm shall be retained by the Contractor to design the asphalt mixes, which will be submitted to the Municipality for review. The use of recycled asphalt in the final product shall not exceed 15 percent.

All underground works including watermains and sewers (but excluding hydro and private utilities) shall be tested and approved (including flushing and sewer video inspection) before curb and gutter and/or asphalt may be constructed in the field.

Thorough cleaning of base course of asphalt and application of tack coat to the entire surface is required prior to surface course asphalt placement. "Glass Grid" will be used on all seams. Inspection of base course asphalt is required before surface coarse asphalt placement.

1.3 WATERWORKS DESIGN STANDARDS

1.3.1 Standard Specifications

Standard Specifications for the design and installation of waterworks are available from Leamington Water Services. Where these specifications conflict with construction details described herein, the following details shall take precedence.

1.3.2 Trench Backfill

Imported Granular 'B' per OPSS 1101 shall be used in watermain trenches beneath all pavements and within 1 m of back of curb.

1.4 SEWER DESIGN STANDARDS

1.4.1 Sanitary Sewer

Sanitary sewers and appurtenances shall be constructed in accordance with the approved contract documents prepared by the Consulting Engineer. The minimum design criteria is noted below. Imported Granular 'B' backfill per OPSS 1101 shall be used beneath all pavements and within 1 m of the back of curb.

1.4.1.1 Design Plans and Information

Designs submitted must include the following:

a) A drainage area plan showing all relevant land uses within each subdrainage area and calculation information (design parameters such as area, population and lots shall be shown).

b) Design calculations indicating land use, densities, design flows, shapes, velocities, capacities, pipe sizes, etc. on the Municipality's standard design sheets.

c) Profiles should show size, type, strength classification, length, inverts of pipes, location, type, diameter and rim elevation of maintenance hole.

1.4.1.2 Peak Flows

Average domestic flow, use 450 litres per capita per day.

Use Harmon Formula applied to average domestic flow $1 + \frac{14}{4+P^{0.5}}$

P = population in thousands

a) Residential

In predicting saturation population densities per hectare, the Engineer shall take into consideration land use, existing demographic data, past experience, etc. Typically a minimum of 3.5 persons per unit is used.

b) Industrial and Commercial

Peak wastes flow must be added to above. Since peak sewage flows may vary greatly with type and density of development, each case must be considered on an individual basis.

c) Infiltration

The allowable infiltration shall be:

Infiltration = 0.117 l/ha

d) Peak Design

The peak design flow shall be a combination of the above.

1.4.1.3 Capacities

The capacity of any section of a sanitary line shall be derived on the basis of that portion of the line which has the least slope. Use Manning formula - gravity flow in pipes.

Where mixed residential uses may apply, design the sanitary sewer for R3 town house style units and densities.

1.4.1.4 Minimum Requirements

a) Pipe Sizes

Minimum sizes of public sanitary sewers are 200mm.

b) Slopes

Use friction coefficient n = 0.013

Size	Minimum Slope %
200mm	0.4
250mm	0.28

Size	Minimum Slope %
300mm	0.2
375mm	0.14

Minimum flow velocity will be 0.6 m/s.

Upstream sections shall use a minimum slope of 0.8%. The increased slope will increase the velocity. Sewers shall be designed to attain self-cleansing velocities. The use of large diameter pipes with low flow is discouraged. The use of $\frac{V}{V_f}$, $\frac{Q}{Q_f}$ charts should be incorporated into the design process. This is especially important where a sewer is servicing only a few lots.

c) Cover

The preferred depth from obvert to finished road grade shall be 2.5 metres. Absolute minimum depth of cover is 1.2 metres to obvert.

d) Services

- Residential services will be 125 mm dia. single connections only.
- Semi-detached and town houses are permitted to have dual services with 125mm dia. x 125 dia. x 150mm dia. tee wyes at the property line.
- All connections require a 125 mm dia. cleanout to be placed at the property line. Tee type cleanout is to be used.
- All connections with cleanouts in the driveway or sidewalk shall have a cast iron cap as per Domestic Foundry DF66 detail or approved equal.
- Plastic cap shall have a metal nut and washer installed for locating purposes.

1.4.1.5 Oversizing

In order to ensure that development in the Municipality proceeds in an orderly and cost effective manner, Developers may be required to oversize municipal services to accommodate future developments. Oversizing includes larger pipe diameter and increased depths, increased road widths and sidewalk widths, power distribution and other services.

As well, Developers may be required to complete off-site works in order to facilitate development.

Typical off-site works include trunk sewers to a suitable outlet, watermain connections to a suitable feeder, road widening, intersection improvements, traffic signal installation and downstream drainage works.

The Municipality will use its best efforts in recovering these costs on behalf of the Developer. However, the Municipality does not guarantee that Developers will be repaid the oversizing or off-site costs.

The Developer's Consulting Engineer will provide an estimate of the oversizing and off-site costs.

The Municipality will establish the cost sharing method to be used in attributing oversizing and off-site costs.

1.4.1.6 Maintenance Holes

a) The top of all maintenance holes will be set at base course asphalt elevation.

b) All sanitary maintenance holes shall be made as watertight as possible. All barrel joints and pipe connections shall be watertight.

c) Transitions in size, grade or direction of sewer pipes are to be accomplished by means of maintenance holes.

d) At maintenance holes where changes in pipe diameter occur, where possible, the elevation of the crowns of the pipes shall be continuous. Where no change in pipe diameter occurs, allow a drop of 30mm in a through maintenance hole and 60mm in the presence of a bend.

e) Where the difference in elevation between the incoming pipe invert and the outgoing pipe centreline is greater than 760mm, an exterior drop maintenance hole must be provided.

f) The maximum distance between maintenance holes is to be 90 metres or as required by

MOE. In all cases, a maintenance hole is required at the upper end of a sewer for flushing and cleaning.

g) Turner PVC lift rings are acceptable. Metal rings are not acceptable.

1.4.1.7 Pipe Bedding and Trench Width

Shall be established by the geotechnical report.

1.4.1.8 Mains and Services

a) Reinforced concrete sewer pipe shall conform to CAN/CSA-A257.2-M92. PVC sanitary sewer pipe must conform to CAN/CSA B182.2 M1990. Pipe class for mainline sewer pipe shall be based on trench loading calculations. Sanitary private services shall be DR28.

b) All sanitary sewers must have rubber gaskets.

1.4.1.9 Combined Sewer Areas

The City of Windsor 5 year storm curve shall be used for analysis.

The Developer shall note that some combined sewers may be operating beyond their design and operating capacity. Accordingly, not all combined sewers will be approved as outlet sewers for new subdivisions. The Developer's Consulting Engineer shall review same with the Municipality during preconsultation.

Where an existing combined sewer is approved as an outlet sewer, the development outflow will be restricted to predevelopment flows with storm water management techniques applied for the remaining flows up to 100 year storm.

1.4.1.10 Infill Development on Combined Sewers

Where development occurs on an existing combined sewer, a septic tank may be required. This determination will be made by Engineering Services based on the self-cleansing velocity and physical condition of the outlet sewer.

1.4.2 Storm Sewer

1.4.2.1 General Design Criteria

Storm sewers and appurtenances shall be constructed in accordance with the approved contract documents. The following minimum design criteria will be used. Imported Granular 'B' backfill will be used beneath all pavements and within 1 m of the back of curb.

a) Design method for storm sewer runoff shall be determined by the drainage area size.

b) Design frequency:
- minor storm system - 1 in 5 year City of Windsor curve
- major storm system - 1 in 100 year AES curve for Windsor Airport

c) Use Manning Formula for calculating gravity flow in pipes. Assume pipes flowing full to complete velocities and times of concentration.

d) Use friction coefficient "n" - 0.013 for all smooth walled pipes. For other pipes refer to the manufacturer's specifications.

e) The minimum velocity for pipes flowing full shall be 0.76m/s.

f) Storm sewer runoff coefficients:

i) Residential area per storm sewer design chart (Appendix E)

ii) Industrial area use 0.7 to 0.9 depending on the type of development

iii) Commercial, downtown and roadways use 0.7 to 0.9

iv) Average coefficient weighted according to amount of each type of area tributary to a given inlet

v) Certain restricted capacity areas will have runoff coefficient as determined by the Municipality. In some instances on site detention may be required.

1.4.2.2 Design Plans and Information

Design plans submitted must include the following:

a) A drainage area plan showing catchment areas (to include design parameters, i.e. area and runoff coefficient).

b) Design calculations indicating design flows, slopes, velocities, capacities, pipe sizes, runoff coefficients, etc., on the Municipality's standard design sheets.

c) Profiles should show size, type, strength classification, length, inverts of pipe, location, type and rim elevations of maintenance holes, and catchbasins, etc.

d) Details of grading, berms, catchbasins or other facilities to handle storm drainage on public reserve parcels. These features are to be incorporated in an overland drainage plan for the subdivision.

e) The plan shall indicate the following:

- The direction of street and lane drainage.
- The elevations of streets at intersections, low and high points.
- The existing catchbasin locations.
- The location of storm sewers, sizes and maintenance holes
- The drainage areas and coefficients of runoff approved on the subdivision plans.

- The names of streets

1.4.2.3 Minimum Requirements

a) Pipe Sizes

Minimum sizes of a public storm sewer are as follows:

i) Residential area - 300mm

ii) Commercial or
Industrial Areas - 375 mm (in order that the majority of service connections can be made without manholes).

b) Slopes

Use friction coefficient n = 0.013

Size	Minimum Slope %
300mm	0.28
375mm	0.22

Storm sewers shall be designed to provide a minimum velocity of 0.76 m/s when flowing full.

c) Cover

The minimum cover from spring line to the finished grade is 1.2m. The minimum cover from the pipe crown to the finished grade is 0.9m.

d) Services

- Residential services must have a single independent 150mm dia. connection.
- Dual connections are permitted for semi-detached units and town houses only.
- A 150mm dia. x 150 mm dia. x 150mm dia. tee wye is to be used at the property line.
- All connections will have a cleanout placed at the lot line.
- Cleanouts located in a sidewalk or driveway must use a cast iron cap as per Domestic Foundry DF66 detail or approved equal.
- Plastic caps will have a metal bolt and washer drilled into the top to facilitate locates.
- All cleanouts are to be placed at the lot line

1.4.2.4 Oversizing

In order to ensure that development in the Municipality proceeds in an orderly and cost effective manner, Developers may be required to oversize municipal services to accommodate future developments. Oversizing includes larger pipe diameter and increased depths, increased road widths and sidewalk widths, power distribution and other services.

As well, Developers may be required to complete off-site works in order to facilitate development. Typical off-site works include trunk sewers to a suitable outlet, watermain connections to a suitable feeder, road widening, intersection improvements, traffic signal installation and downstream drainage works.

The Municipality will use its best efforts in recovering these costs on behalf of the Developer. However, the Municipality does not guarantee that Developers will be repaid the oversizing or off-site costs. The recovery of oversizing costs and the methods to be used for same, will be set out in the Development Agreement.

The Developer's Consulting Engineer will provide an estimate of the oversizing and off-site costs.

The Municipality will establish the cost sharing method to be used in attributing oversizing and off-site costs.

1.4.2.5 Pipe Bedding and Trench Width

This shall be established in the required geotechnical report.

1.4.2.6 Catchbasins

a) Locations

- at intersections, catchbasins are to be placed at the upstream side of all radii
- dual catchbasins are required at ALL low points
- single catchbasins are permitted "on the fly" only.

b) Concrete box outs are to be reinforced with a 10M rebar.

c) Combined Sewers

- any catchbasin connected to an existing combined sewer, or upstream of an existing combined sewer being used as an outlet sewer, may require a flow restrictor device and shall incorporate a gas trap as per the standard detail in Appendix D.

d) Parging

All catchbasin adjustment rings and pipe connections shall be parged inside AND outside.

1.4.2.7 Drainage During Development

Prior to proceeding with stripping or any disturbance of the area, the Developer shall submit to the Manager of Engineering Services a soil protection and erosion control plan.

During the development of an area, the Developer shall make provisions for the disposal of all storm water within the Development area, emanating from the development area and any storm water which may be cut off from its natural drainage course as a result of the development, to the satisfaction of the Municipal Engineer.

1.4.2.8 Outfalls

Where outfalls to waterways or drainage courses are required, the consultant will supply an outfall design for submission to the Provincial Government for approval and permits.

1.4.2.9 Floodplain Guidelines

Flood plain management guidelines shall be provided by the Municipality or developed in conjunction with ERCA.

1.4.2.10 Storm Water Management Facilities

Storm water management facilities shall be constructed in accordance with the approved contract documents as well as the approved Storm Water Management Plan prepared by the Consulting Engineer. The minimum design criteria are noted below:

- The Storm Water Management Plan shall be prepared to address the specific Municipal, regional (ERCA) and Provincial (MOE and MNR) requirements to control storm water runoff quantity and quality.

- In all cases, storm water quality measures shall be incorporated to address Provincial water quality guidelines, including short term measures to control soil erosion during construction of site services.

- Where storm water quantity controls are required, runoff must be limited to the predevelopment peak flow conditions for the existing receiving sewer or outlet.

- Surface storage in roadways will not be permitted for the minor system rainfall event and must be limited to 300mm above the catchbasin for the 1:100 year event.

- The storm water management facility shall be designed to current MOE Best Management Practices and Guidelines and subject to the approval of the Municipality, MOE and ERCA.

- On-site measures to control storm water quantity for industrial and commercial developments will be permitted, including temporary parking lot and roof top storage. Storage depths in parking lots shall be limited to 150mm for the 1:5 year rainfall event and 300 mm for the 1:100 year rainfall event.

- The Developer's Consulting Engineer shall prepare a maintenance schedule for the storm water facility.

- Other storm water management techniques not included in the current MOE Best Management Practice and Guidelines may be considered if supported by sufficient engineering and scientific reports as required.

The Consulting Engineer shall obtain a Certificate of Approval from the MOE as well as ERCA prior to commencing with construction.

1.4.2.11 Maintenance Holes

a) If benching is not required, maximum sump depth shall be 450 mm.

b) The top of all maintenance holes will be set at base course asphalt elevation.

c) All storm maintenance holes shall be made as watertight as possible. All barrel joints and pipe connections shall be made watertight.

d) Transitions in size, grade or direction of sewer pipes are to be accomplished by means of manholes.

e) At maintenance holes where changes in pipe diameter occur, keep the elevation of the crowns of the pipes continuous. Where no change in pipe diameter occurs, allow a drop of 30mm in a through maintenance hole and 60mm in the presence of a bend.

f) The maximum distance between maintenance holes is to be 150 metres. In all cases, a maintenance hole is required at the upper end of a sewer for flushing and cleaning.

g) Turner PVC left rings are acceptable. Metal rings are not acceptable.

1.4.2.12 Pipe Materials

The following pipe materials are approved:

- PVC
- reinforced concrete
- aluminized CSP, and
- approved profile pipe

1.5 OTHER DESIGN STANDARDS

1.5.1 Lot Grading Requirements

a) Lot grading starts with the review of construction plans for a new subdivision. An overall lot grading plan for the subdivision is prepared by the Developer's Consulting Engineer and is approved by the Engineering Department and E.R.C.A. In reviewing this plan, the

elevation of the storm sewer is checked to ensure gravity flow from future buildings to the sewer main in the road. The storm sewer elevation is also checked to determine if the foundation drain can also flow by gravity or a sump pump is required. Existing drainage patterns from abutting properties must not be blocked. The grading plan must ensure that existing flow routes are maintained.

b) The Overall Lot Grading Plan is reviewed to ensure that the building grade elevations are set so that the grade elevation difference between adjacent units can be accommodated through maintainable slopes (ie., 1 in 6) and that driveway slopes do not exceed 10 percent.

c) The Overall Lot Grading Plan also identifies those building lots that require a Certified Bearing Certificate. These are required because the future buildings may be on a previous municipal drainage ditch or low area that has been filled. This information is forwarded to the Building Department for their consideration for footing requirements.

d) After the sewers, watermain and road have been serviced, the as-built elevation of the sanitary service connections and the storm service connections shall be provided by the Developer's Consulting Engineer to the Municipality. When the builder comes in for an individual lot, these elevations are given to the builder for his use. The builder shall verify these elevations in the field prior to construction.

e) Building Services provide the lot grading, sanitary service connection, and storm service connection to the building/home owner at the time of the issuing of the building permit.

f) The catchbasin shall be installed by the builder when the storm service connection from the lot line to the building is done. The catchbasin is to be corrugated steel, or concrete with an approved manufactured cast iron, or concrete lid.

g) Building Services does a visual inspection of the rough grading once construction is complete to confirm that the intent of the lot grading has been satisfied. The final grade of the building is not checked by the Municipal staff. If the home owner/lawyer wishes to have

the elevation checked, they shall hire an Ontario Land Surveyor at their expense for confirmation.

1.5.2 Storm Sewer Design Curve

The following storm sewer design curves shall be used:

a) 5 Year

$$i\ (mm/hr) = \frac{31.75}{Tc+20}$$

b) 100 Year

$$i\ (mm/hr) = \frac{4981.156}{(T+15.061)^{0.996}}$$

1.5.3 Storm Sewer Design Chart

See Appendix E, Figure E2

1.5.4 Road Right of Way Cross-Sections

See Appendix D for typical cross sections, Figures R001 and R002

1.5.5 Street Lighting and Hydro Requirements

The design and installation of Street lighting and underground hydro requirements shall be designed by a qualified professional Engineer.

The minimum design criteria for the design of power distribution system shall be in accordance with specifications of the operating authority:

Street Lighting	-	spacing and height design to Illumination Engineering Society Standards.
	-	pole location per Roadside Safety Manual published by Ministry of Transportation.

The Developer shall obtain the approval of the appropriate utility suppliers prior to construction.

The Consulting Engineer will be responsible to co-ordinate the efforts of other public utilities as a result of conflicts with proposed services and/or upgrading to accommodate development.

1.5.6 Utility Requirements

The Consultants shall contact the individual utility companies regarding their requirements in specific areas.

1.5.7 Tree Planting Requirements

Single Family Residential - 1 tree required per lot
Semi-Detached Residential - 1 tree required for each unit
Townhouse units - 3 trees required per 4 units

The Developer will pay the Municipality a fee as set out in the Municipal Fees By-law and the Municipality will plant same. The Municipality will determine the species and location of trees.

1.5.8 Pavement Marking, Information and Regulatory Signs

A "traffic signing plan" list of all signs and locations and pavement markings is to be submitted for

Municipal approval by the Developer's Consulting Engineer. Engineering Services will make the final determination on the scope of this work. Street signs will be used to designate "no parking" areas. Stop bars are required on all streets. For arterial and collector roads, stop bars shall be two component cold extruded polymer material. For local residential streets, organic solvent based painted stop bars will be accepted.

1.5.9 Mailbox Location

This must be coordinated with Canada Post and approved by the Municipality.

A typical community mailbox car bay is enclosed in Appendix D, Figure R013.

1.6 PLAN AND DRAWING STANDARDS

The Consulting Engineer shall complete contract drawings for site services in an approved electronic format for review by the Municipality. Three sets of prints shall be submitted for review by the Municipality. Drawings shall generally include the minimum level of detail outlined and be prepared in a format as generally outlined in the subsequent sections.

1.6.1 Standard Plan and Profile Specifications

Ontario Provincial Standard Drawings (OPSD):

The latest OPSD shall be referenced as part of the contract documents and shall include any amendments or extensions as outlined herein. In case of a conflict between OPSD and Municipal Standard Drawings (MSD), the MSD shall govern.

There are currently no amendments or extensions to the OPSD.

Municipal Standard Drawings:

The current Municipal Standard Drawings are included in Appendix D.

1.6.2 Technical Information

1.6.2.1 Electronic Drawing Requirements

The following are minimum requirements for the submission of electronic drawing files to the Municipality.

AutoCAD Version:

Drawing files should be submitted in AutoCAD R13 or later.

Lettering Sizes:

Minimum size for existing features should be L60.

Minimum size for new construction features should be L80 with L100 used for notes.

Where non-standard text fonts are used, these font files must be provided with the drawings.

Pen Weight:

A suggested pen set up should be as follows:

Pen#	Colour	Pen Size	Steadtler Equivalent
1	Red	0.08	5 x 0
2	Yellow	0.13	4 x 0
3	Green	0.22	3 x 0
4	Cyan	0.27	3 x 0
5	Blue	0.32	0
6	Magenta	0.38	0
7	White	0.44	1
8	Grey	0.51	2
9		0.57	-
11		0.89	3
12		0.95	3.5
13		0.38 screen	0
14		0.44 screen	0
15		0.51 screen	2

Layers:

In general, all different object types should be on separate layers.

Nothing should be drawn on layer 0.

The following is a suggested layering method:

- property lines, right-of-ways, SIB's, IB's, etc., should be on their own layers (eg. Right-of-way lines should be on layer PL, SIB's and IB's should be on layer SIB).

Existing features and utilities should be on layers with suffix X so that they may be manipulated easily (eg., existing Bell should be on layer XBELL and existing edge of pavement should be on layer XEP).

New utilities should be on layers with the suffix U (new sanitary sewer on USAN, new storm sewer on USTORM, etc.).

New road features (ditches, edge of pavement, sidewalks, etc.) Should be on layers with the suffix RN (RNDITCH, RNEP, RNWS).

All profile layers should have the suffix P.

Multiple Drawings:

Where multiple drawings are used to develop a final drawing, all individual drawings should be co-ordinated about insertion point 0,0,0.

Individual drawings should be inserted intact on layer 0 and not need to be scaled, rotated or manipulated in any way.

File Transfer:

Large drawings (larger than 1.4 Mb) should be transferred as multiple disk zip files using Winzip or Pkzip. Older compression programs should not be used.

If you wish to use other compression programs than those mentioned above, please confirm that the Municipality has access to this program.

The Municipality's preference is to receive all electronic files in CD format, however diskettes are also acceptable.

1.6.3 Typical Drawings

The following municipal standard drawings shall also apply to all works:

a) Roads:

- R001 - Existing 15m Right-of-Way, Typical Utility Cross-Section
- R002 - Existing Typical Utility Cross-Section 20.117 m Right-of-Way
- R003 - Subdrain Detail
- R004 - Urban residential Entrance with Boulevard and Sidewalk
- R005 - Residential Driveway Detail No Urban Sidewalk
- R006 - Residential Sidewalk Driveway Entrance Details (Partially Depressed)
- R007 - Residential Sidewalk Driveway Entrance Details (Fully Depressed)
- R008 - Typical Commercial Driveway with 1.2 m Concrete Sidewalk and 0.6 m Brick Pavers Adjacent to Curb
- R009 - Typical Commercial Driveway with Concrete Sidewalk Adjacent to Curb
- R010 - Requirements for Entrance Permits Rural Residential
- R011 - Requirements for Entrance Permits Rural Commercial
- R012 - Typical Culvert End-Protection
- R013 - Typical Community Mailbox Car Bay

b) Sewers

- S001 - Catchbasin Gas Trap Detail (New Installations)

1.7 FLOW CHARTS

1.7.1 Steps for Subdivision Agreements

See flow chart in Appendix A. The following flow charts will apply:

- Figure A.1 - Plan of Subdivision
- Figure A.2 - Official Plan Amendment

- Figure A.3 - Zoning By-Law Amendment
- Figure A.4 - Consent/Minor Variance

1.7.2 Steps for Construction Drawing Approval

See flow chart in Appendix A, Figure A5.

1.7.3 Steps for Assumption and Acceptance

See flow chart in Appendix A, Figure A6.

1.7.4 Steps for Security Calculations and Deposits

See flow chart in Appendix A, Figure A7.

1.8 FINANCIAL MATTERS

In order to finance the construction of trunk municipal services, the Municipality will assess development charges to each buildable lot or unit. These development charges are payable at the time building permits are issued.

Development charges are amended from time to time and are approved by Council. Developers should contact the Director of Development Services office for information regarding the current development charge amounts.

1.8.1 Municipal Service Fees

Development and planning service fees shall be as established in Municipal Bylaw 125-00 and revised from time to time. All fees incorporated into the Development Agreement shall be current as of the date of the Development Agreement.

1.8.2 Fees for Staff Services

Developers of subdivisions shall be required to pay to the Municipality a fee for staff review services. This cost to the Developer will be incorporated into the Development Agreement.

1.8.3 Parks

All parks shall be developed in accordance with the requirements of the Municipality's Recreation and Cultural Master Plan.

Park dedication and construction will occur within the first phase of development and will include final grading, drainage works placement of topsoil and seeding as a minimum requirement.

Developers will be required to pay park fees *in accordance with the Municipality's Official Plan.* The park fee, when taken in lieu of land, shall be calculated based on the purchase price of the development lands prior to servicing.

1.8.4 Easements, Land Conveyance

All easements and land conveyances are to be shown on Draft Plan and will occur automatically at Final Plan Approval.

1.8.5 Water Connection Charges

There are no water connection charges for new development within the former Town of Leamington.

For new water connections within the former Township of Mersea, the following charges shall apply:

- $5,000 for any newly created residential lot farm severance

1.9 CONSULTANTS INSPECTION AND QUALITY ASSURANCE TESTING SERVICES

1.9.1 General

The Consulting Engineer shall provide a full-time on-site inspector during the construction activity. The Inspector's skills shall be suitable for the inspection tasks to be undertaken. The Municipality reserves the right to request a change to the consultant's inspector if the Municipality believes the inspector is not qualified.

The Consulting Engineer's site inspector shall ensure that the work is constructed in accordance with the contract documents and shall keep adequate records of the work.

As a minimum, the following documents are to be prepared by the site inspector.

- diary, indicating daily progress of work, labour and equipment on site
- measurement of quantities
- discussions with general public and agency representatives
- accidents
- as-built records

The Consulting Engineer shall arrange for quality assurance testing by an independent testing firm. Tests shall include:

- granular material sieve analysis
- *Engineered fill*

- asphalt extraction
- compaction tests of native, granular and asphalt materials
- concrete, air content, slump and compressive strength tests
- sewer air tests
- sewer camera inspections including private drain connections
- watermain pressure and leak tests
- high potential tests of electrical distribution system
- other tests called for in the contract documents or as may be required by the Municipality

Two copies of all test certificates shall be neatly bound, indexed and provided to the Municipality at the time the as-built drawings are submitted.

The Consulting Engineer shall note that all underground works including watermains and sewers (but excluding hydro and other utilities) shall be tested and approved (including flushing and sewer video inspection) before curb and gutter and asphalt are completed in the field.

1.9.2 Municipal Inspection

The Municipality will carry out their own inspection as deemed necessary. As a minimum, the Municipality will inspect the subgrade excavation, granular base prior to placing curbs, granular base prior to asphalt paving, *and testing of watermains and sewers*. The Consulting Engineer will give the Municipality 48 hours notice prior to these inspections. Should sufficient notice not be given, and the Contractor proceeds with the work, the Municipality may not accept the services without further proper testing, which may include total or partial removal of pavement or curbs, etc. All this additional testing will be at the Developer's expense. It is therefore imperative that the Contractor's schedule be made available to the Municipality at the job meetings, and the Municipality be promptly advised of any changes to this schedule.

1.9.3 Municipal Acceptance of Services and Assumption of Development

Once completed, the Developer will be required to transfer ownership of the services to the Municipality. This is a two step process as outlined below.

Once the services are installed and all deficiencies corrected, the Developer's Engineer shall send a letter confirming all works have been installed according to specifications and will function as intended. Upon receipt of such letter, the Municipality representative will inspect the development and advise the Director of Development Services by report that the Municipality should "accept the services" and that the maintenance period should begin. The date of the Director of Development Services letter accepting the services is the commencement date of the maintenance period. During the maintenance period, it will be the Developer's sole responsibility to maintain all the services including clearing catchbasins and correcting deficiencies. Snow ploughing shall be carried out by the Municipality on behalf of the Developer.

One year after the initiation of the maintenance period, the Developer may request an inspection for assumption of all services by the Municipality. All sewers shall be flushed clean and video inspected. Catchbasins shall be cleaned and all deficiencies repaired prior to the municipal inspection. Provided there are no outstanding deficiencies, surface course asphalt shall be placed. Following placement of surface course asphalt and all development agreement requirements have been satisfied, including payment of all accounts and the receipt of a statutory declaration that all accounts have been paid, the municipal representative will submit a report to Council requesting that Council "assume the development". Council's resolution assuming the development results in the transfer of ownership of the services to the Municipality. The Developer is no longer obligated to maintain or repair the services thereafter.

From time to time, the Developer or the Municipality may request that not all services be installed prior to requesting "acceptance of services" by the Municipality. For example, surface asphalt and sidewalks may be delayed to minimize damage to those services during building construction. Should some of the services be delayed, the acceptance and assumption of these services will be based on the completion of these particular services and the expiration of the maintenance period

for these particular services. In this case, there will be more than one acceptance date of the services and more than one assumption date of that portion of the development. Financial securities will require time extensions to not less than 90 days beyond the anticipated date of Council's assumption of the development.

1.9.3.1 TV Inspection of Sanitary and Storm Sewers

Sewer TV inspection shall comply with OPSS 409.

OPSS Standards shall be used to evaluate any deficiencies in the sewer main.

Sewers must be videoed before curb and gutter construction and asphalt placement and before the Developer's request for acceptance.

1.9.3.2 TV Inspection of Service Connections

Sewer TV inspection shall comply with OPSS 409.

OPSS Standards shall be used to evaluate any deficiencies in the sewer main.

All connections and catchbasin leads must be videoed before curb and gutter construction and asphalt placement and before the Developer's request for acceptance.

1.9.3.3 Air Test for Sewer Lines and Connections

All sanitary and storm sewers (including individual lot connections) shall be "air tested" by a qualified firm using air testing methods as set out in OPSS 410.

1.9.3.4 Compaction Testing

a) Pavements (to 1 metre behind curb)

- 100% Standard Proctor Dry Density for granular basecourse and trench backfill.

b) Boulevards

- All native material to 95% Standard Proctor Dry Density.

1.9.3.5 Asphalt/Granular Testing

Municipal staff may request testing of constructed works or sampling of construction materials at any time all at the expense of the Developer.

Copies of all testing results shall be forwarded directly to the Municipality by the testing firms retained by the Developer.

2.0 DEVELOPMENTS UNDER SITE PLAN AGREEMENTS

2.1 SPECIFIC SITE PLAN REQUIREMENTS

The Developer should meet with the Development Services Review Committee so that all points of view can be thoroughly discussed. Some of the items to be included on the site plan or any site plan agreement would include the following:

1) Grading and Surface Runoff, Etc.

a) existing elevations should be shown on a 10-20m grid and this information should include any drainage ditches, depressions, swales or surface features with important elevations shown on same.

- Proposed elevations should be shown on the plan in addition to existing elevations. Elevations should include those existing and proposed at corners of buildings and corners of lots, and any other elevations required to make sure that the general drainage pattern being proposed will function.

c) Any catchbasin system required to accommodate the drainage together with proposed outlets to the municipal drainage systems must be shown on the plans.

Note: The purpose of the above drainage scheme is to contain all water on the lot and to prevent surface water from running onto adjacent lands. In addition, the drainage scheme should accommodate any drainage which flows naturally to the lot preserving the riparian rights of the adjacent lands.

2) All proposed fencing, landscaped or grassed areas should be shown on the plan including retaining walls where applicable.

3) Roof Water

All roof leads should be indicated on the plan showing the proposed direction of flow.

4) Parking Areas and Driveways

The parking layout should be shown including the dimensions of the proposed spaces, etc.

5) Outside Storage of Garbage

The type and location of this type of consideration should be shown on the plan.

It should be noted that the conditions indicated above can usually be shown on the site plan. Reference should also be given to the above mentioned facilities in the Site Plan Agreement. The Site Plan Agreement should also include conditions regarding "perpetual" maintenance of such items as landscaping, shrubbery and so forth.

2.1.1 Site Plan Agreement

All developments must proceed in accordance with the requirements of this Development Manual and Site Plan Agreement.

The Site Plan Agreement will set out specific requirements for the particular development. Where in conflict, the Site Plan Agreement will supersede the requirements of this manual.

The Site Plan Agreement is prepared by the Director of Development Services in consultation with the Municipality's Solicitor and administrative staff.

No work can proceed in the development until the Agreement is executed by both parties and all financial securities and insurance are provided.

A flow chart illustrating the steps in the site plan development process is included in Appendix A.

A typical Site Plan Agreement is included in Appendix B. This typical Site Plan Agreement should be used for format only. Specific details of the Site Plan Agreement will be set out as part of the process that is outlined in this manual. A typical site plan is shown in Appendix C.

2.1.2 Securities

The Municipality shall only accept the following forms of security:

- certified cheque
- irrevocable letter of credit (self renewing and without burden of proof)

The Municipality will not accept any assigned Contractor's bonds.

The minimum security for developments under the site plan process shall be 100 percent of the cost of the site works or a minimum of $5,000.

For all off-site works, the Developer will be required to provide security in the amount of 100 percent of the cost of the works. Developer's Engineer to supply certified estimate of cost of works or the successful tender prices.

Where the security deposit may be insufficient to correct any deficiencies related to the works for the project, and the Developer does not proceed with the remedying of the deficiency within 30 days of being requested to do so by the Municipality, the Municipality will utilize the existing security to have the outstanding works completed. In the event that the cost of remedying the deficiencies exceeds the value of the security, the Municipality will request the Developer to submit additional securities or pursue other methods available to the Municipality for the collection of the outstanding

costs. The Municipality will retain the amount of security sufficient to rectify deficiencies until all works are complete. Cost of deficiencies to be certified by the Developer's Engineer. The amount shall not be less than $5,000.

It is critical, when constructing, to adhere to the approved Development Plans. All Developers/Owners must ensure their Project Supervisors/Contractors have the approved Site Plan Agreement in their possession.

2.2 DEVELOPMENT PLAN REQUIREMENTS FOR APPROVAL OF PLANS AND DRAWINGS

All site plans are to have a title block containing the name and address of the project, the lot and plan number, drawing name and number, scale, date, and Municipality of Leamington approval stamps. All development plans, excluding building elevation plans, should be co-ordinated using base master plan.

2.2.1 General Site Plan

Details of development to be included on the plan: (these items below must be incorporated in a Land Use Schedule/Coverage Table);

- net lot area;
- maximum building coverage;
- maximum gross floor area of existing and/or proposed building(s) including specific uses by type (ie., commercial, floor area devoted to public use, residential, warehouse/storage, etc);
- maximum building height;
- maximum number of units, if residential;
- required and actual number of parking spaces provided - calculations are to be shown indicating parking spaces required based on actual floor area of specific uses (refer to Zoning By-law)

- parking station coverage;
- minimum number of loading spaces;
- rentable units (for residential apartment buildings).

Note:

- For information regarding any of the above items, please refer to Municipality of Leamington Zoning By-law (as amended) and/or the office of the Director of Development Services.
- Floor plans are not to be shown on the general site plan.

The General Site Plan must include:

- key plan showing site location;
- property boundaries, bearings and distances including all perimeter dimensions;
- adjacent property owned by the Applicant or in which the Applicant has an interest;
- the location of existing and proposed buildings, including accessory buildings, sheds, etc;
- location or outline of existing buildings, walls and septic systems on adjacent properties;
- location and height of existing and proposed fencing including privacy fencing or screening;
- curbing/curve radii at all street access and driveway intersections;
- dimension and label all existing and proposed curb cuts and curb depression fills;
- existing and proposed sidewalks including depressions in sidewalks to grade level for barrier-free access;
- building blocks to be numbered with number of units (ie., Building No. 2, 4 dwelling units);
- existing and proposed exterior amenity area;
- existing and proposed location of outdoor garbage storage areas screened to Municipality of Leamington standards
- north shall be to top or left of the plan
- on-site lighting;
- hydro transformers;
- any existing or proposed reserves and easements;

- any other relevant data.

2.2.1.1 Zoning By-Law Requirements

Yard dimensions (front, side and rear) for all buildings and structures existing and proposed setbacks are to be shown as described in the Zoning Bylaw.

Front, side and rear lot lines (designated);

Existing and proposed loading doors and bays, loading areas and intended truck traffic;

Existing and proposed roadways, driveways and parking areas with reference to surface treatment, (ie., gravel or asphalt); and

Provision for barrier-free parking.

2.2.1.2 Building Code/Fire Code Regulations and Requirements

Traffic circulation and Fire route signs/lanes including proper lane widths, turning radii and sign locations;

Existing and proposed location of any exterior walkways, stairs, escalators, building entrances;

All new buildings are required to provide barrier-free access from the parking area to the main entrance door, including provisions for illumination, signage, etc., in accordance the Ontario Building Code (OBC);

If the building is classified under Part 3, the building size and construction relative to occupancy must be specified on all drawings in accordance with the OBC (See Articles 3.2.2.15 to 3.3.3.02). Fire Services and Building Services require this information in order to review plans of Part 3 buildings to determine if adequate fire access routes and fire hydrants have been provided;

Building Code requirements dealing with fire fighting access, Siamese connections, fire access routes, streets, location of fire hydrants, etc. must be addressed in accordance with Section 3.2.5 and Article 3.2.2.6;

All Part 3 buildings must be provided with an adequate water supply for fire fighting in accordance with OBC. Hydrant flow tests shall be provided and certified by a Professional Engineer registered with PEO.

Building area (ie. Footprint), building use, number of storeys, location of fire hydrants.

2.2.1.3 Amend Approved Site Plan

The Developer may request in writing to the Director of Development Services that the approved site plan be amended.

Upon the approval of the Director of Development Services, the Developer and his Consulting Engineer shall review the changes with the Municipality. If the changes are acceptable and if an amendment to the Site Plan Agreement is required to reflect the changes, the Director of Development Services will instruct the Developer to submit the amended site plan for final approval. The Director of Development Services shall prepare an amending agreement and ascertain if additional securities or review fees are appropriate.

The Developer shall not proceed with respect to the works described in the amending agreement until Council has approved the execution of the amending agreement.

2.2.2 Landscape Plan

The following items shall be included on the plan:

- Location of all proposed plant material, planting beds and sodded areas, and other surface treatments;
- Location of existing vegetation to be retained or removed;
- Location of traffic signs;
- Plant listing showing index, name, size, quantity, etc. (refer to Schedule 11 - Suggested Tree/Shrub species and sizes);
- Location of play areas, special activity/amenity areas, pathways, open space areas;
- Existing and proposed fencing;
- North arrow.

Note:

Any sodding, planting or work on lands abutting the property from the lot lines to sidewalk and curbing, shall be to the satisfaction of the Municipality.

Landscaping requirements as shown above may be incorporated on Site Plan depending on the overall detail and complexity of the development proposal.

2.2.3 Underground Parking Layout

If applicable, the underground parking layout shall show ramps, stairwells, driveways and parking spaces for floor or floors.

2.2.4 Site Servicing/Grading Plans

The servicing and grading plans must include and/or clearly indicate:

- north arrow
- Municipality of Leamington bench mark description and elevation (to be provided by Municipality Engineers' Office upon request);
- location and size of municipal sanitary sewer systems abutting the site (existing and proposed);
- sanitary laterals and connections (existing and proposed) - location, size, grade (slopes) and class of pipe;
- location and size of municipal storm drainage systems abutting the site (existing and proposed);
- storm sewer laterals and connections (existing and proposed) - location, size, grade (slope) and class of pipe;
- control maintenance holes (if required), to be located on the right-of-way side of the property line;
- location and size of existing and proposed municipal watermain systems abutting the site;

- watermain piping (existing and proposed) - location, size connections and class of pipe. All watermain work on Municipal property to be constructed by Municipal forces at Owner's expense;

- location and size of water meter to be determined by the Leamington Water Services;

- location of nearest Municipal hydrants and on-site hydrants;
- all proposed services to building;

- show invert and finish grade elevations of all maintenance holes;

- catchbasins (existing and proposed) - locations, proposed and existing elevations for grates, inverts, class of pipes and grades;

- all grade elevations should be shown as follows:

    - Existing 797.3;

    - Proposed surface 797.3, proposed top of curb 797.3;

    - If proposed and existing are the same, use "existing" method to show this on the plan.

- every parking area, where storm sewers are available, shall be drained by catchbasins as follows:

    - goss traps to be installed on all catchbasins;

- parking areas with less than 500 square metres shall be drained by at least one catchbasin;

- parking areas with all surfaces larger than 500 square metres shall have at least one catchbasin for each 500 to 1,000 square metres unless designed by a Professional Engineer and approved by the Municipal Engineer;

- location of downspouts for roof drainage Note: roof drainage is to spill directly onto the ground and not connected directly to storm sewers unless approved by Engineering Services;

- splash guards must be installed at all roof leaders; all surface drainage routes including swales, ditches, watercourses and their invert elevations and flow direction;

- all abutting streets, right-of-ways, easements;

- existing grades of abutting roads and proposed grades through new entrances;

- elevations on an 9.0 metre grid along the site property lines including lot corners and to at least 9 metres beyond the property boundaries so that existing drainage patterns may be evaluated;

- the overall existing and proposed surface drainage pattern on the site is to be shown by flow directional arrows;

- proposed drainage swales with preferred grades of 1%; minimum grades of 0.6%;

- ground floor elevations of the building and ground elevation at all building corners, entrances, catchbasins, tops and bottoms at slopes and other locations, as required, to establish the surface drainage system;

- location of all existing and proposed curbs with types, retaining walls and edge of asphalt if no curb required;

- top of curb elevation (proposed and existing) and detail of curb showing height from top to top of asphalt;

- all new and proposed sidewalks to be indicated on drawing with proposed elevations;

- based on available storm sewers, any lands which may require storm water management;

- the location of hydro transformers must be identified;

- legend detailing all symbols used (ie., catchbasins, retaining wall, road, property line, building line, existing and proposed elevations).

All storm and sanitary building services are to be laid out in accordance with the OBC.

NOTE:

The approval of plans does not exempt the Owner's bonded Contractor from the requirements to obtain the various permits normally required to complete a construction project, such as, but not limited to, the following:

a) sewer permits
b) building permits
c) sewage system permits
d) sign permits (911)
e) significant (advertising)
f) entrance permit

For all redevelopment sites, existing sewer laterals on the Municipal right-of-way must be video inspected by Developer prior to connection (must be noted on plan). Results will be reviewed by Engineering Services.

All works to be completed in accordance with Municipal and Provincial Standards or detailed Municipal Standard Drawings as enclosed. Refer to OPSD and OPSS specifications and drawings for all other details;

Varying site conditions may require standards other than those listed above.

2.3 TYPICAL SITE PLAN DRAWINGS

A typical site plan drawing has been included in Appendix D.

2.4 SANITATION REQUIREMENTS

2.4.1 Garbage Container Location/Size

Garbage container enclosures must be shown and dimensioned to scale on site plan.

2.4.2 Truck Turning Servicing

All trucks must have access directly to bin. SU9 design templates to be used.

2.5 SEWER SPECIFICATIONS

2.5.1 General

- Maintenance holes, catchbasins and any other appurtenances shall conform to OPSD Standards and related requirements as set out in Section 1 of this manual for subdivision developments.

- Where outfalls to waterways or drainage courses are required, the consultant will supply an outfall design for submission to all appropriate agencies for approval and permits. Erosion protection (cable mat or gabion stone baskets) shall be required for all outlets.

2.5.2 Grades

All finished lot and service grades shall be in accordance with the grades shown on the approved plans. The Developer shall provide a benchmark (based on Canadian Geodetic Datum) on the site or in close proximity to the site to be used for the construction of the works.

2.5.3 Sanitary Sewer

2.5.3.1 Peak Flows

Since peak sewage flows vary greatly with type and density of development, each case must be considered on an individual basis.

2.5.3.2 Capacities

Allowable outlet capacity to be approved by Engineering Services.

The capacity and the size of the service leaving the building shall be checked by Building Services.

2.5.3.3 Minimum Requirements

a) Pipe Sizes

The following minimum pipe sizes will be considered provided they have adequate capacities.

i) Minimum size of sanitary sewer is 100 millimetres in diameter.

- Where the public mains are less than 525 millimetres in diameter, pipe sizes 150 millimetres to 250 millimetres in diameter are considered for connection.

b) Slopes

Minimum slopes for sanitary sewer lines shall be as specified in latest edition of the Ontario Building Code.

c) Cover

i) Sanitary - check that adequate depth of cover is provided to obtain frost protection. Insulation is required if depth to top of pipe is less than 1.2 metres in local traffic area and landscaped areas. Insulation shall be installed as per Building Services requirements.

ii) Line Assignments - maintain 3.0 metres minimum clearance from centre of sewer lines to property lines and buildings. More separation may be required depending on the depth of the sewer line.

Maintain 1.8 metres minimum separation between centre lines of sanitary and storm sewers and other utilities, 3.0 metres clearance to poles. More clearance may be required depending on the vertical separation. Refer to the Waterworks Servicing section of this manual for separation between water mains and other services.

2.5.3.4 Maintenance Holes

Installation of maintenance holes shall be in accordance with the requirements of Section 1.4 of this manual.

Transitions in sizes, grades or direction of sewer pipes are to be accomplished by the means of maintenance holes.

At maintenance holes where changes in sewer pipe diameter occur, keep crowns of pipe continuous. Where no change in pipe diameter occurs, allow a drop of 30 millimetres in a through maintenance holes and 60 millimetres in the presence of a bend.

Where the difference in elevation between the incoming pipe invert and the outgoing pipe centreline is greater than 760 millimetres, a drop structure hole must be provided.

Interior drop maintenance holes may be approved on an individual basis by Engineering Services.

2.5.3.5 Pipe Bedding and Trench Width

Refer to Section 1.4 of this manual in addition to the requirements of OPSD.

2.5.3.6 Test Maintenance Holes

The Municipality of Leamington requires all new commercial and industrial developments to install a test maintenance hole in its service connection in the Municipality's road allowance adjacent to the property line.

And that any existing commercial and industrial developments that require a severance, or for which a site plan is required, be required to install a sanitary test maintenance hole.

2.5.4 Storm Sewer

2.5.4.1 General Design Criteria

a) Drainage Requirements

All open areas shall drain to the storm sewer. When storm sewers are not available, an alternative drainage system designed by a Professional Engineer registered in the Province of Ontario will be required.

The minimum number of dry wells (designed by a Professional Engineer) required is determined by the flow from the site in relation to the intake capacities of the inlet structures. Drainage from roof areas shall be contained on site. Control flow roof drain specifications shall be shown. Location of roof drains shall be shown. Drainage boundaries for roof shall be shown where roof encompasses a large area.

Drainage area plans and design calculations (see storm sewer design sheet Appendix E) are required when:

- the storm system is complicated
- the site has three or more subcatchment areas
- a storm water retention system is required

2.5.4.2 Minimum Requirements

a) Pipe Sizes

The following minimum pipe sizes will be considered provided they have adequate capacities.

i) Minimize size of storm water service connections is 100 millimetres in diameter.

b) Slopes

Minimum slopes for storm sewer lines shall be as set out in the latest edition of the Ontario Building Code.

c) Cover

i) Storm - the minimum cover from the pipe crown to finish grade is to be preferably 1.2 metres or greater.

2.5.4.3 Pipe Bedding and Trench Width

Refer to Section 1.4 of this manual in addition to the requirements of OPSD.

2.5.4.4 Maintenance Holes

Installation of maintenance holes shall be in accordance with the requirements of Section 1.4 of this manual.

Transitions in sizes, grades or direction of sewer pipes are to be accomplished by the means of maintenance holes.

At maintenance holes where changes in pipe diameter occur, keep crowns of pipe continuous to maintain energy gradient. Where no change in pipe diameter occurs, allow a drop of 30 millimetres in a thorough maintenance hole and 60 millimetres in the presence of a bend.

2.5.4.5 Catchbasins

Refer to Section 1.4.2.6 of this manual in addition to OPSD.

In grassed areas with no traffic, a 600 mm diameter corrugated steel pipe or concrete sump pit catchbasin will be permitted.

2.5.4.6 Drainage During Development

Sedimentation controls must be installed. Storm water shall be controlled on site to a proper outlet.

2.5.4.7 Outfalls

As per OPSD standards.

2.5.4.8 Flood Plain Guidelines

See Municipality's Official Plan and Zoning By-Law in addition to ERCA's requirements.

2.5.5 Storm Management Policies, Design and Construction

All storm water management reports or measures must be prepared and installation of works supervised by a Professional engineer licensed in the Province of Ontario.

2.6 WATERWORKS DESIGN STANDARDS

2.6.1 Standard Specifications

Refer to Section 1.3.1 in this manual.

2.6.2 Trench Backfill

Refer to Section 1.3.2 in this manual.

2.6.3 Water Services for Fire Protection Systems

Where the proposed fire protection system requires a service larger than specified in this manual, the Consulting Engineer in consultation with Fire Services shall submit a request for a larger service for fire protection to Leamington Water Services for review and approval.

2.6.4 Water for Irrigation Systems

The Consulting Engineer shall submit a request for a service for irrigation purposes to Leamington Water Services for review and approval.

2.7 ROADS

2.7.1 Entrance Design to a Municipal Street

- Commercial entrance as shown in Municipal Standard Drawings to be used. All variations to be approved by Engineering Services.
- Sidewalks straight through driveways.
- Barrier curb to be cut using special curb cutting equipment.
- Paving stones to have a minimum 300 mm base of Granular 'A' with a levelling course.

2.7.2 Pavement Design Criteria (on Public Right-of-Way)

Refer to Section 1.2 in this manual.

2.7.3 Emergency Access

Must be designed to carry emergency vehicles including fire trucks.

2.7.4 Pedestrian Access and Sidewalks

May be required pending site plan review.

2.7.5 Parking Areas

Parking lot grades will be a minimum of 0.5% and a maximum of 5%. Depressions shall not exceed 300 mm in depth.

All parking lot areas are to be hard-surfaced.

2.8 BUILDING ENVELOPE

Refer to Zoning By-Law/Planning Services/Development Services Review Committee.

2.8.1 Locations - Setbacks

Refer to Zoning By-Law/Planning Services/Development Services Review Committee.

2.8.2 Finished Floor Grades

- Finished floor grades are to be set at a minimum of 300 mm above 1:100 year storm floodline elevation.
- Exterior lot grading to be directed to adequate outlets.

2.8.3 Loading Docks

- As required by the Zoning By-Law.
- Follow the requirements of the OBC and ITE guidelines.
- For local industrial roads, they can back in off road.
- For collector industrial roads, all truck movements on site.

2.8.4 Emergency Exits

Emergency exits may not swing open into traffic lanes. Emergency exits shall be recessed into the building or protected with a sidewalk outside the building.

2.9 FINANCIAL MATTERS

2.9.1 Municipal Service Fees

Development and planning service fees shall be established in the Municipal Fees By-Law as

revised from time to time. All fees incorporated into the Site Plan Agreement shall be current as of the date of the Development Agreement.

2.9.2 Park Fees

Refer to Section 1.8.3.

2.9.3 Easements, Land Conveyances

All easements and land conveyances are to be shown on the Site Plan and will occur upon execution of the Site Plan Agreement.

2.10 INSPECTION REQUIREMENTS

- Building Services will be responsible for municipal services on the site. Engineering Services is responsible for municipal services within the public road allowance.
- Sewer inspections must be performed before backfilling takes place.
- The Consulting Engineer will be required to "sign off" on the implementation of the SWM measures (before any securities are released) confirming that the works were constructed in accordance with the approved drawings and will work as intended.

2.11 FENCING

- Refer to Zoning By-Law and Site Plan Agreement.
- The height, type and construction details of all fences are to be shown on the Site Plan.

3.0 GREENHOUSE DEVELOPMENT

3.1 SPECIFIC PLAN REQUIREMENTS

The plan shall include all details of the new works and development. As a minimum, the following details are to be shown on the plans:

- all driveways and permanent traffic lanes
- all permanent parking areas
- all new buildings include staff areas
- any MTO corridor building restriction control zones (where applicable)
- all underground piping and overland surface drainage patterns
- surface drainage routes

In addition to the above, the Owner shall submit both a grading plan and storm water management plan (including calculations) prepared by a Professional Engineer registered with PEO. Where the greenhouse developer is greater in area than 600 square metres, the structure and footing details must also be designed by a Professional Engineer registered with PEO.

All plans to be approved prior to building permit being issued.

The Consulting Engineer will sign off on all completed site services prior to approval of enclosure of the structure.

3.2 TYPICAL SITE PLAN DRAWING

Generally, the site plan drawing shall be in accordance with Sections 2.1 and 2.2 of this manual.

3.3 SEWER DESIGN AND SPECIFICATIONS

3.3.1 Private Sewage Systems

Refer to Ontario Building Code and MOE requirements.

3.3.2 Connection to Public Sewers and/or Drains

All storm connections shall be approved by Engineering Services.

3.3.3 Storm Management, Design and Construction - Ponds

The design curves to be utilized are the 1:2 year AES (pre-development) and the 1:100 year AES (post-development). All work is to be designed and stamped by a Professional Engineer.

3.4 WATER SPECIFICATIONS

See guide for Municipal Water Supply for Area Greenhouse facilities in Appendix F.

3.5 INSPECTION REQUIREMENTS

The Owner's Engineer shall certify that all works have been constructed in accordance with his approved designs prior to the greenhouse structure being enclosed.

The Municipality's Drainage Superintendent shall provide periodic inspections where SWM outlet to municipal drains as designated under the Drainage Act.

4.0 RESIDENTIAL SERVICING REQUIREMENTS (For areas not under site plan control)

4.1 INDIVIDUAL GRADING PLANS, STORM AND WATER

Servicing of infill lot requires plans detailing all connections.

Site plan must show all driveways.

4.2 FOOTING DRAINS - SUMP PUMP DETAIL

- A back flow valve shall be installed on the sump pump connection.

4.3 RESIDENTIAL DRIVEWAY DETAIL

- See Appendix D for driveway construction detail.
- Location and width of driveway to be shown on the site plan.

4.4 CORNER SIGHT TRIANGLES

- 9.1 m x 9.1 m setback based on property line.
- 4.6 m x 4.6 m setback for alleys.

4.5 SANITARY SYSTEMS

There shall be an accessible backflow valve installed on the sanitary systems. Location to be confirmed with Building Services.

5.0 REQUIREMENTS FOR BUILDING PERMITS

In accordance with the requirements of the Ontario Building Code, construction cannot commence on any buildings until a building permit is issued. This is Provincial legislation administered by the Municipality. The Municipality does not have the authority to waive this Provincial legislative requirement.

Where the Developer applies for the issuance of a building permit prior to the installation of all services and utilities, the building permit can be issued in accordance with Municipal Policy No. P10-Building Permits.

5.1 MUNICIPALITY'S BUILDING BY-LAW

See Appendix G.

5.2 CHART FOR THE DETERMINATION OF NEED FOR STRUCTURAL ENGINEER OR ARCHITECT

Refer to OBC Section 2, Table 2.3.1.1 or FBC Section 2.

5.3 INSPECTION REQUIREMENTS

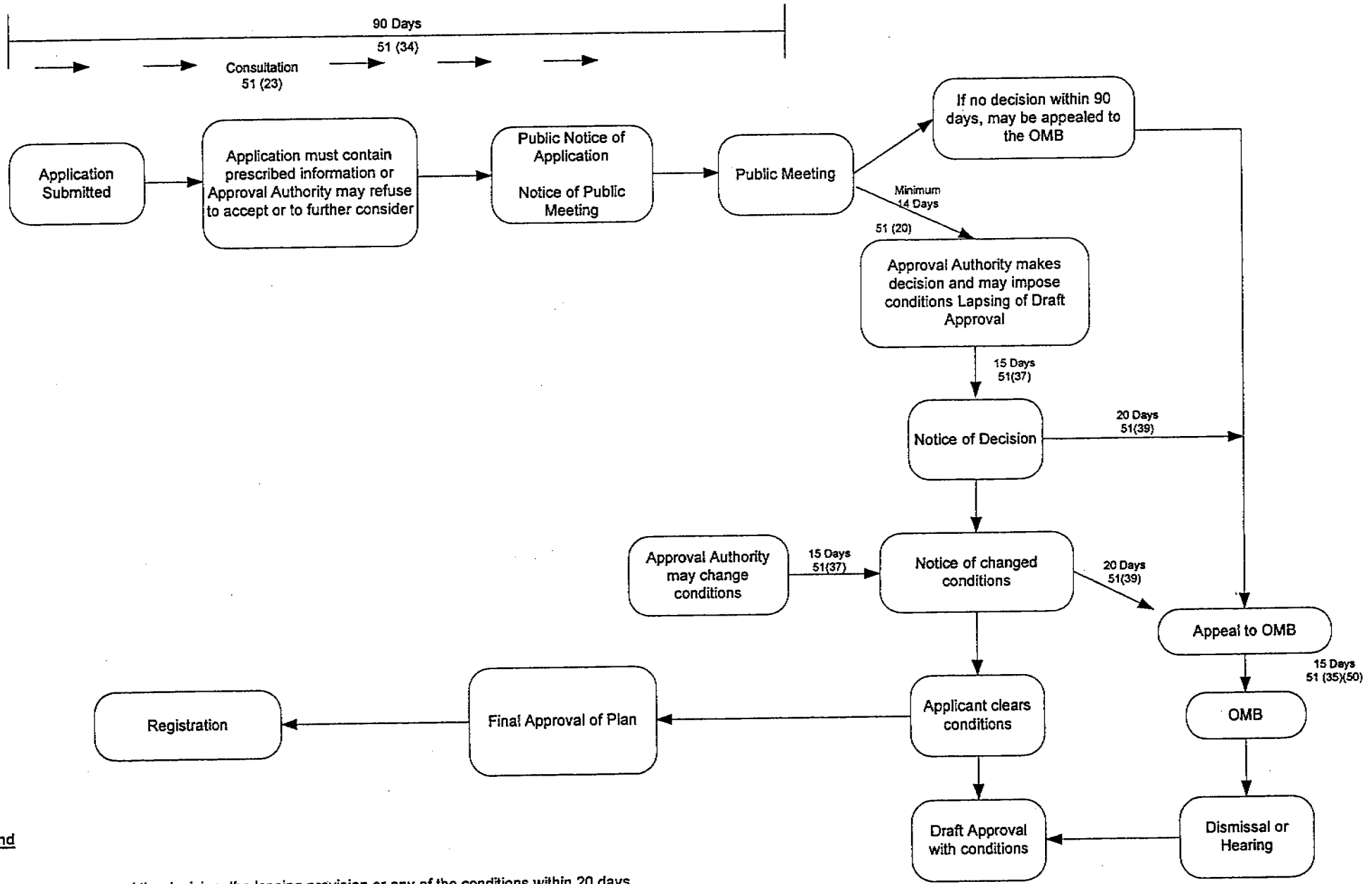
The Owner or his agent shall notify the Chief Building Official within 24 hours when each stage of construction (for which the Building Code requires an inspection) is complete and ready for an inspection.

APPENDIX A

DEVELOPMENT REVIEW FLOW CHARTS

Figure No.	Title
A.1	Plan of Subdivision
A.2	Official Plan Admendment
A.3	Zoning By-Law Amendment
A.4	Consent/Minor Variance
A.5	Construction Drawing Approval
A.6	Assumption and Acceptance of Services
A.7	Calculation of Securities and Deposits
A.8	Site Plan Control

PLAN OF SUBDIVISION

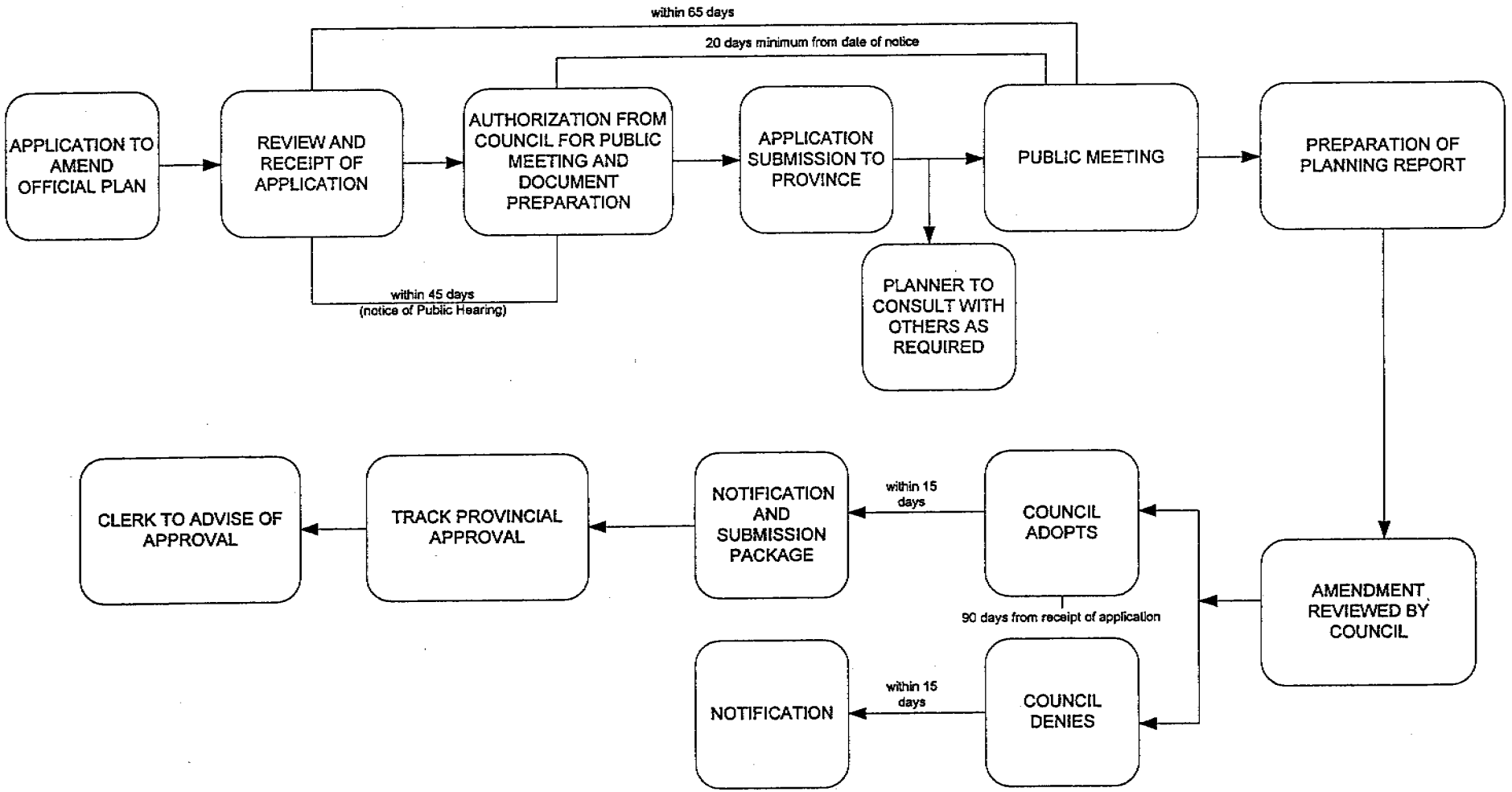


Legend

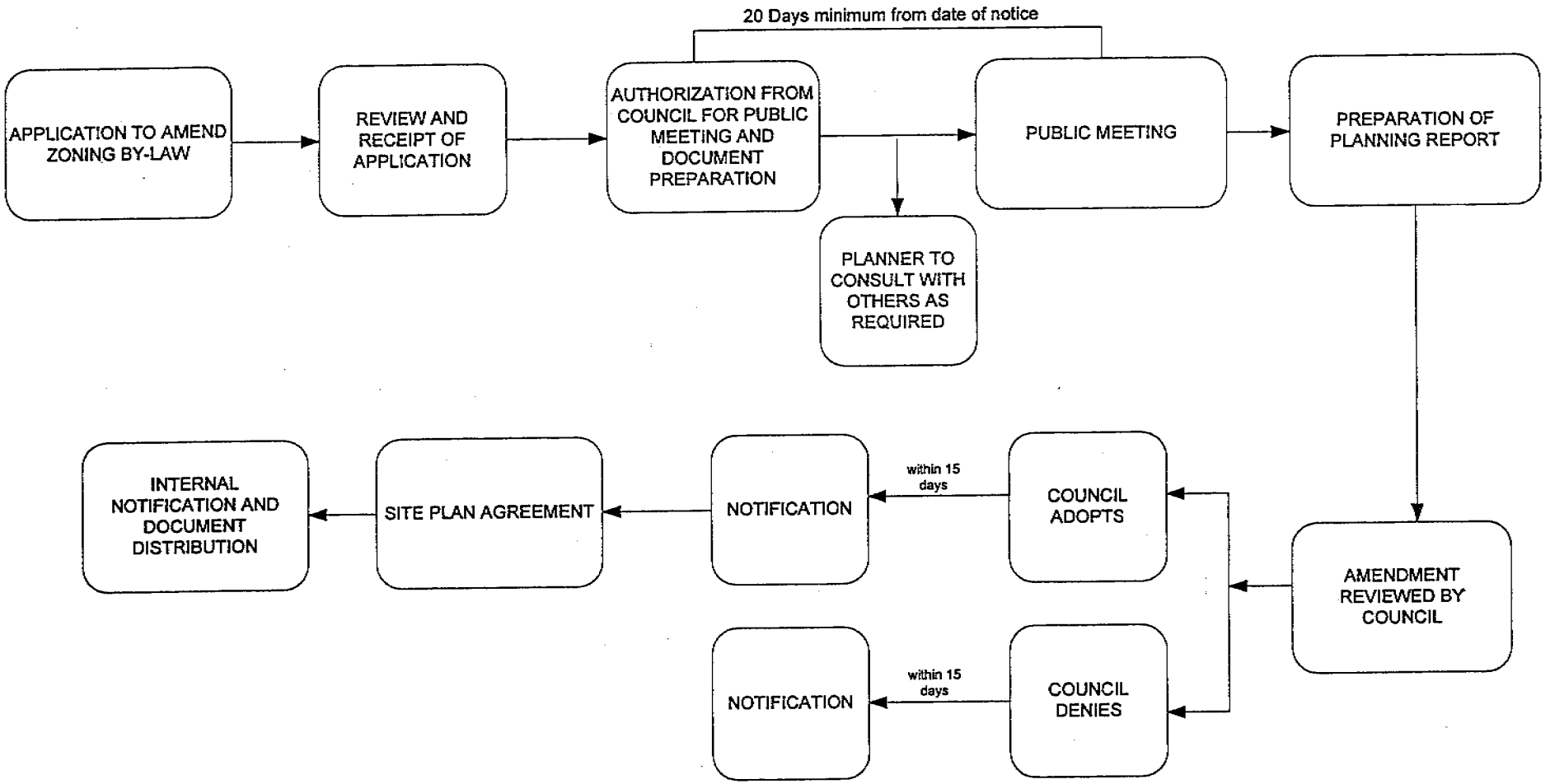
* Any person may appeal the decision, the lapsing provision or any of the conditions within 20 days Applicant or public body may appeal any conditions of approval before final approval (ss.51(43))

** Approval authority to forward record within 15 days (ss.51(35))

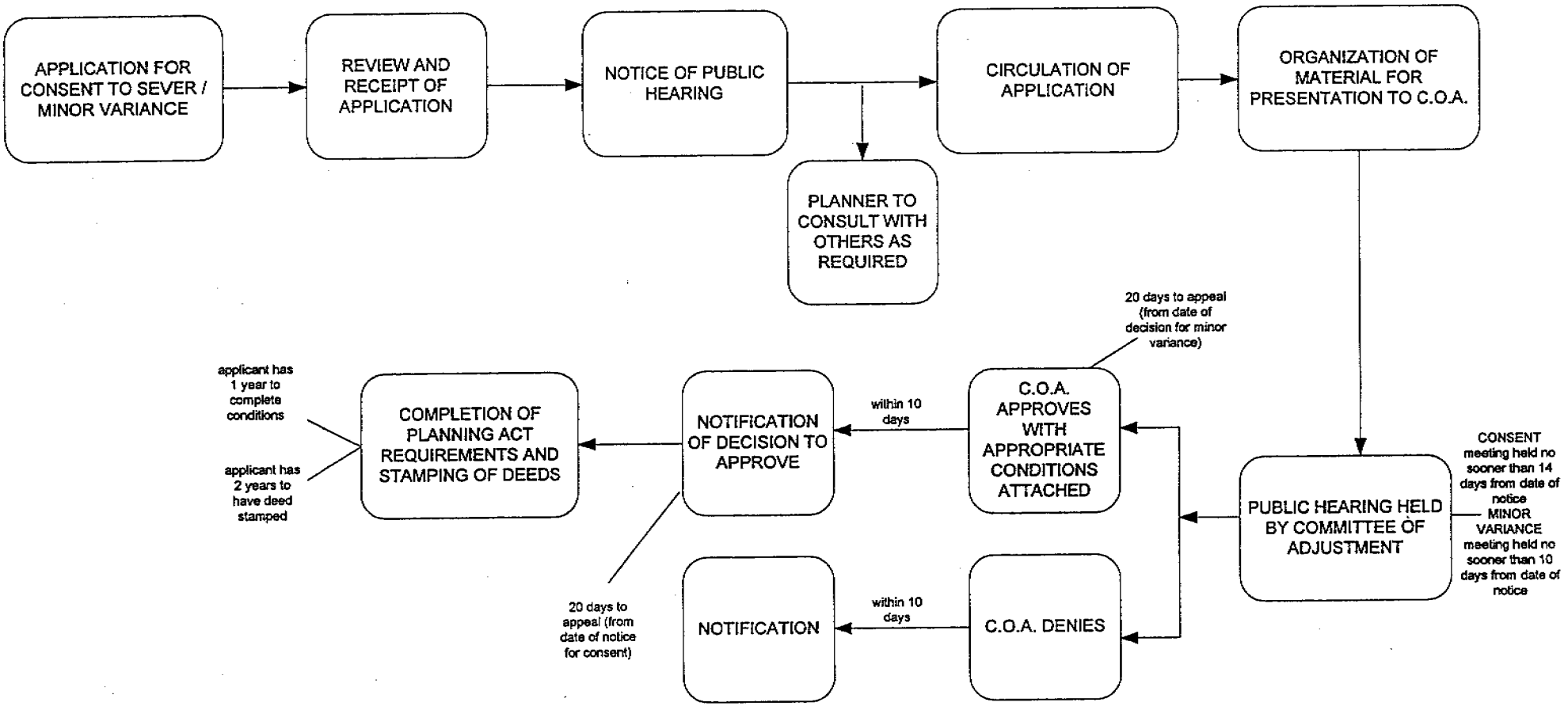
OFFICIAL PLAN AMENDMENT



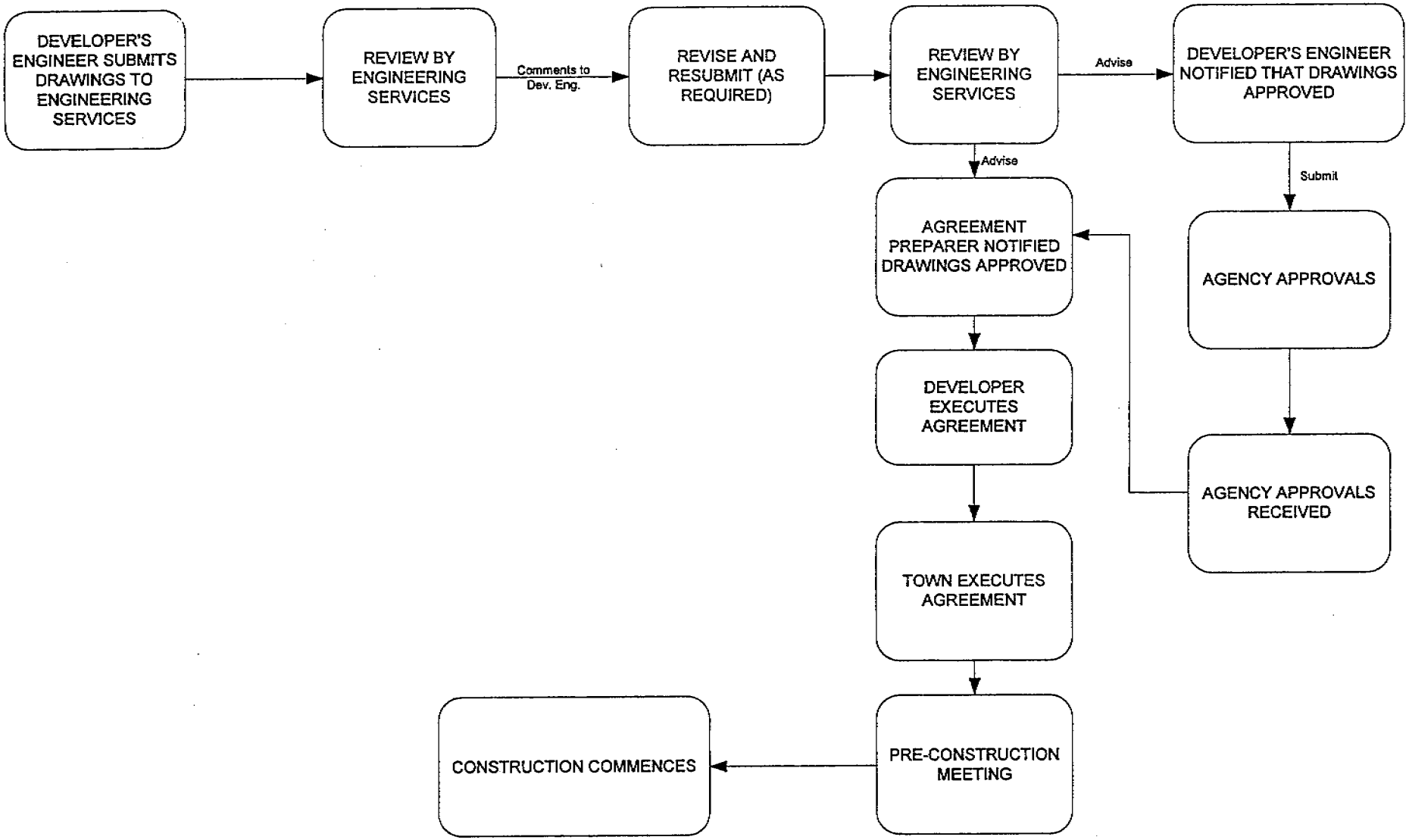
ZONING BY-LAW AMENDMENT



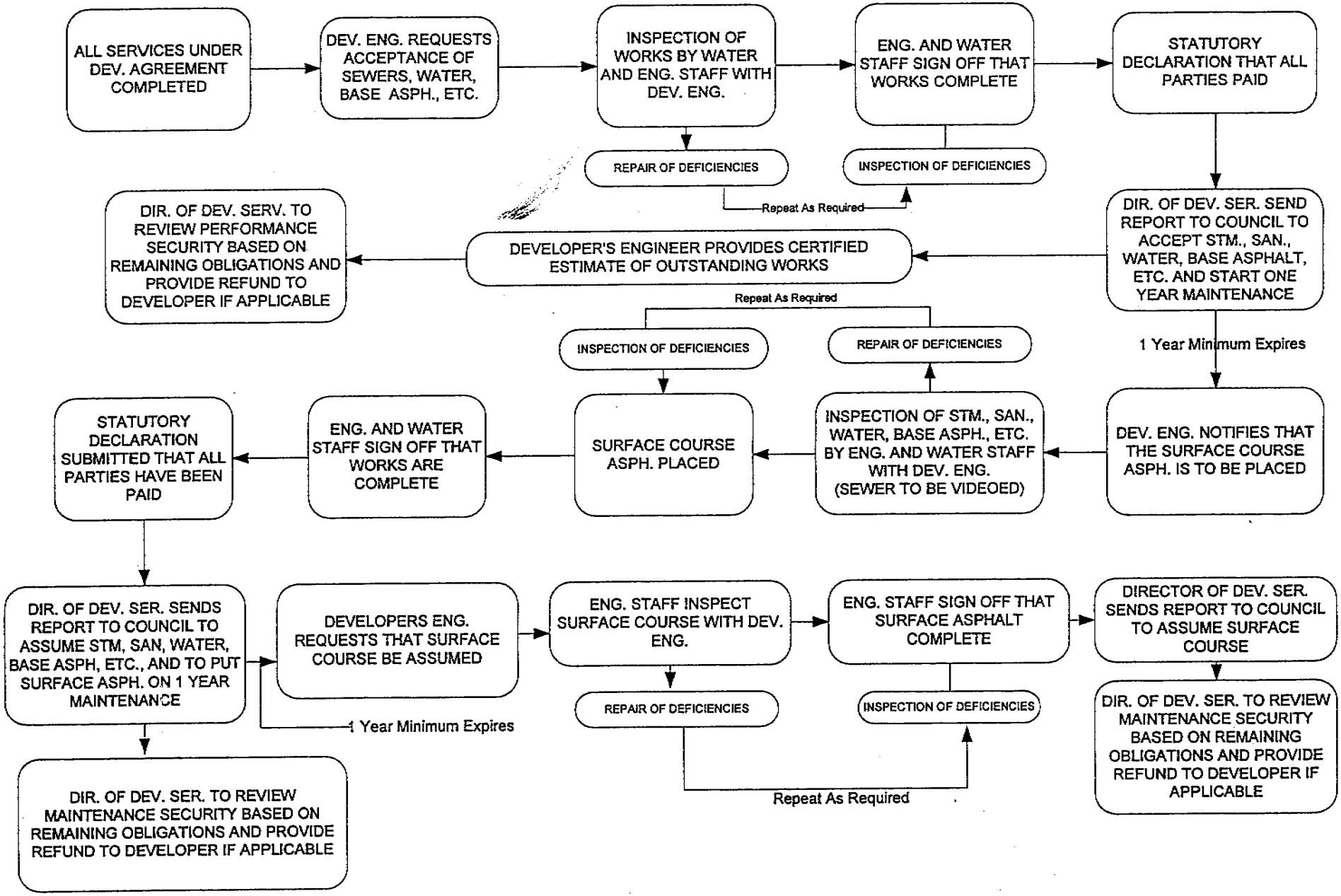
CONSENT / MINOR VARIANCE



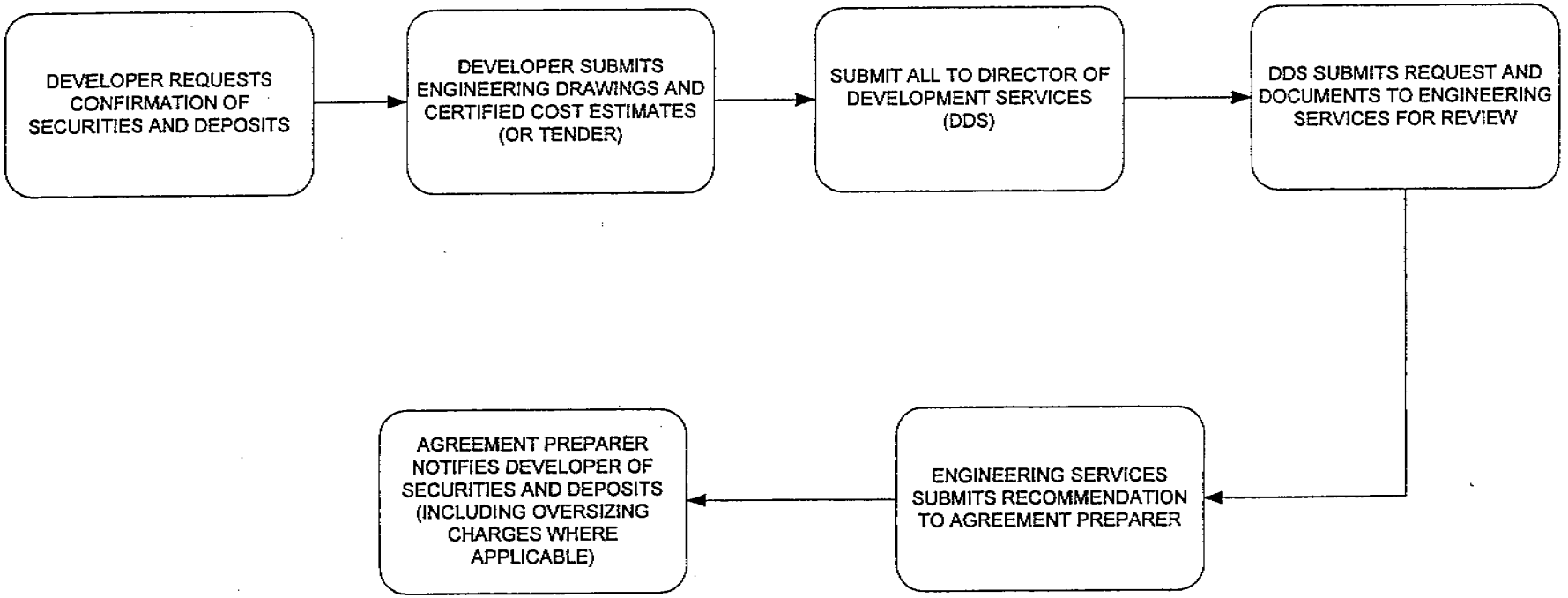
CONSTRUCTION DRAWING APPROVAL



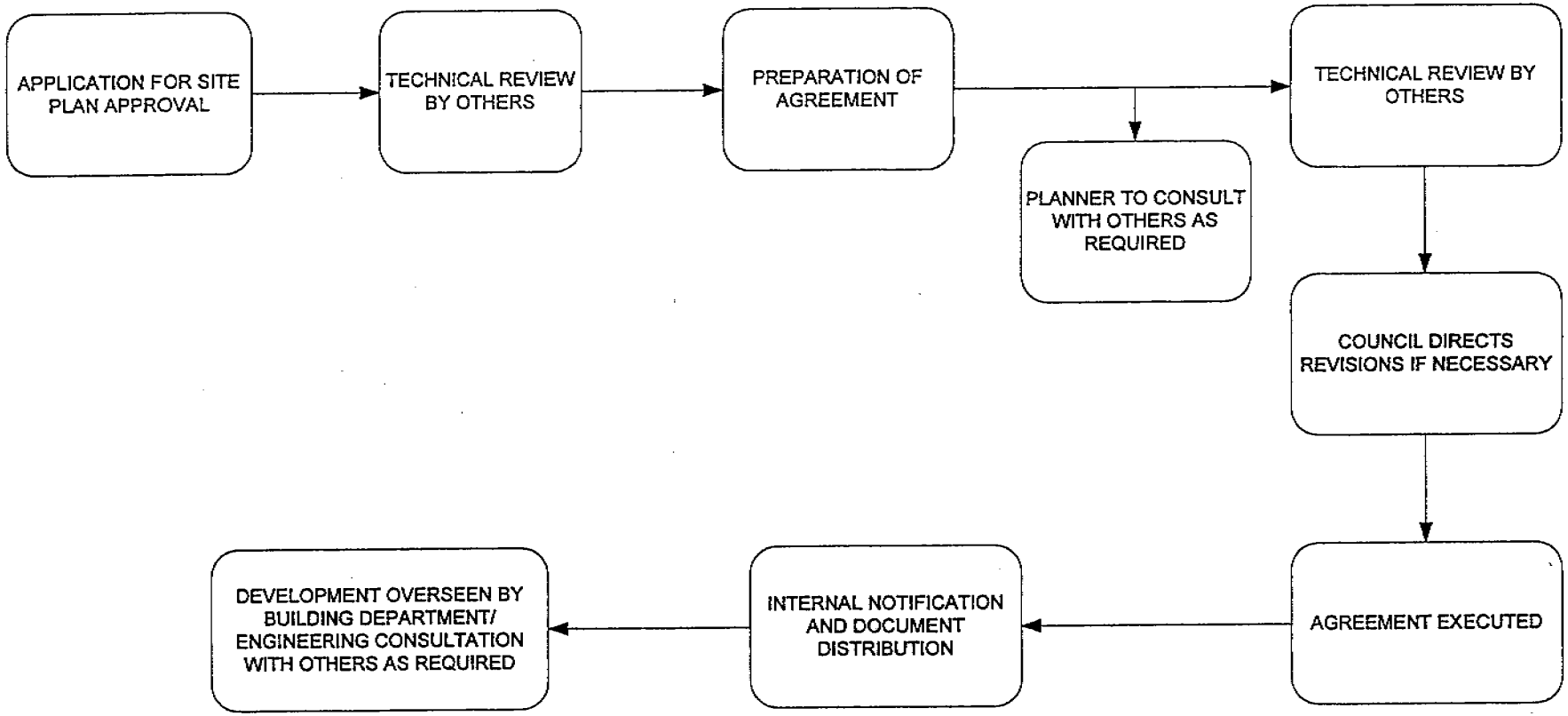
ASSUMPTION AND ACCEPTANCE OF SERVICES



CALCULATION OF SECURITIES AND DEPOSITS
(including oversizing charges)



SITE PLAN CONTROL



APPENDIX B

TYPICAL DEVELOPMENT AGREEMENTS

Figure No.	Title
B.1	Development Control Agreement
B.2	Site Plan Agreement

DEVELOPMENT CONTROL AGREEMENT

THIS AGREEMENT MADE AS OF THIS ____ DAY OF

BETWEEN: *Name* company incorporated under the laws of the Province of Ontario

herein called the "Owner"

OF THE FIRST PART

- and-

THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON

herein called the "Municipality"

OF THE SECOND PART

AND WHEREAS *name*, hereinafter referred to as the "Owner" warrants to be the registered owner of and proposes to subdivide by way of consent lands described in Schedule "A" attached hereto and hereinafter referred to as the subject lands and has applied to the Consent Granting Authority, known as the Leamington Committee of Adjustment, to sever each of the proposed lots on the subject lands in accordance with Schedule "B" to this Agreement, hereinafter referred to as the *name of subdivision development.*

AND WHEREAS approval for granting of the consents is conditional upon the Owner entering into an Agreement with the Municipality to perform certain works, install certain services, pay certain sums of money, dedicate and improve certain lands for public purposes and make certain financial arrangements hereinafter referred to allow orderly development of the subject lands;

AND WHEREAS the word "Owner" where used in this Agreement includes an individual, an Association, a Partnership, or a Corporation and wherever the singular is used herein it shall be construed as including the plural;

NOW THEREFORE THIS AGREEMENT WITHNESSETH that in consideration of other good and valuable consideration and the sum of FIVE DOLLARS ($5.00) of lawful money of Canada, now paid by each of the parties hereto to each of the other parties hereto (the receipt whereof is hereby acknowledged), the Parties agree as follows:

PUBLIC SERVICES

1. The Owner shall employ competent engineers registered by the Association of Professional Engineers of Ontario, and members of the Association of Consulting Engineers of Ontario,

(a) to design;
(b) to prepare the necessary contract for;
(c) to obtain the necessary approvals in conjunction with the Municipality and the Leamington Hydro-Electric Commission;
(d) to supervise the construction methods of the work assuring conformance to the Municipality's standards or as directed by the Municipal Engineer;
(e) to maintain all records of construction;

(f) to provide to the Municipality, a complete set of engineering drawings showing the final Plan and profile locations all of services including building connections, the accuracy of which shall be certified by the Engineer supervising the construction. The said drawings shall be on mylar or linen and in a condition acceptable to the Municipal Engineer.

2. The Owner and the engineers employed by it shall have the plans for such work approved by the Municipality except for that work for which the Leamington Hydro-Electric Commission 's Manager shall approve before construction of any such work is commenced.

3. The Owner shall cause to be constructed on every street laid out as shown on the approved plans, sanitary and storm sewers and connections, watermains, water service connections, roadways, curbs gutters, and street lights as hereinafter provided and hereinafter referred to as the "Works".

4. The specifications and location of each of the said works is to be constructed according to the Plans and Specifications prepared by *name of consulting engineers and dated project number*, and as approved by the Municipal Engineer, herein referred to as the "Plans and Specifications".

SEWERS

5.a) The Owner shall construct a complete sanitary and storm sewer system or systems, including sanitary and storm connections to the street line and catch basins and leads to service all the subject lands and adjacent road allowances, as shown on said Plans and Specifications, and maintain them, including clearing any blockages until they are formally accepted by the Municipality. The Owner agrees to notify purchasers of all lands included in the said Subdivision Development that as a precaution against reverse flow in the sanitary and storm sewers to be installed, it would be in their best interest to install "back-water" flow valves.

b) The Owner shall advise all purchasers that there shall be no direct connection from any building footing drains to the storm sewer. Footing drains are to flow to a sump pump with a backflow preventor valve and then to the storm sewer or on to the grass

c) The Owner shall advise all purchasers that the rain water leaders are not to be connected to the storm sewer unless required due to sidewalks and icing problems. Rain water leaders are to splash on to the ground in such a manner that the run off is directed on the subject property and not on adjacent properties.

WATERMAINS

6. The Owner shall construct and install a complete watermain system together with all appurtenant valves, valve chambers and hydrants, as indicated on the said Plans and Specifications. All watermain construction and materials shall be according to the standard specifications of the Municipality unless specifically modified, and to the satisfaction of the Municipality.

WATER SERVICE CONNECTIONS

7. Unless otherwise arranged with the Municipality the Owner shall install the Corporation's portion of every water service connection, namely, the portion that extends from the watermain to the side limit of the road allowance.

8. Before any water services are constructed on any particular street, the Owner shall complete the watermain on the street, and subject the watermain to the tests as required in the standard specifications of the Municipality.

9. Water service connections shall be constructed under the supervision of the Municipality and in compliance with the standard specifications of the Municipality and then current by-laws, rules and regulations.

ROADWAYS

10. (a) Roads - Rough Grade

The Owner shall rough grade to the full width,. All road allowances as shown on the said Plans and Specifications prior to the installation or construction of the relevant municipal services provided for herein.

(b) Roads - Paved

The Owner shall construct all the pavements on all roads as shown on the said Plans and Specifications as indicated on the said Plans and Specifications and to maintain them until they are formally accepted by the Municipality.

(c) Curbs and Gutters

The Owner shall construct curbs, gutters and catch basins on all the roads, according to the specifications as indicated on the Plans and Specifications and to maintain them until they are formally accepted by the Municipality.

The Municipality has adopted a policy that barrier style curbs and gutters are to be installed in all new subdivision developments.

HYDRO ELECTRIC INSTALLATIONS

11. Unless otherwise agreed to by the Hydro Electric Commission, the Owner shall arrange to have the Hydro-Electric Commission design and install in the Subdivision Development, all necessary electrical distribution systems, including underground cable and shall have the Commission design and install, a street lighting system in accordance with Municipal Street Lighting Standards and Specifications in effect at the time hereof, and for the purpose of maintaining the said systems, the Owner shall provide the Commission with gratuitous easements over such lands as may be required by the Commission for such purpose.

PLANS AND SPECIFICATIONS

12. (a) The Owner shall have all Plans and Specifications prepared in accordance with the requirements of the Municipal Engineer prior to the commencement of any construction.

(b) All construction plans included in the said Plans and Specifications shall be drawn on linen or mylar, and paper and computer diskette; upon completion of the installation of the services hereunder the Owner or Engineer employed by it shall incorporate any job changes in such plans, shall complete the drawings in ink and shall deliver "as constructed" plans to the Municipality including individual lot servicing sheets with inverts of connections at the property line.

(c) All waterworks, facilities shall be shown on the plans in a manner satisfactory to the Manager of Water Services and shall be revised "As Constructed" according to the standard specifications of the Municipality.

DEVELOPMENT CHARGES

13. The Owner or any other person, upon making application to the Municipality for a building permit for the erection of a building or buildings on any of the lands shown on the said plans shall pay to the Municipality such development charges in accordance with the by-laws and policies in force at the time of submitting the building permit application.

PARKLAND

14. (a) The Owner shall, prior to the stamping of any Deeds of Consent pay to the Municipality the sum of $_____as cash-in-lieu of parkland and such dollar amount shall represent 5% of the undeveloped residential lands and subject of this Development Agreement.

NOTIFICATION OF SERVICE

15. Where a purchaser of any part of the subject lands from the Owner is required to pay any part of the cost of the installation of any of the said services, the Owner shall notify the purchaser of the nature and cost of such services and shall insert full particulars thereof in the Agreement to Purchase entered into by such purchasers.

EXISTING AND FINAL GRADES AND CONTOURS

16. As part of the said Plans and Specifications, the Owner shall submit to the Municipality, a plan showing:

(a) The existing and final elevation of the said lands as determined by reference to a geodetic bench mark.

(b) The final grades of all roads and lots approved by the Municipality

(c) The lands designated for drainage works, and shall obtain approval of such elevations by the Municipality.

and it is agreed that

(a) The Owner and/or any subsequent owner shall carry out all grading as shown on the grading plan prepared by the Owner's Consulting Engineer, approved by the Engineer of the Municipality of Leamington and the Chief Building Official.

(b) The Owner shall carry out at his expense, any temporary or permanent drainage works required by the Municipal Engineer that may be necessary to eliminate ponding or erosion conditions on the subject lands or on abutting lands.

(c) The final grade of any lot shall not be altered at any time without the prior written consent of the Municipal Engineer.

MAINTENANCE OF SUBJECT LANDS

17. (a) The Owner shall maintain the appearance of all undeveloped lots in an acceptable manner and not permit any construction debris, junk, refuse, rocks, stumps, trees or any unacceptable fill of any kind on the lot or deposited on public property and the Owner agrees to remove such material at his expense within three clear days of being notified in writing by the Engineer of the Municipality.

(b) Grading of lots shall be such that water will not remain on vacant lots.

MAINTENANCE OF ROAD ALLOWANCES

18. The Owner shall maintain all road allowances until such road allowances are assumed by the Municipality and shall keep all road allowances free from dirt and debris caused by construction on the subject lands. The Owner shall clean the said road allowances within forty-eight (48) hours of receiving a request from the Municipal Engineer, failing which the employees or agents of the Municipality may complete the required work at the sole expense of the Owner.

LAND FOR MUNICIPAL PURPOSES

19. (a) The Owner shall convey, at its sole expense, to the Municipality, any easements over any of the lands required for the purpose of constructing and/or maintaining parts of the storm and sanitary sewer system or any additional utilities.

(b) The Owner shall also convey at its own expense to the Municipality a 6.10 m. turfstone emergency access easement extending easterly from the easterly limit of between Parts 26 and 29 of the Draft Reference Plan to the most easterly limit of the Subdivision Development. The easement area will be improved with the use of brick pavers and the owner or any subsequent owners will not be allowed to provide for construction of any kind within the easement area.

(c) The Owner shall convey, at its sole expense to the Municipality, all those lands shown on the plans as roadways and in particular, designated as Parts, on Reference Plan 12R- . These lands shall not be conveyed to the Municipality until such time as the services are completed to the satisfaction of the Municipal Engineer or until any lots are transferred by the Owner, whichever first occurs.

d) All of the conveyances, including easements, and including conveyances and easements necessary from abutting property owners, shall be prepared in registerable form by the Owner and registered at the Owner's expense. The Owner shall provide a lawyer's certification of title to the Municipality allowances and municipal easements.

e) The conveyance of lands to the Municipality does not constitute acceptance of any works required to be completed by the Owner or release the Owner from any obligations established by this Agreement.

f) Notwithstanding the continuation of the Owner's obligations respecting the construction and maintenance of the services installed pursuant to this Agreement, the Municipality acknowledges and agrees that upon the Owner having completed construction of the curbs and gutters and the first coat of asphalt on the road allowance designated as Parts _____ on Reference Plan 12R - _____ that the road allowance shall be deemed by the Municipality to be an open road allowance and that all lots fronting on the said parts shall be deemed to be fronting upon an open road allowance. Nothing in this paragraph shall relieve the Owner from complying in all respects with all of the obligations respecting construction and maintenance of the municipal road allowances and services.

g) The street shown on the plan will be named *street name*. Upon the Owner completing the construction of the first coat of asphalt and installation of the curbs on the proposed street, then such parts may be referred to on any and all reference plans and surveys as *street name*.

PAYMENT OF TAXES

20. The Owner shall pay all municipal taxes, local improvement charges and any other charges outstanding against the subject lands prior to commencing any work on the subject lands.

WEED CONTROL

21. The Owner shall carry out a weed control program as may be required by the Weed Inspector of the Municipality on all lots and boulevards in the Subdivision until such lots are built upon and the units occupied and the streets assumed by the Municipality. If the Owner fails to control the said weeds in a manner satisfactory to the Weed Inspector, the employees or agents of the Municipality may enter into any of the subject lands or road allowances and control the weeds at the sole expense of the Owner.

BUILDING NUMBERS

22. The Owner shall provide and place in a conspicuous position on every building in the Subdivision, a street number that is visible from the street line in front of such building. The Owner shall submit to the Municipality a copy of the plan as approved upon which the Municipality shall designate the proper building number or numbers for each lot. The Owner shall provide and place such numbers as so designated on such copy of the plan.

DRIVEWAYS

23. The entire length of all driveways, including that portion located on the Municipality road allowance, shall have a concrete, hot laid asphalt or other permanent type of surface which has been approved by the Municipal Engineer. Plans submitted to the Chief Building Official for the purpose of obtaining a building permit shall describe the permanent type of driveway surface.

When barrier type curbs are constructed then the Owner shall not cut any of the curbs except with a curb cutting machine that has been approved by the Municipal Engineer.

BUILDING PERMITS AND OCCUPANCY OF BUILDING

24. (a) The Owner shall be entitled to apply for a building permit on any lot to construct dwellings on the subject lands, upon the completion, and satisfaction of the Municipal Engineer, of all works, excluding the final course of asphalt, on which the lots front.

If the Owner has complied with this paragraph, then the Chief Building Official of Municipality shall not refuse to issue a building permit for the reason that all of the "works" have not been completed.

(b) The issuance of a building permit by the Municipality does not constitute acceptance of any works referred to in this agreement.

(c) During the period between occupancy of any of the buildings in the subdivision and the placement of the final asphalt pavement, the Owner shall maintain the roadway in a mud free condition, fit for normal traffic at all times. Prior to the placement of the final asphalt surface the Owner shall maintain the roadway in a dust free condition as required from time to time by the Municipal Engineer, and the Owner shall remove an contamination of the base course, repair and replace the same where necessary in order that the construction of roadway shall not have suffered due to the use of the base course as a temporary roadway.

(d) The Owner agrees to install the asphalt surfaces on the roadways within sixty (60) days after receiving due notice thereof in writing from the Municipal Engineer.

(e) The Owner hereby agrees that, should it not cause the conditions as set out in subparagraph 24(a) - 24(d) inclusive, hereto to be fulfilled to the satisfaction of the Municipality, the Municipality may, by resolution of Council, refuse to issue any building permits for the construction of buildings upon or within the said Development unless and until such conditions have been fulfilled.

BUILDING PERMITS/SECURITIES

25. (a) Every person who applies for a building permit shall provide to the Chief Building Official, securities in the amount of $1,000.00 per permit at the time of such application to ensure compliance with Paragraphs 16, 17, 18, 21, 23 and 39.

(b) This security deposit is in addition to the security deposit supplied to the Municipality by the Owner.

(c) The security deposit will be returned without interest to the person who supplied it at such time as all obligations referred to in Paragraph 24(a) are completed in compliance with the plans and specifications and any municipal by-law.

(d) If at any time the Municipality deems it necessary to draw upon any of the said security to complete any obligation pursuant to this agreement, then the person who provided such security will have 14 days to replace the amount of the security drawn by the Municipality.

If such further security is not provided within 14 days then, in addition to any other remedy that the Municipality may have, the Chief Building Official may issue to stop work order on any building being constructed and no further construction shall occur until such stop work order is removed by the Chief Building Official.

SNOW PLOWING AND SANDING OF ROADS

26. If any buildings become occupied adjacent to roads or parts thereof that have not been constructed by the Owner, the Municipality shall snow plow and sand such roads from such occupied buildings to existing municipal roads. Such snow plowing and sanding shall be done from time to time when the Municipality deems conditions warrant the same until the roads have been accepted by the Municipality, the action of snow-plowing and/or sanding by the Municipality not be deemed an acceptance of any of the said works by the Municipality or the Commission, nor an assumption by the Municipality or the Commission of any liability in connection therewith, nor release of the Owner from any of his obligations under this Agreement.

ACCEPTANCE BY THE MUNICIPALITY

32. The Performance by the Owner of his obligations under this Agreement to the satisfaction of the Municipality shall be a condition precedent to the acceptance by the Municipality of the said services and works.

(a) Prior to the acceptance by the Municipality of the said works, the Owner shall furnish the Municipality with a statutory declaration by or on behalf of the Owner that the Owner has paid all accounts that are payable in connection with the installation and maintenance of the said work and that there are not outstanding claims relating to the works.

(b) Prior to the acceptance by the Municipality of the said works, the Owner shall furnish the Municipality with linen or mylar and paper drawings and computer diskette showing all the works "as built" and furnish the Leamington Hydro-Electric Commission's Manager with acceptable sepias of all drawings pertaining to the works in which the Commission is interested.

(c) After the storm sewer, sanitary sewer, their connections and appurtenances, the watermain, watermain connections and appurtenances, the granular road base, curb gutters and base course of asphalts, have been installed by the Owner and within the Phase as outlined by the Owner and certified by Engineers of the Owner to have been installed according to the Plans and Specifications and after they have been inspected by the Municipal Engineer and the Manager of the Commission, and deficiencies if any, corrected, the above mentioned works shall be accepted by the Municipality and Commission without delay and the period of twelve (12) months maintenance by the Owner shall commence.

(d) After the final asphalt surface has been installed by the Owner and within the phase as outlined by the Owner and certified by the Engineers for the Owner have been installed according to the Plans and Specifications and after the final asphalt surface has been inspected by the Municipal Engineer and deficiencies if any, corrected, the final asphalt surface shall be accepted by the Municipality and the period of twelve (12) months maintenance shall commence. At the end of the twelve (12) months maintenance period, all of the works as outlined above in this paragraph and in paragraph 33 (c) shall be assumed by the Municipality and the Commission.

EXPENSE TO BE PAID BY OWNER

33. Every provision of this Agreement by which the Owner is obligated in any shall be deemed to include the words "at the expense of the owner" unless the context otherwise requires.

QUALITATIVE OR QUANTITATIVE TESTS

34. (a) The Municipal Engineer may have qualitative or quantitative tests made of any materials which have been, or are proposed to be used in the construction of any services required by this Agreement, and the cost of such tests shall be paid by the Owner within ten (10) days of the account being rendered by the Municipality.

(b) The Owner shall, when required by the Chief Building Official, and/or Municipal Engineer, submit soil tests by an independent testing laboratory on the stability of the soil and its ability to sustain super-imposed loads from pavement structures, building and filling operations and to furnish at no cost to the Municipality, a certified copy of the result thereof for examination by the Chief Building Official prior to the issuance of building permits and/or the Municipal Engineer in conjunction with the municipal servicing plans.

(c) The Owner shall carry out or cause to be carried out a televised inspection on all sewer systems including all service connections and complete infiltration tests on all sewer systems. The results of the televised inspection and results of all tests shall be submitted to the Municipal Engineer.

(d) All inspection, supervision, plan review and Administration expense by the Municipal Engineer, the Commission Manager or their representatives shall be at the expense of the Owner. This shall be taken to include use of Consulting Engineers at the discretion of the Municipal Engineer and the Manager of Commission. It shall be the responsibility of the Owner to retain competent engineers as defined in Section 1 herein and that engineers will provide full-time, on site supervision during construction of the works.

The $25.00 per lot fee to be paid by the Owner to the Municipality for Administrative services shall be $_____ dollars based on ____ Residential lots being created.

SPECIFICATIONS

35. Unless otherwise provided, any work required to be done under this Agreement shall be according to the specifications of the Municipality.

LIEN OR OTHER CLAIMS

36. Upon applying for final acceptance of the roads and services, the Owner shall supply the Municipality with a Statutory Declaration that all accounts for work and materials have been paid, except normal guarantee holdbacks, and that there are no claims for Liens or otherwise in connection with such work done or materials supplied for or on behalf of the Owner in connection with the subdivision.

OVERSIZING

37. There shall be no payment by the Municipality to the Owner for oversizing of storm sewers.

REAR YARD DRAINAGE

38. (a) The Owner, or its successor in title, shall construct a rear yard storm water drainage system in accordance with the approved plans.

(b) After the storm water drainage system, or a portion of it, has been installed, then it shall be the continuing responsibility of the Owner or its successor in title, at its own expense, to maintain the storm water drainage system or a portion of it, on each building lot.

(c) Further, the owner, or its successors in title, shall not alter the grading of the lots in any manner or do any other thing that will adversely affect the proper operation of the storm water drainage system.

TREE PLANTING

39. The Owner shall pay to the Municipality the amount of $250 per lot being the sum of $_____ which the Municipality shall use to plant trees in the road allowance.

The Municipality shall plant the trees at such time in the future and in such manner as deemed appropriate by the Municipality.

TRAFFIC CONTROL DURING CONSTRUCTION OF ROAD

40. That the Owner shall follow the Manual of Uniform Traffic Control Devices and the Highway Traffic Act when the Owner is performing any work within the Municipality's Road Allowance.

If the Owner does not provide necessary traffic control signs as per the above noted manual, the Municipality shall provide the necessary signs or traffic control people at the Owner's expense.

The Owner acknowledges and agrees that the Municipality's costs may be deducted from his security deposit with the Municipality.

SURVEY MONUMENTS AND MARKERS

41. The Owner shall, prior to the acceptance of the Subdivision Development by the Municipality, supply a statement by an Ontario Land Surveyor that after the completion of the subdivision work, he has found all standard iron bars as shown on the registered plan, and survey monuments at all block corners, the ends of all curves, other than corner roundings and all points of change in direction of streets on the registered plan. The Ontario Land Surveyor shall also deliver to the Municipality a list setting out the area in square metres, of all non-rectangular lots in the Plan of Subdivision.

42. That the Owner shall, prior to the acceptance of the Subdivision Development by the Municipality, provide to the Municipality the appropriate finished co-ordinates of the streets and lots for updating of the Municipality's Ontario Basic Mapping Program.

STREET LIGHTS

43. The Owner shall pay $_____ plus G.S.T. to the Municipality for the costs of ***number*** street lights for the Subdivision Development.

REGISTRATION OF AGREEMENT

44. (a) The Municipality reserves the right to designate points of access and egress to the plan during the period of construction of services and buildings. Permanent type barricades shall be erected at locations designated by the Engineer of the Municipality prior to construction and maintained during this period of construction at the Owner's expense.

(b) All roads and streets used as access and egress shall be kept in good and usable condition by the Owner at its expense during the construction of the Works and all building within the plan prior to assumption. The Municipality will carry out such maintenance as required at the Owner's expense if maintenance is not carried out within forty-eight (48) hours written notice to the Owner.

ORDER OF WORKS

45. Where in the opinion of the Municipal Engineer or the Manager of the Commission, any of the works required under this Agreement will in any manner benefit or serve land that is not included in the subject lands, the Owner shall observe such order of installation of the works as the Municipal Engineer or the Manager of the Commission requires and for that purpose, will construct, install, or perform such works shown in the said plans and specifications as the Municipal Engineer or Manager of the Commission from time to time may require provided that such requirements is reasonable in regard to the circumstances existing at the time and will not unduly prejudice the Owner financially or as to the orderly development of the Subdivision Development..

PHASING

The Parties agree that the over all area development shall proceed in phases with the first phase of the development known as the Subdivision Development including residential lots __ through __ inclusive. The Owner shall not proceed with the next phase of the area development without the written consent of the Municipality unless the Owner has fulfilled all of its obligations with respect to phase 1 of this development.

STORM WATER MANAGEMENT

The Owner shall construct a storm water management system in accordance with plans prepared by the Owner and approved by the Municipal Engineer for any development on commercial or industrial lands.

NOTICE

46. Any notice, request, order, demand, certificate or any other communication required or permitted to be given under this agreement will be in writing and, unless some other method of giving the same is accepted by the person to whom it was given, shall be registered mail or by being delivered to the appropriate office during regular business hours at the address described below:

To the Owner at:

name and mailing address

To The Corporation of the Municipality of Leamington
38 Erie Street North
Leamington, Ontario
N8H 2Z3

47. This Agreement and everything contained herein shall ensure to the benefit of and be binding upon the parties hereto and their respective heirs, administrators, executors, successors and assigns.

IN WITNESS WHEREOF, the Owner has hereto set his hand and seal and the Municipality has caused to have this Agreement executed by the Mayor and the Clerk thereof.

SIGNED, SEALED AND DELIVERED)
)
-In the presence of-)
)
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Owner's Name and authorization signatures

PER:_____

PER:_____

PER:_____

I/We have the authority to bind the Corporation

THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON

PER:_____
Mayor - David Wilkinson

PER:_____
Clerk - Brian R. Sweet

SCHEDULE "B"

TO DEVELOPMENT CONTROL AGREEMENT

DATED ___ DAY OF _____

BETWEEN

DEVELOPER'S NAME

AND

THE MUNICIPALITYOF LEAMINGTON

Subject lands described as Part Lot ___ Concession __, Municipality of Leamington, County of Essex, Province of Ontario designated as Parts __ through Parts __ inclusive together with Parts __ and __ on Plan 12R-_____ referred to as the "*Name of* Subdivision Development".

FORM OF LETTER OF CREDIT

REQUIRED BY THE CORPORATION OF THE
MUNICIPALITY OF LEAMINGTON

IRREVOCABLE LETTER OF CREDIT

NAME AND ADDRESS OF BANK:

_____

_____

_____

DATE OF ISSUE:_____

IRREVOCABLE
DOCUMENTARY CREDIT

REF. NO._____

APPLICANT:

_____

_____

_____

BENEFICIARY:

THE CORPORATION OF THE
MUNICIPALITY OF LEAMINGTON
38 Erie Street North
Leamington, Ontario
N8H 2Z3

AMOUNT: $ CAD.
(THOUSAND CANADIAN DOLLARS)

THIS CREDIT IS AVAILABLE WITH OURSELVES, BY PAYMENT, AGAINST PRESENTATION OF THE DOCUMENT(S) DETAILED HEREIN:

ISSUED SUBJECT TO THE UNIFORM CUSTOMS AND PRACTICES FOR DOCUMENTARY CREDITS BEING ICC PUBLICATIONS UCP 500 (EFFECTIVE JANUARY 1, 1994)

WE HEREBY AUTHORIZE YOU TO DRAW ON _____
(*name of bank*) _____ (*address*) FOR THE ACCOUNT OF _____
UP TO AN AGGREGATE AMOUNT OF CAD $_____,(_____ THOUSAND CANADIAN DOLLARS), AVAILABLE BY YOUR DRAFT(S) AT SIGHT, DRAWN ON OURSELVES AS FOLLOWS:

Letter of Credit

PURSUANT TO THE REQUEST OF OUR CUSTOMER, THE SAID _____,

WE, _____ (*name of bank*) _____ _____ (*address*) HEREBY ESTABLISH AND GIVE TO YOU AN IRREVOCABLE DOCUMENTARY CREDIT IN YOUR FAVOUR IN THE TOTAL AMOUNT OF $_____ _____CAD. (_____ THOUSAND CANADIAN DOLLARS) WHICH MAY BE DRAWN ON BY YOU AT ANY TIME AND FROM TIME TO TIME UPON WRITTEN DEMAND FOR PAYMENT MADE UPON US BY YOU WHICH DEMAND WE SHALL HONOUR WITHOUT INQUIRING WHETHER YOU HAVE A RIGHT AS BETWEEN YOURSELF AND OUR SAID CUSTOMER TO MAKE SUCH DEMAND AND WITHOUT RECOGNIZING ANY CLAIM OF OUR SAID CUSTOMER.

PROVIDED, HOWEVER, THAT YOU ARE TO DELIVER TO _____ _____ (*name of bank*) _____ (*address*), AT SUCH TIME AS A WRITTEN DEMAND FOR PAYMENT IS MADE UPON US A WRITTEN CERTIFICATE SIGNED BY YOU CONFIRMING THAT MONIES DRAWN PURSUANT TO THIS CREDIT ARE IN CONNECTION WITH OBLIGATIONS CONTAINED IN A _____ PLAN AGREEMENT DATED _____BETWEEN_____ _____AND THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON.

THE WRITTEN DEMAND FOR PAYMENT AND WRITTEN CERTIFICATE IS SUFFICIENT IF EXECUTED BY ANY TWO OF THE FOLLOWING OFFICERS OF THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON: THE CHIEF ADMINISTRATIVE OFFICER, THE DIRECTOR OF DEVELOPMENT SERVICES, THE DIRECTOR OF CORPORATE SERVICES, THE DIRECTOR OF FINANCE AND BUSINESS SERVICES.

THE AMOUNT OF THIS CREDIT SHALL BE REDUCED FROM TIME TO TIME AS ADVISED BY NOTICE IN WRITING GIVEN TO US FROM TIME TO TIME BY YOU.

THIS LETTER OF CREDIT WILL CONTINUE UP TO THE _____DAY OF _____, _____, BUT SHALL BE SUBJECT TO THE CONDITIONS HEREINAFTER SET FORTH.

IT IS A CONDITION OF THIS LETTER OF CREDIT THAT IT SHALL BE DEEMED TO BE AUTOMATICALLY EXTENDED WITHOUT AMENDMENT FROM YEAR TO YEAR FROM THE PRESENT OR ANY FUTURE EXPIRATION DATE THEREOF, UNLESS AT LEAST 30 DAYS PRIOR TO THE PRESENT OR ANY FUTURE EXPIRATION DATE, WE NOTIFY YOU IN WRITING BY REGISTERED MAIL THAT WE ELECT NOT TO CONSIDER THIS LETTER OF CREDIT TO BE RENEWABLE FOR ANY ADDITIONAL PERIOD.

DATED AT _____, ONTARIO, THIS THE _____ DAY OF _____, _____.

COUNTERSIGNED BY: NAME OF BANK:

_____ PER:_____

SITE PLAN AGREEMENT

THIS AGREEMENT made in (triplicate) this day of,

BETWEEN:

NAME

herein called the "Owner"

OF THE FIRST PART

-and-

THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON

herein called the "Municipality"

OF THE SECOND PART

WHEREAS the "Owner" owns certain lands situate within the corporate limits of the Municipality of Leamington more particularly described as *property description.*

AND WHEREAS the "Municipality" has enacted Bylaw No. 4300-96 being a Comprehensive Zoning Bylaw, and which establishes Site Plan Control pursuant to the provisions of Section 41 (2) of the Planning Act, 1990;

AND WHEREAS the "Owner" has applied to the Council of the "Municipality" for approval of its proposed development on the "premises" and the Council for the "Municipality" requires the "Owner" to enter into this Site Plan Agreement.

NOW THEREFORE THIS AGREEMENT witnesseth that in consideration of the premises and other good and valuable consideration and the payment by the "Municipality" to the "Owner" of the sum of One ($1.00) Dollar (the receipt whereof is hereby acknowledged), the Parties hereto mutually covenant, promise and agree as follows:

1. The following definitions shall apply to this agreement:

   (a) "Owner" includes the registered owner or owners in fee simple of the land and their respective heirs, executors, administrators and assigns and in addition to the accepted meaning, shall mean and include an individual, association, a partnership or an incorporated company and wherever the singular is used herein, it is to be construed as including the plural.

   (b) "Municipality" shall mean the Corporation of the Municipality of Leamington.

(c) "Site Plan" shall mean the Plans and Drawings relative to lands described ***property description*** of the Municipality of Leamington as shown on sketch plans which have been deposited in the Office of the Director of Development Services for the Municipality of Leamington in accordance with Section 41 of the Planning Act R.S.O. 1990, Chapter 2.

The "Site Plan", if deemed necessary by the Chief Building Official or the Municipal Engineer for the "Municipality" may also include a requirement for the preparation of a Storm Water Management Report by the "Owner" relative to development on the lands subject of the "Site Plan".

SITE PLAN AREA

2. That the "Owner" has represented to the "Municipality" that it is the owner of the lands subject of this "Site Plan".

3. That the "Municipality" approves the proposed development of the subject lands by the "Owner" as indicated on the "site plan" filed in the office of the Director of Development Services for the "Municipality" and which "site plan" forms part of this agreement.

4. That the "Owner" shall construct, provide and maintain all buildings, parking, access areas, fences, landscaping areas and all other required facilities, details and specifications in accordance with the site plan and such further plans that are approved in writing by the Chief Building Official or Engineer for the "Municipality".

More specifically;

(a) All facilities, works or matters shall be provided and/or maintained by the "Owner" to the satisfaction of and at no expense to the "Municipality", or as otherwise agreed in writing by the "Municipality".

b) The "Owner" agrees that any outdoor lighting to be installed by it, on its lands, shall be to the "Municipality's" satisfaction as to the type, colour, intensity, direction or illumination and location.

c) The "Owner further agrees to construct and install all entrances and accesses to the satisfaction of the "Municipality" and any other necessary approval agencies.

d) The "Owner" agrees that all grassed areas shown on the "Site Plan" shall be adequately maintained (ie. mowing of grass, weed control) on a regular basis.

e) The "Owner" agrees that the "Municipality" shall have control over the size, type, location, lighting and design of any signs having regard for the requirements of the "Municipality's" Sign Bylaw in effect at that time. The "Owner" shall apply to the Chief Building Official for the "Municipality" and obtain a sign permit prior to installing any sign on the "premises".

5. That the "Owner" shall apply for and obtain street opening permits for watermain and sewer taps and driveway approaches, if necessary, from the "Municipality" prior to the commencement of any construction on the public highway.

6. That the "Owner" shall keep the public highways adjacent to the subject lands free from dirt and debris caused by any activity on the subject lands.

7. That any gutters, pavements, or landscaped areas on the public highway which are damaged during construction on the subject lands shall be restored by the "Owner" at its entire expense, and to the satisfaction of the "Municipal Engineer".

8. That the "Owner" shall asphalt pave all designated driveways and designated parking areas to the satisfaction of the "Municipal" Engineer and such designated parking areas shall be restricted to only those vehicles associated with approved use of the subject lands.

9. That notwithstanding any other terms and conditions, Schedule "B" attached hereto and forming part of this Agreement shall be applied in interpreting whether there is compliance or non-compliance with the foregoing terms of this Agreement.

10. That the "Owner" shall detail on the site plans to the satisfaction of the "Municipal" Engineer detailing the access and driveway locations, storm drain locations and parking space locations with approval to be granted by the "Municipality" Engineer prior to issuance of a building permit.

11. That the "Owner" shall submit to the "Municipal" Engineer any calculations required by the "Municipal" Engineer to determine the adequacy of the proposed services and such shall be approved by the "Municipal" Engineer prior to issuance of any building permit.

12. The "Owner" agrees with the "Municipality" that construction of all facilities, works or matters as provided herein, shall be completed within twelve months of the date of this Agreement unless such time period is otherwise amended in writing by the "Municipality".

OTHER LEGAL AND FINANCIAL MATTERS

13. The Owner shall provide securities satisfactory to the Chief Building Official in the amount of $5,000 to ensure that all the Owner's obligations pursuant to this agreement are completed. Such security deposits shall not be released by the "Municipality" until all works required under this "Site Plan" Agreement are completed to the satisfaction of the "Municipality" and no interest shall be paid by the "Municipality" during the time such security deposits are held.

14. (a) The "Owner" shall not call into question directly or indirectly in any proceeding whatsoever in law or in equity or before any administrative or other tribunal the right of the "Municipality" to enter into this Agreement and to enforce each and every term, covenant and condition thereof and this provision may be pleaded by the "Municipality" in any action or proceeding as a complete and conclusive estoppel of any denial of such right.

(b) The "Owner" shall repair forthwith, at its own expense, any damage done by their servants, agents, contractors, or subcontractors to any land or property of the "Municipality" during the course of or arising in any way out of the construction or installation of the work required under this Agreement.

15. The "Owner" acknowledges and agrees;

(a) pursuant to Subsection 10, of Section 41 of the Planning Act R.S.O. 1990, that this Agreement may be registered against the said lands owned by the "Owner" and the "Municipality" is entitled to enforce the provision hereof, subject to the provisions of the Registry Act and The Land Titles Act, against the "Owner" and any and all subsequent "Owners" of the subject lands;

(b) pursuant to Subsection 11 of Section 41 of The Planning Act, 1990, Section 326 of the Municipal Act applies to all requirements of this Agreement. If the "Owner" neglects to undertake any matter or thing required to be done by this Agreement and such default continues, in addition to other remedies to it, the "Municipality" may direct that such matter or thing shall be done at the expense of the "Owner" and the "Municipality" may recover the expense incurred in doing it and the "Owner" hereby authorizes the "Municipality" to enter upon the said land and do such matters or things.

(c) to indemnify and save harmless, the "Municipality" and all employees, servants and agents of the "Municipality" from all action causes of action, suits, claims and demands whatsoever which may arise through or from the terms of this "Site Plan" Agreement.

16. This Agreement may be amended with the written consent of the "Municipality" and the registered "Owner" of the subject lands.

17. If any term, covenant or condition of this Agreement shall, to any extent, be declared invalid or unenforceable, the remainder of this Agreement shall not be affected thereby and each term, covenant or condition of this Agreement shall be valid and enforced to the fullest extent permitted by laws.

LEGAL NOTICE INFORMATION

18. Save and except for a postal strike occurring within three days of the date of the mailing of any notice, when personal delivery shall be the only mode of delivery of notice, all notices, requests, demands and other communications of this Agreement or in connection therewith shall be given to or made upon the parties as follows:

"Owner"	*Name and mailing address*
"Municipality"	The Corporation of the Municipality of Leamington 38 Erie Street North Leamington, Ontario N8H 2Z3

or to such other address as each of the parties may specify by notice in writing to the other. All notices, save and except for notices with personal delivery, and all other communications given or made in connection with this Agreement shall be made in writing and by registered mail. Notice shall be deemed to have been given four business days following the postage prepaid, save and except when personal delivery is required during a postal strike.

19. Unless otherwise provided, any work related to be done under this Agreement shall be according to the regulations and specifications of the "Municipality".

EXPENSE TO BE PAID BY THE OWNER

20. Every provision of this Agreement by which the "Owner is obligated in any way shall be deemed to include the words "at the expense of the Owner" unless the context otherwise requires.

AGREEMENT BINDING

21. This Agreement and everything contained herein shall ensure to the benefit of and be binding upon the Parties hereto and their respective heirs, administrators, executors, successors, and assigns.

IN WITNESS WHEREOF the said parties hereto have hereunto affixed their signatures and corporate seals attested to by the hands of their proper officers, duly

SIGNED, SEALED AND DELIVERED)

"MUNICIPALITY"
THE CORPORATION OF THE
MUNICIPALITYOF LEAMINGTON

PER: _____
Mayor - David Wilkinson

PER: _____
Clerk - Brian R. Sweet

"OWNER"
Name and authorized signatures

Per: _____

Per: _____

SCHEDULE "B"

Notwithstanding the foregoing paragraphs of this Site Plan Control Agreement the following shall be used interpreting compliance or non-compliance with the terms of this Agreement.

DIMENSIONS

1. Indicated dimension on any map or drawing attached to this Agreement may be increased or decreased by a factor of 0.02 or by 0.5 meters, whichever is greater.

BUILDING DETAIL

2. Whether or not the following features are illustrated on any map or drawing attached to this Agreement, nothing shall prohibit the erection or installation of the following in compliance with the Zoning By-law:

   (a) Horizontal projections including cornices, eaves, belt courses, awnings, canopies, sills, bays, fire hose connections and similar building, architectural or safety features which do not project more than 0.5 meters away from the maximum permitted building envelope shown on an attached site plan.
   (b) Vertical projections not illustrated on attached building elevations including firehalls, mechanical appurtenances (ventilators, air conditioning units, aerials, sky lights, chimneys.
   (c) Building openings not shown on attached building elevations which are required by the Ontario Building Code or are necessary mechanical or venting appurtenances including fire exits, vents, air conditioning sleeves, exhaust fans.

FREESTANDING STRUCTURES

Unless otherwise specified in this Agreement, nothing shall prohibit the erection, installation or location of lamp standards, utility vaults, traffic direction and fire route signs.

3. Unless otherwise specified in this Agreement, nothing shall prohibit the erection, installation or location of lamp standards, utility vaults, traffic direction and fire route signs.

MINOR ALTERATIONS

4. The following modifications may be made to attached site plans or building elevations by the following administrative personnel by means of a signature on a revised plan or drawing:

LANDSCAPING SPECIFICATIONS

(a) A change in species or type of required planting materials, may be approved by the Engineer for the "Municipality" if the required materials are unavailable or if an alternative species or material type is proposed which meets the same aesthetic standard, has similar hardiness or durability and performs its required function (e.g. screening) equally to the required species or material.

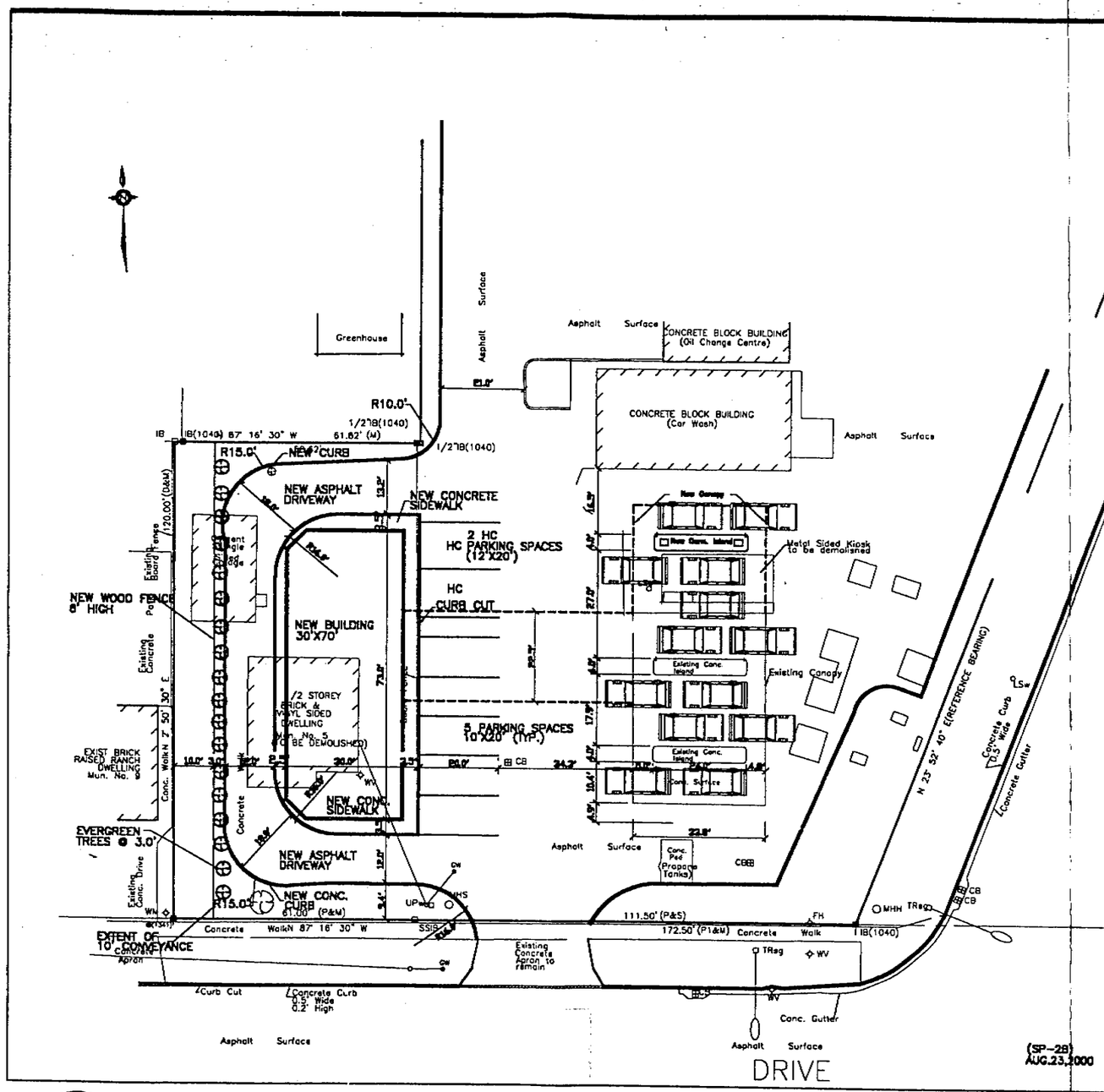
SITE PLANS AND BUILDING ELEVATIONS

(b) The Chief Building Official for the "Municipality" may approve the following:

(i) Deletion of any standard doors, windows or loading doors which are later considered to be not required.
(ii) Relocation of standard door (excluding loading doors) and windows, provided number is not increased.
(iii) Location of fire exits required by the Ontario Building Code.
(iv) Minor alterations of the parking and access areas including the addition, deletion and relocation of parking spaces, sidewalks, and landscaped islands provided that such alterations are in accordance with the Municipality's By-law.
(v) Amendments to the building area including slight relocation, and minor changes to the dimensions of the building.

APPENDIX C

TYPICAL SITE PLAN DRAWING



1 / A1 | A1 Site Plan
1"=20'-0"

SITE PLAN

Scale: As noted	A-1
JULY, 2000	
Project No:	

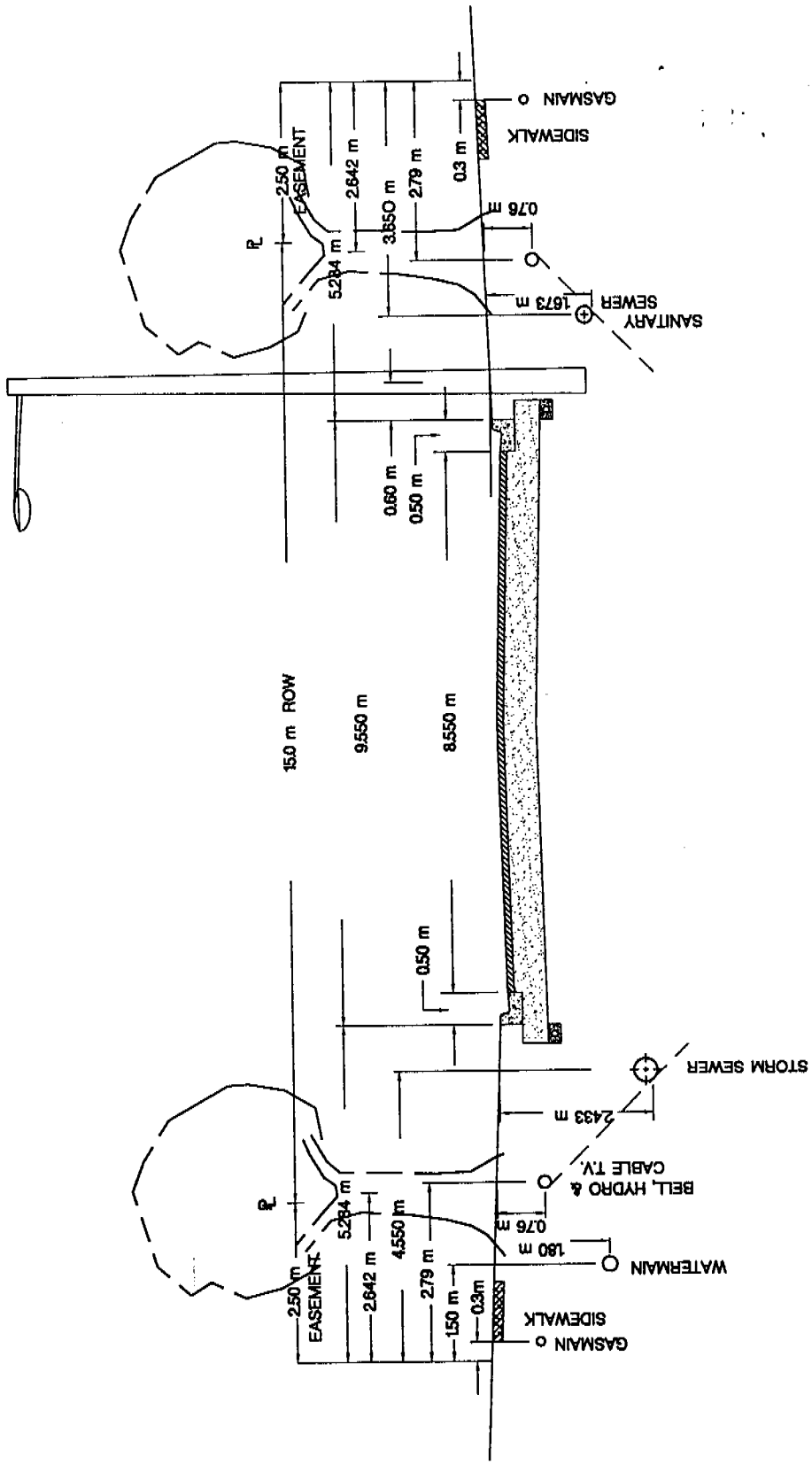
Detail Number
Location Sheet Detail Sheet

23 AUG, 2000		CLIENT REVIEW
REVISION DATE	No.	ISSUED FOR:

APPENDIX D

MUNICIPAL STANDARD DRAWINGS

Figure No.		Title
R001	-	Existing 15m Right-of-Way, Typical Utility Cross-Section
R002	-	Existing Typical Utility Cross-Section 20.117 m Right-of-Way
R003	-	Subdrain Detail
R004	-	Urban residential Entrance with Boulevard and Sidewalk
R005	-	Residential Driveway Detail No Urban Sidewalk
R006	-	Residential Sidewalk Driveway Entrance Details (Partially Depressed)
R007	-	Residential Sidewalk Driveway Entrance Details (Fully Depressed)
R008	-	Typical Commercial Driveway with 1.2 m Concrete Sidewalk and 0.6 m Brick Pavers Adjacent to Curb
R009	-	Typical Commercial Driveway with Concrete Sidewalk Adjacent to Curb
R010	-	Requirements for Entrance Permits Rural Residential
R011	-	Requirements for Entrance Permits Rural Commercial
R012	-	Typical Culvert End-Protection
R013	-	Typical Community Mailbox Car Bay
S001	-	Catchbasin Gas Trap Detail (New Installations)



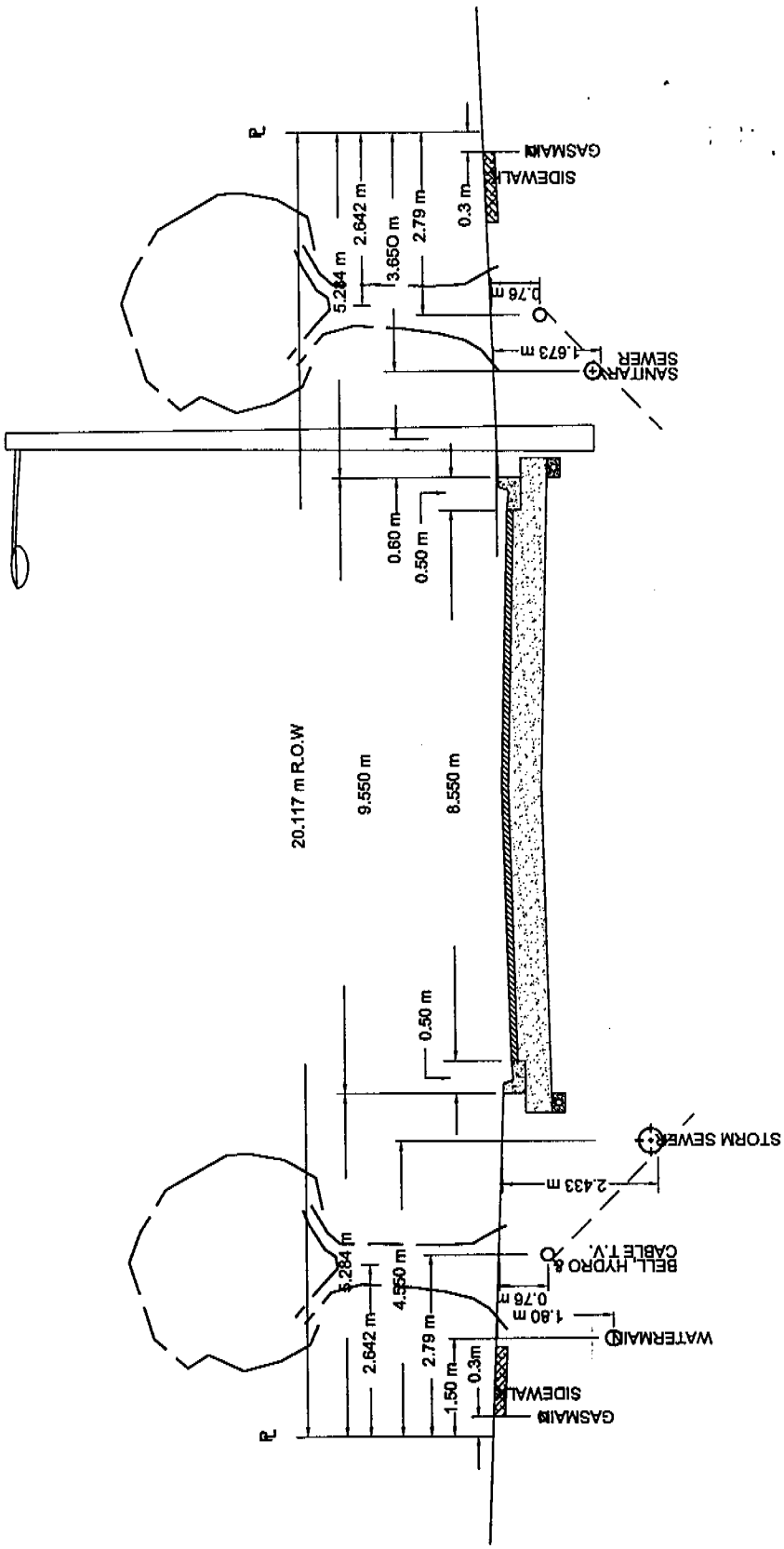
MUNICIPALITY OF LEAMINGTON

EXISTING 15m RIGHT-OF-WAY TYPICAL UTILITIY CROSS-SECTION

DRAWN No. R001

Date NOV 28, 2000

Last Revision FEB 19, 2001



MUNICIPALITY OF LEAMINGTON

EXISTING TYPICAL UTILITIY CROSS-SECTION 20.117m R.O.W

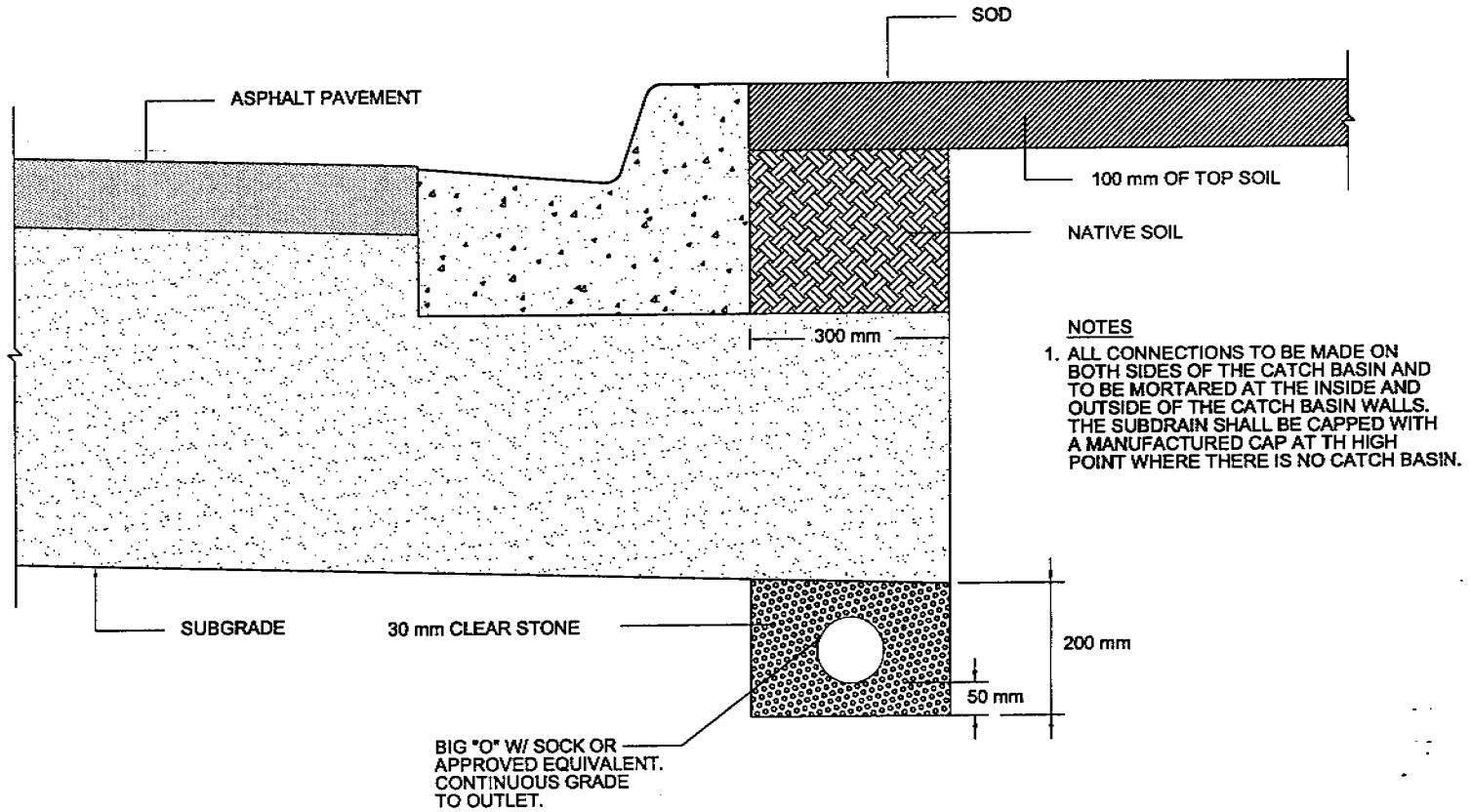
DRAWN No. R002

Date NOV 28, 2000

Last Revision FEB 19, 2001

MUNICIPALITY OF LEAMINGTON

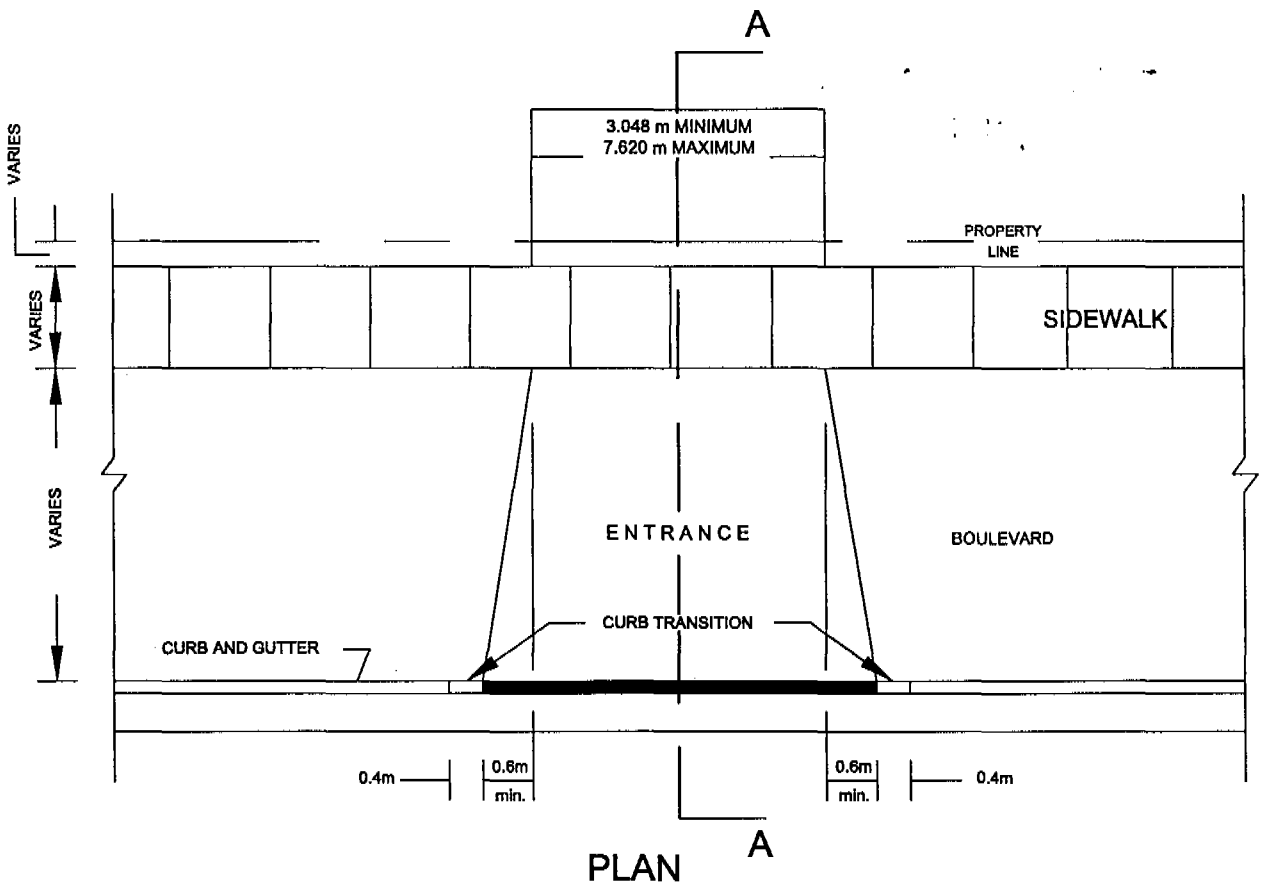
SUBDRAIN DETAIL



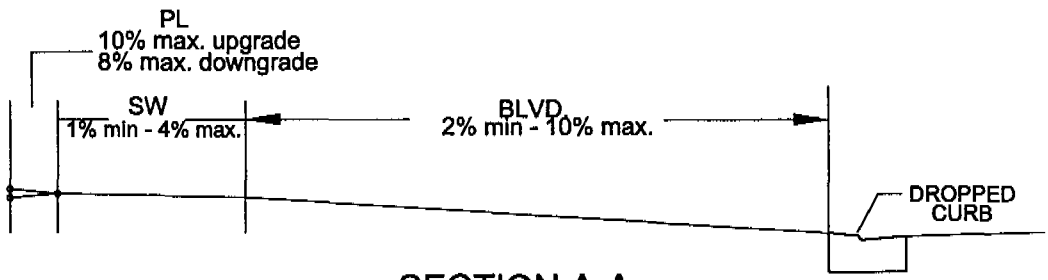
NOTES

1. ALL CONNECTIONS TO BE MADE ON BOTH SIDES OF THE CATCH BASIN AND TO BE MORTARED AT THE INSIDE AND OUTSIDE OF THE CATCH BASIN WALLS. THE SUBDRAIN SHALL BE CAPPED WITH A MANUFACTURED CAP AT TH HIGH POINT WHERE THERE IS NO CATCH BASIN.

DRAWN No.	Date	Last Revision
R003	NOV 28, 2000	FEB 19, 2001



PLAN



SECTION A-A

NOTES:

1. Maximum upgrade shall be 10%.
2. Maximum downgrade shall be 8%.
3. Increase tapers to 1.2m min on 4 lane roads or wider.

* All dimension are in metres unless otherwise shown

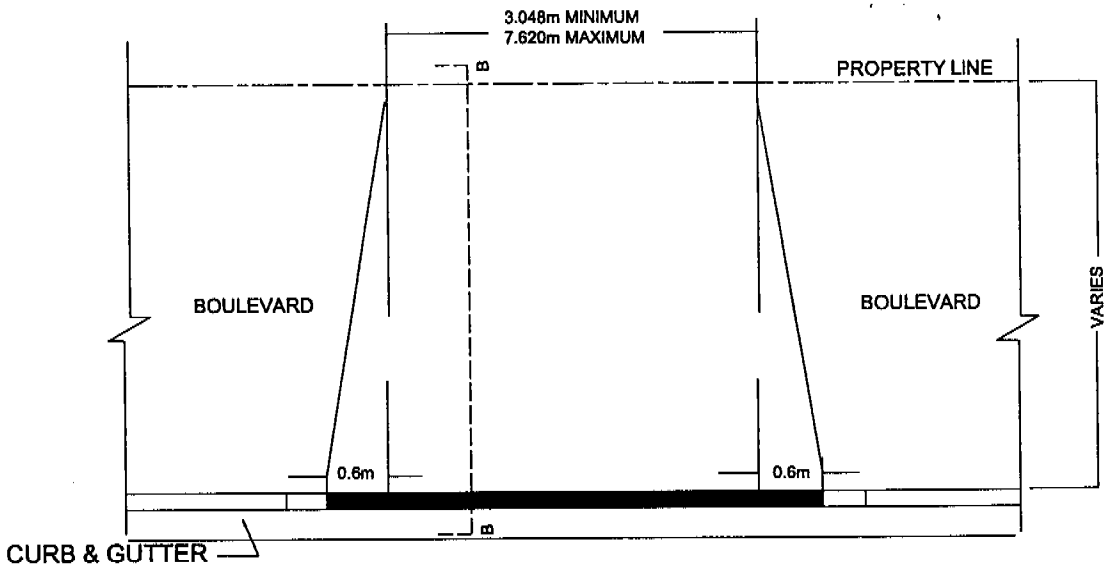
MUNICIPALITY OF LEAMINGTON

URBAN RESIDENTIAL ENTRANCE WITH BOULEVARD AND SIDEWALK

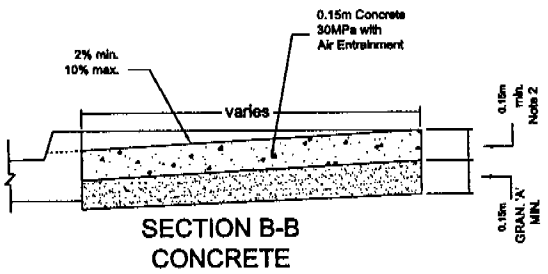
DRAWN No. R004

Date APR 24, 2000

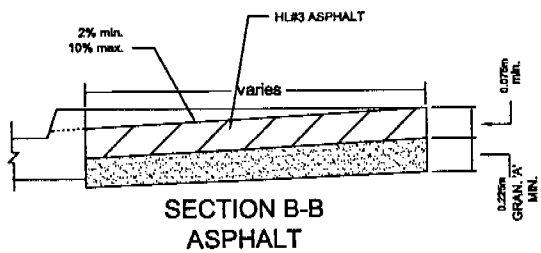
Last Revision FEB 19, 2001



PAVED DRIVEWAY ENTRANCE



SECTION B-B
CONCRETE



SECTION B-B
ASPHALT

NOTES:

1. All concrete shall be 30MPa with 7.0% + 1.5% Air content and maximum slump of 70 + 20mm.
2. Cast iron access caps required for clean outs in driveways.
3. All dimensions are in metres unless otherwise shown.
4. Expansion joints required at curb for concrete approach.
5. Granular 'A' to be compacted to 100% Standard Proctor Density.
6. Curb cuts to be made with approved curb cutting machine. Sawcutting and breaking away not permitted.
7. All concrete surfaces to be broom finished and edged.
8. HL#3 asphalt to be compacted to 98% Standard Proctor Density.

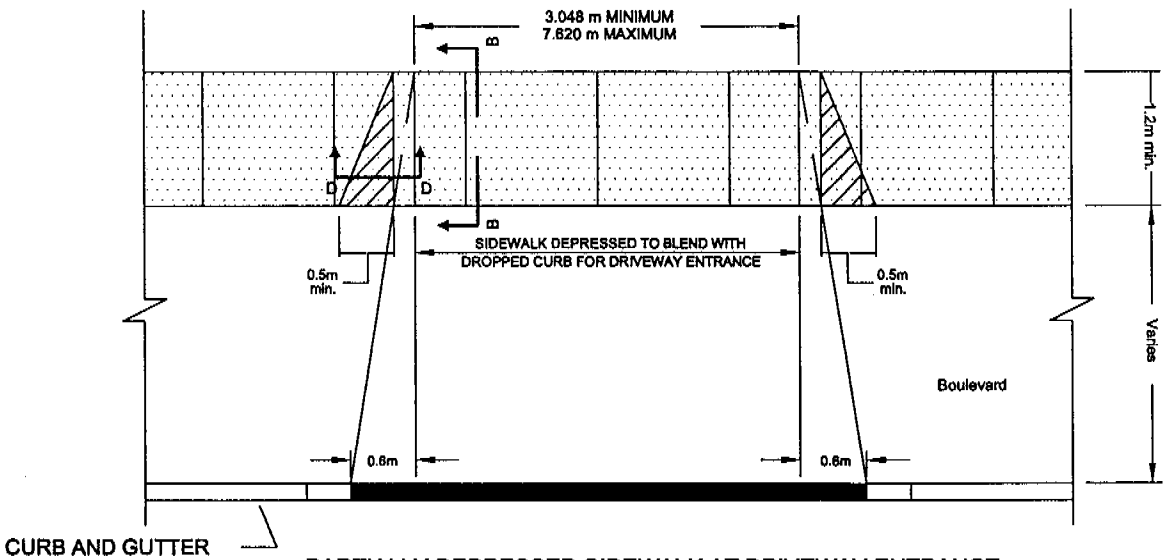
MUNICIPALITY OF LEAMINGTON

RESIDENTIAL DRIVEWAY
DETAIL
NO URBAN SIDEWALK

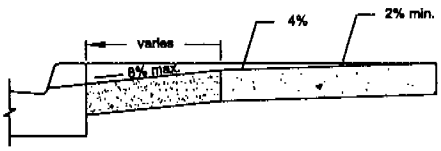
DRAWN No. R005

Date NOV 28, 2000

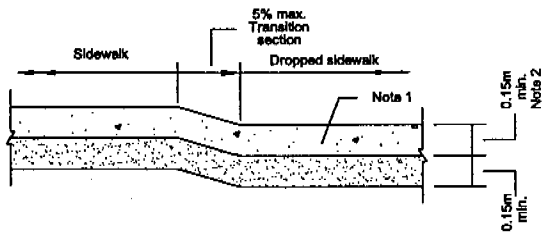
Last Revision FEB 19, 2001



PARTIALLY DEPRESSED SIDEWALK AT DRIVEWAY ENTRANCE



SECTION B-B

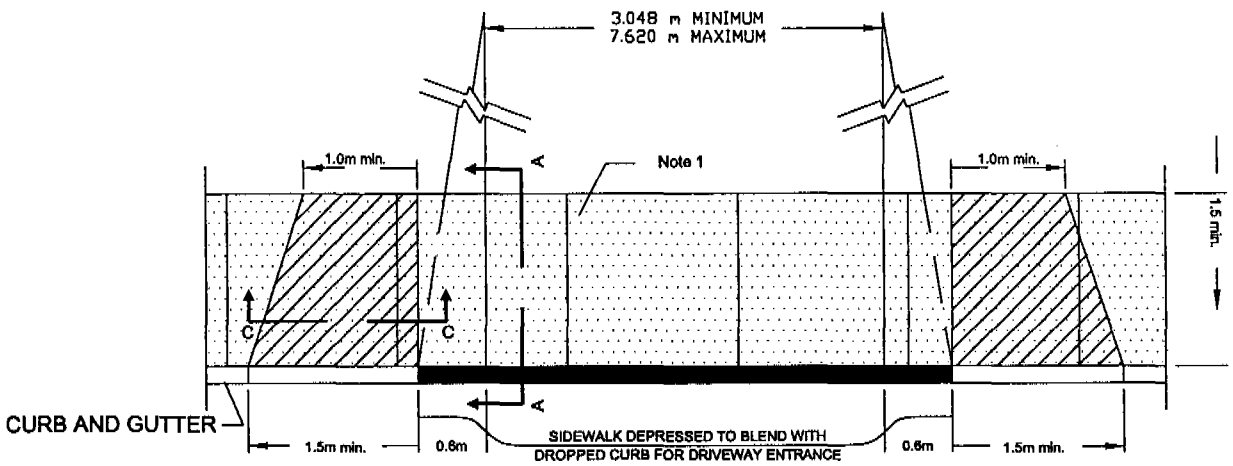


SIDEWALK WITH BOULEVARD
SECTION C-C

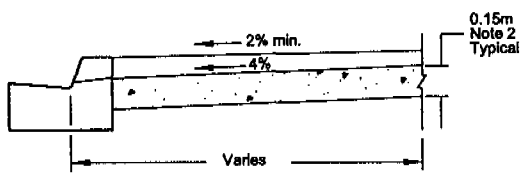
NOTES:

1. All concrete shall be 30 MPa with 7.0% ± 1.5% Air content and maxumum slump of 70 ± 20 mm.
2. At commercial and industrial driveways shall have a thickness of 0.20m.
3. All dimensions are in metres unless otherwise shown.

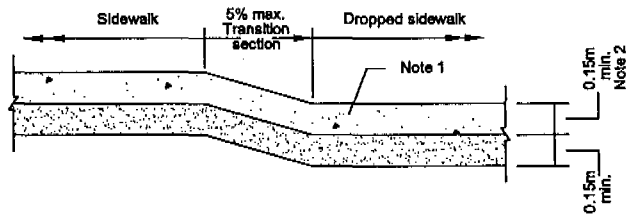
MUNICIPALITY OF LEAMINGTON	RESIDENTIAL SIDEWALK DRIVEWAY ENTRANCE DETAILS (PARTIALLY DEPRESSED)	DRAWN No. R006 Date APR 24, 2000 Last Revision FEB 19, 2001



FULLY DEPRESSED SIDEWALK AT DRIVEWAY ENTRANCE



SECTION A-A



SIDEWALK WITHOUT BOULEVARD
SECTION C-C

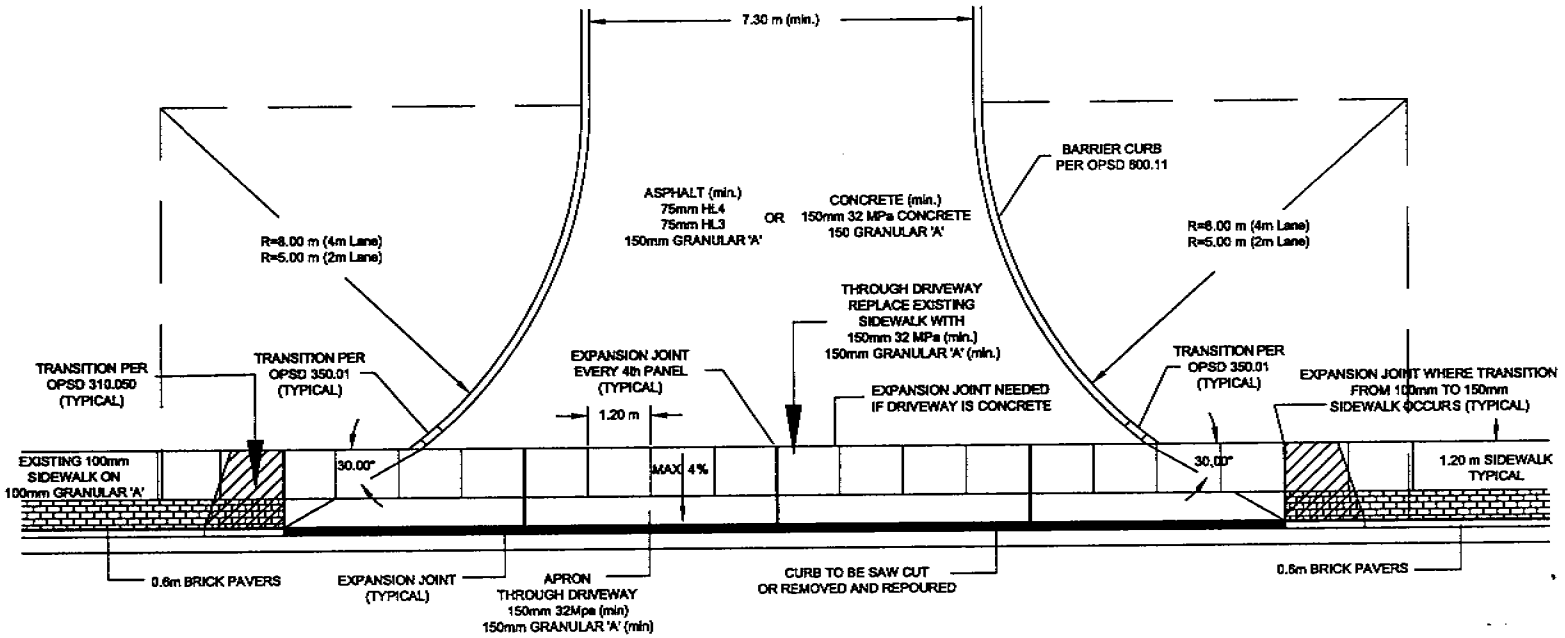
NOTES:

1. All concrete shall be 30 MPa with 7.0% ± 1.5% Air content and maxumum slump of 70 ± 20 mm.
2. At commercial and industrial driveways shall have a thickness of 0.20m.
3. All dimensions are in metres unless otherwise shown.

MUNICIPALITY OF LEAMINGTON	RESIDENTIAL SIDEWALK DRIVEWAY ENTRANCE DETAILS (FULLY DEPRESSED)	DRAWN No. R007 Date APR 24, 2000 Last Revision FEB 19, 2001

MUNICIPALITY OF LEAMINGTON

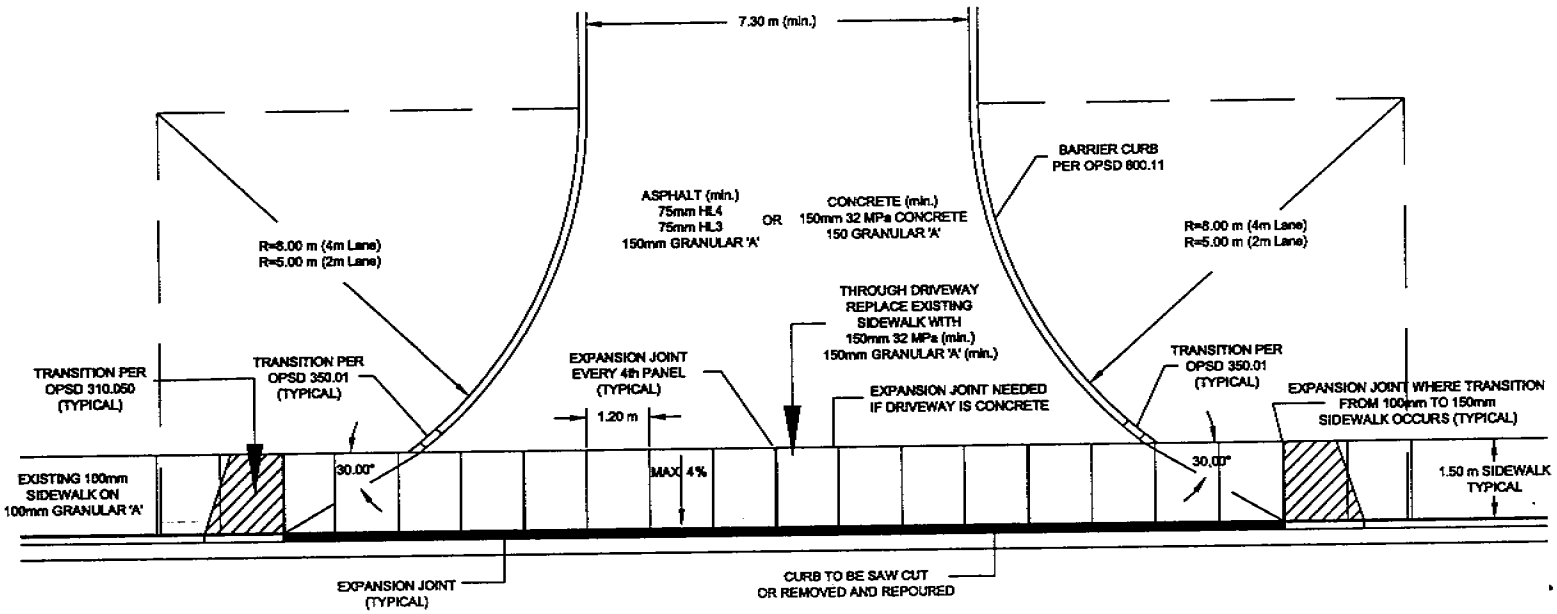
TYPICAL COMMERCIAL DRIVEWAY WITH 1.2m CONCRETE SIDEWALK AND 0.6m BRICK PAVERS ADJACENT TO CURB



DRAWN No.	Date	Last Revision
R008	NOV 28, 2000	FEB 19, 2001

MUNICIPALITY OF LEAMINGTON

TYPICAL COMMERCIAL DRIVEWAY WITH CONCRETE SIDEWALK ADJACENT TO CURB

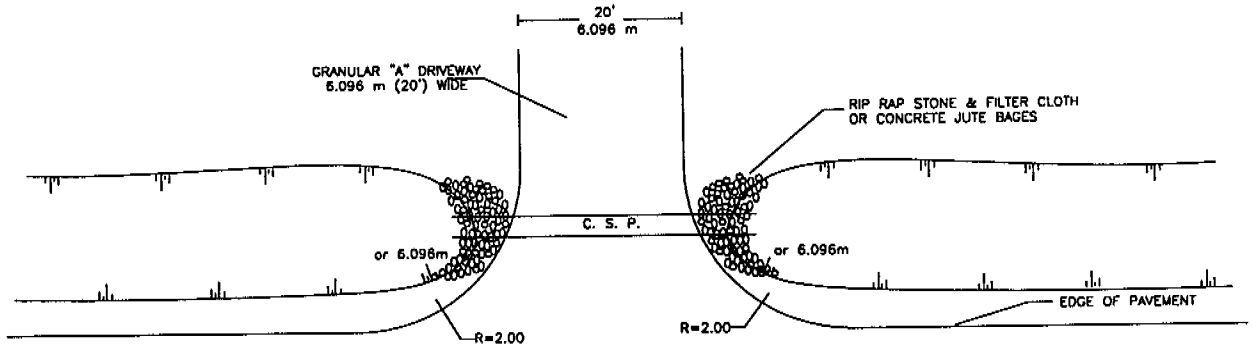


DRAWN No.	Date	Last Revision
R009	NOV 28, 2000	FEB 19, 2001

REQUIREMENTS FOR ENTRANCE PERMITS
RESIDENTIAL

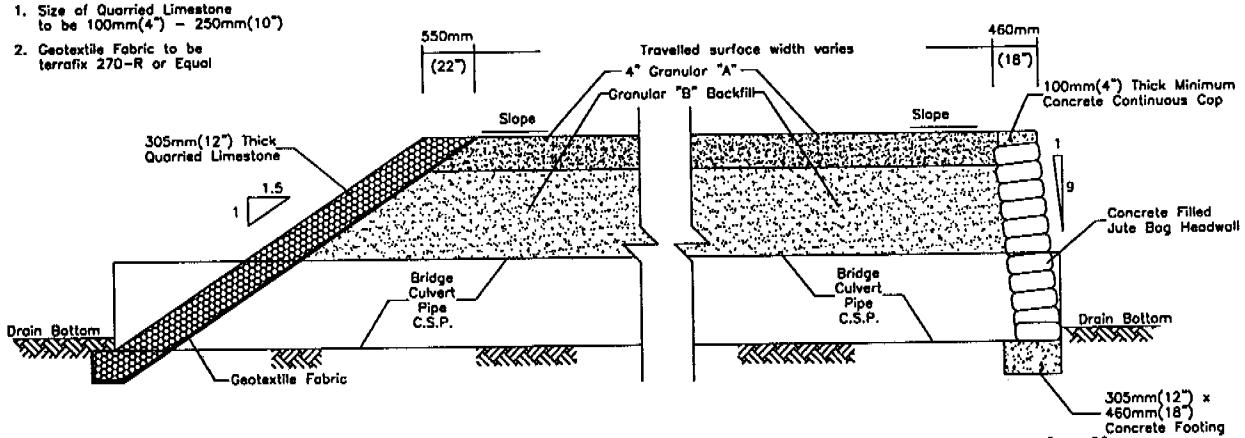
NOTE: - ENTRANCE PERMIT MUST BE APPROVED BEFORE WORK COMMENCES.
- MUNICIPALITY TO BE NOTIFIED FOR INSPECTION OF INSTALLATION.

1. Location must be staked out.
2. When a culvert is required in a road ditch, the grade shall be at a depth of the original Municipal ditch bottom.
3. The diameter of the culvert shall be a minimum of 15 inches or determined by the Drainage Superintendent or Engineering Department The length of the culvert shall be a minimum of 24 feet.
4. The Entrance surface width shall be a minimum of 20 feet.
5. The headwalls shall be built with RIP RAP STONE AND FIILTER CLOTH or JUTE BAGS FILLED WITH CONCRETE so that a 20ft. width can be maintained.
6. Backfill with B gravel at the culvert.
7. Entrance is to be topped with 4" of 0-3/4" or equivalent
8. DEPOSIT for RESIDENTIAL entrance -$200.00
   - 50% returned after final inspection is completed.



PLAN

Note:
1. Size of Quarried Limestone to be 100mm(4") – 250mm(10")
2. Geotextile Fabric to be terrafix 270-R or Equal



Typical Quarried Limestone End Protection

Typical Jute Bag Headwall

MUNICIPALITY OF LEAMINGTON

REQUIREMENTS FOR ENTRANCE PERMITS
RURAL RESIDENTIAL

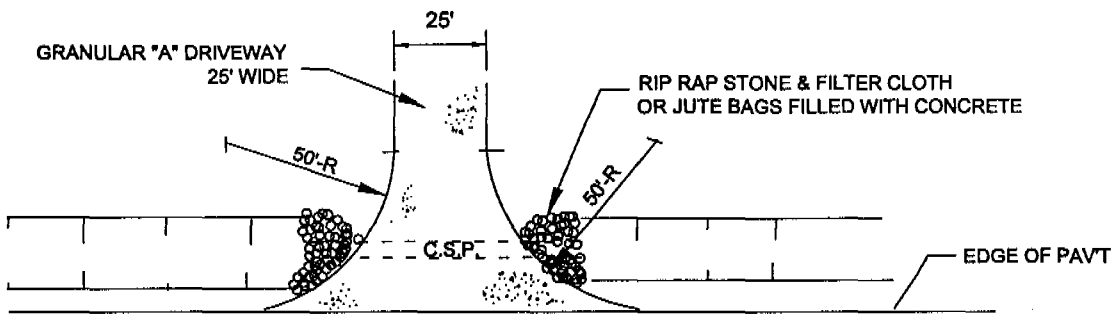
DRAWN No. R010

Date APR 24, 2000

Last Revision FEB 19, 2001

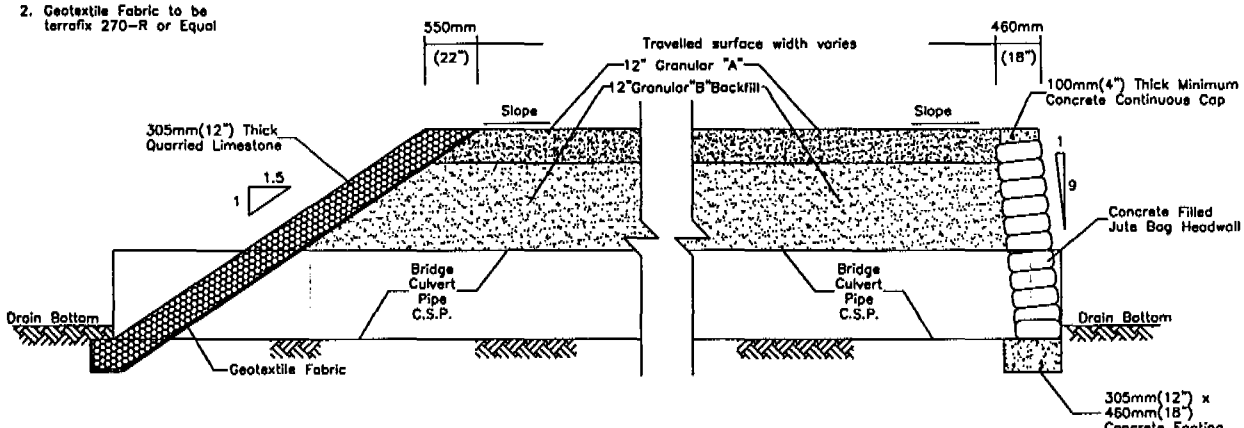
NOTE: - ENTRANCE PERMIT MUST BE APPROVED BEFORE WORK COMMENCES .
- MUNICIPALITY TO BE NOTIFIED FOR INSPECTION OF INSTALLATION.

1. Location must be staked out.
2. When a culvert is required in a road ditch, the grade shall be at a depth of the original ditch bottom, or in municipal drains an Engineer's Report is required.
3. The diameter of the culvert shall be a minimum of 15 inches or determined by the Township Official or Road Superintendent.
4. The surface width of the culvert shall be a minimum of 70 feet.
5. The entrance must not trap water or deposit water onto the roadway.
6. Backfill shall be B gravel with 10" to 12" A material on top.
7. The headwalls shall be built with RIP RAP STONE AND FILTERCLOTH or JUTE BAGS FILLED WITH CONCRETE.
8. DEPOSIT for COMMERCIAL Entrance - $500.00.



PLAN

Note:
1. Size of Quarried Limestone to be 100mm(4") - 250mm(10")
2. Geotextile Fabric to be terrafix 270-R or Equal



Typical Quarried Limestone End Protection

Typical Jute Bag Headwall

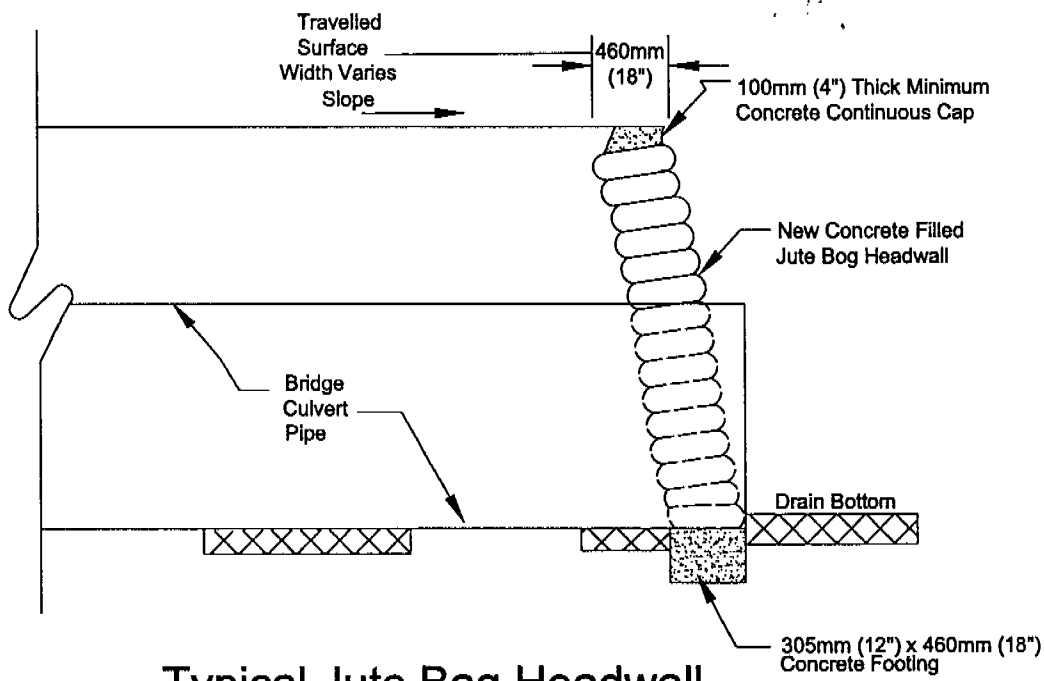
MUNICIPALITY OF LEAMINGTON

REQUIREMENTS FOR ENTRANCE PERMITS
RURAL COMMERCIAL

DRAWN No. R011

Date APR 24, 2000

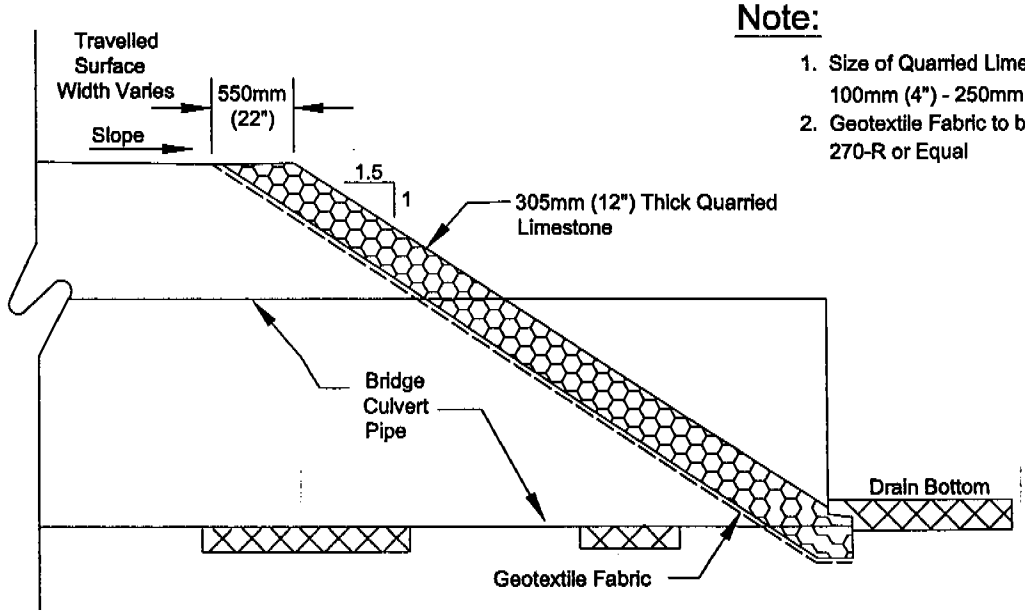
Last Revision FEB 19, 2001



Typical Jute Bag Headwall

Note:

1. Size of Quarried Limestone to be 100mm (4") - 250mm (10")
2. Geotextile Fabric to be Terrafix 270-R or Equal



Typical Quarried Limestone End Protection

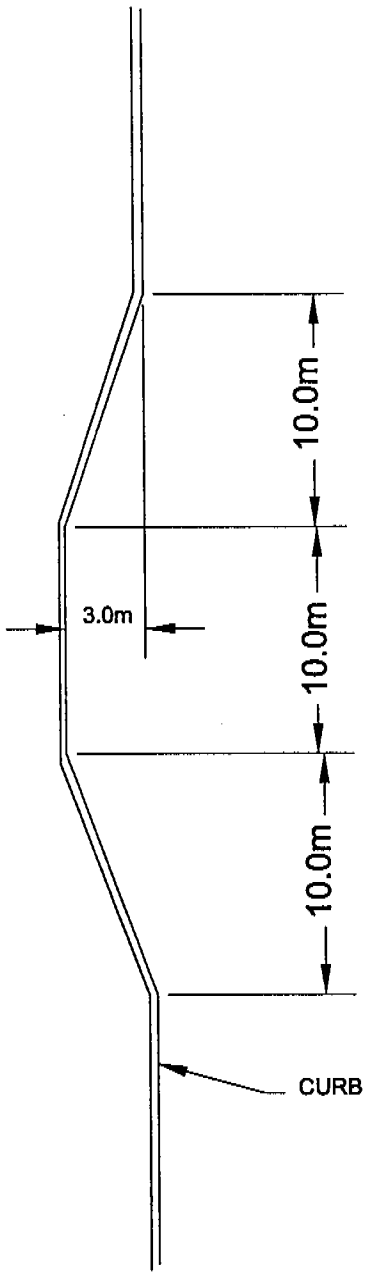
MUNICIPALITY OF LEAMINGTON

TYPICAL CULVERT END-PROTECTION

DRAWN No. R012

Date NOV 28, 2000

Last Revision FEB 19, 2001



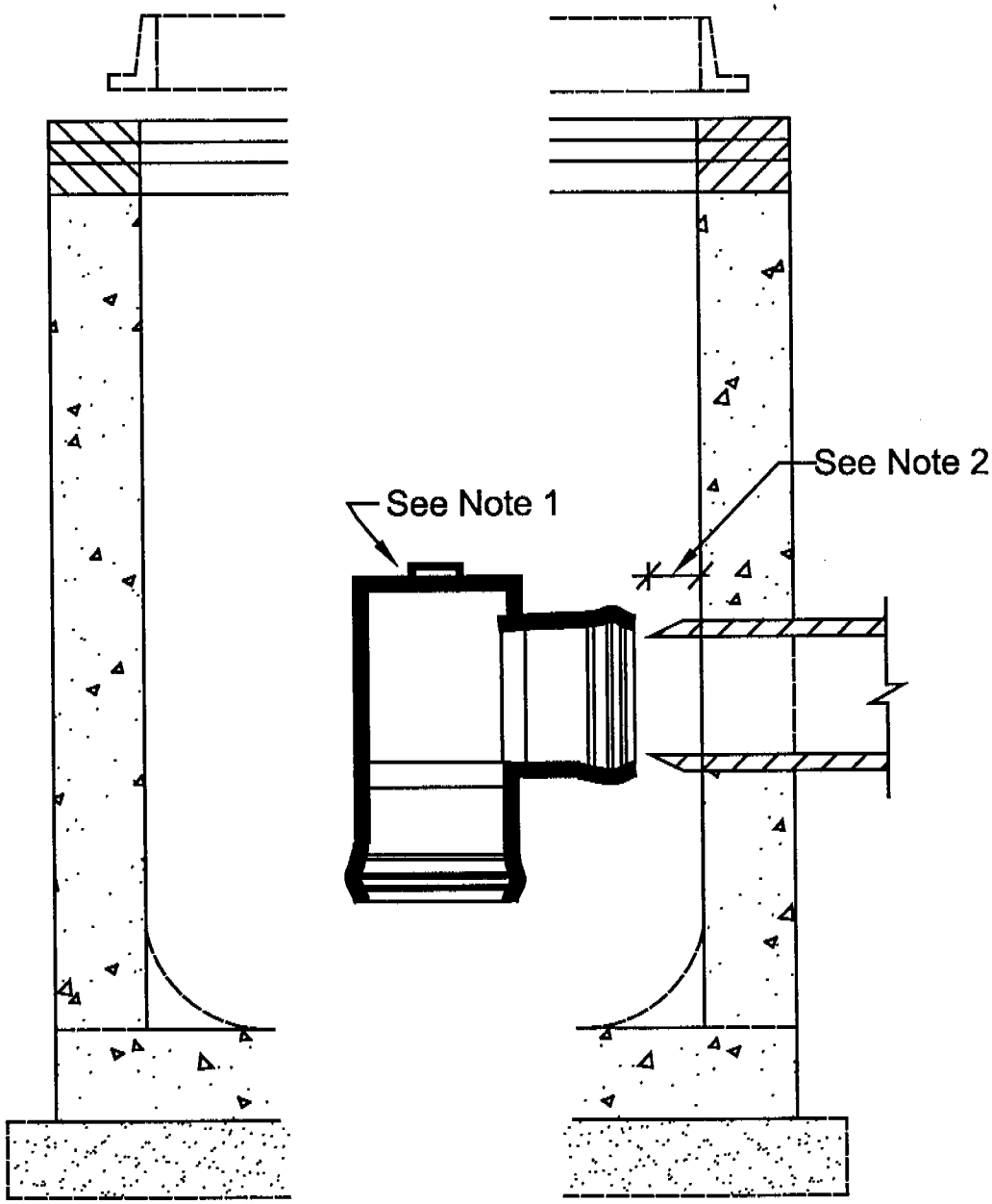
MUNICIPALITY OF LEAMINGTON

TYPICAL COMMUNITY
MAILBOX CAR BAY

DRAWN No. RO13

Date NOV 28, 2000

Last Revision FEB 19, 2001



NOTES

1. Use premoulded PVC Tee fitting w/ screw-in cap (diameter to suit outlet pipe)
2. PVC outlet pipe to extend 100mm beyond inside force of catchbasin

MUNICIPALITY OF LEAMINGTON

CATCHBASIN GAS TRAP DETAIL (NEW INSTALLATIONS)

DRAWN No. S001

Date NOV 28, 2000

Last Revision FEB 19, 2001

APPENDIX E

SANITARY AND STORM SEWER DESIGN SHEETS

Figure No.	Title
E.1	Sanitary Sewer Design Sheet
E.2	Storm Sewer Design Sheet

MUNICIPALITY OF LEAMINGTON

Sewage Generation Factor = 450 l/person/day

SUGGESTED DENSITIES (CONFIRM FOR SPECIFIC PROJECT)

BACHELOR	1.2 P.P.U.	3 BDRM. APT.	3.0 P.P.U.	3 BDRM T.H.	3.5 P.P.U.		
1 BEDROOM	2.0 P.P.U.	4 BDRM. APT.	3.7 P.P.U.	4 BDRM. T.H.	5.0 P.P.U.		
2 BEDROOM	3.0 P.P.U.						

SANITARY SEWER DESIGN CHART

PROJECT:

DESIGNED BY: PROJECT No:

CHECKED BY: DATE:

SEWER LOCATION				GROSS TRIBUTARY AREA (ha)							POPULATION					ACCUMULATED SEWAGE FLOW (l/s)						SEWER DESIGN						PROFILE (metres)						
AREA	STREET	FROM	TO	RESIDENT.		COMM.		INDUST.		TOTAL AREA	PER ha.	No. OF LOTS	PER LOT	INCR. POP.	TOTAL POP.	RESIDENTIAL		COMM.	IND.	INFIL.	PEAK DES. FLOW	DIA. (mm)	SLOPE %	n	FULL FLOW (m/s)	CAP (L/s)	LEN-GTH (m)	MH LOSS			FALL IN SEW.	INVERT ELEV.		FINAL GRADE ELEV.
				INCR.	ACC.	INCR.	ACC.	INCR.	ACC.							AREA	POP.											H.I.	O	OTH		U.S.	D.S	

STORM SEWER DESIGN CHART

MUNICIPALITY OF LEAMINGTON

$i_{(mm/hr)} = \frac{31.75}{Tc + 20}$

DESIGN CRITERIA

STORM CURVE ______ YRS

ENTRY TIME ______ MINS

VELOCITY RANGE - 0.75 TO 3.0 m/SEC

MIN PIPE SIZE - 300 mm DIA.

RUNOFF COEFFICIENT 'C'

RESIDENTIAL:			
SINGLE & DUPLEX	0.35	PARKS & PLAYGROUNDS	0.20
ROW HOUSING	0.50	COMMERCIAL & INDUSTRIAL	0.70
APARTMENTS	0.60	DENSITY BUILT, PAVED	0.95

PROJECT:

DESIGNED BY:

PROJECT No:

CHECKED BY:

DATE:

SEWER LOCATION				AREA			AXC						RAINFALL INTENSITY			PEAK	SEWER DESIGN							PROFILE (metres)						
AREA	STREET	FROM	TO	DESCRIPTION OF LAND USE	AREA (ha)	TOTAL AREA (ha)	RUNOFF 'C'	INCR. AXC	TOTAL SECT. AXC	TOTAL LAT. AXC	TOTAL SEWER AXC	TOTAL 2.78 AXC	TIME ENTRY SECT.	TIME ENTRY ACCUM.	I (mm/hr)	DESIGN FLOW Q (l/s)	PIPE DIA (mm)	SLOPE %	n	ACTUAL CAP. (l/s)	FULL VEL. (m/s)	LEN-GTH (m)	TIME OF FLOW (min.)	MH LOSS H.I.	MH LOSS O	MH LOSS OTH	FALL IN SEW.	INVERT ELEV. U.S.	INVERT ELEV. D.S	FINAL GRADE ELEV.

APPENDIX F

APPLICATION FOR GREENHOUSE ON-SITE RESERVOIR & RATE-OF-FLOW CONTROL SYSTEM

CORPORATION OF THE MUNICIPALITY OF LEAMINGTON

83 Wilkinson Drive, Leamington, Ontario, N8H 1A4
Telephone (519) 322-2346 – Fax (519) 322-2714

Municipal Water Supply for Area Greenhouse Facilities Information Booklet and Guide

INTRODUCTION AND BACKGROUND:

In the last few years, the agricultural sector in and around the Leamington area has experienced significant growth with the expansion of hydroponic greenhouse facilities. The Leamington area has the largest concentration of vegetable greenhouses in North America with several new facilities proposed. These facilities place such considerable demands on the municipal water supply and distribution infrastructure, that, in order to maintain an adequate supply of water to existing consumers while accommodating future growth, procedures and policies will need to be enacted to ensure full and fair utilization of available water system capacity.

This booklet is designed to assist the Greenhouse owner or developer in complying with the policies/procedures for the supply of municipal water.

POLICIES:

The Corporation of the Municipality of Leamington has adopted policies/procedures to assess greenhouse development and expansion requests necessitated to avail the municipal water system. Municipal Resolution C-252-00 outlines the procedural steps required by a greenhouse operator/developer to process its water application; it is suggested that you take a few moments to read the following policies and review the policies with your municipal manager of water (see Exhibit #1).

In addition, the Town must comply with Ministry of Environment regulations which state that:

> *"The operating authority shall not approve any additional stub watermains, fire hydrants, fire hydrants leads and service pipes to the distribution main unless it has reviewed the hydraulic capacity of the water distribution system and the water supply works and has concluded that the additional stub watermains, fire hydrants, fire hydrants leads and service pipes together with all existing and previously approved stub watermains, fire hydrants, fire hydrant leads, and service pipes will not overload either the water distribution system or the water supply/treatment works and has recorded its review and conclusion in writing."*

GREENHOUSE WATER CONSUMPTION:

The amount of water consumed by greenhouse grown plants is proportional to temperature and light intensity. The majority of water is consumed during the daylight hours with approximately 90% of the total water consumed over a 10 hour (daylight) period. Maximum consumption occurs during the months of July and August.

Current information indicates that for hydroponic tomato greenhouses, typical maximum day water consumption is approximately 1 Imperial gallon per plant per day. For plant densities of 10,000 plants per acre, the total water demand is 10,000 Imperial gallons per acre per day.

In considering the requirements to provide water to these facilities, it became clear that it is expensive and inefficient to size watermains to deliver the large volumes of water required by greenhouse operations over a 10 hour period. To maximize the use of both existing and new watermains, it is preferable to uniformly distribute the water demand of the greenhouse industry over a 24 hour period. This can be accomplished through the use of on-site water storage and flow rate regulation.

APPLICATION, CONSTRUCTION AND COSTS:

An application for a building permit must be submitted to the Municipality of Leamington for the construction of new greenhouses or expansion of existing greenhouses. Along with the building permit application, the applicant must fill out and submit the following applications:

1) Municipal application for Greenhouse Water Connection (see Exhibit # 2);

2) Ontario Clean Water Agency Application for Water Service/Watermain Extension/Large Service Connection (see Exhibit #3).

The application for Water Service/Watermain Extension/Large Service Connection is used by the Union Water Treatment Plant to determine if the treatment plant has capacity to produce the requested water. The application for Greenhouse Water Connection is used by the Municipality of Leamington to determine if the water distribution system has sufficient capacity to deliver the water from the Union Water Treatment Plant to the proposed greenhouse. Both applications must be approved before water is made available to the proposed development.

As well it should be noted that the applicant is responsible for providing an on-site reservoir based on the approved application for Greenhouse Water Connection submitted with the building permit.

LEAMINGTON ONTARIO CANADA	POLICY NO. DATE ENACTED: AMENDED BY: PAGE:

SUBJECT: MUNICIPAL POLICY TO REGULATE NEW AND EXPANDED GREENHOUSE OPERATIONS, SPECIFICALLY AS IT RELATES TO ASSESSING THE MUNICIPAL WATER SUPPLY SYSTEM

1) Assessing New/Expanded Greenhouse Development:

Prior to the issuance of a building permit, an application pertaining to the municipal water management issues must be submitted to and evaluated by the manager of water services.

The evaluation process to assessing new and expanded greenhouse development will reflect operations greater than 2 acres and will consist of the following:

- developer to submit an application to the municipality for consideration (see the attached Exhibit # 2);
- the municipality to submit on behalf of the developer a completed application to the Ontario Clean Water Agency for capacity approval in the distribution system (see the attached Exhibit # 3);
- upon approval of O.C.W.A. the municipality will forward said application to its engineer to determine the impact this development will have on the existing system. The municipality will charge a flat fee of $1,500.00 to the applicant for assessing the impact of a proposed development;
- the municipality will determine whether to approve the application based on the impact such development will have on the overall system;

2) Order of Processing Applications:

- all applications will be evaluated in queue;
- if capacity is available the applicant will be given a time unit of approximately six (6) months to purchase the capacity or it will become available to others;
- if the time limit expires, any future request will require a new application and evaluation fee (this fee may be waived if no system changes have taken place);
- said fee will cover only one request and will not cover the work involved in assessing "what capacity" is available in the water distribution system;
- municipality makes the decision whether to grant a service connection;

Service Connections To Greenhouse Development:

where a new service connection has been approved and applicable municipal connection fees paid (see attached fee schedule Exhibit # 4) the developer will be awarded a six (6) month time limit from the time the applicant receives approval for a new or expanded service connection until a building permit is taken out to proceed with the work;

if the said building permit has not been taken out within the stipulated time period the municipality may revoke approval for said service connection;

installation of the approved water meter and overall rate of flow control system shall be installed inside the greenhouse. For installation purposes the service connection becomes an extension of the municipal main and therefore subject to the same material and construction specifications as other municipal projects;

developer (greenhouse operator) is permitted to use his own engineer to prepare plan specifications, and hire contractors to perform work related to the approved service connection subject to the developer accepting the service connection as an extension of the municipal main (for installation purposes) and subject to the connection being constructed in compliance with the municipality's standards on materials and construction;

upon completion of installation the developer (greenhouse operator) assumes full ownership and responsibility of the water service from the property line in;

contractor would have to be a qualified contractor approved by the municipality;

service connection would require approval from the municipal water department staff to ensure the service line size is in order to a properly designed rate of flow control system;

developer would compensate the municipality for all costs necessitated to perform this function;

Rate of Flow Control System:

due to the complex nature of the rate of flow control system and the need to maintain consistency of implementation and components from greenhouse to greenhouse the municipality shall control and administer the design and purchase of the major components that make-up the flow control system (i.e. for a typical greenhouse of less than 18 acres, the estimated cost to design, and construct the appropriate rate of flow system will be approximately $29,500 excluding G.S.T.);

the municipality or its designate shall be responsible for performing the detailed analysis to determine the proper size and type of components required;

- the municipality shall be responsible for preparing construction drawings and specifications, turning over of the major flow control components to the developer for installation;

- the municipality will be responsible for carrying out site inspections to ensure that the system is installed in accordance with the drawings and specifications;

- the developer will be responsible for all costs incurred by the municipality;

5) Onsite Storage of Water:

- an onsite reservoir serves to reduce a greenhouse's peak water demand on the water distribution system by 50% or more as the total daily water demand required by the greenhouse facility can be delivered uniformly over a 24 hour period instead of 10 hours;

- the developer is responsible for insuring that his site has onsite storage that is properly sized and operated to prevent a shortage of water (i.e. an example of sizing a reservoir is attached – see Exhibit # 6);

- the developer will present to the municipality for approval a calculation formula for determining onsite storage of water.

EXHIBIT # 2

Corporation of the Municipality of Leamington
APPLICATION FOR GREENHOUSE
WATER CONNECTION

Complete and submit this application to Leamington Water Services

NAME OF GREENHOUSE OPERATION: _____

ADDRESS: _____

Contact Representative: _____

Phone: _____ Fax: _____

1. TYPE OF CROP: _____

2. MAX. DAY PLANT WASTE CONSUMPTION: _____ (Imperial Gallons per plant per day. This demand may only occur on 5 to 10 days per year when the daily temperature and light intensity are at seasonal maximums)

3. PLANT DENSITY: _____ Plants per acre

4. IS THIS A NEW FACILITY *Circle one* YES NO *OR*

   EXPANSION TO EXISTING FACILITY *Circle One* YES NO

5. SIZE OF GREENHOUSE:

   Existing _____ acres Size applying for _____ acres

   Ultimate Future Size _____ acres

6. LENGTH OF PEAK WATERING PERIOD: _____ Hours per day

7. a) CALCULATED RESERVOIR SIZE: _____ imperial gallons
   (Using example with above values)

   b) Working Volume _____ igal (difference between low & high water levels)

8. ESTIMATED TOTAL NUMBER OF EMPLOYEES THAT WILL BE WORKING AT THIS FACILITY: _____

9. ESTIMATED NUMBER OF EMPLOYEES THAT WILL BE HOUSED ON-SITE FROM ABOVE TOTAL: _____

10. Note that the above numbers will be used to determine the rate of water supply to the proposed greenhouse facility. This rate will be regulated by the Rate-of-flow Control System. If the water demands exceed those estimated below, and/or sufficient on-site water storage is not provided, a local water shortage may occur.

11. My signature on this application authorizes the Municipality of Leamington to forward this application to its engineer to determine the impact this development will have on the existing distribution system; as owner/operator, I acknowledge that I am responsible, for all costs incurred by the municipality to determine this impact.

12. My signature on this application acknowledges and pursuant to the provisions of this application that the Corporation of the Municipality of Leamington, its employees, servants and agents shall not be responsible or liable for any loss or damage sustained directly or indirectly by reason of quality of or any variation in, interruption of or lack of continuity in the supply of water to be delivered hereunder or the failure to supply water or supply sufficient water to the stated consumer or by reason of construction, administration, operation, repair, replacement, or maintenance of the Leamington Water Distribution System.

Name of Applicant: (Please Print): _____ Date: _____

Signature of Applicant: _____

Position: _____

OFFICE USE ONLY

1. DATE APPLICATION RECEIVED: _____ INITIALS: _____

2. STATUS:

Water Department Approved: _____ Rejected: _____ Date: _____ Initials: _____
(Municipality of Leamington)

Comments: _____

_____

Union Water System Approved: _____ Rejected: _____ Date: _____ Initials: _____

Comments: _____

_____

Consulting Engineer Approved: _____ Rejected: _____ Date: _____ Initials: _____

Comments: _____

_____

Building Department Approved: _____ Rejected: _____ Date: _____ Initials: _____
(Municipality of Leamington)

Comments: _____

_____

EXHIBIT # 3

Ontario Clean Water Agency

Application for Water Service

UNION WATER SYSTEM

Water Main Extension/Large Service Connection

Municipality:

Date:

Full Name and Mailing Address of Applicant

Contact:

Street Address of Connection:

Phone: **Fax:**

Application (please check one)

New :

Replacement :

Size of Service Connection:

Connecting Main Size:

For Plant Use Only

Application Number

Operations Manager

Date of Approval

Municipalities actual consumption in past year

Added new consumption as a % of municipalities actual

Projected Water Use in m^3 or **Imp. Gallons**

Water Use Category	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Residential-single connection													
Residential - subdivision													
Commercial - single connection													
Commercial - multi unit													
Commercial - other													
Industrial - dry process; F.P. only													
Industrial - wet process													
Agricultural - greenhouse-acreage=													
Agricultural - drip irrigation-acreage=													
Agricultural - food process													
Agricultural - other-acreage=													
Other (list)													
Total													

SCHEDULE L

Water Department
Fee Schedule - 2000

Description of Fee or Service	**2000 Fees**	
Size of Line	*Municipal Service Connections*	*Buy-In/Assessment*
¾ inch	$1,000.00	
1 inch	1,300.00	
1 ½ inch	1,800.00	
2 inch with backflow	4,000.00	
2 inch, no backflow	3,400.00	
4 inch	$20,000.00	$15,000.00

Supplementary watermain assessment

vacant residential/farm/commercial parcel $5,000.00

EXHIBIT # 6

Sizing a Reservoir -- Example

Note: The numbers provided in this example have been gathered from and are generally supported by the local greenhouse industry. It is the responsibility of the individual greenhouse operator to determine the water requirements of its operation and complete the application accordingly. The Municipality of Leamington and its agents accept no responsibility for the estimation or determination of individual water requirements.

TYPE OF PLANT:	*Tomatoes*
PLANT WATER CONSUMPTION:	*1.0 Imperial gallons per plant per day*
PLANT DENSITY:	*10,000 plants per acre*

- Water is to be supplied into the reservoir from the distribution system over a 24 hour period. To allow for system maintenance, the total fill period will be reduced by 4 hours to 20 hours.

Daily Water Requirement per Acre:

1 imp. Gallon per plant per day x 10,000 plants per acre x 1 acre = 10,000 Imp. Gallons per acre per day

Regulated Water Supply Rate:

20 hours = 1200 minutes
10,000 Imp. Gallons per acre per day / 1000 min per day = 8.33 Imp. Gallons per minute per acre

- Water is to be withdrawn from the reservoir using on-site pumps for irrigation over a 10 hour period. To allow for peak demands, a 2 hour safety factor is added which will reduce the withdrawal time period to 8 hours.

Rate of Withdrawal from Reservoir:

8 hours = 480 minutes
10,000 Imp. Gallons per acre / 480 minutes = 20.83 Imp. Gallons per minute per acre

- The difference between the rate of filling and rate of withdrawal will establish the working volume of the reservoir required per acre of greenhouse. When the rate of withdrawal exceeds the rate of supply, the storage volume in the reservoir will be depleted. In this example, all 10,000 gallons of water per acre will be used over an 8 hour period. During this 8 hour period, the rate of withdrawal exceeds the rate of supply by 12.5 Imp. Gallons per minute (20.83 Igpm withdrawal - 8.33 Ipgm supply = 12.5 Ipgm depletion rate). Over a 480 minute (8 hour period), the volume removed from the reservoir is:

12.5 Imp. Gallons per minute x 480 minutes = 6,000 Imp. Gallons per acre

This is the usable reservoir volume required for normal operation. Applying a safety of 1.25 brings the required volume of on-site storage to 7,500 Imp. gallons per acre (6,000 x 1.25 = 7,500).

Therefore, the minimum working volume of the reservoir that must be provided is

Volume igal = Number of Acres x 7,500 igal/acre

where the working volume is that volume between the high and low water levels necessary to operate the pumping equipment.

The distribution system must be capable of supplying water at a rate of 8.33 Imperial gallons per minute per acre plus a small component for domestic use. This rate must be controlled using a rate-of-flow control system.

APPENDIX G

MUNICIPAL BUILDING BY-LAW

THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON

BY-LAW 48-99

Being a By-law respecting
Construction, Demolition
and Change of Use Permits
and inspections.

WHEREAS Section 7 of the Building Code Act, 1992, empowers Council to pass certain by-laws respecting construction, demolition and change of use permits and inspection.

NOW THEREFORE THE CORPORATION OF THE MUNICIPALITY OF LEAMINGTON BY ITS COUNCIL ENACTS AS FOLLOWS:

1. This by-law may be cited as the Building By-law.

2. In this by-law:

   (a) "Act" means the Building Code Act, 1992, including amendments thereto.

   (b) "Building" means a building as defined in Section (1) of the Act.

   (c) "Building Code" means the regulations made under Section 34 of the Act.

   (d) "Chief Building Official" means the Chief Building Official appointed by by-law of the Corporation of the Municipality of Leamington for the purposes of enforcement of the Act.

   (e) "Corporation" means The Corporation of the Municipality of Leamington.

   (f) "Farm Building" means a farm building as defined in the Building Code.

   (g) "Plumbing" means plumbing as defined in Section 1(1) of the Act.

   (h) "Permit" means written permission or written authorization from the Chief Building Official to perform work regulated by the by-law and the Act.

   (i) "Sewage System" means a sewage system as defined in Section 1(1) of the Act.

3. Terms not defined in this by-law shall have the meaning ascribed to them in the Act or the Building Code.

4. Classes of permits with respect to the construction, demolition and change of use of buildings shall be as set out in Schedule "A" to this by-law.

5. **BUILDING PERMIT**

   No person shall construct or demolish a building or cause a building to be constructed or demolished within the geographic limits of the Municipality of Leamington unless a permit has been issued therefore by the Chief Building Official.

6. **PLUMBING PERMIT**

No person shall use plumbing that has been constructed, repaired, renewed or altered until the plumbing is inspected and found to be in compliance with the Building Code. This does not apply where,

(a) a valve, faucet, fixture or leak is repaired;

(b) a valve, faucet or fixture is replaced;

(c) a stoppage is forced out; or

(d) a replacement water heater is installed.

7. **PARTIAL PERMIT**

When in order to expedite work, approval of a portion of the building or project is desired prior to the issuance of a permit for the complete building or project, application shall be made and fees paid for the complete project. Complete plans and specifications covering the portion of the work for which immediate approval is desired shall be filed with the Chief Building Official.

Where a permit is issued for part of a building or project, this shall not be construed to authorize construction beyond the plans for which approval was given nor that approval will necessarily be granted for the entire building or project.

8. **CHANGE OF USE PERMIT**

(i) No person shall change the use of a building or part of a building which would result in an increase in hazard as determined under the Building Code unless a permit has been issued by the Chief Building Official.

(ii) Every application for a change of use permit issued under Subsection 10.-(1) of the Act shall be submitted to the Chief Building Official, and shall:

(a) describe the building in which the occupancy is to be changed, by a description that will readily identify and locate the building,

(b) identify and describe in detail the current and proposed occupancies of the building or part of a building for which the application is made,

(c) include plans and specifications which show the current and proposed occupancy of all parts of the building and which contain sufficient information to establish compliance with the requirements of the Building Code, including floor plans, details of walls, ceilings and roof assemblies identifying required fire resistance ratings and load bearing capacities,

(d) be accompanied by the required fee,

(e) state the name, address and telephone number of the owner, and

(f) be signed by the owner or his or her authorized agent who shall certify the truth of the contents of the application.

9. **ON-SITE SANITARY SEWAGE SYSTEM PERMIT**

No person shall install or repair a sewage system or cause a sewage system to be installed or repaired within the geographic limits of the Municipality of Leamington unless a permit has been issued therefore by the Chief Building Official.

10. **REVISION TO PERMIT**

After the issuance of a permit under the Act, notice of any material change to a plan, specification, document or other information on the basis of which the permit was issued, must be given in writing to the Chief Building Official together with the details of such change. Any such change is not to be made without the written authorization of the Chief Building Official.

11. **APPLICATION FOR BUILDING, PLUMBING, DEMOLITION & CHANGE OF USE PERMIT**

To obtain a permit, the owner or an agent authorized in writing by the owner, shall file an application in writing by completing a prescribed form available from the Chief Building Official. The prescribed form shall be as set out in Schedule "B" to this by-law.

Every application for a permit shall be submitted to the Chief Building Official and contain the following information:

(i) Where application is made for a permit under Subsection 8.-(1) of the Act, the application shall:

(a) identify and describe in detail the work and occupancy to be covered by the permit for which application is made,

(b) describe the land on which the work is to be done by a description that will readily identify and locate the building lot,

(c) include complete plans and specifications as described in this by-law for the work to be covered by the permit and show the occupancy of all parts of the building,

(d) state the valuation of the proposed work including materials and labour and be accompanied by the required fee,

(e) state the names, addresses and telephone numbers of the owner, architect or engineer, where applicable, or other designer or constructor,

(f) be accompanied by a written acknowledgement of the owner that he has retained an architect or professional engineer to carry out the field review of the construction where required by the Building Code,

(g) include, where applicable, the registration number of the builder or vendor as provided in the Ontario New Home Warranties Plan Act, and

(h) be signed by the owner or his or her authorized agent who shall certify the truth of the contents of the application.

(ii) Where application is made for a demolition permit under Subsection 8.-(1) of the Act, the application shall:

(a) contain the information required by clauses (i)(a) to (h), and

(b) be accompanied by satisfactory proof that arrangements have been made with the proper authorities for the cutting off and plugging of all water, sewer, gas, electric, telephone or other utilities and services.

12. **ON-SITE SANITARY SEWAGE SYSTEM APPLICATION**

Every application for a sewage system permit shall be submitted to the Chief Building Official, and contain the following information:

1) The name, address and telephone number of the person/contractor installing the sewage system.

(a) Where applicable:

i) The OBC licence number of the person named in (1) above, and

ii) the name of the qualified person supervising the installation of the sewage system,

2) The design capacity of the sewage system,

(a) Where applicable:

i) where more than one sewage system is, or will be, located on the lot or parcel of land, the total design capacity of such systems,

3) A site evaluation which shall, unless otherwise specified by the Chief Building Official, include the following items:

a) the date the evaluation was done,

b) name, address, telephone number and signature of the person who prepared the evaluation,

c) a scaled map of the site showing,

i) the legal description, lot size, property dimensions, existing right-of-way, easements or municipal/utility corridors;
ii) the location of the proposed sewage system;
iii) the location of any unsuitable, disturbed or compacted areas and;
iv) proposed access routes for system maintenance.

d) depth of bedrock,

e) depth of zones of soil saturation,

f) soil properties, including soil permeability, and

g) soil conditions, including potential for flooding.

13. **EQUIVALENTS**

Where an application for a permit or for authorization to make a material change to a plan, specification, document or other information on the basis of which a permit was issued, contains an equivalent material, system or building design for which authorization under Section 9 of the Act is requested, the following information shall be provided:

(a) a description of the proposed material, system or building design for which authorization under Section 9 of the Act is requested,

(b) any applicable provisions of the Building Code, and

(c) evidence that the proposed material, system or building design will provide the level of performance required by the Building Code.

14. **PLANS AND SPECIFICATIONS**

Sufficient information including a site plan, shall be submitted with each application for a permit to enable the Chief Building Official to determine whether or not the proposed construction, demolition or change of use will conform with the Act, the Building Code and any other applicable law.

Each application shall, unless otherwise specified by the Chief Building Official, be accompanied by two complete sets of plans and specifications required under this by-law.

Plans shall be drawn to scale on paper, cloth or other durable material, shall be legible and, without limiting the generality of the foregoing, shall include such working drawings as set out in Schedule "C" to this by-law unless specified by the Chief Building Official.

15. **THE SITE PLAN**

The site plan shall be referenced to an up-to-date survey and, a copy of the survey shall be submitted to the Chief Building Official unless this requirement is waived because the Chief Building Official is able, without having a current plan of survey, to determine whether the proposed work conforms to the Act, the Building Code and other applicable law.

(i) Site plans shall show:

(a) lot size and the dimensions of the property lines and setbacks to any existing or proposed buildings,

(b) existing and finished ground levels or grades, and

(c) existing rights-of-way, easements and municipal services.

16. **PAYMENT OF FEES**

Fees payable for a required permit shall be in accordance with the Municipality's Fees By-law that is in effect at the time that the application for a permit is received by the Chief Building Official.

Where the fees payable in respect of an application for a construction or demolition permit issued under Subsection 8.-(1) of the Act are based on the value of the proposed work, the value of the proposed work shall mean the cost of all work regulated by the permit including the cost of all material, labour, equipment, overhead and professional and related services.

Where the fees payable in respect of an application for a construction or demolition permit issued under Subsection 8(1) of the Act are based on a floor area, floor area shall mean the total floor space of all storeys above grade (or below grade for an underground home) measured as the horizontal area within the outside surface of the exterior walls of the building.

The Chief Building Official may place a value on the proposed work for the purposes of establishing the permit fee or for the purposes of establishing the value for statistical purposes and where disputed by the applicant, the applicant shall pay the required fee under protest and within six months of completion of the project, shall submit an audited statement of the actual costs, and where the audited costs are determined to be less than the value, the Chief Building Official shall issue a refund and correct the application.

17. **REFUNDS**

In the case of withdrawal of an application or the abandonment of all or a portion of the work or the non-commencement of any project for which the permit fee is greater than One Hundred Dollars ($100.00), the Chief Building Official shall determine the percentage of fee eligible for a refund, if any, in accordance with Schedule "D" attached to and forming part of this by-law.

18. **NOTICE REQUIREMENTS FOR INSPECTIONS**

The owner or an authorized agent shall notify the Chief Building Official at least twenty-four (24) hours prior to each stage of construction for which notice in advance is required under the Building Code.

19. **FORMS**

The forms prescribed for use as applications for permits, for orders and for inspection reports shall be as set out in Schedule "B" of this by-law.

20. **AS CONSTRUCTED PLANS**

The Chief Building Official may require that a set of plans of a building or any class of buildings as constructed be filed with the Chief Building Official on completion of construction under such conditions as may be prescribed in the Building Code.

21. **SEVERABILITY**

Should any section, subsection, clause or provision of this by-law be declared by a court of competent jurisdiction to be invalid, the same shall not affect the validity of this by-law.

22. By-law Number 4250-95 of the former Town of Leamington and By-law Number 5161 of the former Township of Mersea are hereby repealed.

READ A FIRST, SECOND AND THIRD TIME AND FINALLY ENACTED

THIS 10TH DAY OF MAY, 1999.

Mayor

Clerk

SCHEDULE "A"

This is Schedule "A" to

By-law 48-99

respecting

Classes of Permits

Class of Permit

1) Building Permit
2) Plumbing Permit
3) Partial Permit
4) Change of Use Permit
5) Sewage System Permit

SCHEDULE "B"

This is Schedule "B" to

By-law 48-99

respecting

Forms

Form 1	Application for Building, Plumbing, Demolition, Change of Use & Pool Permit
Form 2	On-Site Sanitary Sewage System Application
Form 3	Permit for Building, Demolition, Plumbing, Change of Use & Pool
Form 4	Inspection Report
Form 5	Order to Comply
Form 6	Stop Work Order
Form 7	Order Not To Cover or Enclose
Form 8	Order to Uncover
Form 9	Order to Remedy Unsafe Building
Form 10	Order Prohibiting the Use or Occupancy of an Unsafe Building
Form 11	Occupancy Permit
Form 12	Letter of Undertaking
Form 13	General Review Commitment Certificate

SCHEDULE "C"

This is Schedule "C" to

By-law Number 48-99

respecting

List of Plans or Working Drawings
to accompany application for permits

1) Site Plan
2) Floor Plans
3) Foundation Plans
4) Framing Plans
5) Roof Plans
6) Reflected Ceiling Plans
7) Section and Details
8) Building Elevations
9) Electrical Drawings
10) Plumbing Drawings
11) Specifications
12) Property Survey

SCHEDULE "D"

This is Schedule "D" to

By-law Number 48-99

respecting

Refunds

Status of Permit Application:	**Percentage of Fee Eligible for Refund:**
a) Application filed. Preliminary review of plans performed.	80%
b) Application filed. Plans reviewed and permit issued.	50%
c) Additional deduction for each field inspection that has been performed.	25%
d) Permits valued at Less than $100.00	0%