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IMPROVEMENT SPECIFICATIONS

7.1 MONUMENTS

Monuments shall be set at corners and angles of all roads and at all points of curvature and points of tangency of curved roads. Monuments shall be set plumb, in line with road lines one (1) inch above finish grade. They shall be of granite or reinforced concrete, not less than four (4) inches square and thirty (30) inches long, with a brass or copper plug or drill hole marking the center of the square. No permanent monuments shall be installed until all construction that could destroy or disturb the monuments is completed.

7.1.1 At least one (1) front corner of each lot shall be marked with a monument. Markers indicating all other lot boundaries may be solid iron rod, one (1) inch outside diameter, three (3) feet long, all set so that six (6) inches of rod is exposed above proposed grades.

7.2 ROAD GRADING

The entire area of each road within its exterior lines shall be cleared of all stumps, brush, roots, rocks, or boulders, and like material; and of all trees and shrubs not intended for preservation. Existing trees and shrubs standing within the exterior lines of the road, and suitable for preservation, shall be shown on the plan and may be preserved with the approval of the Commission.

7.2.1 Within each road, the full length and width of the roadway shall be excavated to a depth of at least eighteen and one half (18.5) inches below the finished surface or filled, as necessary, to a sub grade parallel to the finished grade herein specified. If the soil is soft or yielding, or contains rocks or boulders, clay, sand pockets, peat or other material detrimental to the sub grade, such material shall be removed to such additional depth as required by the Board of Selectmen and replaced with an approved well-compacted material, such as two and one half (2.5) inch trap rock. Where fills are very deep, the material shall be placed in layers of approximately six (6) inches and thoroughly compacted.

7.2.2 The roadway sub grade shall be inspected as provided hereafter (second inspection) prior to any further roadway construction. However, this inspection may be combined with the inspection of underground services (first inspection) at the election of the subdivider (see Section 7.16 of these Regulations).

7.2.3 Existing Roads

- A. Access Improvements.** Whenever any subdivision is proposed for land accessible only by an unpaved road, or by an existing Town Road that does not conform with the minimum requirements of grade, alignment, width and construction set forth in these regulations, or in the Town Road Ordinance (as amended), and the Commission determines that the subdivision plan would be contrary to the public safety unless such road was altered or improved where it fronts the proposed subdivision, the Commission may disapprove such plan or may condition its approval upon alteration of such street by and at the expense of the sub-divider, or may disapprove such plan until the Board of Selectmen has authorized expenditures for such improvements.
- B. Frontage Improvements.** Whenever any subdivision is proposed for land which fronts on an existing Town Road which does not conform with the minimum requirements of width and construction set forth in these Regulations, the sub-divider shall improve such frontage from the centerline of the road to the required frontage

road line, in accordance with these Regulations and/or Town Road Ordinance (as amended). Where such improvement from the centerline is impractical, the Commission may require improvements of comparable value to be performed along the existing road frontage of the subdivision, or adjacent frontage impacted by the subdivision. In the alternative, the Commission may require that the cost of such improvements shall be paid to the Board of Selectmen, or its designated agent, in lieu of the completion of such improvements by the applicant. Such payment shall be held in a separate fund to be used exclusively for the improvements of the subject road in ways that directly benefit the future owners of the lots in the subdivision.

In making the determinations set forth in the preceding two (2) paragraphs, the Commission shall take into account the road's ability to handle the increased volumes of traffic which will be generated by the proposed subdivision, the ability of school buses and emergency vehicles to travel the road safely, the drainage conditions of the road, and the general ability of any vehicle to use the road safely.

- C. **Scenic Roads; Stone Walls.** Frontage improvements, as described in the proceeding section, may be modified by the Commission in order to achieve the objectives of the Scenic Roads Ordinance (as amended). In addition, the Commission may waive any requirements for improvements described in this regulation in order to preserve existing stone walls or other historic items that are a part of the Town's historic character. Any modifications pursuant to this paragraph shall be in accordance with the Scenic Road Ordinance (as amended) and the Zoning and Subdivision Regulations.
- D. **Exemption.** The requirements of these Regulations (7.2.3) as they apply to a subdivision of three (3) or less building lots for conveyance to family members from the resident parcel owner, may be waived by a 3/4 vote of the Commission.

7.3 ROAD CONSTRUCTION

Roadways shall be constructed for the full length and width. The centerline of such roadways shall coincide with the centerline of the road right-of-way, unless a minor variation is specifically approved by the Commission.

- 7.3.1** Roadways shall be provided with a twelve (12) inch base course, a four (4) inch penetrated stone course, and a two and one half (2.5) inch wearing surface.
- 7.3.2** A rolled gravel base course shall be spread over the sub grade rolled and compacted in six (6) inch layers with a 10-ton roller, 15-ton in commercial and industrial subdivision, to a depth of twelve (12) inches and shall conform to the typical cross section.
- 7.3.3** The penetrated stone course shall be uniformly blended and shall conform to the requirements of the current edition of the *Connecticut Department of Transportation, Bureau of Highways Standard Specifications for Roads, Bridges, and Incidental Construction* and shall consist of clean two (2) inch course aggregate evenly applied and rolled to a depth of four (4) inches. The rolling shall be sufficient to form a uniform surface. These surfaces shall then be penetrated with penetration asphalt, applying between 1.35 and 1.75 gallons per square yard. Immediately following the applications of the penetration asphalt, sufficient one half (.5) inch keystone shall be spread to fill voids and allow a roller to pass over and not break or disturb the top of the stone course. This shall then be rolled to a smooth true surface two and one half (2.5) inches below the

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proposed finished grade as shown on the profile, and having a transverse grade parallel to that shown on the applicable cross-section plan. Prior to any further construction, the roadway shall again be inspected as hereinafter provided (third inspection).

7.3.4 All road-wearing surfaces shall be paved to the full width specified herein to a compacted thickness of three (3) inches with Bituminous Concrete Pavement. The aggregate shall be composed, mixed, and laid out in two courses as specified in the *Connecticut Department of Transportation, Bureau of Highways Standard Specifications for Roads, Bridges, and Incidental Construction*.

7.3.5 Upon completion of the pavement, the roadway shall again be inspected, as hereinafter provided (fourth inspection).

7.4 CURBING

Unless waived by vote of the Commission, curbing shall be installed along each edge of the roadway on all roads as shown on the plan.

7.4.1 When curbed intersections involve one (1) or more roads having grassed shoulders, the curbing shall be placed at the edge of the roadway and the pavement on the road or roads with such shoulders shall be widened to the full width of the roadway (thus meeting the curb) within fifty (50) feet of the intersection, tapering down to normal width within seventy-five (75) feet thereof.

7.4.2 Curbing required hereunder shall be either standard granite or Portland cement concrete curbing, as required by the Commission as specified in the *Connecticut Department of Transportation, Bureau of Highways Standard Specifications for Roads, Bridges, and Incidental Construction*.

7.5 SIDEWALKS AND TRAILS

Sidewalks shall be constructed as required in Section 6.3 of these Regulations.

7.5.1 Sidewalks shall have a finished grade in relation to the finished grade of the roadway as shown on the applicable cross-section plan. When unusual physical land characteristics or topographic conditions require, the Commission may approve the placement of a sidewalk at a greater distance from the roadway or at a higher or lower elevation in relation thereto, provided such variation is indicated on the plan.

7.5.2 In constructing all sidewalks, the material shall be removed for the full width of the sidewalk to the sub grade at least ten (10) inches below the approved finished grade, and also all soft spots and other undesirable material below such sub grade shall be replaced with a good binding material and rolled with a 2-ton roller or equivalent. Unless the applicant elects to install cement concrete sidewalks (built according to specifications of the Connecticut Department of Transportation), the excavated area shall be filled with at least eight (8) inches of select gravel containing some binding material and compressed and rolled to a surface with the pitch parallel to that shown on the applicable cross-section plan. Sidewalks shall then be paved to a thickness of two (2) inches with bituminous concrete pavement.

7.5.3 In residential developments, public trails interconnecting activity nodes in North Stonington and existing and potential future protected open space are preferred to

sidewalks. Public trails or sidewalks, where required by the Commission, shall be constructed as follows.

- 7.5.4** Public trails shall be built to a minimum width of five (5) feet with existing material removed to a depth of six (6) inches and replaced with stone dust.

7.6 **DRAINAGE**

The construction of the drainage system, including methods of construction and quality of materials used, shall be in conformity with the subdivision plan and the details shall conform to the details of these Regulations and of the Connecticut Department of Transportation Standards Specifications, unless specifically accepted by the Commission.

- 7.6.1** All catch basins shall be constructed of brick (either clay or concrete, or of cement concrete, or of cement concrete blocks, laid in mortar and plastered on the outside, and standard “D” frames and grates.) Granite head walls shall be installed where required by the Board of Selectmen. A granite mouth curb is to be furnished and set as directed by the Board of Selectmen. All catch basins shall have an inside diameter of at least four (4) feet, and shall be constructed to a minimum depth of four (4) feet below the invert of the outflow pipe. Joints of all drainpipes shall be sealed unless open joints are specifically approved by the Board of Selectmen. All drainage pipes shall be reinforced concrete; there shall be a minimum cover of two (2) feet.

- 7.6.2** Pipe drains, where used, should be designed to flow full with the hydraulic gradient at the crown. However, in flat slope areas, surcharge may be allowed with the hydraulic gradient at a minimum depth of one (1) foot below the ground level. In determining the capacity of concrete pipe drains, the Manning formula should be used with the coefficient of friction “n” equal to 0.013. The minimum velocity at design flow should be two and one half (2.5) feet per second (fps) and the maximum should be fifteen (15) fps.

- 7.6.3** In some cases, earth and stone-paved open channels should be used. The typical section of the earth channel should have a flat bottom and side slopes of one (1) vertical on two (2) horizontal with the top of the slope at least one (1) foot higher than the design water surface. The maximum velocity allowed in an open earth channel at design flow should be six (6) fps. A coefficient of friction “n” equal to 0.030 should be used for both the earth and stone-paved channels.

- 7.6.4** Where feasible, stormwater should be directed to enter the nearest open stream channel. Stormwater shall not be permitted to cross any roadway upon the surface, but must be piped underground. Catch basins shall be located on both sides of the roadway on continuous grades at intervals of not more than three hundred (300) feet for commercial and industrial subdivisions, and four hundred (400) feet for all other subdivisions, at all sags in the roadway, and near the corners of the roadway at intersecting roads.

- 7.6.5** Proper connections shall be made with any existing public drainage system within four hundred (400) feet of the subdivision. Where adjacent property is not subdivided and no public drain is within four hundred (400) feet, provisions shall be made for extension of the system by continuing appropriate drains to the exterior boundaries of the subdivision, at such size and grade as will allow for their proper protection.

- 7.6.6** All storm drains, sewers, culverts, manholes, water mains and laterals, shutoff valves, and hydrants shall be inspected prior to any back filling of trenches or other covering of

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structure. Following such inspection, the fill material shall be carefully placed around the structures and rammed and compacted to a depth of one (1) foot before completing the filling.

- 7.6.7** No more than fifty (50) feet of surface drainage from any driveway shall drain directly onto a State highway or Town-accepted road without specific approval from the First Selectman or Town Engineer.
- 7.6.8** Subdivision drainage designs should demonstrate a zero increase in the peak rate of Runoff (100 year storm) from the site after development unless such requirement is waived by the Commission upon recommendation of the Town Engineer.
- 7.6.9** Detention basins, which are designed to be self-draining and have a positive drainage outlet, are encouraged to mitigate the accelerated runoff, which can result from development, and to renovate storm water runoff. Retention basins are discouraged. No basin shall have a side slope steeper than 4:1 unless waived by the Commission upon recommendation of the Town Engineer.
- 7.6.10** Infiltration or dry well drainage systems are discouraged unless such systems are designed with a positive storm drainage outlet. It shall be the sole discretion of the Commission shall determine if such systems are appropriate

7.7 PLANTING STRIPS

Planting strips of a width required by Table 6-1, and in accordance with the layout as shown on the plan, shall be provided on each side of the roadway.

- 7.7.1** The finished grade of such planting strips in relation to the finished grade of the roadway shall be as shown on the applicable cross-section plan. Where unusual physical land characteristics or topographic conditions exist or where trees, shrubs, or other natural features are suitable for preservation because of their location, species, or condition, the Commission may approve the construction of a planting strip irregular or sloped in cross section, provided such variation is indicated on the plan, and that no portion of the planting strip will project above a plane sloped two horizontal to one vertical upward from the edge of the roadway or be below a plane sloped two horizontal to one vertical downward.
- 7.7.2** No utility poles or trees shall be placed or retained within the planting strip so as to be closer than six (6) feet from the edge of the roadway.

7.8 SIDE SLOPES

The area in back of the sidewalk or, where no sidewalk is constructed, the area in back of the required planting strip shall be graded to a point where it coincides with the finished grade of abutting lots in such a manner that no portion thereof within the exterior lines of the road will project above a plane sloped two horizontal to one vertical from the edge of the sidewalk or grass lot, or be below a plane sloped two horizontal to one vertical downward.

7.9 GUIDE RAILS

Guide rails shall be placed along all roads as deemed necessary by the Commission, and shall be of such quantity and quality, as the Commission shall direct. The Commission may require the use of wooden or core ten guard rail systems.

7.10 LOAMING

The top four (4) inches of planting strips and side slopes shall consist of good quality loam, screened, raked, and rolled with a hand roller to grade. The loam shall be seeded with lawn grass seed applied in sufficient quantity to assure adequate coverage, rolled when the loam is moist.

7.11 ROAD SIGNS

Road signs which, in the opinion of the Commission, are of the type commonly used on public ways in the Town, and bearing the names of the road as indicated on the plan, shall be erected at all intersections of roads in the subdivision as prescribed in Section 6.7 of these Regulations.

7.12 WATER SUPPLY

Water supply and distribution systems shall be installed in accordance with the specifications of the Southeastern Connecticut Water Authority (SCWA) or the Connecticut Department of Health, whichever has jurisdiction. In accordance with Section 13 of Special Act 67-381, as amended by Special Act 73-133 of the Connecticut General Assembly, SCWA may exercise jurisdiction when it is the intention of the applicant to develop a well water supply on the basis of studies that indicate a maximum requirement in excess of fifty (50) gallons per minute, or when the tract to be subdivided contains fifty (50) acres or more and is intended to contain two (2) or more dwelling units to be served by a single water supply.

7.13 SEWAGE DISPOSAL

All sewage shall be disposed of by subsurface sewage disposal systems approved by the Town Health Officer or by other methods approved by the Department of Environmental Protection or the State Department of Health, all in accordance with the appropriate provisions of the Connecticut Public Health Code.

7.14 UNDERGROUND SERVICES

Utilities on every lot within the subdivision, whether serving that lot or another lot, shall be installed underground; except where, in the opinion of the Zoning Enforcement Officer, and described in writing by him or her, this burial will cause irreversible environmental damage or could present an unsafe condition.

For all new subdivision roads, and new installations on existing roads that abut and serve the subdivision, all utilities shall be installed underground except surface-mounted transformers, connection boxes, meter cabinets, and temporary utility service lines during construction.

7.15 CLEAN UP

The entire area must be cleaned up so as to leave a neat and orderly appearance free from debris and other objectionable materials. All catch basins shall be properly cleaned out.

7.15.1 Following the completion of this and other items of work, a final inspection (fifth inspection) shall be made.

7.16 INSPECTION AND CONTROL

The applicant shall employ, at his/her own expense, an engineer to set all lines and grades in a manner satisfactory to the Commission.

7.16.1 At the points herein before indicated, the construction of required improvements shall be inspected by the Commission, Board of Selectmen, Town Health Officer, or their

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appointed agents, and unless each point has been given in writing, no further work shall be done until work is subsequently completed to such point to the written satisfaction of the Commission.

- 7.16.2** Inspection shall be requested by the subdivider at least forty-eight (48) hours in advance by notice to the Commission or its duly authorized representative.

