



— Township of —

SEVERN

ENGINEERING STANDARDS

Engineering Requirements for Development
Applications



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1 General

This section is provided as a general guideline to describe the engineering requirements for land development projects within the Township. It is not intended to be all-inclusive and may not cover every situation. Notwithstanding the information contained herein, the Township reserves the right to make changes and/or use judgement when reviewing and processing development applications.

The design of all land development projects must meet Township standards as well as all other standards, codes, by-laws, and other legislation. All projects must also meet the requirements of the respective permits and/or agreements issued by the Township and all other agencies.

2 Retention of Qualified Practitioners

It is the responsibility of the applicant, Owner, or Developer to retain all necessary qualified practitioners (i.e. Professional Engineer, Architect, OLS, Lawyer, etc.) for the project.

3 Planning Act Applications

The Township's Planning and Development Department is responsible for the review and processing of applications for new development, including:

- Official Plan Amendments
- Zoning By-law Amendments
- Plans of Subdivision and Condominium
- Site Plans
- Consents/Severances
- Minor Variances

Additional information not covered here, including but not limited to planning requirements, fees, and application forms, can be found on the Township's website.

4 Pre-consultation Requirements

All applicants and developers are required to pre-consult (or pre-application) with the Township prior to making an application for an Official Plan Amendment, Zoning By-law Amendment, Plan of Subdivision/Condominium, or Site Plan. All applicants and developers are required to schedule a pre-consultation (or pre-application) meeting with the Township prior to making any other *Planning Act* application. This meeting will allow Township staff an opportunity to better understand the proposed application and provide a list of requirements to be included with the application, which will facilitate the review.

It is noted that as part of the pre-consultation and prior to commencing any design, a Developer must obtain confirmation from the Township that there is available water and sanitary system capacity to support the proposed development, if applicable.

5 Site Alteration

In accordance with the Township's Site Alteration and Fill By-Law, a permit must be obtained for the removal of topsoil and the alteration of the grade of land and/or the placing or dumping of fill on lands within the Township. Additional information on the requirements and to the process to obtain a permit is available on the Township's website or through the Township's Building Department.

If the proposed site alteration is for a property that is subject to an application for subdivision, condominium, site plan, or rezoning no work may proceed until authorization is provided by the Township.

6 Pre-Servicing

Subsequent to Draft Plan Approval and prior to execution of a Subdivision Agreement, the Township may consider agreeing to permit the pre-servicing of lands, at the Owner's risk, when the following conditions have been met:

- a) Written acceptance is provided by the Township for specific works for which pre-servicing can proceed.
- b) Engineering drawings have been accepted for construction of the works under consideration.
- c) Written approval is provided by various agencies (i.e. MECP, MNRF, MTO, MCM, etc.) where they relate to the construction of the works under consideration.
- d) Written confirmation is provided by utility companies including, but not limited to, Hydro, Telecommunications, and Natural Gas, that satisfactory agreement has been reached for the provision of respective services.
- e) No permission will be given to construct any external services prior to full registration of the plan unless a Letter of Credit for the total cost of the services, including all restoration, has been deposited with the Township. Unless otherwise approved, no permanent or final connections to existing services will be permitted until full registration is completed and all testing and commissioning has been completed to the satisfaction of the Township.
- f) All other documents considered necessary to the works, including 0.3 m reserves, easements, etc., must be approved as to form and description.
- g) Cash deposits for engineering and legal fees, in an amount determined by the Township, must be paid to the Township prior to the commencement of any works.

- h) An Insurance Certificate, meeting minimum coverage requirements as determined by the Township, has been provided.
- i) A cash or Letter of Credit deposit in an amount to be determined by the Township is provided as a security. Surety bonds will not be accepted.
- j) Any required zoning by-laws must be in effect.
- k) The Owner has entered into a formal Pre-Servicing Agreement with the Township.

7 Site Plan Developments

7.1 General Requirements

With the exception of site alteration and/or pre-servicing works, the Developer shall secure site plan approval from the Township and must enter into a Site Plan Control Agreement with the Township prior to commencing any construction on the site.

While this section is intended to provide general guidance in the preparation of submissions, Practitioners are advised to consult the Township's Site Plan Control By-Law for additional requirements.

7.2 Drawing and Submission Requirements

Detailed engineering drawings shall be prepared for all roads, stormwater, sanitary, watermain, utility servicing, and landscaping for the site. These drawings shall be prepared in accordance with Township standards.

Site Plan submissions to the Township shall generally be comprised of the following:

- a) Site Plan
- b) Site Grading Plan
- c) Site Servicing Plan
- d) Drainage Area Plan
- e) Elevation Plan
- f) Erosion and Sediment Control Plan
- g) Landscaping Plan

Depending on the complexity of the proposed development, some drawings may be combined or waived, at the discretion of the Township. Conversely, additional drawings shall be prepared and submitted when requested by the Township.

7.2.1 Site Plan Drawing

All Site Plan drawings are to be prepared from one base plan prepared at a minimum scale of 1:500 and are to generally contain the following information:

- A key plan showing the site location

- A north arrow
- Site statistics
- Street names, lot and Registered Plan numbers, and property dimensions
- Road widenings
- Easements
- Vehicular loading and parking facilities
- The outline of all buildings with the building numbers and unit numbers indicated and garage locations within the unit
- Storage areas and enclosures for garbage and waste materials
- Fire routes, truck delivery and other large vehicle drive paths
- Walkways and ramps
- Proposed roadways /driveways and all points of access
- Adjacent lands
- Existing land features (trees, watercourses, roads, services, etc.)
- The reference benchmark (geodetic) used to establish vertical control and the site benchmarks to be used for construction

7.2.2 Site Grading Plan

The site grading plan must show the following:

- The drainage of the site is self-contained.
- The grading of the site is compatible with the elevation of the surrounding lands.
- Existing and proposed centreline grades provided at maximum 15 m intervals along all existing streets bounding the property.
- A legend indicating which are existing and proposed elevations.
- Contours at maximum 0.5 m intervals to indicate the existing elevations of the site. These contours are to extend to a minimum distance of 15 m beyond the property limits to indicate the grading and drainage patterns of the adjacent lands.
- Cross sections 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, catch basin rim elevations, and any other elevations necessary to establish the grading and drainage patterns for the development. Arrows to be used to indicate direction of the surface drainage.
- A typical roadway cross section to indicate the pavement and granular base design.

- Roadway dimensions and curb radii.
- Concrete curbs.
- Embankments, retaining walls, stairs, play areas, swimming pools, etc.
- Curb depressions, with dimensions.
- Sidewalk.

7.2.3 Site Servicing Plan

The Site Servicing Plan shall show, at a minimum, the location, size and grade (as applicable) of the following services and information:

- all existing underground services on the roads and within easements adjacent to the property
- storm and sanitary service connections to the property with grade and invert information
- watermain connections to the property
- the basement and finished floor elevations of all proposed buildings
- storm, sanitary and watermain services with length, grade, material and bedding requirements to be constructed within the development
- proposed sanitary and storm maintenance holes with invert and rim elevations
- hydrants, valves and water meters within the development
- sanitary, storm and water service connections to individual units, as applicable
- roof water leaders and method of discharge
- all construction notes required to describe the construction detail or requirements
- the locations of prime and reserve tile-bed areas, including mantles (where required)
- proposed wells and septic beds to be decommissioned
- illumination standards
- proposed landscape features

7.3 Additional Design Requirements

Supplemental to the Township's general engineering design requirements and standards, the following additional design requirements are applicable to all site plans:

7.3.1 Stormwater Management

As a general guideline, the post-development peak flows shall not be greater than the corresponding pre-development peak flows for the 1:5-year, 1:10-year, 1:25-year and

1:100-year storm events. Other regulatory agencies may require other storm events to be analyzed (i.e. 2 year and/or regional flows).

The following additional requirements apply:

- any proposed control device (orifice) must have a diameter of no less than 75 mm in order to prevent clogging of the opening
- control devices shall be installed on the upstream side of a maintenance hole
- storm connections from the building roof and foundation drains must be made downstream of the maintenance hole and/or catch basin inlet controls
- ponding limits and available storage are to be depicted on the site servicing drawings and the maximum ponding depth in parking areas is not to exceed 200 mm
- an overland flow route shall be clearly marked on drawings. The grading of parking lots and landscaped areas must provide a safe path for the overland flow route to the surrounding Township right of way during storms exceeding the design storm event
- roof drains can be utilized with controlled discharge
- on-site stormwater management facilities may require Environmental Compliance Approval from the MECP
- All storm sewers shall be located within the limits of the roadway.
- All storm sewer connections shall be sized and designed according to the requirements of the Ontario Plumbing Code and Township standards.
- Goss traps shall be placed in parking lot catch basins, located adjacent to fueling areas.
- Rainwater leaders shall discharge onto grassed or landscaped areas.
- Yard catch basins shall be provided where required for drainage of landscaped areas.
- Catch basin maintenance holes may be used for roadway drainage.

7.3.2 Water and Sanitary

- All watermains shall be sized and designed in accordance with the requirements of the Ontario Plumbing Code, N.F.P.A., and Township standards.
- The watermain design shall be submitted to the Township of Severn Fire Department for approval of the watermain layout and the hydrant locations.
- Proposed metering of the site must be identified.
- All sanitary sewer connections shall be sized and designed according to the requirements of the Ontario Plumbing Code and Township standards.

7.3.3 Utilities

- Where requested, easements for utilities shall be provided at no cost to the utility company.

7.3.4 Site Grading

- All grassed embankments shall have a maximum slope of 3:1.
- The grade of grassed or other landscaped areas shall have a maximum slope of 12% and a minimum slope of 1%.
- Swales on grassed areas shall have a minimum slope of 1.5% and a maximum slope such that the velocity for the flow contained does not exceed 1.25 metres per second.
- The maximum suggested length for any drainage swale is 75 m.
- The minimum depth for any drainage swale shall be 150 mm.
- The maximum depth for any drainage swale shall be 750 mm.
- The maximum side slope on any drainage swale shall be 3:1.
- All driveways shall have positive drainage from the streetline to the roadway.

7.3.5 Roadways

- All roadways shall be required to satisfy Fire Access Route Design as per OBC 3.2.5.6 and Township standards.
- The minimum width of a roadway for two-way traffic with no street parking shall be 6.0 m from E/P to E/P.
- All roadways serving multiple-family buildings shall be designed to facilitate passage of emergency and service vehicles. Curb returns having an 8.0 m. radius and inside bends having at least a 12.0 m radius are required. On dead end streets provision shall be provided for vehicle turning.

7.3.6 Supporting Documents

Supporting documents may also be required, including but not limited to the following:

- a) Geotechnical Report
- b) Hydrogeological Report
- c) Stormwater Management Report
- d) Environmental Impact Assessment
- e) Traffic Impact Assessment
- f) Noise Report
- g) Archaeological Impact Study

Practitioners should also refer to the Township's document entitled Engineering Drawings, Reports, and Submission Requirements.

7.4 Site Plan Control Agreement

As previously noted, the Developer will be required to enter into a standard Site Plan Control Agreement with the Township.

To assist in the preparation of the Agreement, the Developer's Engineer shall prepare and submit a detailed Cost Estimate for the work, which shall include (as applicable) but may not be limited to:

- Site Servicing, including all SWM controls and outlets
- Grading
- Asphalt and curbing
- Noise measures, fencing and retaining walls
- Utilities and lighting
- Erosion and sediment controls
- Traffic control measures
- Amounts for engineering and contingencies
- Landscaping

The Township will review the cost estimate and, at their discretion, may determine that other additional cost items be included.

The Site Plan Control Agreement contains additional details, requirements, and obligations of the Developer and their team of qualified professionals and should be thoroughly reviewed and understood.

7.5 Construction Requirements

The Developer shall retain a qualified practitioner to supervise the construction of all engineering services. The practitioner shall act as the Developer's representative in all matters pertaining to construction. Prior to construction, the practitioner shall submit a Retainer Letter to the Township confirming their role in the project as well as their understanding and acknowledgement of their duties and responsibilities.

7.5.1 Certification of Works

Upon completion of construction, the Developer's Engineer shall provide the Township with written certification that all works have been constructed in accordance with the approved plans and specifications and in accordance with good engineering practices. The certification letter must be signed and sealed.

7.5.2 Final Inspection

Upon completion of all construction, the Developer shall request the Township to carry out a final inspection of the works. All deficiencies found during this final inspection shall be immediately corrected by the Developer. This final inspection is carried out for the benefit of the Township and shall in no way relieve the Developer of their obligations under the Condominium Act and the Site Plan Control Agreement.

7.5.3 Warranty or Maintenance Period

Following the Township's final inspection and concurrence with the completion of the works, there will be a "warranty" or "maintenance" period, which will be defined by the Site Plan Control Agreement. During this time, the Developer will remain responsible for all works and the rectification of any deficiencies and/or issues that arise. Within 30 days of the end of the warranty or maintenance period, a final inspection will be completed to ensure there are no outstanding works or items to be addressed prior to final release of securities.

7.5.4 Record Drawings

After the construction of underground servicing is complete, the design drawings shall be amended to incorporate the changes and alterations made during construction in order that the drawings, as amended, represent the "as-constructed" condition. These drawings shall be submitted prior to the issuance of a Certificate of Substantial Completion.

Once all construction is complete, the drawings must again be amended to reflect total completion. These drawings shall be submitted to the Township within one year of final completion and prior to the last security reduction.

8 Subdivision Development

8.1 General Requirements

As a first step, the Developer must ensure that all Official Plan and Zoning Bylaw Requirements are met and any Amendments have been completed to permit a Subdivision development.

The intent of this section is to provide a general overview of the engineering requirements for Draft Plan Approval as well as the requirements to satisfy Draft Plan Conditions, secure a Subdivision Agreement, and proceed through Construction.

8.2 Engineering Requirements for Draft Plan Approval

In general, sufficient information must be provided to demonstrate the feasibility of the proposed development.

Along with all other required planning documents, a Preliminary Engineering Report must be submitted by the Developer. This report must be presented in a readable,

comprehensive and professional manner. The report must be signed and sealed by a Professional Engineer.

The Preliminary Report shall contain, but may not be limited to, the following:

8.2.1 The Draft Plan

The Draft Plan must be in compliance with the Planning Act, as amended, and in a form acceptable to the Township's Planning Department of the Township.

8.2.2 Contour Plan

This plan must be at a scale of no larger than 1:1000 giving contour lines at sufficient intervals to permit assessment of existing surface drainage patterns. Contour intervals shall not be greater than 1.5 metres. This plan is to extend to the limits of the drainage area to be served by proposed sanitary and storm sewer systems, including lands beyond the boundaries of the subdivision. For large external drainage areas, separate Contour Plans at a larger scale may be provided. All elevations are to refer to Geodetic Datum.

8.2.3 General Plan of Services

This will be a plan based on the Draft Plan and must schematically show the proposed storm and sanitary sewer systems and watermains and their connection to existing systems. Direction of flow must be indicated on all sewers. This plan is to be accompanied by preliminary engineering calculations indicating the quantity of flows at the connection to existing systems and/or at proposed outfalls. Consideration must be given to the whole catchment area to ultimately be developed. Blocks and easements for storm and sanitary sewers, stormwater management facilities and watermain systems shall also be shown.

Preliminary road profiles and area grading requirements must also be identified in the Preliminary Report. Blocks of land for community mail centres must be identified on the Draft Plan and the General Plan of Services.

Proposed noise attenuation barriers are to be shown.

8.2.4 Drainage Plan

When a natural drainage channel passes through and is affected by the construction of the subdivision, drawings must be submitted to indicate the location and typical cross-sections of the existing channel and of any proposed changes. In general, creek diversions will not be permitted. A preliminary stormwater management plan and report will be required by the Township in accordance with the requirements outlined in this document. The practitioner must submit an outline of the siltation and erosion control plan in accordance with the requirements of these standards.

All drainage designs and stormwater management reports shall be carried out in general compliance with the MECP, Stormwater Management Planning and Design Manual (March

2003) as amended, Township standards, requirements of other agencies, and all applicable previously completed background reports.

If the flows from the minor or major system travel across downstream property that are not municipally owned, the Developer must obtain all necessary agreement(s) from downstream owner(s) accepting any increased quantity of runoff and must provide evidence of such agreement(s) to the Township.

Any proposed modifications to an existing channel and/or floodplain will (if applicable) require MNR and/or DFO review and approval. The practitioner must consult with the appropriate agencies and confirm their requirements, prior to proceeding with the preliminary engineering report.

8.2.5 Geotechnical Report

A preliminary soils investigation and report will be required from a qualified practitioner, with particular attention to sub-surface soil and groundwater conditions and the ability of the soils to structurally support underground services, roadways and foundations for residential, commercial, or industrial type structures. The report must determine the elevation of seasonal high groundwater and comment on minimum foundation elevations to avoid buildings constructed below groundwater. The report must also discuss the overall fill management plan for the site and how all acts and regulations can be satisfied.

8.2.6 Hydrogeologic Report – Rural Development

If individual water supply wells and sewage disposal systems are being proposed, a detailed Hydrogeological Report must be provided from a qualified practitioner, to discuss the existing conditions and the ability of the site to physically accommodate private sewage disposal systems, the availability of potable groundwater supplies from the proposed water supply sources, the anticipated quantitative and qualitative impacts within the development and with neighbouring water sources, and proposed mitigative measures. Preliminary on-site testing must be reviewed with the Township and must be sufficient to support the proposed residential density. Test wells shall be drilled and pump testing performed to carry out the hydrogeological investigation, in accordance with the latest MECP guideline(s) and prior to draft plan approval. The proposed monitoring program shall include requirements for pre-construction, construction, and post-construction phases and must consider all impacts within the zone of influence, even if those are external to the site.

8.2.7 Water Mains and Sanitary Sewers

Where water mains and sanitary sewers are proposed, comprehensive servicing reports shall be prepared and submitted to the Township. Available capacity in existing water treatment and sewage treatment plants must be taken into consideration.

8.2.8 Additional Studies

Additional studies, including but not limited to, a Traffic Study, Noise and Vibration Study, and Environmental Impact Study may be required at the sole discretion of the Township.

8.3 Drawing and Submission Requirements

Once Draft Plan Approval is in place, with the exception of site alteration and/or pre-servicing works, the Developer must work to clear all Draft Plan conditions, secure approvals, and enter into a Subdivision Agreement with the Township prior to commencing any construction on the site.

As part of the process, the Developer will be required to provide detailed engineering submissions for the proposed work. This section provides an overview of some additional drawing and submission requirements specific to subdivision developments.

8.3.1 First Detailed Engineering Submission

The first detailed engineering submission must include the following:

- a) Retainer Letter(s) from the Developer's qualified practitioner(s) to the Township confirming that they have been engaged to complete the design (i.e. Professional Engineer, Landscape Architect, etc.)
- b) A letter from the qualified practitioner(s) summarizing the contents of the submission and certifying that the design conforms to the Township Design Criteria.
- c) A copy of the approved Draft Plan.
- d) Proposed Plan for Registration (M Plan) showing all lot and block numbering and dimensioning, including lot frontages and areas as defined by the Township's Zoning By-law
- e) Preliminary R Plan(s) showing proposed easements (if required).
- f) General Servicing Plan.
- g) Storm Drainage Plans.
- h) Sanitary Drainage Plans.
- i) Erosion and Sediment Control Plan.
- j) Plan and profile drawings.
- k) Miscellaneous and special detail drawings.
- l) Grading plans (overall grading plan, cut/fill grading plan, park/school block grading, etc)
- m) Landscape and/or park development plan and streetscape plans and reports (as applicable), including Existing Natural Features Assessment, Tree Survey/Vegetation Analysis and Tree Preservation Plan, Streetscape and Buffer Planting Plans, Detailed Park Development Plans, Stormwater Management Pond Planting Plan, etc.

- n) Composite Utility Plan. It is noted that the design of the underground electrical distribution system shall be completed by Hydro One. The design of the telecommunications systems and gas mains shall follow the same format as the Hydro One requirements, for a joint trench scenario. All utility information is to be shown on a Utility Coordination Plan to be prepared by the Developer's qualified practitioner and checked for conflicts.
- o) Photometric and streetlighting plans, including electrical and illumination calculations. The design of the streetlight system shall be completed by a qualified practitioner retained by the Developer.
- p) Stormwater Management Report and storm sewer calculations on standard design sheets.
- q) Water supply and distribution report providing calculations to support the design of the distribution works including main sizes, fire flows and anticipated flows and pressures for domestic and other users.
- r) Sanitary design calculations on standard design sheets.
- s) Additional Reports (as required), including Geotechnical/Hydrogeological, Traffic Study, Noise and Vibration, Arborist, Archaeological, etc.
- t) Any other documents or reports as required by the Draft Plan Conditions/Approval.

8.3.2 Second and Subsequent Submissions

Subsequent submissions shall be made, as required, until the drawings and designs are acceptable to the Township.

Second and subsequent submissions shall include:

- a) Detailed chart or report with all of the First Submission comments and how they have been addressed.
- b) Copies of all other applicable approval agency comments.
- c) A set of revised drawings, including proposed M- and R- Plans.
- d) All required ECA forms, signed by the qualified practitioner (to be submitted once the Township indicates they are satisfied). It is the qualified practitioner's responsibility to confirm ECA requirements for the proposed works.

8.3.3 Final Engineering Submission

Once the Township has confirmed their satisfaction with the submission, the qualified practitioner shall compile a complete submission of all final, signed and sealed drawings, calculations, and reports for the Township.

The drawing originals will be signed and stamped "Reviewed" for construction by the Township. Only the drawings that have been accepted for construction shall be utilized

during construction of the works. Any changes to the drawings or design that arise during construction are subject to approval by the Township.

8.4 Additional Design Requirements

Supplementary to the Township's general engineering design requirements and standards, the following design requirements are applicable to all subdivision developments:

8.4.1 Existing Infrastructure

In general, the Developer may be required to design and construct upgrades to existing infrastructure or new infrastructure outside the limits of the proposed development, to support the development, including but not limited to sewer works, water works, drainage and stormwater management, parkland, roads and sidewalks.

During construction the Developer will be responsible for protecting all adjacent infrastructure and make repairs to any damage as a result of construction of the development.

8.4.2 Roadways

The Developer is responsible for the grading, base preparation, and paving of all driveways from the edge of roadway asphalt to the ROW limit. Where sidewalk is present, this includes the portion of driveway from the sidewalk to the ROW limit.

8.4.3 Lot Grading Design - Residential

In general, the front yards of all lots shall be graded to drain towards the street.

Rear to front lot grading is preferred and a maximum of three rear lots shall outlet between any two lots.

All boulevard areas shall be graded with a constant slope from the road to the ROW limit and all water boxes, maintenance hole covers, valve boxes, etc. shall be set flush with the finished sod surface.

Driveways shall not be used as outlets for any swales.

All rear yard drainage shall be directed away from the houses in defined swales which outlet at the curb/ditch or a rear yard catch basin. Overland flow routes must be provided for all rear yard catch basins which will protect all structures in the event of catch basin blockage or a major storm event.

Drainage within the subdivision limit is to be provided internally, any drainage over abutting lands will only be permitted in exceptional cases at the discretion of the Township Engineer.

The grading along the limit of the subdivision shall be carefully controlled to avoid disturbance to the adjoining areas. In general, lot drainage should be directed away from top of banks or valley slopes.

The lot grading design shall provide for drainage problems on adjacent property that can be best resolved by permitting drainage through the subdivision.

All lot surfaces shall be constructed to a preferred minimum grade of 2.0%.

All lot surfaces shall be constructed to a maximum average lot grade of 12% (calculated from the difference in lot elevations between the rear wall of the house and property line - embankments included). A minimum of 6 metres adjacent to the rear of the house shall be graded at 2% - 5% slope.

Maximum slope between all terraces and embankments shall be 3:1 when the vertical difference does not exceed 1 metre and 4:1 when the vertical differences exceed 1 metre. Between successive terraces, an intermediate level area of at least 1.5 m in width must be provided.

The lot grading design shall provide for the temporary drainage of all blocks of land within the subdivision that are intended for future development under site plan agreements or park development plans.

The maximum flow allowable to any side yard swale shall be that from the equivalent of three lots or 0.50 hectares, whichever is less.

The maximum area contributing to a rear yard swale that may be discharged directly onto a road allowance shall be the equivalent of three rear yards or 0.50 hectares, whichever is less.

Swales providing internal drainage from each lot shall have a preferred minimum slope of 2.0%.

Minimum depth of any swale to be 150 mm.

Maximum depth for a rear yard swale to be 750 mm.

Maximum depth for a side yard swale to be 450 mm.

Maximum side slope on any swale shall be 3:1.

All drainage swales shall be located on lot lines unless the adjacent property is not undergoing development. In such cases drainage swales shall be located entirely within the lot being developed.

Each lot shall have at least one side yard with a maximum slope of 2% for 1.5 m continuous width from front to rear yard.

The grade around houses shall be a minimum of 2% away from houses from a point 150 mm below top of foundation wall or as required by the OBC.

Generally, rear yard catch basins shall be eliminated wherever possible. When required, rear yard catch basins and outlet pipes shall be located such that the outlet and the catch basin are located entirely on the same lot. In general, rear yard catch basins shall be located 2.0 metres from the lot line.

For additional information on lot grading, refer to the Township's Building By-Law.

8.4.4 Electrical Servicing Design

Electrical distribution systems shall generally be designed as buried systems. All requirements for the design of the electrical distribution and streetlighting system shall be agreed upon with Hydro One.

Electrical distribution systems shall not be constructed over the watermain.

It is the Developer's responsibility to make direct arrangements with Hydro One to design and construct the primary and secondary electrical distribution system, together with all necessary plans.

The Developer is responsible to engage a qualified practitioner to design the streetlight electrical distribution system and submit plans to the Township for approval.

Where development proposals abut County or Provincial roads, it is the Developer's responsibility to ensure the approval of those road authorities is also obtained, if required.

8.4.5 Canada Post

The Developer or their practitioner must communicate directly with Canada Post for locating of their proposed facilities. All proposed locations must be shown on the Composite Utility Plan, General Servicing Plans and applicable Plan-Profile drawings. All community mailbox facilities must be provided with a paved single lane layby and a streetlight. Any temporary mailboxes must be placed in accordance with the approved final location.

8.4.6 Municipal Address Numbering

The Developer is responsible for obtaining designated Municipal Address Numbering for each and every lot from the Township. At a minimum, the designated Municipal Address Numbering shall be shown on the Overall Lot Grading Plan, but the preference is that it is shown on all plans along with the lot numbers.

8.4.7 Sod

All residential lots shall have a minimum of 150 mm topsoil and sod, rear and front.

Where the combined side yard between buildings is less than 1.5 m the surface treatment shall be 75 mm of clear stone over a vegetation suppressing geotextile.

9 Easement and Block Requirements

9.1 General Requirements

The Township shall require conveyance of easements or dedication of blocks, without consideration and free and clear of all liens and encumbrances, to the minimum width requirements, or greater as determined by the Township, in the following circumstances:

9.1.1 Easement Dedications

Rear and side yard swales designed to convey external or Township drainage.

9.1.2 Block Conveyances

Rear and side yard piped storm drainage systems, including catch basins, french drains, maintenance holes and other appurtenances.

Storm sewers, watermains and sanitary sewers (other than private connections).

Where underground services are required beyond the limits of a subdivision or site plan.

All overland flow routes, open channels, and defined drainage systems accommodating a major storm.

Walkways and bicycle paths.

Valleys, streams, open channels, watercourses (whether flowing or intermittent), seepage areas, wetlands, natural bodies of water and floodplain lands identified by the Township as being environmentally significant requiring protection or designated as hazard or open space lands.

Stormwater management facilities, including detention and retention ponds, water quality control facilities and infiltration facilities which are to be owned and operated by the Township.

9.1.3 Easement Width Requirements

Easements must be located on one side of the common lot line between adjacent lots. The easements will not be permitted to straddle common lot lines. Buildings, including footings or building extensions, will not be permitted to encroach over the limits of the Township's easements.

The minimum width of permanent easements for lot drainage swales shall be 6.0 m. Additional easement widths may be required depending on the critical depth of swales proposed. Drainage swales to be centered over easements.

9.1.4 Block Width Requirements

Blocks of land shall be of sufficient dimension to accommodate the proposed facility, access from a public right-of-way and maintenance requirements. The widths provided in

this section are minimum requirements and may be increased depending on soil conditions, topography, operational needs, or any other reason, at the discretion of the Township.

The minimum width of blocks of land for open drainage channels shall be the width of top of open channel plus 7.5 m along one side of the channel for maintenance requirements.

Valley lands (crest of slope to crest of slope) may be contained within blocks of land to be conveyed to the Township, as a condition of development. Blocks of land in this case shall include 3.0 m platform widths on both sides. Blocks of land will not be considered as part of parkland dedication requirements.

9.1.4.1 Storm and Sanitary Sewer Mains

The minimum width of blocks for storm and sanitary sewers shall be in accordance with the following table.

Table 9-1: Minimum Block Widths for Storm and Sanitary Sewers

| Size of Pipe | Maximum Depth to Invert | Minimum Block Width |
|---------------|-------------------------|-----------------------------|
| 250 to 750 mm | 3.0 m | 6.0 m |
| 250 to 750 mm | 3.1 m to 5.0 m | 9.0 m |
| > 750 mm | 4.0 | 4.0 m plus 3 x O.D. of pipe |

Where two pipes are to be located on one block, the minimum width of block shall be the width of block required for the larger of the two pipes plus 1/2 the width of block for the smaller pipe, rounded to the next 1.0 m increment. Additional block width may be required to ensure adequate separation between the two pipes and a minimum separation of 3.0 metres between the block limit and the nearest pipe.

9.1.4.2 Storm Connections for Rear Yard Catch Basins

The minimum width of blocks for leads to rear yard catch basins shall be 5.0 m for pipe sizes ranging from 250 mm to 450 mm in diameter. For pipe sizes greater than 450 mm, the above criteria shall apply. The lead shall be centred on the block.

9.1.4.3 Watermains

The minimum width of blocks for watermains shall be in accordance with the following table.

Table 9-2: Minimum Block Widths for Watermains

| Size of Pipe | Maximum Depth to Invert | Minimum Block Width |
|--------------|-------------------------|---------------------|
| Up to 600 mm | 3.7 m | 6.0 m |

10 Subdivision Agreement

As previously mentioned, the Developer will be required to enter into a Subdivision Agreement with the Township. The draft of the Subdivision Agreement will be prepared by the Township solicitor.

The final Subdivision Agreement will be prepared under the direction of the Director of Planning and Development, in consultation with various Township departments, who will obtain Council's approval for the execution of the Agreement.

The Director of Planning and Development must be in a position to clear ALL conditions of Draft Plan Approval prior to the preparation of the Final Subdivision Agreement.

To assist with preparation of the Subdivision Agreement, the Developer or their qualified practitioner shall provide the Township with the following:

- a) All applicable ECA forms for services to be constructed for the proposed subdivision.
- b) The name of the person and title and/or company and Mortgagees with whom the Subdivision Agreement will be executed.
- c) The Developer's address and telephone number.
- d) The name, address and telephone number of the Developer's lawyer.
- e) A breakdown of the number of units proposed within the subdivision:
 - Single-family units
 - Semi-detached units
 - Townhouse units
 - Apartment units (one bedroom and bachelor, two or more bedrooms)
- f) The Reference Plan for the subdivision.
- g) The legal description of the subdivision, based on the Reference Plan.
- h) The proposed final plan for registration (M-Plan) complete with the street names, lot numbers, surveyor's certificate, Owner's certificate and all other pertinent information required by the registry office.
- i) The final reference plans for any easements to be granted to the Township.
- j) The engineering drawings, acceptable to the Township.
- k) The "M" and "R" Plans reduced to legal size.
- l) An O.L.S. certificate in tabular form identifying and certifying all lots and corresponding frontages, depths and areas are in compliance with the appropriate Zoning By-Law.
- m) A detailed cost estimate of Township services to be constructed for the subdivision, signed and sealed by a Professional Engineer.

The estimated cost of Services shall be detailed to show individual items of construction and shall include, but may not be limited to, the following:

- Detailed cost of services, in the format provided by the Township
- The actual estimated cost of street lighting and associated underground distribution system
- Any other miscellaneous expenditures required by the Subdivision Agreement as the Developer's obligation, such as park equipment, park landscaping, development of open space, walkways and sidewalks, fencing, etc.
- Allowances for engineering and contingencies in accordance with the requirements of the Subdivision Agreement
- H.S.T.

This estimate will be used as a basis for calculation of the security to be posted for the development.

- n) The Developer shall provide the Township with written confirmation from the following utility authorities that satisfactory arrangements have been made for the installation of services in the proposed subdivision, at no cost to the Township:
- Hydro One
 - Telecommunications Companies
 - Natural Gas Company
 - Canada Post
 - Any other Authority, as required

In addition to the above, Location Approvals shall also be submitted by the appropriate utility authorities. Where requested, easements shall be provided for utilities, at no cost to the utility company or Township.

- o) Proposed timetable for construction of services
- p) Proposed landscaping plan and/or park development plan where necessary or required
- q) Proposed phasing plans
- r) Other information as required for the Subdivision Agreement

The Subdivision Agreement contains additional details, requirements, and obligations of the Developer and their team of qualified professionals and should be thoroughly reviewed and understood.

11 Model Homes and/or Sales Office

11.1 Model Homes

Subsequent to Draft Plan Approval and prior to execution of a Subdivision Agreement, the Township may consider allowing the construction of model homes, which may or may not be used as a sales office, at the Owner's risk, when the following conditions have been met:

- a) A Pre-Servicing Agreement has been executed and all requirements are met.
- b) Zoning for the proposed development is in place.
- c) An agreement for the construction of model homes has been executed with the Township dealing with:
 - Provision of a builder's road
 - Provision of fire protection
 - Provision of services (sewer, water, hydro) if available. If not, Fire Department approval will be required
 - The overall grading plan has been approved and there has been preliminary acceptance of the drainage system for the model home lots
 - For each model home building permit application, security is provided to the Township in the amount of \$10,000.00 to ensure that the obligations of the Developer are carried out as required by the terms of the Agreement or provide for the demolition and removal of the structure if the subdivision plan does not proceed to registration within one year
 - Confirmation that the model homes shall not be occupied until after the registration of the Subdivision Agreement and Plan and all requirements within the Subdivision Agreement are met
 - Confirmation that issuance of building permits for model homes is entirely at the risk of the Developer and without liability or responsibility to the Township. The Developer shall indemnify the Township from all damages arising in connection with the issuance of building permits for model homes
 - Confirmation that the Developer agrees that the use of model home lots shall be restricted to the following: parking; a sales office; model homes display
 - The number of model homes permitted shall be in accordance with the Zoning By-Law.

11.2 Sales Office

In the event the owner intends to utilize a trailer or temporary structure or combination of both as a sales office, subsequent to Draft Plan Approval or registration of a Site Plan

Agreement and prior to execution of a Subdivision Agreement, the Township may consider allowing the construction under the following conditions:

- a) The sales office is to be located on a proposed lot fronting on an existing opened road allowance.
- b) Zoning for the proposed development is in place.
- c) An agreement for the sales office has been executed with the Township dealing with:
 - An acceptable site plan
 - Provision of fire protection
 - Provision of services (sewer, water, hydro) if available. If not, Fire Department approval will be required
 - The overall grading plan has been approved and there has been preliminary acceptance of the drainage system for the sales office lot
 - Security is provided to the Township in the amount of \$10,000.00 to ensure the obligations of the Developer are carried out as required by the terms of the Agreement or provide for the demolition and removal of the structure if the subdivision plan does not proceed to registration within one year
 - Confirmation that issuance of a building permit for the sales office is entirely at the risk of the Developer and without liability or responsibility to the Township. The Developer shall indemnify the Township from all damages arising in connection with the issuance of building permits for the sales office
 - Confirmation the Developer agrees the use of the sales office lot shall be restricted to parking and the sales office
 - One sales office will be allowed for marketing homes within the development.

The Developer must display the approved drawings, including the landscaping plans, in the Sales Office.

11.3 Pre-Construction Requirements

Prior to commencement of construction, the Developer or their qualified practitioner shall submit the following information to the Township for approval, allowing sufficient time for Township review:

- a) A copy of all construction specifications.
- b) The proposed contractor and subcontractors.
- c) The contractor's list of suppliers.
- d) One copy of the signed contract documents complete with unit prices.
- e) All other information specified in the Subdivision Agreement as a requirement prior to commencement of construction or other information required by the Township.

- f) A copy of all work permits.
- g) Insurance certificate(s) as per the Subdivision Agreement.
- h) Evidence, in writing, that agreements are in place with Hydro One, telecommunications companies, and natural gas company for the installation of these utilities in the prescribed locations on road allowances within the plan of subdivision.
- i) Evidence, in writing, that agreements are in place with Hydro One or any other approved Contractor for the installation of streetlighting.
- j) Evidence, in writing, that satisfactory arrangements are in place with Canada Post for the location of mailboxes.

11.4 Construction Requirements

The Developer shall retain a qualified practitioner to supervise the construction of all works. Prior to construction, the practitioner shall submit a Retainer Letter to the Township confirming their role in the project as well as their understanding and acknowledgement of their duties and responsibilities.

The Developer and their qualified practitioners shall note the following specific construction requirements.

11.4.1 Utilities

The appropriate utility company or their approved contractor shall install the services for Hydro, Telecommunications, and Gas. The Developer must bear the cost of any surcharges for underground installation made and must grant any necessary easements for their services.

Utility crossings for new roads shall be placed prior to placement of granular road base material.

If utility crossings are installed following placement of granular road base material, a qualified geotechnical practitioner must inspect and complete compaction tests on the trench backfill, confirm the granular depths conform to the road design and provide a report to the Township.

Compaction of backfill for utility trenches shall be 95% Standard Proctor Dry Density. Utility crossings for existing roads must be augured or bored under the existing road structure.

The Developer is responsible to arrange and perform the installation of the street light system in accordance with Hydro One requirements.

Electrical Safety Authority (ESA) approval for the installed street lighting system must be obtained by the Developer prior to energization. The Developer must guarantee and maintain the lighting until "Final Acceptance" of the subdivision. The Township, upon energization of the street lighting, will pay energy charges.

11.4.2 Parks

All park blocks must be graded and seeded or sodded within one year of the completion of the base course asphalt road construction in the area adjacent to the park. Seeding must be carried out during the desirable months for seeding of May, August or September. Boulevard grading and sodding on road allowances adjacent to parklands shall be completed at the same time as the park seeding.

The Developer shall be responsible for the maintenance, fertilizing and mowing of the parklands to Township Standards until "Final Acceptance". Security for landscaping will be held by the Township for 12 months following "Final Acceptance."

11.4.3 Landscaping, Streetscaping, and Naturalization Areas

The developer is required to hire a contractor to install the landscape, streetscape, and naturalization elements called for in the approved landscape plans. The Developer's qualified practitioner will inspect the work, report on progress to the Township and provide the Township with as-built drawings.

At the time of planting, the planting details and specifications must be followed faithfully. This means, among other things, the proper transportation and handling of plant material, the use of fertile planting soil, the proper staking of trees and the proper installation of rodent protection.

An important part of the qualified practitioner's duties will be to maintain a Summary Chart documenting the history of all new vegetation and each new tree planted in the parcel of land being developed. At the appropriate times, the Township will conduct its own inspections.

Carrying out a maintenance program after planting the naturalization areas will significantly reduce the mortality rate of the trees, shrubs, grasses, etc. and help to establish healthy vegetative cover.

The Developer shall be responsible for maintenance, which shall include:

- apply appropriate fertilizer to promote growth
- prune dead or diseased tissue
- remove dead plant material
- replace dead coniferous naturalization species to maintain a minimum live-stocking standard of 90%
- replace dead deciduous and shrub naturalization species to maintain a minimum live-stocking standard of 90%
- suppress weed growth around new trees and shrubs by adding mulch and/or removing weeds by hand. Weeds shall not be cut down with a power trimmer.

An assessment of plant material is to be carried out annually by the Developer's qualified practitioner between mid-July and early September and reported to the developer, the contractor and the Township in the form of a Naturalization Assessment Report. Plant vigour can be determined by a visual inspection of the current year's foliage.

The initial inspection and assessment will be conducted in the summer following the planting. It will take account of the survival and condition of the plants. It will also include a summary of the maintenance operations performed. Finally, the assessment will propose any additional maintenance measures thought necessary, and recommended where, the following spring, plants need to be replaced or new plants added.

The second assessment will be conducted the following year and will provide similar information to the first.

The third and final assessment will take place just prior to assumption. The final report will provide a complete summary of the initial plantings, as well as a record of the replacements and maintenance services carried out during the guarantee period. The report will also make note of any additional work that should be performed prior to the Township conducting a final inspection.

All landscaping and naturalization works are to be guaranteed and maintained for 12 months after Final Acceptance and Assumption of the Subdivision.

11.4.4 Geotechnical and Materials Testing

In all cases, a qualified geotechnical practitioner shall be retained by the Developer to complete all monitoring, sampling, and testing of soils and other materials (i.e. concrete, asphalt, etc.).

Copies of all test results shall be submitted to the Township with commentary from the practitioner on the acceptance of the results or if additional testing or remedial work is required.

During construction, the Owner is to retain a geotechnical consultant to supervise the installation of bedding and the backfilling of all trenches within road allowances and easements. A trench backfill certification is required to indicate sufficient tests have been carried out to obtain a representative report as to the compaction of the backfill and the backfill is in compliance with Township specifications and requirements.

A final subgrade certification is to confirm the final subgrade conditions are equal to or better than those anticipated in the preparation of the pavement design. If these conditions are less than what was anticipated, the Owner and the Township are to be immediately advised with a new pavement design recommendation.

Where grading operations require the placement of "engineered fill" the Geotechnical Engineer must certify the fill located at 1.0 m below finished grade and deeper has been

sufficiently compacted to assure a minimum bearing capacity of 75 kPa and a 98% Standard Proctor Density.

Prior to the placement of asphalt, the Consulting Engineer must submit to the Township for approval, the asphalt pavement mix designs for review.

Prior to placement of surface course asphalt, the following works must be completed:

- all sidewalk, curb and boulevard work
- raise maintenance hole and catch basin frames
- install delineation for raised frames 40 mm above asphalt lift
- flush and sweep surface and evenly apply tack coat
- base course asphalt pad as required in accordance with OPSS
- final water and sewer testing, including CCTV of the sewers, and acceptance of testing by the Township
- a minimum period of one year has expired from the completion date for the placement of the base course asphalt
- at least 50% of the dwellings have received provisional Occupancy Certificates
- all undeveloped lots are rough graded in accordance with the approved lot grading plans
- all service connections for multiple-family, commercial, institutional or other blocks are installed
- approval for placement of the surface course asphalt has been provided by the Township in writing

11.4.5 Street Name Signs

All street name signs must be in alignment with Township branding and are to be supplied and installed by the Developer, with all costs paid by the Developer. Proposed street names must be approved by the Township in advance.

Traffic control signs must be erected by the Developer at the completion of the base course asphalt and prior to the issuance of Building Permits. Signs must be maintained by the Developer until "Final Acceptance" by the Township.

Upon completion of base course asphalt, the Developer shall place signage at each point of ingress/egress to the subdivision stating the following:

"THIS ROAD UNASSUMED BY THE TOWNSHIP OF SEVERN. USE AT OWN RISK"

Each sign shall be 450 mm wide by 600 mm high with black letters on white reflectorized background, mounted on "U" channel posts, 3.65 metres in height.

Prior to a building's superstructure proceeding, the Developer's Engineer or OLS must certify that the final footing and foundation elevations conform to the site grading plans and the Building Code.

11.4.6 Lot Grading

The grading of all lots and blocks in new developments must be carefully monitored by a qualified practitioner in order to provide sites that are suitable for the erection of buildings and to provide satisfactory drainage from all lands within the development. In this regard, the design of the grading for all developments will be of primary concern to the Township and the following criteria shall be used in the preparation of all lot grading plans for new development in the Township.

All lot drainage shall be designed to conform to the Stormwater Management Report, overall Lot Grading Plan for the subdivision and Township standards. The Developer shall be responsible for performing the grading of lots to the satisfaction of the Township.

Prior to application for a building permit, individual lot grading plans for each lot shall be approved by the Developer's qualified practitioner and submitted to the Township for review.

Prior to pouring building footings, an OLS must install survey pins in order to accurately locate the foundation.

Prior to a building's superstructure proceeding, the Developer's qualified practitioner or an OLS must certify that the final footing and foundation elevations conform to the individual lot grading plan and the Building Code.

Prior to the release of any lot from the conditions of the Subdivision Agreement, the Developer's qualified practitioner shall provide a lot grading certificate to the Township that includes:

- a statement that the lot grading conforms to the approved storm drainage plan and overall grading plan
- a statement that the final footing and top of foundation wall elevations are in conformance with the approved grading plan (tolerance 100 mm)
- the seal and signature of the qualified practitioner that is certifying the lot.

If the final grading differs from the approved lot grading plan, the qualified practitioner shall provide details of the variance from the approved plans and shall include recommendations for rectification, as required.

A site inspection shall be arranged with the Township to review the grading of lots after completion of sodding.

11.4.7 Restoration

Prior to assumption of the subdivision all temporary measures, including any remaining erosion and sediment control measures, shall be removed and any disturbed areas stabilized.

11.4.8 Record Drawings

After the construction of the works is complete, the design drawings shall be amended to incorporate the changes and alterations made during construction in order that the drawings, as amended, represent the “as-constructed” condition. These drawings shall be submitted prior to the issuance of a Certificate of Substantial Completion.

11.5 Certificates of Substantial Completion and Final Acceptance

The term “Certificate of Substantial Completion” shall be used to describe the date when the works are complete and acceptable to the Township subject to the maintenance requirements pursuant to the Subdivision Agreement. “Final Acceptance” shall be the terminology used when the Developer’s maintenance requirements have been fulfilled and the Services are acceptable to the Township. “Final Acceptance” of the subdivision shall be the date on which the Township agrees all the conditions of the Subdivision Agreement have been fulfilled, and all maintenance requirements have been completed.

When the works are complete to the satisfaction of the Developer and their qualified practitioner, they shall advise the Township in writing that the work is completed and shall request an inspection by the Township. The Township shall carry out their inspections and shall advise of any items of work requiring further rectifications. When all deficiencies have been corrected to the satisfaction of the Township, a report shall be forwarded to the Township (“Certificate of Substantial Completion”) recommending a date for the commencement of the maintenance period.

Near the end of the maintenance period, the works shall be re-inspected by the Developer’s qualified practitioner and all deficiencies found shall be corrected. When the qualified practitioner is satisfied the work is complete and acceptable, they shall advise the Township and request a final inspection by the Township. When all work is completed to the satisfaction of the Township, a report shall be forwarded to the Township recommending “Final Acceptance” of the works.

12 Administration Fees, Securities, Development Charges

The administration fees, securities and development charges applicable to site plan and subdivision development are stipulated in the respective Site Plan Control or Subdivision Agreement. Reductions in securities will be considered in accordance with the provisions of each specific Agreement. Requests for reductions must be made in accordance with the sample letter below.

Figure 12-1: Sample Letter - Request for Security Reduction

Date:

Township of Severn
 1024 Hurlwood Lane
 Orillia, ON L3V 6J3

Attention: Director of Corporate Services/Clerk - Treasurer

Re: (Name of Subdivision)
 Request for Security Reduction

On behalf of the owners of the above development, we are requesting your consideration and approval of a reduction in the amount of the letter of credit held by the Township as performance and maintenance security.

We have attached hereto a summary listing the value of the work completed to date, based upon the Schedule of Construction Costs included in the Site Plan Control/Subdivision Agreement, revised as noted to reflect all required alterations to the works. The current value of securities is calculated as follows:

| | |
|--|-----------------|
| Value of Outstanding Work (incl. engineering, contingencies, and HST) | \$ |
| Maintenance Holdback (10% of original securities) | \$ _____ |
| Total | \$ _____ |

We are also attaching a Statutory Declaration by the owner that all outstanding accounts relative to the work completed have been paid.

Yours very truly,

(Signature of Qualified Practitioner)

Name

Name of Firm

/att. (Security Reduction Application Fee)