

CHAPTER 2

Drainage, Development and Construction

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SEC. 14-2-1 INTENT.

It is the intent and purpose of this chapter to protect the public health, safety and welfare of the Town and its residents by prescribing minimum standards regulating the conduct of persons, firms, corporations, and public utilities in land development and construction within the Town of Caledonia.

SEC. 14-2-2 TOWN ENGINEERING DEPARTMENT.

- (a) There shall be a Town Engineer appointed by the Town Board who shall have authority to insure compliance with this chapter. The Town Engineer shall serve as an advisor to the Town Board on land development, storm water drainage, road and highway construction and any other matters that the Town Board may from time to time direct.
- (b) The Town Engineer shall administer and oversee all development under this chapter and shall have the authority to establish such procedures in accord with this chapter for the submission and review of development and construction plans as are necessary to effectuate the intent of this chapter.
- (c) The Town Engineer, with the approval of the Town Board, may appoint a qualified person, firm or corporation as Town Road Inspector for a particular project. The Town Road Inspector shall receive such compensation as the Town Board may determine.
- (d) In the absence of a resident Town Engineer, the Town Board may appoint a qualified person, firm or corporation as Acting Engineer for a particular project with the same authority as specified in this chapter for the Town Engineer.

SEC. 14-2-3 COMPREHENSIVE DRAINAGE PLAN.

- (a) The Town of Caledonia Comprehensive Drainage Plan, as adopted by the Town Board on July 6, 1977 as amended or recreated from time to time, shall be referred to as a guide in the design and construction of any drainage facility within the Town of Caledonia.
- (b) The Town Engineer shall have responsibility for interpreting and applying the comprehensive drainage plan in reviewing and approving any plan submitted for approval under this chapter. The Town Engineer's interpretation of the Comprehensive Drainage Plan shall be controlling for the purposes of any such review. The Town Engineer may vary the plan, if, in his or her judgment, it is necessary for the proper drainage of the property under review or lands in the vicinity of the property under review.
- (c) The Town Engineer shall have responsibility for interpreting and applying the Comprehensive Drainage Plan in reviewing and approving any building site plan submitted for approval under Title Fifteen of this Code of Ordinances.

SEC. 14-2-4 MINIMUM STANDARDS FOR CONSTRUCTION OF ROADS AND HIGHWAYS.

- (a) **Right-of-way.**
 - (1) No road or highway right-of-way shall be accepted by the Town unless such road or highway right-of-way is at least sixty (60) feet in width, depending upon the subdivision plat approved by the Town, and is built in accordance with the specifications contained in this section. A narrower road or highway right-of-way may be approved for good cause, on such terms and conditions, as the Town Board deems fit, on a majority vote of the Town Board, and with the approval of the Wisconsin Department of Transportation where the width of the right-of-way falls below the minimum requirements set forth in Section 86.26, Wis. Stats or Chapter 236 of the Wisconsin Statutes, as applicable. If deemed necessary by the Town Board, a wider right-of-way may be required.
 - (2) All dead end roads shall be provided with a cul-de-sac with a minimum right-of-way radius of eighty (80) feet.
 - (3) Where roads may be extended in the future, the Town Board may authorize the construction of a "T" at the end of a road, provided that the right-of-way for the cross members of the "T" shall not be less than one hundred thirty two (132) feet in length by thirty three (33) feet in width.
- (b) **Subgrade.**
 - (1) All work under this subsection shall be carried out per the requirements of Section 205, Section 207, and Section 211 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition.
 - (2) All black dirt and other topsoil shall be removed from the right-of-way and no such black dirt or topsoil shall be used in the roadbed within nineteen (19) feet of the centerline of the right-of-way.
 - (3) The finish subgrade shall be a total of six feet wider than the finished road surface width. The finish subgrade crown shall be 0.30 feet higher than the baseline of the

subgrade at the center of the roadbed. The finish subgrade shall not be covered until it is inspected and approved by the Town Engineer.

- (4) Before the granular base material is placed, the subgrade shall be compacted to such a degree as to pass the compaction test outlined in paragraph 5 of this subsection. If necessary, the subgrade may be stabilized by the construction of a coarse stone or gravel-working platform to achieve this purpose.
- (5) The compaction test shall be carried out by the Town Engineer. One of the Town's tandem axle dump trucks shall be slowly driven over the subgrade.
 - a. The truck shall have a gross weight of no less than 56,000 pounds and no more than 60,000 pounds.
 - b. The truck's tires shall exert a pressure of no less than 45 pounds per square inch.
 - c. The subgrade and granular base course shall be compacted to such a degree that it will not excessively rut, deflect or creep beneath the tires of the truck
 - d. A depth of greater than one and one half (1 1/2) inches shall be used as a guideline in determining if rutting or deflection is excessive, provided, however, the Town Engineer's judgment shall govern in any event in determining whether it has passed or failed the compaction test.

(c) **Granular Base Course**

- (1) All work under this subsection shall be carried out per the requirements of Section 304 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition.
- (2) Gradation Requirements:
 - a. If the aggregates shall consist of hard, durable particles of crushed stone or crushed gravel and shall conform to the following gradation requirements:

Sieve Size	Percentage by Weight Passing					
	Gradation No. 1		Gradation No. 2		Gradation No. 3	
	Crushed Gravel	Crushed Stone	Crushed Gravel	Crushed Stone	Crushed Gravel	Crushed Stone
1 1/2 inch	100	100				
1 inch	75-100		100	100	100	100
3/4 inch					95-100	95-100
3/8 inch	40-75	30-65	50-85	40-75	50-90	50-90
No. 4	30-60	25-55	35-65	25-60	35-70	35-70
No. 10	20-45	15-40	25-50	15-45	20-55	15-55
No. 40	10-30		10-30		10-35	
No. 200	3-10	2-12	3-10	3-12	8-15	5-15

- b. Aggregates for the top layer of base course shall be Gradation No. 2 and either Gradation No. 1 or Gradation No. 2 may be used in the lower layers.
- c. Aggregates used in the construction of the top 3 inches of unpaved or unstabilized shoulders abutting live traffic lanes shall conform to Gradation

No. 3 and other shoulder aggregate shall conform either to Gradation No. 2 or No. 2.

(3) Cross-Section.

- a. The granular base course shall be a minimum of ten (10) inches thick for a distance of sixteen (16) feet either side of the centerline.
- b. The granular base course shall be tapered from a thickness of ten (10) inches at sixteen (16) feet either side of the centerline to a zero thickness at distance of nineteen (19) feet either side of the centerline.
- c. The top of the base course shall have a finish crown of 0.25 feet.
- d. The road cross section shall be determined by the Town Engineer.

(4) Construction Methods and Compaction

- a. The granular base course shall be constructed in two lifts of five (5) inches each.
- b. The granular base course shall be compacted with a minimum of a ten (10) ton rubber tire roller to a degree as to pass the compaction test as outlined in Section 14-2-4(b)(5).
- c. When satisfactory compaction cannot be achieved due to lack of moisture water shall be added by sprinkling with equipment suitable for this purpose.

(d) **Drainage Ditches**

(1) Side Slope

- a. The road ditches shall have a side slope of at least four (4) feet for every foot of depth on the roadside of the ditch.
- b. The ditch side slope shall be at least three (3) feet for every foot of depth on the lot side of the ditch.

(2) Depth

The minimum depth of road ditches below the finished grade of the centerline shall be two point four (2.4) feet deep, except that at the high point of the ditch, the depth may be a minimum of eighteen (18) inches.

(3) Location

Ditches shall be a minimum of thirteen (13) feet from the edge of the roadway surface.

(4) Grade

- a. The minimum grade of ditch inverts in the direction of flow shall be 1.0%. Where the grade of a drainage ditch in a development or along a road is 1.0% or less, the developer shall install a paved invert, trench drain, or similar facility acceptable to the Town Engineer to insure proper drainage.
- b. Whenever the longitudinal centerline of the ditch shall exceed 2% in grade, there shall be a six (6) foot wide sod base every fifty (50) feet on the base of the drain. Whenever the longitudinal centerline of the ditch shall exceed 3% in grade, the ditch must be entirely sodded.

(5) Topsoil and Grading

- a. Topsoil shall consist of the natural loam, sandy loam, silt loam, silty clay loam or clay loam humus-bearing soils adapted to the sustenance of plant life.

- b. The ditch slopes shall be dressed with a minimum of three (3) inches of topsoil and carefully graded to the lines and elevations given on the plans.
- (6) Seeding
- a. The seed bed shall be prepared by raking to remove lumps, stones, rocks and debris
 - b. The seed shall then be sowed during a time approved by the Town Engineer.
 - c. The seed shall be composed of seeds of the purity, germination and proportions, by weight, as given below in the Table of Seed Mixtures:

Species	Seeds		Mixtures	
	Min. % Purity	Min. % Germination	No. 1 %	No. 2 %
Kentucky Bluegrass	85	80	45	20
Creeping Red-Fescue	97	80	35	55
Perennial Ryegrass	95	90	5	10
White Clover	95	90	15	
Empire Birdsfoot Trefoil	95	80		15

Seed Mixture No. 1 is intended for use on projects where average loam, heavy clay or moist soils predominate. Seed Mixture No. 1 shall be sown at a rate of one and one-half (1 ½) pounds per 1000 square feet.

Seed mixture No. 2 is intended for use on projects where light, dry, sandy or gravelly soils predominate. Seed Mixture No. 2 shall be sown at a rate of two (2) pounds per 1000 square feet.

- d. In areas where the soils are potentially highly erosive the Town Board may vary Section 14-2-4(d)(6)(c) and require a specially designed seed mixture and seeding rate as recommended in 630.2.1.5.1.2 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition.
- (7) Mulching
- a. All seeded areas must be mulched.
 - b. Mulching-material shall consist of any straw or hay in an air-dry condition or wood excelsior fiber, wood chips or other suitable material of a similar nature which is substantially free of noxious weed seeds and objectionable foreign matter.
 - c. Mulch shall be placed on a given area within three (3) days after the seeding has been completed.
 - d. The mulching material shall be uniformly spread over the seeded areas to a loose depth of no less than one (1) inch.
 - e. Instead of mulch, the contractor may at his option substitute jute netting, excelsior mat or a material of a similar nature.

- f. In ditches which will be especially susceptible to erosion, the Town Engineer may order the use of excelsior-mat or jute netting over sodded or seeded areas.

(8) Sodding

- a. The sod shall consist of a dense, well-rooted growth of permanent and desirable grasses, indigenous to this area, and shall be practically free from weeds or undesirable grasses.
- b. At the time the sod is cut, the grass on the sod shall have a length of approximately two (2) inches.
- c. The areas to be sodded shall be free from stones, roots or other undesirable foreign material.
- d. The sod shall be staked or pegged with pieces of lath or stakes spaced from eighteen (18) inches to thirty-six (36) inches apart along the longitudinal axis of the sod strip.
- e. After staking and clean up, the sod shall be thoroughly moistened by sprinkling or watering, when rainfall is deficient for a period of ten (10) days.

(9) Fertilizer

- a. Fertilizer shall meet the following minimum requirements: Nitrogen, not less than 16%; phosphorus free unless soil test indicates phosphoric acid is necessary and then phosphoric acid, not greater than 3%; potash, not less than 6%.
- b. Fertilizer shall be applied at the rate of seven (7) pounds per 1,000 square feet of area for seeded or sodded areas.
- c. Fertilizer shall be incorporated into the soil by raking or discing.

(10) Hydroseeding

Hydroseeding may be used in lieu of regular seeding and mulching.

(e) **Culverts**

(1) Culvert pipe shall be one of the following materials:

- a. Culvert pipe under any roadway or intersection shall be reinforced concrete culvert pipe (RCCP), AASHTO designation; M170.
- b. Corrugated steel pipe and pipe arch for driveways which shall conform to the requirements of the specification for metallic coated corrugated iron or steel culverts and under drains, AASHTO Designation; M 36.
- c. Reinforced concrete pipe which shall conform to the requirements of the specification for reinforced concrete culvert, storm drain and sewer pipe, AASHTO Designation; M 170.
- d. Corrugated aluminum pipe which shall conform to the requirements of the specification for corrugated aluminum alloy culverts and under-drains, AASHTO Designation; M 196.
- e. Structural plate pipe and pipe arches which shall conform to requirements of the specification for structural plate for pipe, pipe arches, AASHTO Designation; M 167.

(2) End Sections and End Treatment

- a. Galvanized steel end sections shall be used at the ends of all steel and aluminum road culverts. Insulating gaskets shall be used between the steel

end section and aluminum pipe. Reinforced concrete road culverts shall be used at the ends of reinforced concrete road.

- b. In lieu of end sections the Town Engineer may allow for good cause, the ends of steel and aluminum pipe greater than forty-eight (48) inches in width, to be mitered provided it can be verified that such miter cut will not substantially weaken the pipe. The miter cut shall be smooth and free of all sharp and jagged edges.
- c. In the cases of a large pipe or a high susceptibility of erosion to the embankment at the ends of the culverts, the Town Engineer may order the use of rip-rap, headwall or slope paving at the ends of the culvert.

(3) Minimum Length and Minimum Size

- a. Culverts shall be a minimum of forty (40) feet in length. The culvert length shall be increased as is necessary to provide a stable embankment slope of no steeper than two (2) (horizontal) to one (1) (vertical).
- b. Culverts shall have a minimum diameter of twelve (12) inches.

(4) Gage or Class of Pipe

- a. The minimum gage of steel or aluminum pipe or minimum class of reinforced concrete pipe shall be that specified in the Fill Height Tables of Section 13-1-25 of the latest publication of the Wisconsin Department of Transportation Facilities Development Manual.

(5) Minimum and Maximum Cover

The minimum and maximum cover for culverts shall be that specified in Section 13-1-25 of the latest publication of the Wisconsin Department of Transportation Facilities Development Manual.

(6) Bedding

Culvert pipe shall be bedded per Section 13-1-25 of the latest publication of the Wisconsin Department of Transportation Facilities Development Manual and per Section 520.3.2.1 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition.

(7) Backfill

- a. Culvert pipe shall be backfilled per Section 520.3.4.1 and per Section 207.4 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition.
- b. Material used for backfill shall be of a quality acceptable to the Town Engineer and shall be free from frozen lumps, wood or other extraneous or perishable materials.
- c. If acceptable backfill material is not available the Town Engineer may require granular backfill conforming to Section 209 of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition.

(f) **Storm Sewers**

- (1) Storm sewers shall be constructed per the requirements as set forth in the Standard Specifications for Sewer and Water Construction in Wisconsin, 5th Edition, March

1, 1988 with Addendum No. 1 (January 2, 1992) and Addendum No. 2 (March 1, 1999).

- (2) Storm sewer pipe shall be one of the following materials:
 - a. Non-reinforced concrete pipe intended for use for storm sewers shall conform to the requirements of the Specification for Concrete Sewer, Storm Drain and Culvert Pipe, AASHTO Designation; M 86, for the class of pipe specified.
 - b. Reinforced concrete pipe which shall conform to the requirements of the specification for reinforced concrete culvert, storm drain and sewer pipe, AASHTO Designation; M 170, for the class of pipe specified.
- (g) **Road Profile**

The minimum grade for the road surface shall be 0.5%. The grade of an intersection shall be no more than 2% for a minimum distance of fifty (50) feet from said intersection. The maximum grade for all other cases shall be 8%.
- (h) **Sight Easements**

As a condition of acceptance of a road the dedicator shall agree that no one shall plant shrubs or trees or install fences of such construction as would obstruct vision in intersections within the imaginary triangle with legs 25 feet long, measured from the point of intersection of the road right-of-way lines and measured along the road right-of-way lines.
- (i) **Sight Distance**

Minimum stopping sight distance shall be 150 feet.
- (j) **Horizontal Curvature**

The minimum radius of curvature shall be 150 feet.
- (k) **Cul-de-Sac**
 - (1) The roadbed in a cul-de-sac shall be at least sixty-three (63) feet in radius with an unpaved portion in the center having a radius of thirty-four (34) feet or less. Those owners of land abutting a cul-de-sac shall be responsible for maintaining the center island, unless such responsibility has been delegated to a homeowner's or condominium association.
 - (2) The paved portion of a cul-de-sac shall have an outside radius of fifty-eight (58) feet, whether curb and gutter or open ditch
 - (3) Cul-de-sacs in residential developments shall have a maximum length of 800 feet or shall be designed to accommodate a maximum of sixty-four (64) residential units, whichever is more restrictive.
- (l) **Temporary Tee**
 - (1) In a tee, the roadbed shall be twenty-six (26) feet in width and at least one hundred (100) feet in length.
 - (2) The wings of the tee shall be surfaced with the ten (10) inch granular course and not paved with bituminous concrete.
- (m) **Bituminous Concrete Paving**
 - (1) All bituminous concrete paving work on new roads shall be done under contract by the Town with the contractor who is awarded the Town's paving contract for the year during which the paving work is done.

(2) Primer Coat

- a. The day before the bituminous concrete base course is to be placed upon a previously untreated foundation layer, such as the granular base course, a primer coat shall be applied.
- b. The material used as a prime coat shall be grade MC-30 liquid asphalt or equal material.
- c. The primer coat shall be applied at a rate of no less than 0.25 gallon per square yard.
- d. The primer application shall be equal to the width of the roadway.

(3) Tack Coat

- a. Before the installation of a bituminous surface course upon a previously prepared or existing surface, such as bituminous concrete or portland cement concrete, a tack coat shall be applied.
- b. The material used as a tack coat shall be grade MS-2 emulsified asphalt.
- c. The tack coat shall be applied at a rate of no less than 0.10 gallons per square yard.

(4) Bituminous Concrete

- a. The bituminous concrete binder course and surface course pavement shall conform to State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition, Section 407.
 1. All bottom course or binder aggregate shall conform to Wisconsin Highway Commission Bituminous Gradation No. 1. All surface or wearing courses aggregate shall conform to Wisconsin Highway Commission Bituminous Gradation No. 3.
 2. The aggregates for the binder and surface course shall have at least 95% of the aggregate particles which are retained on the No. 4 sieve produced by the fracture of larger particles.
 3. The asphalt cement shall conform to State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition and shall be in the 120-150 penetration range.
- b. The Town Board may, at its option, allow the use of up to 35% recycled asphalt pavement in the binder course and up to 25% recycled asphalt pavement in the surface course. If recycled asphalt pavement is used all mixes produced shall conform to the same current acceptable specifications required of all bituminous concrete mixtures.
- c. The specifications for transportation and placing the bituminous pavements shall conform to Section 405, State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest Edition, as amended by Supplemental Specifications, latest Edition. The contractor, at its expense, shall submit samples of bituminous concrete pavement, which it has placed, to a certified materials testing laboratory approved by the Town Board for analysis if desired by the

Town Engineer. All costs incurred in sampling, shipping, and testing pavement samples shall be borne by the contractor.

- d. After the primer coat has been applied and allowed to set to the satisfaction of the Town Engineer, new roads shall be surfaced with a four and one-half (4 ½) inch thick pad of bituminous concrete binder course. All road widths and travel lanes shall comply with the Street Standards under subsection 14-14-3-4(c)(5).
- e. When development along the road or in the subdivision is 95% completed, or at such other time as the Town Engineer may in his or her discretion determines to be appropriate, a tack coat and a one and one half (1 1/2) inch bituminous concrete surface course shall be applied.

(n) **Final Shouldering**

- (1) After the bituminous concrete binder course is installed, Town personnel and equipment will perform the final shouldering work at the cost of the Subdivider or developer.
- (2) The aggregate used for final shouldering shall conform to Subsection 14-2-4(c)(2)(c).
- (3) Unless an alternate final shouldering plan is approved by the Town Board, the crushed stone or gravel shoulder shall have a minimum width of five (5) feet.

(o) **Drainage**

- (1) All roads will provide drainage for land to conform with the dictates of the Town of Caledonia Comprehensive Drainage Plan except that the Town Board may require more stringent measures, if, in its opinion, the situation so requires. Any natural drainage way or existing drainage tile disturbed during the construction of a road shall be restored or shall be rerouted and redeveloped in a manner acceptable to the Town Engineer.

(p) **Backfill and Compaction of Utility Trenches**

All sanitary sewer, storm sewer and water main trenches, both mainline and laterals, that are excavated within the street right-of-way shall be backfilled and compacted as follows:

- (1) Except as provided in paragraph 5 of this subsection, excavated material conforming to Section 6.43.5 of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition and any Addendums thereto, may be used, provided that the material is not frozen. Material shall be placed in lifts not to exceed two (2) feet in depth and compacted in place with a boom mounted hydraulic compactor.
- (2) Excavated material that is frozen or does not conform to the "Standard Specifications" shall be disposed of and a granular backfill material conforming to Section 6.43.4 of the "Standard Specifications" shall be placed in lifts not to exceed two (2) feet in depth and compacted in place with a boom mounted hydraulic compactor.
- (3) If a contractor wishes to vary the requirements of this section so as to employ an equal or more effective method of compaction, he shall first obtain the written permission of the Town Engineer. If such permission is granted and it later appears that the alternate method being employed is not, in the judgment of the Town Engineer, equally or more effective than the provisions of this section, the contractor shall revert to the means specified in this section.

- (4) In no case will flooding of the trenches be allowed as a compaction method.
 - (5) In all cases, granular backfill material, conforming to Section 6.43.4 of the "Standard Specifications" shall be placed, in sanitary sewer trenches for a distance of twenty-five (25) feet either side of all sanitary sewer manholes. No excavated material will be allowed in this area.
- (q) **Developer's Liability, Costs and Bonding**
- (1) The developer requesting acceptance of the road or highway shall be liable for all costs relating to construction and approval of the road or highway, including but not limited to, materials, labor, engineering inspections, permit fees plan review, adjustment or relocation of utilities and drainageways, insurance, legal review and sureties.
 - (2) Bituminous Concrete Binder Course Liability
 - a. The developer shall be liable for the cost of the binder course pavement in an amount necessary to achieve an average of four and one half (4 1/2) inches of binder course for the width of the roadway and a diameter of one hundred and sixteen (116) feet in the cul-de-sacs, provided that if the approved road plans provide for a wider width roadway the developer shall be liable for such wider width.
 - b. The per ton price of the binder course material shall be the cost at the time of application.
 - c. Concurrent with the execution of the contract with the Town, the developer shall pay to the Town the estimated cost of installing the bituminous concrete binder course, along with a 10% contingency. In lieu of a cash payment, the developer may furnish a letter of credit, provided that such letter is acceptable to the Town. Interest that accumulates on any cash deposit remains the property of the Town.
 - (3) Final Shoulder Liability
 - a. The developer shall be liable for the cost of Town equipment, labor and material which is necessary for the final shouldering subsequent to the installation of the bituminous concrete binder course.
 - b. The developer shall be liable for the necessary final shouldering subsequent to the installation of the bituminous concrete surface course.
 - c. Concurrent with the execution of the agreement, as provided for within Subsection 14-2-4(t) with the Town, the developer shall pay to the Town the estimated cost of installing the final shoulder for the binder course, along with an additional 10% contingency. Interest that accumulates on any cash deposit remains the property of the Town. In lieu of a cash payment, the developer may furnish a letter of credit, provided that such letter is acceptable to the Town.
 - (4) Bituminous Concrete Surface Course Cost
 - a. The developer's liability for the cost of the surface course pavement shall be that cost which is necessary to install one and one half (1 1/2) inch thickness of surface course pavement for the width of the roadway and a diameter of one hundred and sixteen (116) feet in the cul-de-sacs, provided that if the approved road plans provide for a wider width roadway the developer shall be liable for such wider width.

- b. The surface course cost shall be calculated by the Town Engineer using the following formula:
 1. The area in square feet of pavement shall be calculated by the use of analytical methods from approved road plans.
 2. The area of pavement shall be divided by the figure one hundred and four (104) to obtain the number of tons necessary.
 3. The tonnage shall be multiplied by the per ton paving contract price of surface course material which is in effect at the time of the execution of the road construction agreement, as required per subsection 14-2-4(t) herein. The answer shall be the amount due to the Town.
- c. The developer shall be liable for the cost of the tack coat which is used immediately prior to the surface course paving.
- d. Concurrent with the execution of the road construction agreement with the Town, the developer shall pay in cash to the Town the cost of the surface course installation as calculated above, along with a 10% contingency. Interest that accumulates on any cash deposit remains the property of the Town.

(6) Performance Bond

- a. The Town Board, as a condition precedent to the execution of the road construction agreement, as required pursuant to subsection 14-2-4(t) herein, shall require the developer to file cash, letter of credit or a performance bond with the Town guaranteeing compliance with the Town Ordinances and the provisions of such road construction agreement. Such security shall be in such amount as to cover 100% of the estimated costs of storm water drainage, lot grading, and road construction work, exclusive of the road construction costs for paving and final shouldering. Such estimated costs shall be provided by the developer or his engineer and shall be subject to the approval of the Town Board.
- b. From time to time, during the course of the above-described construction work, the Town may release at the request of the developer pro rata portions of the cash bond, surety bond or letter of credit. The amount of the principal sum released shall roughly equate to the percentage completion of the storm water drainage, lot grading, and road construction work, as determined by the Town Engineer, less a 10% retainage. The amount retained by the Town shall remain with the Town until all obligations under the road construction agreement have been fully performed, after which any portion not used by the Town as therein provided shall be paid to the developer.

(7) Costs of Review for Non Subdivision Roads

The petitioner who requests that the Town accept a road outside a subdivision shall pay to the Town all engineering, planning, legal and administrative expenses incurred by the Town in reviewing, approving, preparing, or drafting any road plans or contracts required by virtue of such plans or by the provisions of this section. Such expenses shall include the cost of engineers, attorneys, inspectors, subcontractors and other employees computed on a prorata hourly basis. This obligation shall not be affected by denial or withdrawal of the petition for

acceptance. At the time of submission of preliminary plans, the petitioner shall deposit with the Town Treasurer the sum of One Thousand (\$1,000.00) Dollars, either in the form of cash or an irrevocable letter of credit acceptable to the Town Board. The Town shall apply such funds toward payment of the above costs. Upon final approval and acceptance of the road, the Town shall furnish the petitioner with a statement of all such costs incurred by it with respect to such road. Any excess funds or credit shall be remitted to petitioner or shall be released by the Town, and any costs in excess of such deposit shall be paid by the petitioner.

(8) Costs of Review for Subdivision Roads

The Subdivider shall pay all reasonable costs as provided in Section 14-3-3(c) of this ordinance.

(r) **Engineering Plans, Computations and Specifications**

(1) Final plans and specifications of roads and grades shall be approved by the Town Engineer before the execution of the road construction agreement or Development Agreement by the Town Board. Approval of the plans and specifications shall not bind the Town to acceptance of the completed construction nor relieve the person constructing the same from complying with the provisions of this section or any other ordinances, or of providing for conditions not represented on the plans in accord with the dictates of good engineering practices. The plans shall include:

- a. A plan view or views of the proposed road drawn to scale on a standard sheet thirty-six (36) inches by twenty-four (24) inches and showing thereon:
 1. A profile of the road centerline drawn on the same sheet or sheets at the same horizontal scale and arranged so that any station on the profile is represented, as nearly as practicable, directly above or below the same station on the plan view. The vertical scale shall be ten (10) times that of the horizontal scale. Such profile shall show the existing and proposed profile.
 2. The horizontal alignment of the road centerline showing station marks at each one-hundred (100) foot station.
 3. Cross sections at minimum stationing of one hundred (100) feet.
 4. Centerline curve data including radius of curvature, central angles of curves, tangent distances, stationing of points of intersection of tangents, points of curvature, points of reversed or compound curvature and points of tangency.
 5. Stationing of centerline intersections and beginning and end of construction.
 6. The horizontal alignment of the edges of the proposed pavement including radii at intersections and the junction with existing construction.
 7. Location, size, length, material and direction of flow of culverts, subdrains and intercepting ditches and direction of flow of ditches, points where direction of flow changes, points of disposal of drainage and sufficient information on existing drainage facilities used for disposal to accurately depict the adequacy of the drainage system.

8. Proposed ditch profile, high point of ditch, ditches requiring sodding, and ditches requiring sod checks.
 9. Elevations of road at intersections.
 10. Typical cross section of road showing right-of-way width, gravel road bed width, asphalt width, crown of road, and road ditches.
 11. Location and dimensions of street, right-of-way, and other easements provided for drainage and construction.
 12. Such other dimensions, notes or pictorial data as may be necessary to present a clear representation of the proposed construction.
 13. Location and elevation of benchmarks used as control.
 14. The name, address and seal of the engineers responsible for the design and the supervision of construction. Such engineers must be registered professional civil engineers.
 15. The size of driveway culvert for each lot. The relevant drainage area shall be that area lying upstream from each downstream lot line.
- b. A grading and drainage plan showing the following information:
1. Existing and proposed contour lines throughout the development. (If Racine County Topographic Maps are used to determine the location of existing contour lines, such contour lines shall be spot checked in the field by the developer's engineer.)
 2. Proposed lot corner elevations.
 3. Proposed drainage easement lines, lot lines and right-of-way lines.
 4. Flow arrows for the drainage paths of all ditches and swales.
 5. Proposed yard elevation shown within the block defined by the normal set back lines. The yard elevation shall be that elevation around the immediate perimeter of a future structure. The final yard elevation shall be set at the discretion of the Town Engineer.
 6. Cross sections of major off road drainage ditches at no greater than one hundred (100) feet intervals if such ditches have a 100 year design flow of at least thirty (30) cubic feet per second.
 7. Proposed top of pavement elevations along the centerline of road at even stations.
 8. Proposed flow line elevations of major off road drainage ditches at even stations.
- c. Written road construction and site grading specifications which reflect the requirements of Chapter 14-2.
- d. If a storm water detention or retention basin is deemed necessary by the Town Engineer and, if applicable, the appropriate Drainage Commission storm water detention and retention plans, which shall include:
1. A plan view reflecting such information as is required on the grading plan.
 2. Subsurface drain tile if deemed necessary by the Town Engineer.
 3. Pertinent cross-sections which are necessary to describe the lines and grades of the holding pond profile and boundaries.
- (2) Storm water drainage computations shall be submitted to the Town Engineer for his approval.

- a. The computations shall be accompanied by a drainage area plan showing all major drainage basin and sub-basins within the development and contributing areas outside of the development.
- b. Rate of run off computations shall be made for the use of sizing road culverts, drainage structures, holding ponds and ditches. The rational method shall be used in all run off computations. In cases where a drainage area exceeds fifty (50) acres, a run off computation using the Soil Conservation Service method will also be required. Use of other methods of runoff computations will require written permission of the Town Engineer.
- c. Road culverts shall be designed using the standard procedures and graphs shown in the Hydraulic Engineering Circulars published by the Federal Highway Administration.
- d. Detention and retention basins shall be designed using the flood routing procedure conforming to the storage equation of $\bar{I}t - \Delta S = \bar{O}t$ (\bar{I} = inflow in cfs; S = storage in ft.³ ; O = outflow in cfs; t = time).
- e. Drainage ditches and storm sewers shall be designed using the Manning equation and the methods outlined in the State of Wisconsin Department of Transportation Facilities Development Manual.

(s) **Alternate Urban Road Cross Section**

Should the standard rural road cross section, as detailed in the preceding sections of Chapter 14-2 contained herein, be impossible to construct pursuant to the ordinances set forth herein or should good cause be shown, the Town Board may allow the developer to utilize an urban road cross section. The alternate urban cross section shall be determined by the Town Board at the time of the preliminary plat approval.

(t) **General Requirements**

- (1) The owner shall agree in writing to be liable for the maintenance and repair of such road for a minimum period of two (2) years after acceptance of the base course of asphalt or until the Subdivision is at least 95% developed, whichever period of time is greater. The Town Board may require a longer guaranty period based upon the site conditions, time when construction is to be carried on, and any other factors affecting the road or its stability.
- (2) No owner of any land abutting upon any road accepted by the Town Board under the terms of this Code of Ordinances shall offer for sale any of such lands so abutting unless such proposed road has been constructed according to the terms and provisions hereof.
- (3) No non-subdivision road shall be accepted by the Town of Caledonia unless the petitioner, at his own expense, furnishes the Town Board with a plat of such roadway and drainage easements, together with the deed granting title to such land to the Town or a document dedicating said land for highway purposes or granting an easement therefore to the Town. Such deed or document shall contain an accurate legal description of the realty affected, shall be executed in recordable form, and shall be certified by a registered land surveyor.
- (4) All such work shall be subject to the inspection of the Town Engineer, Town Road Inspectors and the Town Board or its designated agents, officers, or employees.

- (5) The provisions of this Chapter are intended as minimum standards. The Town Board may, if in its judgment the circumstances warrant set additional requirements or restrictions for construction and acceptance of any road.
- (6) No road or highway construction shall take place between November 15 and April 15 without written approval of the Town Board.
- (7) The naming of streets and Town roads and highways within the Town of Caledonia shall be subject to the discretion of the Town Board and the Racine County Planning and Development Division.

(u) **Road Construction Agreement**

Prior to the acceptance by the Town Board of engineering plans and specifications as provided for in subsection 14-2-4(r) the developer shall enter into a Road Construction Agreement with the Town.

- (1) Such Road Construction Agreement shall guarantee that the roads, highways and appurtenances thereto shall be constructed at the expense of sub-divider in accordance with the provisions of Title 14 Section 2 of the Code of Ordinances of the Town of Caledonia which are in effect at the time of such construction.
- (2) Sewer and/or water service laterals to each lot will be installed by the developer prior to submission of the roads to the Town for acceptance, provided sewer and/or water mains are available for connection in said roads.
- (3) In the case of subdivision roads, such road construction agreement as required herein may be substituted with the subdivision control agreement as provided for in Subsection 14-2-4(e).

(v) **References**

The references contained within this subsection shall be consulted for detailed information not given in Section 14-2-4. In the event that one of the following references is updated, revised or replaced the developer shall comply with the latest edition.

<u>Subsection</u>	<u>Reference</u>
2, 3, 4, 5, 13, 14	<u>State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction</u> , 1996 Edition, as amended by Supplemental Specifications, 2000 Edition
4, 5, 18	State of Wisconsin Department of Transportation Facilities Development Manual
6, 16	<u>Standard Specifications for Sewer and Water Construction in Wisconsin</u> , 5 th Edition, March 1, 1988 with Addendum No. 1 (January 2, 1992) and Addendum No. 2 (March 1, 1999)
18	Urban Hydrology for Small Watersheds Technical Release No. 55 Soil Conservation Service, 1975 Edition

SEC. 14-2-5 PRIVATE DRIVEWAYS.

(a) **Permit Required: Conditions Relating Thereto**

No person shall make an installation or relocation of a private driveway extending into a Town public right-of-way without first obtaining a highway access permit therefor from the Town Clerk. The Town Clerk shall issue such permit upon recommendation by the Town Engineer and, if applicable, payment to the Town Treasurer of the required fee.

(b) **Building Permit: Condition Precedent to Issuance**

No building permit shall be issued by the Building Inspector of the Town of Caledonia unless a driveway has been constructed from the public right-of-way to and on the site upon which construction is to take place, unless temporarily waived in writing by the Town Engineer, due to seasonal weather conditions.

(c) **Highway Access Permit: Terms and Conditions**

(1) Driveways which access Town roads which are constructed with road ditches.

- a. A culvert shall be installed under each driveway unless the Town Board or the Town Engineer shall have determined that no culvert is required to ensure drainage at that location. The culvert shall be of corrugated metal and shall be installed parallel to the highway and at a location designated by the Town Engineer. Such culvert shall have standard metal endwalls properly secured to the ends of the culvert. The size and elevation of the culvert shall be such as are established by the Town Engineer, but not less than twelve (12) inches in diameter. The culvert shall conform to Section 521 and shall be installed pursuant to Section 520 of the State of Wisconsin D.O.T. Standard Specifications for Road and Bridge Construction. There shall be a minimum of six (6) inches of gravel or crushed stone above the culvert as a traffic bearing surface. Prior to and subsequent to the installation of such culvert, the site, culvert and elevation of the same shall be inspected by duly authorized personnel of the Town of Caledonia. Installation shall be at the cost of the applicant.
- b. When installing a driveway, the property owner or permittee shall not pave any portion of the right-of-way with portland concrete cement, except if the driveway abuts a road right-of-way that has both curb and gutter.
- c. No one shall construct a solid wall abutment at the ends of the culvert underlying the driveway.
- d. Any drainage ditch and public right-of-way affected by the construction of a driveway entrance shall be reconstructed to a shape, grade and contour necessary for proper drainage, as approved by the Town Engineer, at the expense of the property owner or permittee.

(2) Driveways which access Town roads which are constructed with curb and gutter.

- a. No culvert shall be required unless it is determined by the Town Board or Town Engineer that a culvert is necessary to ensure proper drainage.
- b. In the case of vertical face curb and gutter where the curb has not been constructed to allow driveway access, the applicant shall completely remove the existing curb and gutter and reconstruct such curb and gutter to allow for driveway access. Such removal and reconstruction shall extend for a minimum width of 30 inches and for a minimum length of 4.25 feet beyond the edge of

the proposed driveway. Curb and gutter removal and construction shall be completed pursuant to Sections 204 and 601, of the State of Wisconsin Department of Transportation Standard Specifications for Highway and Structure Construction, latest edition, as amended by Supplemental Specifications, latest edition. All newly constructed curb and gutter sections shall be constructed to such dimensions as determined by the Town Engineer.

- c. The applicant shall also be responsible for constructing concrete driveway approach slabs if such slabs are required by the Town Board. Such slabs shall be constructed to such dimensions as determined by the Town Engineer.

(d) **Culvert Maintenance**

The Owner of the contiguous property serviced by the driveway shall be responsible for the maintenance, repairs and/or replacement of any driveway culvert in the Town right-of-way, including the removal of yard debris and natural silt accumulation, so that there is no obstruction to the flow of water. In the event an owner shall fail to do so, the Town of Caledonia shall give written notice to the owner specifying the maintenance, repair or replacement required to be done. If after ten (10) days the owner fails to make such corrections, the Town of Caledonia may cause such work to be done, and shall charge the owner with such costs, and if unpaid, charged against the property as a special charge under Section 66.0627, Wisconsin Statutes. If the damage to a culvert necessitating the repairs under this section can be shown to have been caused by Town machinery or personnel, the cost shall be borne by the Town.

(e) **Highway Access Permit Fee**

To cover the costs of administration, checking of grades, inspection and policing of this section, the applicant for a highway access permit hereunder shall pay to the Town Treasurer a permit fee of an amount as established by and as may be modified from time to time by resolution of the Town Board of the Town of Caledonia. In the case of Town roads constructed with curb and gutter, no permit fee shall be charged.

(f) **Asphalt Permit**

No person shall pave any portion of any driveway located on Town road right-of-way with bituminous concrete without first obtaining an "Asphalt Permit" from the Town Engineer. No person hereunder shall be issued a permit unless the applicant therefore pays to the Town Treasurer a permit fee of an amount as established by and as may be modified from time to time by resolution of the Town Board of the Town of Caledonia.

(g) **Driveway Maintenance Costs**

The cost of any and all repairs to the driveways extending into Town public rights-of-way, including but not limited to the moving of existing culverts and the maintaining of pavement and stone surfaces shall be borne by the property owner or permittee, unless such repairs were necessitated by a re-ditching and/or culvert resetting project of the Town or by a road resurfacing project of the Town.

(h) **Penalty**

Any person found guilty of violating any of the provisions of this Section, after having been directed to comply by the Town Board or its designee, shall upon conviction thereof forfeit not less than \$50.00 and the costs of prosecution and in default of payment thereof, shall be imprisoned in the County Jail for a period not to exceed thirty (30) days.

SEC. 14-2-6 HIGHWAY OPENINGS REGULATED.

- (a) No opening shall be made in any Town highway by any person, firm, corporation, or utility for any purpose until after a permit therefor has been applied for and issued by the Town Engineering Department of the Town of Caledonia.
- (b) The application forms for permits shall be furnished by the Town Engineer. Such forms shall contain an accurate description of the property, the name of the highway to be opened, the approximate locations of such opening, the purpose for which said opening is to be made, the method by which said opening is to be made and such information as the Town Engineer deems appropriate. The application shall be signed by the owner or his authorized agent unless the work is not to be performed by the owner in person. In that event, the person engaged to do the work shall sign the application and the permit shall be issued in his name.
- (c) Wherever feasible boring under, rather than excavating the paved portion of the highway, shall be the method used in the case of paved, hard surface, highways.
- (d) In opening any Town highway, all paving and excavated materials shall be removed with the least possible damage to the surrounding area, and shall be placed where it will cause the least inconvenience to the public and where the same will not interfere with drainage or traffic. All openings in Town highways shall be enclosed with sufficient barricades, and flashers shall be maintained upon said location during the hours of darkness. All other necessary precautions to guard the public against accidents shall be taken by the permittee.
- (e) The issuance and acceptance of a permit to open a highway shall obligate the applicant of such permit to refill the opening in such highway in accordance with subsection 14-2-6(f) hereof and to maintain the same for a period of 15 months from the date of such permit. No person hereunder shall be issued a permit unless the applicant therefore pays a permit fee of an amount as established by and as may be modified from time to time by resolution of the Town Board of the Town of Caledonia and files a cash bond or irrevocable letter of credit with the Town Treasurer in the sum of \$500.00 in case of the opening of a roadbed or of an opening in shoulders of the highway. Such cash bond shall be held by said Town Treasurer to guarantee the filling of trenches and the relaying of pavement or gravel and the maintaining of such filled area to the level of the surrounding road surface for a period of 15 months from the date of the permit. This completion work and maintenance shall be the responsibility of the permittee. If the permittee fails to refill such trench or, at any time during the period of 15 months fails to maintain the filled area as herein required, such work and maintenance shall be done by the Town upon the order of the Town Engineer, and then and in that event, the cash bond or irrevocable letter of credit of the applicant shall be charged with all such costs, by order of the Town Board. In the event the cash bond shall be insufficient for such purposes, the permittee shall be liable to the Town for the excess cost over the amount of the cash bond or the amount collected by the Town on the irrevocable letter of credit. After the expiration of 15 months, the balance of the cash bond, if any, shall be paid to the permittee, whose interest therein shall not be assignable.
- (f) **Roadway Open Cut Requirement.**
 - (1) If boring is not feasible the paved portion of Town roads not listed in subsection 14-2-6(f)(2) may be open cut provided granular backfill material conforming to Section 6.43.4 of the Standard Specifications for Sewer and Water Construction in Wisconsin, latest edition, with any Addendums thereto, shall be used to backfill the

trench. Backfill material shall be placed in lifts not to exceed two (2) feet in depth and compacted in place with a boom mounted hydraulic compactor.

- (2) If boring is not feasible, the paved portion of the below listed roads may be excavated, provided the trench is backfilled with aggregate slurry backfill material conforming to Section 6.43.8 of the “Standard Specifications” cited above.

Roads: 7 Mile Road, 6 Mile Road, 5 Mile Road, 4 1/2 Mile Road, 4 Mile Road, 3 Mile Road, Dunkelow Road, Nicholson Road, Green Bay Road, Middle Road, Charles Street, Erie Street.

- (3) If a contractor wishes to vary the requirements of subsection 14-2-6(f)(1) so as to employ an equal or more effective method of compaction, he shall first obtain the written permission of the Town Engineer. If such permission is received and it later appears that the alternate method being employed is not, in the judgment of the Town Engineer, equally or more effective than the provisions of this section, the contractor shall revert to the means specified in this section.
- (4) In no case will flooding of the trenches be allowed as a compaction method.
- (5) After filling of the trench is completed to the satisfaction of the Town Engineer, the contractor shall restore the pavement of the highway so as to conform to the surrounding pavement as soon as such repavement is practical and feasible.
- (g) No sanitary district, public utility or construction contractor shall open any public roads, streets, or highways for the purpose of installing sewer, water, gas, or power lines or pipes without first securing the consent of the Town Board. Such consent shall be granted upon the execution of a permit which will provide for the refilling of all excavations and the relaying of all surfacing within a time and in a manner satisfactory to the Town Board. Such contract shall contain such provisions for guarantee of performance as the Town Board shall require.
- (h) Any person, firm or corporation who shall excavate into any public highway without a permit or consent as required hereby shall be guilty of a violation, and shall forfeit to the Town not more than five hundred dollars (\$500.00) nor less than one hundred dollars (\$100.00) or in default in payment of such forfeiture and court costs, by imprisonment in the county jail for not less than thirty (30) days.
- (i) In case of an emergency situation such as a broken gas-line or water line, the Town Engineer may authorize a road opening without a permit. However, it shall be the responsibility of the contractor to secure a permit no later than two (2) working days after the road opening is made.
- (j) In the case of routine utility work, the Town Engineer may waive in writing any requirement of this section provided no open cut is made in the roadbed of the Town road. However, in all cases, the road right-of-way shall be restored to the condition it was prior to the beginning of work and guaranteed for a period of fifteen (15) months.

SEC. 14-2-7 DISRUPTION OF DRAINAGE.

- (a) It shall be unlawful for any person, firm, corporation, or public utility to fill or obstruct any ditch alongside a Town road, any drainage easement, or any creek,

stream, river or canal, with any dirt, debris or construction, without prior written approval of the Town Engineer.

- (b) It shall be unlawful for any person, firm, corporation or public utility to landscape, cultivate, plow or remove soil from their property in such manner as to obstruct or fill any ditch, drainage easement, creek, stream, river or canal, without prior written approval of the Town Engineer.
- (c) Any person, firm, corporation or public utility who fills or obstructs or causes to be filled or obstructed any ditch, drainage easement, creek, stream, river or canal in violation of (1) or (2) above shall on written order from the Town Engineer, correct such violation and restore the affected, ditch, drainage easement, creek, stream, river or canal at his own expense. If corrective and restorative action is not commenced within ten (10) days after receipt of such written order, or completed within such reasonable time as the Town Engineer shall specify in writing, the Town may proceed with such work as is necessary for said correction and restoration and may charge the costs of the work to the violator, to be collected through legal action or the levying of a special tax or assessment.
- (d) Failure to comply with the provisions of this section shall constitute a public nuisance.

Any person, firm, corporation or public utility violating the terms of this section shall be guilty of a violation and upon adjudication to that effect, shall be subject to a forfeiture of not less than fifty dollars (\$50.00) nor more than one hundred dollars (\$100.00), and in default of payment of such forfeiture, shall be subjected to imprisonment in the county jail for not less than ten (10) days nor more than thirty (30) days.