

**A Local Law #6 of 2012
To Establish minimum Acceptable
Standards for Road Construction
Town Of Wawarsing**

A Local Law to establish acceptable standards for road construction for the Town to Take over such road as a Town road or to recognize the road as a private road.

Be it enacted by the Town Board of the Town of Wawarsing as follows:

Section I.

This local law shall be known as Chapter 69 of the Town Code of the Town of Wawarsing.

Section II.

§69.1 Purpose

It is the purpose of these specifications to establish minimum acceptable standards of road construction for subdivisions and site plans in the Town of Wawarsing, which requirements and standards must be met and paid for by the person or firm proposing that the Town take over such road as a Town road or recognize the road as a private road. These specifications include but are not limited to width, design, drainage, construction of base, pavement, curbs and sidewalks. Dedication of the right-of-way will not be accepted until the Engineer designated by the Town Board as responsible for the observation of construction has certified to the Town Board in writing that the construction of the street or road has been completed in accordance with the approved plans and specifications that follow, and that the total right-of-way areas have been cleared of all debris and all construction completed in a workmanlike manner. When new road rights-of-way are offered to the Town for dedication, two copies of the Record Plan (as-built) and deed with the description of the right-of-way shall be submitted to the Town Engineer and the Town Superintendent of Highways for approval.

§69.2. Certification by engineer.

In his written certification, the Town's professional engineer shall state that they, he, or his authorized representative has observed all phases of the construction, and that all work has been completed in general accordance with the approved plans and specifications.

§69.3. Preparation and submission of street (road) plans.

- A. A plan of the proposed street shall be prepared by a qualified professional engineer or qualified land surveyor licensed by the State of New York. The plan shall clearly define the limits of the proposed right-of-way by metes and bounds and shall include the location, widths, profiles and grades of the proposed roadway, storm drainage, including culverts and other drainage structures, and the locations of all easements and utilities. The plans shall also include owner of the property and name of developer, if other than owner. One copy each of the plans shall be submitted to the Town Highway Superintendent and Town Engineer at the time of application to make such road a Town road, and to the New York State Department of Transportation or Ulster County Department of Public Works when said proposed street drains toward, intersects or may otherwise affect a State or County highway. As applicable, the plans shall be submitted to the Town Planning Board for review and approval under the applicable subdivision regulations of the Town. Such roadway must not be subject to any right or easement to others, which will in any way interfere with its use as road at all times. Such roadway must be granted to the Town by a full covenant and warrantee deed containing the correct metes and bounds description as shown on the approved map, which deed must be in such form as may be required to entitle the same to be recorded in the office of the County Clerk of Ulster County, and the filing fees must be paid by the applicant.
- B. When required, permanent and temporary easements must be furnished in said deed granting to the Town the right to maintain all outlets for surface water or natural stream drainage which will run from such roadway over private property to a point where a natural watercourse exists and to which such outlets and easement will carry such water. A minimum of 30 ft. width of easement shall be required for

the maintenance of said easements of stormwater, water or sewer improvements.

- C. The proposed roadway must be constructed to conform to the minimum requirements set forth below. The minimum width to be cleared shall include all trees, rock formations, buildings, walls and any such things that would endanger those using such roadway. The removal of such obstructions shall be borne by the person or firm proposing such road.
- D. Alteration of approved plans. Plans submitted shall not be altered or amended after having been approved by the Town unless an amended plan is resubmitted and approved. However, the developer, at his own expense, shall provide additional storm drainage facilities or utilities as may be ordered by the Town, if during the course of construction, in the opinion of the Town Highway Superintendent, the Town Engineer and/or the County Department of Public Works and New York State Department of Transportation such additional structures or facilities are necessary to prevent any need for future pavement, future maintenance of right-of-way or welfare and safety of the public, except that the Town Planning Board may vary the requirements of such an order where there are practical difficulties in the way of carrying out to the letter of such order; unless such variance conflicts with the provisions of a Town or County Official Drainage Map, in which event, the Official Map shall prevail. If construction of said road has not been started within one year from the date of final approval by the Town Planning Board, plans shall be resubmitted and approved as above. If these specifications are amended prior to start of construction, the developer will be required to comply with updated requirements, unless waived by the Town.

§69.4. Supersedes all prior requirements.

The provisions of this chapter supersedes all prior regulations, specifications and ordinances covered by the subject matter of this chapter.

§69.5. Performance Guarantees

- A. Prior to the start of construction of any street, or prior to stamp of approval in the case of applications before the Planning Board, the developer shall deposit with the Town a Performance Guarantee in the form of cash or letter of

credit. The amount of Guarantee shall be equal to 100% of the cost of all improvements as estimated by the Town Engineer and approved by the Town Board. The amount shall be determined by applying to the quantities or dimensions shown on the approved plans the rates per unit as established by the Town Engineer based on prevailing municipal construction costs at the time of approval.

- B. Within two years from the approval of the proposed subdivision by the Planning Board the developer shall complete all construction within the right-of-way, including roadway, shoulders, curbs, if any, gutters, storm drainage, etc., for each lot in accordance with the approved plans and these specifications; and the developer shall adequately document that all claims for labor and materials in connection with said construction have been paid in full prior to offering said road for dedication to the Town.
- C. If said construction is not completed to the satisfaction of the Town within this period, the developer shall, subject to the approval of the Town Board, maintain the Performance Guarantee in full effect until the work is completed. Should the developer fail to obtain such approval and/or allow the Performance Guarantee to lapse, the approval to construct the improvements and the Planning Board approval shall be considered void until such time that a new Performance Guarantee acceptable to the Town has been established.
- D. Upon certification by the developer's professional engineer or qualified licensed land surveyor, a submission of a Record Drawing (As-Built Plan) and acceptance by the Town Highway Superintendent or Town Engineer that the construction of the street has been completed in accordance with the approved plans and specifications, the developer will offer to the Town Board for dedication the completed street and all other related improvements for public use free and clear of the liens and encumbrances. This guarantee of dedication shall apply to the owner of the property as well as the developer, where the two are not synonymous.
- E. At the time the Performance Guarantee is deposited with the Town, or in any case prior to commencement of the work, the developer shall make payment to the Town for all inspection fees associated with the work in accordance with Standard Schedule of Fees and Subdivision Regulations.

- F. Maintenance bonds. Prior to acceptance by the Town of the dedication of the street as guaranteed by Subsection "Performance Guarantee" above, the developer shall deposit with the Town Clerk a Maintenance Bond of acceptable surety or shall deposit with the chief fiscal officer of the Town acceptable negotiable government bonds, cash or certified check drawn upon a national or state bank, payable on its face to the Town of Wawarsing, guaranteeing that, for a period of two years from the date of acceptance of the dedication of the street and other improvements by the Town, the developer will maintain the street and other public utilities and improvements to the standard of construction set by these specifications, normal wear and tear excepted. This shall be interpreted to mean that the developer will, at his own expense, repair and make good any defects or damage which may develop during this maintenance period as a result of faulty construction within the right-of-way or as a result of other construction by the developer outside the right-of-way. During the maintenance period, the Town shall be responsible for snow and ice control, street cleaning of culverts and catch basins and other work as familiar routine nature, provided that such work has in no way been caused by the developer's operations.
- G. The amount of the Maintenance Bond shall be at least equal to 10% of the original amount of the Performance Guarantee. Subsequent to the dedication of the street and after receipt of the Maintenance Bond, the Town Board shall release the Performance Guarantee.

§69.6. Classification of streets

The Town Planning Board and Planning Board Engineer shall determine and designate into which of the following classifications each proposed subdivision street falls on the basis of the criteria hereinafter set forth:

- A. Local Street, Dead-end Street
- B. Collector Street
- C. Major Street
- D. Business Street

§69.7. Determining criteria.

The following criteria shall be used to determine what classification shall be given to a street:

TABLE OF DESIGN STANDARDS FOR NEW STREETS

Standard	Zoning District		
	RU, RS-1, RS-2, RMH	MU, NS	BH, IND
Minimum Right-of-Way Width Local Street, Dead End Street, Collector Street, Major Street, Business Street	50 ft. 50-60 ft.	50 ft. 60 ft.	56 ft. 60 ft.
Minimum Pavement Width Local Street, Dead End Street Collector Street, Major Street, Business Street	30ft (dead end street 24 ft.)* 30 ft.	30ft. (dead end street 24 ft.) 32 ft.	36 ft. 40 ft.
Maximum Grade Local Street, Dead End Street Collector Street, Major Street, Business Street Turnaround	10%** 10% 5% 1%	10%** 8% 3% 1%	8% 6% 3% 1%
Minimum Grade			
Turnaround Diameter Right-of-Way Minimum Pavement Minimum	140 ft. 120 ft.	140 ft. 120 ft.	140 ft. 120 ft.
Maximum Length of Cul-De-Sac Permanent Dead-End Temporary Dead-End	10 x min. lot width 10 x min. lot width		500 ft. 1,000 ft.
Minimum Center Line Radius of Curve Local Street, Dead End Street Collector Street, Major Street, Business Street	150 ft. 250 ft.	200 ft. 400 ft.	200 ft. 200 ft.
Minimum Radius at Intersection Right-of-Way Pavement	20 ft. 30 ft.	20 ft. 30 ft.	30 ft. 40 ft.
Sidewalks (one or two sides as required by the Planning Board)	One - 4 ft. wide (min.)	One - 5 ft. wide	Two - 8 ft. wide
Minimum Tangent Length Between Reverse Curves Local Street, Dead End Street Collector Street, Major Street, Business Street	100 ft. 100 ft.	100 ft. 200 ft.	250 ft. 300 ft.
Minimum Sight Distance Local Street, Dead End Street Collector Street, Major Street, Business Street	300 ft. 300 ft.	300 ft. 300 ft.	300 ft. 300 ft.
Sight Distance At Intersection	Across corner 75 ft. from intersection center		
Minimum Length of Vertical Curve Local Street Collector Street	L = 28A (crest); L=35A (SAG) L = Length of Vertical Curve in Feet L = 60A (crest); L=35A (SAG) A = Algebraic Difference in Grades		

* 22 ft. if only four lots served, not counting corner lots

** 10% except that grades upto 12.5% may be allowed at the discretion of the Town Board for maximum 300ft. long straight runs.

§69.8. Design standards for new streets and driveways.

A. Local Street, Dead-end Street

- [1] A street serves or is designated to serve primarily as access to abutting residential properties.
- [2] The proposed street is in an area zoned for residential development.

B. Sight distance requirements. All street and driveway intersections shall meet the standards contained in the New York State Department of Transportation publication entitled, "Policy and Standards for Entrances to State Highways" (February 1998) or latest edition. More specifically, said intersections shall, at a minimum, meet the Intersection Sight Distance (ISD) requirements in Tables 3 and 4 of said publication. Notwithstanding the above, driveways which cannot meet the ISD requirements shall, at a minimum, meet the Stopping Sight Distance (SSD) requirements in Table 5 of said publication.

C. Intersections.

- (1) Intersections of major streets shall be at least 800 feet apart, if possible. Cross (four cornered) street intersections shall be avoided insofar as possible, except at important traffic locations. A distance at least equal to the minimum required lot width, but not less than 200 feet, shall be maintained between centerlines of offset intersecting streets. Within 60 feet of the center of an intersection, streets shall be at approximately right angles and grades shall be limited to 2%. Wherever two streets intersect at an angle of less than 75 degrees, special pavement, channelization, right-of-way and/or sight easement restrictions may be required.
- (2) All intersections with existing Town, County, or State roads shall be constructed with the edge of pavement having a radius of 30 feet minimum.

D. Grades and vertical curves.

- (1) The grades of the streets and vertical curves shall be in accordance with the Table Of Design Standards For New Streets. Grades shall be limited to no more than 2% within 60 feet of the center of an intersection.
- (2) Changes in grade. All changes in grade shall be connected by vertical curves of such length and radius as meet with the approval of the Town Engineer so that clear visibility shall be provided for a safe distance as well as a smooth transition.
- (3) In order to provide visibility for traffic safety, that portion of any corner lot (whether at an intersection of a new street or an existing street), shall be cleared of all growth (except isolated trees) and obstructions above the level 30 inches higher than the center line of the street for a distance of 75 feet from the center point of the intersection. If directed, ground shall be excavated to achieve visibility.
- (4) Curve radii. In general, street lines within a block deflecting from each other at any one point by more than 10° shall be connected with a curve, the radius of which for the center line of street shall not be less than in the Table of Design Standards For New Streets. The outer street line in each case shall be parallel to such inner street line.

E. Cul-de-sacs (Dead-end street)

Cul-de-sacs shall be equipped with a turnaround roadway with a minimum diameter of right-of-way and a minimum outside diameter of traveled way as shown in the Table of Design Standards For New Streets (detail located in appendix). The radii of the curves entering into, and exiting from, the cul-de-sac shall be a minimum of 50 feet. Cul-de-sacs shall be graded to allow for positive drainage to the curb lines. The minimum grade through the cul-de-sac, as determined along the curb line, shall be 1%. The maximum grade through a cul-de-sac, as determined along the curb line, shall not exceed 5%. A 20 foot by 20 foot snow storage easement shall be provided at the end of a cul-de-sac.

F. Driveways.

- (1) Developers and home builders shall design and construct all driveways within the limits of the right-of-way with sufficient sight distance (in both directions) and with a positive 5% grade from curb to the right-of-way line or from street pavement line (where no curb exists) with a negative 2% grade for the first 10 feet. The minimum width of the driveway pavement at the curb or street pavement line shall be 15 feet, tapering to a minimum of 10 feet at the right-of-way line. All driveways shall have a six-inch run-of-bank gravel foundation course from curb to right-of-way line and no less than 3 inches of hot mix asphalt concrete top course from curb or street pavement line to a point 25 feet from the curb or street pavement line, which shall be applied during or after the laying of the street pavement.
- (2) Grading shall be to the satisfaction of the Town Highway Superintendent and the Town Engineer prior to the surfacing of such driveways. Maximum allowable driveway slope shall be 10%. Where required by the Town Highway Superintendent, a culvert or drainage system shall be provided, with the pipe size and material to be as acceptable to the Town Highway Superintendent. Pipe size shall not be less than 15 inches in diameter, and shall have a minimum coverage of 12 inches over the pipe.
- (3) All driveways that have received a waiver from the Planning Board to allow any portion of said driveway to have a slope over 10%, which in any case may not exceed 12%, shall be paved for the entire length of the driveway.
- (4) All driveways that exceed 250 feet in length must provide a turnaround area sufficient for emergency vehicles as well as provide at least one area of the driveway that is wide enough for two emergency vehicles to simultaneously pass one another.

§69.9 Development of right-of-way and monuments.

The developer shall establish and clearly mark on the site the limits or road rights-of-way and easements with monuments, and grades of the finished road pavement, and the locations and elevations of drainage structures, as shown on the approved

plans, with constructions stakes. Such construction of road pavement, drainage, structures, curbs, and shoulders shall be completed, inspected and approved by the Town Highway Superintendent and the Town Engineer at each step of construction. The developer shall be responsible for scheduling the work so as to coordinate all necessary inspections. Monuments shall be set on right-of-way lines of streets at all intersections, angle points, points of curvature, lot line front corners, beginning and end of streets, and at three points of all cul-de-sacs. There shall be a clear view of adjacent monuments on the right-of-way line. All monuments shall exist on completion of the construction of the streets. The monuments shall be made of concrete with minimum dimensions of 30 inches long, four inches square top and size inches square bottom, with a $\frac{1}{2}$ inch drilled hole in the top or a galvanized iron FENO drivable anchored survey markers 24 inches long with a polyroc monument block. Concrete monuments shall have a No. 3 rebar in the center of it for ease of future location. If a monument should be located in a rock edge, the surface shall be stripped and a $\frac{1}{2}$ inch steel rod drilled into the ledge. Monuments shall be installed flush with the final graded surface. The developer's licensed surveyor shall certify that the location of all monuments is accurate before acceptance of the street by the Town Board.

§69-10. Easements.

- A. Drainage easements. Where surface water from road must lead through storm drains, ditches, swales or existing stream channels outside the right-of-way, permanent drainage easements having a minimum width of 30 feet shall be provided to a point where a natural watercourse exists. In some cases, this may include easements over property outside the boundaries of the subdivision involved. Natural stream or ditch channels shall have a minimum of 30 foot wide permanent easements, if required by the Planning Board or the Town Highway Superintendent and be shown on the proposed plans of a subdivision. All permanent easement lines shall be monumented as a right-of-way.
- B. Sight easements. Sight easements shall be provided across all road corners, outside the road right-of-way, within the triangular area formed by the nearest edges of street pavement and a straight line between two points each 25 feet back from the theoretical intersection of the edges of such pavement prolonged. The easements shall provide that the holder of fee title to the abutting streets shall have the

right to enter the easement area for the purpose of clearing, pruning or regarding so as to maintain a clear line of sight in either direction across such triangular area between an observer's eye 3.5 feet above the pavement surface on one street and an object one foot above the pavement surface on the other. The initial establishment of clear sight lines within the sight easement area shall be the responsibility of the subdivider.

§69-11. Clearing and grubbing.

Prior to commencement of work, the developer shall have all roads and easement areas staked and shall meet with the Town Highway Superintendent and/or the Town Engineer to determine the extent of clearing and grubbing and whether or not any existing vegetation within these areas are to remain. Otherwise, the developer shall clear the entire area within the limits of:

- A. The road right-of-way.
- B. Stream channels and ditches.
- C. All ledge rock and rock outcroppings shall be removed to below the elevation of the lowest point of the roadbed and shall be done to afford proper sight distances, drainage and runoff.
- D. Easement areas (as determined by the Town Highway Superintendent and the Town Engineer).

All stumps, roots, walls, structures, abandoned utilities, and debris shall be excavated and removed from the above areas.

§69-12. Excavation, filling and rough grading.

- A. The developer shall complete the shaping of the road right-of-way, streams and ditches and easement areas to the line and grade as shown on the approved plans and as otherwise may be directed by the Town Highway Superintendent and the Town Engineer. In the construction of the roadway, all topsoil, loam, rocks and organic materials shall be removed until a satisfactory sub-base is established. All fills shall be made with acceptable material as approved by the Town Highway Superintendent and the Town Engineer. Such fill shall be made in layers of not more than eight inches each and properly compacted with a ten-ton roller or equivalent.

- B. The subgrade shall be shaped to line and grade with no depressions. The subgrade shall be stable in all respects to the satisfaction of the Town Highway Superintendent and the Town Engineer before the geotextile and foundation course is laid. No large stones or rock ledges shall protrude into the foundation course. All slope areas shall be graded and all loose and exposed stones shall be removed.
- C. Stakes with final line and grade shall be maintained by the developer at all times to check the foundation course.

§69-13. Storm drainage, catch basins and curb inlets.

- A. The drainage system and/or culverts shall be designed in accordance with established engineering principles and approved by the Town Highway Superintendent and the Town Engineer. Plans for any drainage structure other than pipe culverts, when existing or proposed, shall be submitted in detail to the Town Highway Superintendent and the Town Engineer for approval. The minimum grade of any drainage pipe or culvert shall not be less than 1%. The approved plans shall show invert elevations of the inlet and outlet of all drainage structures. Any deviation from the approved plans shall be on approval of the Town Highway Superintendent and the Town Engineer, in writing. No culvert pipe shall be less than fifteen inches in diameter unless by approval of the Town Highway Superintendent and the Town Engineer. Pipe for culverts may be high density polyethylene pipe (HDPE) with a smooth interior or reinforced concrete pipe Class III, which shall conform to the last ASTM and AASHTO Standards. Pipes greater than 36" in diameter shall be concrete pipes. End sections shall be placed at all pipe inlet or outlet ends, where appropriate. Where required, headwalls of concrete or mortared stone masonry shall be constructed. Culverts shall extend to the toe of embankment. The bearing of all headwalls shall have a solid base. If soft material is encountered, it shall be removed and backfilled with NYSDOT Item No. 304.12. It shall be the responsibility of the developer that no headwalls shall crack or become tipped from settlement. A concrete mix of 4,000 psi after 28 days shall be used.
- B. The width of the trench in which the pipe (see trench detail in appendix) is laid shall be sufficient to permit thorough compaction of the backfill around the pipe and a minimum of 24" wider than the outside pipe diameter. A cushion of at least six inches shall be laid in line with grade prior to

laying the pipe. No rock over three inches in size shall protrude or lie in this cushion. The soil below the cushion shall be stable enough so that there will be no settlement of pipe after backfilling the trench.

- C. The pipe shall be laid to true line and grade on the prepared bed of the trench. Backfilling of the trench shall be done with roadway foundation material approved by the Town Highway Superintendent and the Town Engineer. The backfill shall be made in layers of no more than six inches, which shall be compacted. In no case shall the top of any drainage pipe be less than twenty-four inches below the finished grade of pavement. Alignment of pipes shall be in a straight line between drainage structures.
- D. All drainage structures (pipes, basins, etc.) shall be of a size sufficient to carry potential water runoff and stormwater generated by a 25 year storm for the upstream water shed areas of less than 200 acres and by a 100 year storm for watershed areas greater than 200 acres and also that which, in the opinion of the Town Highway Superintendent and the Town Engineer, may be reasonably anticipated from future construction, both from within the development and from adjoining properties, which normally drain across the area of the proposed development. Sizing of all structures shall comply with the Town guidelines in effect at the time of construction. Additional or larger culverts and drainage structures shall be installed and paid for by the developer if the Town Highway Superintendent and the Town Engineer so direct. Drainage structures (catch basin detail located in appendix) shall be backfilled with NYSDOT Item No. 304.12. Backfill material shall be "chucked" under the piping to ensure all voids are filled so as to prevent settlement. Backfill material shall be compacted in 6-inch lifts around catch basin structures with a vibratory "jumping jack" compactor.
- E. With the approval of the Town Highway Superintendent and Town Engineer, open ditches may be used in lieu of storm drain pipes when the grade of the land traversed is flat or when it is desirable to drain and dry up the surrounding area. All open drainage lines and swales shall be protected against erosion by suitable stabilizing materials or construction.

[1] The grade of any open ditch shall not exceed 10%.
Rip-rap, shall be used on grades greater than 6% and

shall consist of rough, unsewn quarry stones as nearly cubical in form as is practicable, placed upon a slope not steeper than 1 on 2 and so laid that the weight of the larger stones is carried by the soil and not the stone adjacent.

[2] The largest stones shall be placed first, roughly arranged and in close contact. The spaces between the larger stones shall be filled with spalls of suitable size.

[3] Whenever a drain pipe enters an open ditch, the bottom and sides of the ditch shall be rip-rapped for a distance of at least 20 feet beyond the end of the pipe. The drainage pipe shall terminate with an end section or at a headwall.

§69-14. Fine grading.

- A. Before fine grading or construction of curbs is started, all storm sewers and all utilities, shall have been installed and all fill and backfill shall have been thoroughly compacted to the satisfaction of the Town Highway Superintendent and Town Engineer.
- B. After completion of the rough grade and prior to the laying of the geotextile and foundation course, the subgrade shall be shaped to line and grade and thoroughly compacted with an approved self-propelled roller weighing not less than ten tons. All hollows and depressions, which develop under rolling shall be filled with acceptable granular material and again rolled, this process to be continued until no depressions develop. The subgrade shall not be muddy or otherwise unsatisfactory when the foundation course is laid upon it.
- C. Any soft, unstable, or unsuitable portions of the subgrade which develop under "proof rolling" with a fully loaded tandem dump truck shall be completely excavated and removed from the right-of-way and shall be replaced with acceptable granular material and/or geotextile and the area re-graded and compacted as above.
- D. Prior to installation of foundation course, a non-woven needle punched geotextile fabric shall be laid upon the subgrade along the entire length of the proposed roadway.

Geotextile fabric shall be overlapped 18" minimum at all seams. Geotextile fabric (MIRAFI S1200 or approved equal) shall meet the following minimum properties, in accordance with ASTM test methods:

Item	Value
Grab tensile strength	310 lbs.
Grab tensile elongation	50 % (max)
Apparent Opening Size (AOS)	100 (U.S. Sieve)
Mullen Burst strength	650 psi
Trapezoid tear strength	120 lbs.
Puncture resistance	180 lbs.
Water Flow Rate	65 gpm/ft ²
Permeability	0.30 cm/sec

- E. Fine grade shall conform to the prescribed width of pavement and shall extend equidistant from the center line of the road right-of-way and shall conform to the typical cross section of the road pavement and to the approved line and grade.

§69-15. Foundation course and granular material.

- A. After the fine grade and all curbs have been constructed to the satisfaction of the Town Highway Superintendent and the Town Engineer, the developer shall furnish and place a foundation course of New York State Department of Transportation (NYSDOT) Item No. 304.12 to the depth as called for in these sections. All materials acceptable for this course shall be hard, durable and sound and shall be well graded from coarse to fine, the maximum diameter of the large particles not exceeding two inches, 25% to 60% by weight, shall pass the ¾ inch square sieve, 5% to 40% by weight, shall pass the No. 40 mesh sieve, and not more than 10%, by weight, shall pass the No. 200 sieve. A certified analysis of granular material shall be filed with the Town Highway Superintendent and Town Engineer.
- B. The materials shall be placed on the finished sub-grade by means of mechanical spreaders and shall be thoroughly compacted by rolling with a self-propelled ten-ton roller. Water shall be added to the materials in such amounts as the Town Highway Superintendent and the Town Engineer may consider necessary for proper compaction. After compaction, the course shall be true to grade and cross sections, and depressions shall be eliminated by the use of additional granular material thoroughly rolled in place. In all cases,

the foundation course must be thoroughly compacted so that it will not weave under the roller.

- C. Prior to placement of any pavement, all roadways shall be "proofed-rolled" with a fully loaded tandem dump truck in the presence of the Town Highway Superintendent and the Town Engineer, in a manner prescribed by the Town, and any defective or unacceptable sections shall be reconstructed as necessary and retested prior to paving operations.

§69-16. Pavement - base course.

After the foundation course has been inspected and accepted by the Town Highway Superintendent and the Town Engineer and found to be at the grade allowing the proper depth of finished pavement, the base course shall be laid.

- A. Hot mix asphalt concrete pavement - material.

- (1) Base course shall consist of a hot mix asphalt concrete, conforming in all respects to the requirements for Base Course, Type 1, as stated in the New York State Department of Transportation Standard Specifications - Construction and Materials, Section 400 (latest edition). Hot mix base course shall be constructed on a prepared sub-base in accordance with these specifications and in conformance with lines, grades, thicknesses and detail shown on the typical cross-sections for the type of road involved.
- (2) Hot mix base course shall consist of aggregates, filler if required, and bituminous material proportioned in accordance with Table 403-1 of the New York State Department of Transportation Standard Specification for a Type-1 dense base course.

- B. Hot mix asphalt concrete pavement - placement.

- (1) Pavement shall not be placed on any wet surface, any soft surfaces or when the surface temperature is less than 45°F. Temperature shall be measured on the surface where the paving is to be placed and the controlling temperature shall be the average of three temperature readings taken at locations approximately 25 feet apart.
- (2) The roadway surface to be covered shall be free from holes, depressions, bumps, waves, cracks and

corrugations. Any unsuitable surface areas shall be repaired by replacement of the unstable material or by patching with a material to produce a tight surface having the same elevation as the surrounding surface.

- (3) All equipment and the condition of the equipment shall meet the approval of the Town Highway Superintendent and the Town Engineer.

§69-17. Pavement - binder course

After the base course has been placed, inspected and approved by the Town Highway Superintendent and Town Engineer, the following binder course shall be laid.

A. Hot mix asphalt concrete pavement - material.

- (1) Binder course shall consist of a hot mix asphalt concrete, conforming in all respects to the requirements for Binder Course, Type 3, as stated in the New York State Department of Transportation Standard Specifications - Construction and Materials, Section 400 (latest edition). Hot mix binder course shall be constructed on a prepared base in accordance with these specifications and in conformance with lines, grades, thicknesses and detail shown on the typical cross-sections for the type of road involved.
- (2) Hot mix binder course shall consist of aggregates, filler if required, and bituminous material proportioned in accordance with Table 403-1 of the New York State Department of Transportation Standard Specification for a Type-3 dense binder course.

B. Hot mix asphalt concrete pavement - placement.

- (1) Pavement shall not be placed on any wet surface, any soft surfaces or when the surface temperature is less than 45°F. Temperature shall be measured on the surface where the paving is to be placed and the controlling temperature shall be the average of three temperature readings taken at locations approximately 25 feet apart.
- (2) The roadway surface to be covered shall be free from holes, depressions, bumps, waves and corrugations. Any

unsuitable surface areas shall be repaired by replacement of the unstable material or by patching with a material to produce a tight surface having the same elevation as the surrounding surface.

- (3) All equipment and the condition of the equipment shall meet the approval of the Town Highway Superintendent and the Town Engineer.
- (4) In the event that the base course has been subjected to traffic for an extended period of time, a tack coat or asphalt emulsion at a rate of 0.05 gallons per square yard shall be applied to the surface in accordance with the requirements of the current NYSDOT Specifications, Section 407, prior to the placement of the binder course.

§69-18. Pavement - top course

After the binder course has been placed, inspected and approved by the Town Highway Superintendent and Town Engineer, the following top course shall be laid.

A. Hot mix asphalt concrete pavement - material.

- (1) Finish course shall consist of a hot mix asphalt concrete, conforming in all respects to the requirements for Top Course, Type 6F2, as stated in the New York State Department of Transportation Standard Specifications - Construction and Materials (latest edition).
- (2) Hot mix finish course shall be constructed in accordance with these specifications and in conformance with lines, grades, thicknesses and detail shown on the typical cross-sections for the type of road involved.
- (3) Hot mix finish course shall consist of aggregates, filler if required, and bituminous material proportioned in accordance with Table 403-1 of the New York State Department of Transportation Standard Specification for a Type-6F2 dense granular top course.

B. Hot mix asphalt concrete pavement - placement.

- (1) Pavement shall not be placed on any wet surface, any soft surfaces or when the surface temperature is less

than 50°F. Temperature shall be measured on the surface where the paving is to be placed and the controlling temperature shall be the average of three temperature readings taken at locations approximately 25 feet apart. At no time, shall the finished course be placed between the 3rd Saturday of October and May 1st.

- (2) The roadway surface to be covered shall be free from holes, depressions, bumps, waves and corrugations. Any unsuitable surface areas shall be repaired by replacement of the unstable material or by patching with a material to produce a tight surface having the same elevation as the surrounding surface.
- (3) All equipment and the condition of the equipment shall meet the approval of the Town Highway Superintendent and the Town Engineer.
- (4) In the event that the binder course has been subjected to traffic for an extended period of time, a tack coat or asphalt emulsion at a rate of 0.05 gallons per square yard shall be applied to the surface in accordance with the requirements of the current NYSDOT Specifications, Section 407, prior to the placement of the top course.
- (4) When connecting to an existing pavement surface, the top course of the new road shall connect to the existing surface through a milled keyway as shown in the details located within the appendix. All seams at tie-in locations shall be sealed with a polymer modified crack sealant acceptable to the Town Highway Superintendent and Town Engineer.

§69-19. Curbs and Sidewalks

- A. On all new streets, six inch reveal Portland cement concrete curbs (detail in appendix) shall be constructed on both (reveal) sides of the street, prior to laying street pavement to the dimensions and specifications required. On all streets Portland cement concrete sidewalks shall be constructed on one or two sides of the street as required by the Planning Board. A compacted base course of six inches in thickness, free of stone over two inches in thickness, shall be laid under all curbing and sidewalks. A concrete mix of 4,000 psi for curbs and 3,500 psi for sidewalks after

28 days shall be used and shall be finished and cured to the satisfaction of the Town Highway Superintendent and the Town Engineer. The developer at his own expense shall replace any curbing and sidewalk that has settled, cracked, scaled or has become damaged in any way before and within one year maintenance period after dedication. Curb shall be depressed five inches at all driveways. Stone curbs may be used only outside of the road right-of-ways where approved by the Town Planning Board.

- B. All concrete shall be tested for air entrainment, slump, temperature, and strength. Each truck load of concrete shall be tested by an independent "ACI" certified testing lab, and the cost shall be borne by the developer and/or contractor. All testing conducted at the site shall be performed by an "ACI" certified field technician. All test results shall be submitted to the Town Engineer for review. Concrete shall have a maximum slump of 4 inches and air entrainment of $6\% \pm 1\%$ maximum. Concrete not meeting the requirements of this section shall be removed and replaced. All concrete shall achieve the required strength at 28-days.
- C. Upon curing, all curbs shall be sealed with a sealing compound to protect against deicing agents.
- D. Asphalt shall not be used for curbs and/or sidewalks.

§69-20. Groundwater and house drains.

- A. If, in the opinion of the Town Highway Superintendent and the Town Engineer, it is necessary to intercept and carry away groundwater within the limits of the right-of-way to protect the stability of the roadbed, curb or sidewalk areas, the sub-drainage required by the Town Highway Superintendent and the Town Engineer shall be installed. PVC perforated pipe, having a minimum diameter of four inches, shall be encased in $\frac{3}{4}$ " clean crushed stone, within a trench that is 12 inches wide. Entire sub-drainage shall be wrapped in a non-woven geotextile fabric having a water flow rate of 155 gpm/ft², a fabric thickness of 50 mils, Mullen burst strength of 170 psi, and a grab strength of 90 lbs. Trench filled with crushed stone shall start at a point 4 inches below finished grade, allowing for 4 inches of topsoil. Trench shall extend down so that the top of sub-drainage pipe shall be positioned 2" below the bottom of the curb line. There shall be at least 4 inches of crushed

stone under the perforated pipe. If curbing is not to be installed, top of sub-drainage pipe shall be installed 24" below finished pavement grade.

Roof, cellar and footing drains shall in no case be allowed to flow onto the street right-of-way. With the approval of the Town Highway Superintendent and the Town Engineer, in writing, these drains may be piped to existing stormwater structures, if any, to which they will be connected. Such drains must be installed prior to the start of the application of the foundation course. Drains from septic tanks will not be permitted to flow into road ditches or storm drains under any circumstances.

§69-21. Guide rails.

Where required, in the event that the bordering lands to a proposed road lie four feet or more below the point of shoulder for a continuing length of 100 feet or more, or the fill slope is steeper than one vertical on four horizontal or when so required by the Town Highway Superintendent and/or the Town Engineer, a box beam guide rail shall be installed along said shoulder line for that portion of the road that is four feet or more above the adjacent lands.

§69-22. Street signs and traffic control devices.

- A. Street signs of a type approved by the Town Highway Superintendent and the Town Engineer, shall be installed by the developer. Prior to naming a street, a check should be made with the Town Clerk and 911 Coordinator to determine that the proposed name is not in use. All names are subject to the approval of the Town Board and 911 Coordinator. The developer shall also install all required traffic controls signs, as recommended by the Town Highway Superintendent and the Town Engineer, subject to the approval of the Town Board.
- B. Street name signs shall be double-faced, assembled with engineer-grade reflective sheeting on extruded aluminum blades. Signs shall be white characters on green background, six inches in height, by length as necessary for specific installation. Private road name signs shall be white characters on blue background. Letters shall be three inches, upper case, FHWA Series C, of reflective sheeting. All signs shall be manufactured per United States Bureau of Public Roads Standards and shall be chemically treated to

meet ASTM B449 (latest revision) for pre-treatment for paint or reflective sheeting.

- C. Sign posts shall be 2-3/8 inch O.D., 65/100th inch wall thickness, hot-dipped galvanized steel, ten foot length, set three feet into solid ground.
- D. Traffic control devices shall only be installed where approved by the Town Planning Board and/or Town Board and, if applicable, the other governmental agencies having jurisdiction for the intersection of roadways involved. All signs and pavement markings shall be of the type, size, color, shape and general construction and placement, in accordance with the criteria called for the "Manual of Uniform Traffic Control Devices" (latest revision), as promulgated by the New York State Department of Transportation, Traffic and Safety Division. Traffic control signs shall be constructed of stock aluminum, manufactured in accordance with United States Bureau of Public Roads Standards, treated to meet ASTM B449 for pretreatment for paint or reflective sheeting.
- E. Traffic control signs shall be mounted to heavyweight rib-back channel posts finished with a green baked-enamel coating. Posts shall be three pounds per foot weight, manufacturer from high tensile steel. Posts shall be set a minimum of three feet into solid ground, of a minimum ten foot overall length. Posts shall be lap-spliced breakaway system.

§69-23. Street lighting.

Street lighting facilities. Where required by the Planning Board, street lighting standards in conformance with a design approved by the Town Engineer shall be installed by the subdivider in a manner and location approved by the Town Engineer, the appropriate power company and the Highway Superintendent. In the case of a subdivision involving a county or state highway, approval shall be obtained from the County Superintendent of Highways or NYSDOT. Where a new light district is to be created or an existing district expanded, the applicant shall petition the Town Board to create said district or expansion before final approval.

§69-24. Street trees.

The Planning Board may require that shade trees be preserved and/or furnished and planted at the expense of the

owner/developer, along both sides of the road. The developer and/or contractor shall install street trees along all new roads. Trees shall be of a hardwood variety indigenous to the neighborhood, and shall be at least 3 inches in diameter at a height 4 feet above ground level. All trees must meet the standards of the American Standard for nursery stock. Such trees shall be planted along both sides of the street, outside the street right-of-way (approximately 5 feet from the right-of-way line), and spaced approximately 40 feet on center. Such trees are to be guaranteed to survive two growing seasons. Poplars, box elders, catalpas, horse chestnuts, willow and elms shall not be planted.

§69-25. Stabilization seeding.

- A. After all construction within the right-of-way has been completed, all non-paved areas shall be finish graded and seeded. Seeding mix shall be as follows:

Component	Application
Perennial ryegrass (25%), Creeping Red Fescue (25%), Kentucky Bluegrass (50%)	4 lbs/1,000 square feet
Fertilizer	15 lbs/1,000 square feet
Limestone	135 lbs/1,000 square feet
Mulch (unrotted straw)	Feet 90 lbs/1,000 square feet

- B. All seeding shall be performed on ground surface consisting of a minimum of four inches of screened topsoil. This work may be performed during the spring, summer, and fall seasons of the year, unless otherwise specified. When conditions of high winds, excessive moisture or ice are such that satisfactory results are not likely to be obtained, the work shall be stopped and will be resumed only when the desired results are likely to be obtained or when acceptable correctible measures and procedures are adopted.
- C. Areas to be seeded shall be maintained at acceptable grades. Irregularities, which form low places and hold water shall be eliminated. The developer shall care for the seeded and mulched areas until the end of the maintenance bond term. Such care shall consist of repairing any areas damaged following the seeding or mulching operations due to wind, water, fire or other causes. Such damaged areas shall be repaired to re-establish the condition and grade of the area

prior to seeding, and shall then be re-fertilized, re-seeded and re-mulched as specified herein.

§69-26. Specifications for miscellaneous materials.

- A. Run-of-bank gravel. All material shall be hard stone and well graded from coarse to fine, and in general shall conform to the following:
- (1) The particles shall be of a size that will pass through a 4" square mesh. Run-of-bank gravel shall be free of topsoil, sod and other objectionable materials with no particles exceeding 2"; 25% to 60%, by weight shall pass the ¼" square sieve; 5% to 40% by weight shall pass the No. 40 mesh sieve; and not more than 10% by weight shall pass the No. 200 mesh sieve, and approved by the Town Highway Superintendent and the Town Engineer.
 - (2) Shale or slag. All shale or slag shall be hard, durable material, well graded from coarse to fine, with not particles larger the 4" and meet with the approval of the Town Highway Superintendent and the Town Engineer.
- B. Crushed stone and crushed gravel. All materials shall consist of clean, durable, sharp-angled fragments or rock or gravel, free from soft or disintegrated stone, dirt or other objectionable materials.
- (1) Crushed stone shall meet the following percentages by weight, passing through square screen openings;

Percentage	Screen
90%- 100%	Pass 1½" screen
55%	Pass 1" screen
15%	Pass 1/2 " screen

- (2) Crushed gravel shall meet the same requirements as crushed stone except that the mixture must have a minimum of 75% fractured particles.
- (3) All materials will be sampled and tested whenever it may appear to be desirable. All materials must pass the soundness test as prescribed by the Specifications of the New York State Department of Transportation and

approved by the Town Highway Superintendent and the Town Engineer.

- C. Foundation course material. Materials to be used for road base course shall be NYSDOT Item 304.12, Type 2. Material shall meet all requirements as set forth in the New York State Department of Transportation Standard Specifications (latest edition).
- D. Concrete for headwall, etc.
 - (1) All concrete for headwalls, etc., shall be mixed in mechanical mixers with contents of 100% Portland cement, clean water free of oil, salt, acids, alkali, vegetable matter or other deleterious matter and aggregate that is clean, hard-crushed stone or crushed gravel free from clay, silt, loam or other deleterious matter.
 - (2) Concrete shall develop average ultimate compression strength, based on a 4" slump, of not less than 4,000 psi at 28 days and approved by the Town Highway Superintendent and the Town Engineer.
- E. Reinforced concrete pipe. The specifications shall be the same of the New York State Department of Transportation Specifications for Reinforced Concrete Pipe Section 706, except that the tongue and groove pipe is preferred for all sizes. Each piece of pipe shall be stamped as such and the condition of pipe shall be approved by the Town Highway Superintendent and the Town Engineer.
- F. Corrugated polyethylene pipe. Corrugated polyethylene pipe shall be smooth interior lined type for maximum strength. Pipe shall be manufactured using high density polyethylene (HDPE) resins meeting applicable ASTM and AASHTO standards. Pipe shall be suitable for H-20 loading.
- G. Bituminous material.
 - (1) All bituminous material furnished shall conform with the general specifications for materials of construction as given in the New York State Department of Transportation Standard Specifications (latest edition).
 - (2) For the application of bituminous materials, distributor must be provided with acceptable units for

the control of temperature of materials. The bituminous material must be heated to such temperatures as are required by the Town Highway Superintendent and the Town Engineer. No bituminous material shall be applied when the surface of the pavement is wet, and the Town Highway Superintendent and the Town Engineer reserve the right to order the application of such material to be stopped when they deem the conditions unfavorable.

§69-27. Intersections.

- A. Where a development street intersects a Town, County, or State road, the approved plans will show the proposed type, length and diameter of pipe and drainage flow along said road. The drainage improvements shall be installed and paid for by the developer.
- B. Applications to the County Department of Public Works and the New York State Department of Transportation shall be made for all intersections with County or State highways for approval of locations, grade, drainage structures and other requirements.
- C. The developer shall assume full responsibility for any contamination and/or degradation of any part of this course during construction and shall, at his own expense, remove any and all portions of this course, which do not conform to the requirements of these specifications and replace these portions with specified material.

§69-28. Preconstruction Meeting.

Prior to beginning any work the developer shall arrange a preconstruction meeting with the contractor, Town Engineer and the Town Superintendent of Highways to establish various procedures that will be followed during construction and a schedule of required inspections.

§69-29. Street acceptance.

No road or highway will be accepted by the Town of Wawarsing as a Town road or highway unless the same complies with all the provisions of this chapter.

§69-30. Work in existing Town roads.

- A. All work to be performed within an existing Town road shall be subject to the approval of the Town. The contractor, developer or other such person performing the work shall be required to obtain a road opening permit and pay any and all such fees that may apply in relation to the same.
- B. The contractor or person performing the work shall be required to submit to the Town a Certification of Insurance listing the Town of Wawarsing as Additional Insured (providing primary coverage), providing liability and property damage insurance with a limit of liability not less than \$1,000,000.
- C. All work shall be subject to the review of Town representatives, and the contractor or person performing the work shall schedule such work as to permit the necessary reviews and inspections. Where applicable, a fee shall be paid to the Town for such reviews and inspections.
- D. All work shall be in accordance with generally accepted and recognized guidelines and the specifications for road opening permit guidelines in effect at the time of the work, this shall include OSHA Regulations.

§69-31. Severability.

In the event that any part of parts of these street specifications, or of any ordinance or regulations which may govern or otherwise affect them, is for any reason modified or invalidated, the other portions of said specifications not affected thereby shall remain in full force and effect.

§69-32. Interpretation.

Final decision as to the interpretation of any part of these street specifications shall rest with the Town Highway Superintendent, Town Engineer and Town Board. They shall have the authority to modify the requirements of these specifications when in their opinion conditions make it impracticable to follow the strict letter of these specifications or when conditions make it unnecessary to do so.

§69-33. Special terms of acceptance.

In the case of difficulties acceptance will be made upon terms specified by the Town Board and Town Highway Superintendent on application made to the Town Board.

Construction Details.

Local Street	Figure 1
Collector, Major and Business	Figure 2
Cul-De-Sac	Figure 3
Standard Sidewalk	Figure 4
Concrete Curb	Figure 5
Concrete Curb (Mountable)	Figure 6
Curb Drain	Figure 7
Catch Basins	Figure 8
Trench Cross-Section	Figure 9
Entrance to Existing Town Road	Figure 10
Milled Keyway	Figure 11

Section Three.

This Local Law shall take effect immediately upon filing in the office of the New York State Secretary of State.