

TOWN OF AJAX
DESIGN CRITERIA

SECTION J
MULTIPLE FAMILY DWELLING, COMMERCIAL,
INDUSTRIAL OR INSTITUTIONAL LANDS

J 1.00 SITE PLAN AGREEMENT

The Owner of all multiple family, commercial, or institutional lands shall be required to enter into a "Site Plan Agreement" with the Town of Ajax prior to the commencement of construction of any building or service within the parcel of land.

The Town of Ajax is responsible for Town of Ajax roads, Storm Water Management, and the storm sewers on roads under the Town's jurisdiction. Engineering drawings for the site showing the location, size, grade, invert elevations, material, and bedding requirements for all storm service connections shall be prepared and submitted to the Town of Ajax for approval. Engineering drawings shall also be prepared for all storm sewers that are required to be constructed within road allowances or registered easements to service the subject property. These drawings shall be prepared to meet the Town of Ajax's requirements.

A separate "Development Agreement and/or Servicing Agreement" with the Region of Durham may also be a requirement for construction of external sanitary sewer and/or watermain. The Owner shall contact the Region of Durham for information with regard to this. This document is to be executed prior to the commencement of construction work.

J 2.00 REGIONAL MUNICIPALITY OF DURHAM RESPONSIBILITY

The Regional Municipality of Durham is responsible for all sanitary sewers and watermains plus appurtenances that are to be installed on all road allowances and registered easements within the Region of Durham. The Region of Durham is also responsible for road work and storm sewers within the Regional road allowance.

Engineering drawings for the site showing the location, size, grade invert elevations, material and bedding requirements for all sanitary and watermain service connections shall be prepared and submitted to the Region of Durham for approval. Engineering drawings shall also be prepared for all sanitary sewers and watermains that are required to be constructed within road allowances or registered easements to service the subject property. These drawings shall be prepared to meet the Region of Durham's requirements.

The Consulting Engineer shall contact the Region of Durham Works Department to obtain copies of the Regional Design Standards for sewers and watermains.

Connection to any of those services or utilities requires the respective authority's approval.

The Region of Durham is responsible for the collection of revenue for water consumption, and therefore, the supply and "metering" arrangement for the subject property shall also be approved by the Region of Durham.

J 3.00 CONSULTING ENGINEER

The Owner shall retain a licensed Consulting Engineer to prepare all engineering drawings and to supervise the construction of all engineering services. The Engineer shall act as the Owner's representative in all matters pertaining to the design and construction of the services in the development.

“CONSULTING ENGINEER” or “DEVELOPER’S ENGINEER” means a professional engineer possessing a current certificate of authorization to practice professional engineering as required by the Professional Engineers Act. The consulting firm should also be a member in good standing of the Consulting Engineers of Ontario (CEO).

J 4.00 ENGINEERING DRAWINGS

J 4.01 SUBMISSION REQUIREMENTS

A minimum of 10 sets of engineering drawings shall be required for a development application. The drawings included in each set shall be titled as follows:

- (a) Site Plan
- (b) Site Grading Plan
- (c) Site Servicing Plan
- (d) Plan/Profile(s) for any external work
- (e) Landscaping Plan
- (f) Parking Layout for Underground Garage (if applicable)
- (g) Sedimentation and Erosion Control Plan as per Section L
- (h) Utility Coordination Plan (if applicable)
- (i) Waste Management Plan in accordance with the Planning and Development Services Site Plan Review Manual, 2009

Additional engineering drawings shall be prepared where required, or when requested, by the Town of Ajax.

J 4.02 TYPICAL DRAWING INFORMATION

All drawings shall be prepared at a minimum scale of 1:250 and shall include:

- (a) Title Block
- (b) Lot lines and property boundaries
- (c) Key Plan showing the site location
- (d) North Arrow
- (e) Street Names, Lot and Registered Plan numbers, and property dimensions

- (f) Outline of all existing and proposed buildings indicating the building numbers and unit numbers
- (g) Roadways and driveways
- (h) Adjacent land features and structures within 5m of the subject property
- (i) Reference geodetic bench mark to be used for construction

J 4.03 SITE PLAN

In addition to the requirements in Section 4.02, the Site Plan shall include:

- (a) Fire Routes
- (b) Utilities (existing and proposed)
- (c) Sidewalks (existing and proposed)
- (d) Noise walls/fencing, retaining walls
- (e) Pavement markings and signage
- (f) General Notes
- (g) Snow Storage
- (h) Existing and proposed easements, and road widening

J 4.04 SITE GRADING PLAN

In addition to the requirements in Section 4.02, the Site Grading Plan shall include:

- (a) Centre line of road grades at 20 m intervals along all existing streets bounding the property, and existing grades
- (b) Legend indicating which are existing and which are proposed elevations
- (c) Contours at maximum 0.5 m intervals to indicate the existing elevations of the site. These contours shall extend to a minimum distance of 30 m beyond the property limits to indicate the grading and drainage patterns of the adjacent lands. As an alternate to contours, spot elevations may be noted on the drawings to illustrate existing grade conditions provided these elevations were obtained from field survey on a regular grid pattern with the interval not to exceed 15 m
- (d) Cross sections and sketches as required to clarify the proposed grading, particularly in relation to adjacent lands, proposed elevations on paved areas, around proposed buildings, along swales, along roadways, parking areas, driveways, catchbasin rim elevations, and any other elevations necessary to establish the grading and drainage patterns for the development. Arrows shall be used to indicate direction of the surface drainage

- (e) Manholes, catchbasins, hydrants and valves shall be shown by a symbol with a legend provided
- (f) Sidewalks and walkways
- (g) Building elevations shall be established and referenced to a "Finished First Floor" or a "Finished Entrance Floor" elevation and a "Finished Basement Floor" elevation
- (h) Pavement structure design shall be provided
- (i) Roadway/driveway dimensions and curb radii including location and details of all existing adjoining curbs and pavement
- (j) Location of embankments, retaining walls, stairs
- (k) Proposed noise fencing
- (l) Traffic control signage and pavement markings
- (m) Site Grading Notes per the Town of Ajax Criteria
- (n) Any proposed or existing retaining walls
- (o) 100 year design storm parking lot ponding areas and 100 year design storm elevation

J 4.05 SITE SERVICING PLAN

In addition to the requirements in Section 4.02, the Site Servicing Plan shall include:

- (a) Existing underground services on the streets, and easements adjacent to and/or within the limits of the property
- (b) Location, size, grade, invert elevations of all existing storm and sanitary service connections to the property
- (c) Location and size of all existing watermain connections to the property
- (d) For Multiple Family Dwellings, the location of all water service connections shall be 0.60m behind road curb.
- (e) Basement floor elevations of all buildings to be constructed
- (f) Calculations and plans showing the location, size, length, grade, for all sanitary sewer, appurtenances and services to be constructed within the development
- (g) Calculations and plans showing the location, size, length, grade, for all storm sewer, appurtenances and services to be constructed within the development
- (h) Calculations and plans showing the location, size for all watermain, appurtenances and services to be constructed within the development
- (i) Location of all roof water leaders that are to be connected to the storm sewer
- (j) Construction notes required to describe the construction details or requirements

- (k) Storm, sanitary and watermain general notes

J 4.06 LANDSCAPING PLAN

The Landscaping Plan shall be prepared by a licensed Landscape Architect. The Landscaping Plan shall show all landscaping details as required by the Site Plan Agreement.

The Landscape Plan shall show the details of all landscape proposals as required by the Town of Ajax Landscape Architect.

In addition to the requirements in Section 4.02, the Landscape Plan shall contain:

- (a) Details of tree and shrub plantings must be identified, on plan and in an accompanying chart, by species (both botanical and common names), quantity, calliper, height, spread and/or pot size
- (b) Standard detail of ground treatments (Pavings, Granulars, Walkways, Parking Area etc.)
- (c) Standard details of plantings
- (d) Standard details of site features (Gates, Walls, Steps, Fences, Fountains, Sculptures, Outbuildings, Trellises, Arbours, etc.)
- (e) Existing site features to be preserved (vegetation, Architecture, etc)
- (f) All grading details including contours describing landforms and spot elevations
- (g) Critical dimensions pertinent to the Landscape Design
- (h) All manholes, catchbasins, hydrants, valves, streetlights, and other servicing features that appear above grade
- (i) Boulevard Trees
- (j) Location and size of all outdoor amenity areas

The landscaping plan shall be prepared in conjunction with the site servicing plan(s), particularly the storm drainage and grading plans, to avoid conflicts in purpose and function.

J 4.07 TREE PRESERVATION PLAN

For smaller developments, the Landscape Plan may be used provided the existing tree locations can be clearly shown without cluttering the drawing.

In addition to the requirements in Section 4.02, the Tree Preservation Plan shall contain:

- (a) Existing natural features, specifically identifying features or trees to be preserved, relocated, or removed
- (b) Trees must be identified, on plan and in an accompanying chart, by species (botanical and common names), tag number, diameter at breast height (DBH), health condition,

survey location, drip line, and elevation

- (c) Groups of trees with a DBH of more than 60mm calliper shall be shown separately
- (d) Location of tree preservation fence or plywood hoarding

J 4.08 SITE PHOTOMETRIC PLAN

In addition to the information in Section J 4.02, the Site Photometric Plan shall address the requirements of Section I.

J 5.00 DESIGN REQUIREMENTS

J 5.01 SITE GRADING DESIGN

- (a) The stormwater drainage/management of the site shall be self-contained.
- (b) The grading of the site shall be compatible with the elevation of the surrounding lands.
- (c) All grassed embankments shall have a maximum slope of 3:1 but 4:1 preferred.
- (d) The grade of grassed or other landscaped areas shall have a maximum slope of 8% and a minimum slope of 2%. Municipal boulevards shall have a maximum slope of 5% and a minimum slope of 2%.
- (e) Swales on grassed areas shall have a minimum slope of 2% and a maximum slope whereby the velocity for the flow contained does not exceed 5 m/sec.
- (f) The maximum length for any drainage swale shall be 75 m.
- (g) The minimum depth for any drainage swale shall be 150 mm.
- (h) The maximum depth for any drainage swale shall be 0.5 m.
- (i) All driveways shall have positive drainage towards the roadway, minimum grade 2%, maximum 8%.
- (j) Driveways shall not be used as outlets for any swales.
- (k) A Stormwater Management Report shall be prepared addressing on site stormwater quality and quantity.
- (l) Show Overland Flow Route for Major events.

J 5.02 ROADWAY DESIGN

- (a) All roadways shall be designed in accordance with the most recent engineering requirements of the Town of Ajax.
- (b) The minimum pavement design for all multiple family internal roadways shall be 40 mm of HL3, 50 mm of HL8, 150 mm of Granular A and additional approved granular product so as to create a minimum Granular Base Equivalency (GBE) of 480. All urban road cross-sections shall have sub-drains located lower than the lowest elevation of granular material in the road base refer to road design section GBE breakdowns:
- subgrade compacted to 95% of proctor density
 - granular materials are to be compacted to 100% of proctor density)
 - For Commercial, Industrial and Institutional heavy duty pavements, the minimum asphalt requirements remain the same; the minimum GBE is increased to 580.
- (c) The minimum pavement width of a multiple unit development roadway for two-way traffic with no on-street parking shall be 6.7 m.
- (d) All driveways in multiple family projects shall be paved with asphalt from the edge of the roadway to the garage. The minimum pavement design for all driveways shall be:
- subgrade compacted to 95% proctor density
 - 200 mm compacted depth of Granular "A" or crushed limestone compacted to 100% proctor density
 - 50 mm compacted depth of HL3A Asphalt (driveway mix)
 - All ICI driveways shall be constructed as per AS-342.
- (e) All roadways serving multiple family projects shall be designed to facilitate passage of emergency and service vehicles with minimum 12 m centre line radius. On dead end streets, provisions shall be made for turning movements of garbage, snow removal and emergency vehicles.
- (f) The minimum grade for any multiple family roadway shall be 1% and the maximum grade shall be 6%.
- (g) The minimum grade for any driveway in a multiple family project shall be 2% and the maximum grade shall be 8%. This maximum grade creates an undesirable condition and should be used only when necessary due to site conditions.

J 5.03 SITE SERVICING DESIGN

- (a) All sanitary and watermains including backflow prevention devices shall be designed in accordance with the requirements of the Region of Durham Standards and the Ontario Building Code.
- (b) Storm sewer and Storm Water Management Facilities shall be designed as per the Storm Water Management Practices Planning and Design Manual published by the MOEE, the Town of Ajax Design Criteria, and the Ontario Building Code.
- (c) All storm sewers in residential developments shall be located within the limits of the

roadway. Roof leaders shall be connected unless they can be discharged to a landscaped area, subject to no adverse impact to the safety of pedestrians and traffic. The building design shall be completed with due care to avoid roof leaders discharge directly on walkway/driveway. Foundation drains, where installed, shall be connected to the storm sewer.

- (d) Sewers shall be located a minimum distance of 3.0 m from the face of the building.
- (e) Yard catchbasins shall be provided where required for drainage of landscaped areas.
- (f) Catchbasin manholes may be used for roadway drainage.
- (g) Maximum spacing of catchbasins for roadway drainage shall be match road criteria.
- (h) All watermains and (sanitary sewers shall be designed in accordance with the requirements of the Ontario Building Code and the Region of Durham.

J 5.04 LANDSCAPING DESIGN

Proposals for design and materials contained within the Landscape Plans shall meet the approval of the Town. The Landscape Consultant shall contact the Town Landscape Architect to resolve and agree upon design reflecting the requirements of the Town. The Landscaping Design must not conflict the stormwater management and grading design.

J 5.05 ELECTRICAL DESIGN REQUIREMENTS

The requirements for the design of the electrical distribution system and the morality lighting shall be submitted to the Town of Ajax for review and approval prior to the commencement of the design.

J 6.00 INSPECTION DURING CONSTRUCTION

The Owners Engineer will be responsible for inspection of the installation of services during construction. The Town of Ajax Engineering sections shall be contacted a minimum of two working days prior to the commencement of construction.

All watermains are to be pressure tested to in accordance with the requirements of NFPA 24 (Standard for the Installation of Fire Service Mains and Their Appurtenances), the Region of Durham criteria, the Ontario Building Code, and the Ontario Provincial Standards.

Firelines from the property line to the backflow preventer and all domestic watermains are to be disinfected to meet the requirements of the Region of Durham and the satisfaction of the Town of Ajax.

J 7.00 AS CONSTRUCTED DRAWINGS

After all construction is complete, the design drawings shall be amended to incorporate the changes and alterations made during construction and submitted to the Town. The "as constructed" drawings should be submitted to the Town of Ajax and the Region of Durham for their records. The submission shall be in both hard copy and in AutoCad format, suitable to the Town of Ajax.

J 8.00 FINAL INSPECTION

Upon completion of all construction, the Town of Ajax shall conduct a final inspection of the works.

All deficiencies found during this final inspection shall be immediately corrected by the Owner. This final inspection is carried out for the benefit of the Town of Ajax and shall in no way relieve the Owner of his obligations under the Condominium Act and the Site Plan Agreement.

J 9.00 CERTIFICATION

Upon completion of construction the Owner's Engineer shall provide the proper certification to the Town of Ajax that all works have been constructed in accordance with the approved plans and specifications, and in accordance with good engineering practices.

Foundation Certificate is required as per AS-502b.

Grading Certificate is required as per AS-503b.

Copy of all watermain tests results indicating compliance with the appropriate standards.

Site Certification of Underground Services- Signed by Consulting Engineer.

Certification of Completion for all Landscape Works by the Landscape Architect.