

## **SECTION 7: CONSTRUCTION STANDARDS**

Unless otherwise specified herein, all streets within a subdivision shall be constructed in conformance with the current edition of the Massachusetts Highway Department, "Standard Specifications for Highways, Bridges and Waterways", as amended.

### **7.0 GENERAL**

Each street or portion thereof necessary to serve each lot in a subdivision shall be constructed and brought to finish grade as indicated on the approved Definitive Plan and in accordance with these Rules and Regulations.

The developer shall furnish and maintain all stakes and such temporary structures as may be necessary or required by the Board, or its agent, for marking and maintaining points and lines for the installation of the roadway and related utilities throughout the period of construction of the subdivision.

### **7.1 PROCEDURE**

It is assumed that under normal conditions work will proceed in accordance with the following construction schedule. Major shifts in the schedule must be approved by the Town Planner.

1. Clearing and cleaning; including excavating or stripping poor material.
2. Preparation of sub-base, including necessary cuts and fills.
3. Installation of sewer mains.
4. Installation of water mains and hydrants (if applicable).
5. Installation of drainage facilities.
6. Installation of other underground utilities.
7. Application of material sub-base.
8. Installation of sewer services.
9. Installation of water services.
10. Application of gravel in or above sub-base.
11. Application of bituminous concrete base for roadway.
12. Installation of street signs.
13. Installation of street lights.
14. Installation of granite curb.
15. Application of bituminous concrete top course for roadway.
16. Application of gravel in sidewalks.
17. Installation of concrete sidewalks.
18. Removal or application of material for slopes.
19. Installation of street trees.
20. Application of loam for lawns, grass strips and slopes.
21. Installation of monuments and bounds.
22. Final clean up.
23. Submission of As-Built and Acceptance Plans.

## **7.2 PREPARATION AND SURFACING OF STREETS AND WAYS**

1. The right of way shall be cleared of all stumps, brush, roots, boulders, like material and trees, prior to any other work; except that trees of aesthetic value and over four (4) inch caliper measured four feet (4') above finished ground level may be allowed to remain, provided that they are located at least four (4) feet from the proposed side line of the finished roadway for a collector and subcollector, and at least two (2) feet from the proposed side line of the finished roadway for an access Street, and provided that such trees are approved by the Tree Warden and the Town Planner. No stumps shall be buried on site. The developer shall dispose of stumps in a manner approved by the Planning Board. Said method may include excavate and remove off-site in accordance with applicable regulations, grind in place, or excavate and grind on-site. The developer shall provide certified and notarized proof that the proposed method of stump removal and disposal was executed.
2. Grade stakes shall be set and maintained at fifty foot (50') intervals on each side of the right-of-way.
3. All loam and other yielding material not suitable for foundation material shall be stripped from the roadway area of each street or way to depth of four (4) feet below the finished sub-grade, or to a greater depth as may be required by the Town Planner or the Planning Board's agent and replaced with an approved material. No loam, peat, silt, organic matter, or other soft material shall be used below sub-grade, and the sub-grade shall be thoroughly compacted before applying the gravel surface. Ledge and large boulders occurring anywhere in the full cross-section of the roadway shall be cleared to a minimum depth of eighteen inches (18") below the finish surface.
4. The roadway shall be provided with a gravel base consisting of at least fifteen (15") inches compacted thickness of binding gravel matter that is clean and free of organic matter. The gravel shall be spread in two layers, the Gravel Base and the Processed Gravel Subbase, as defined in the Massachusetts Highway Department Standard Specifications for Highways and Bridges, as may be amended. Each layer shall be thoroughly watered, and sorted true to line and grade to conform with the typical sheet cross section and the street profiles.
  - a. Gravel Base. The dense graded gravel base shall be at least five inches (5") compacted thickness and shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, and deleterious materials. The maximum size of stone in gravel shall conform to that specified under M1.03.0 Type b (three inches largest dimension) in the Standard Specifications referenced above.
  - b. Processed Gravel for Sub-base. The processed gravel sub-base shall be at least ten inches (10") compacted thickness and shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, and deleterious materials.
  - c. The approved source of bank-run gravel material shall be processed by mechanical means. The equipment for producing crushed gravel shall be of adequate size and with sufficient adjustments to produce the desired materials. The processed material shall be stockpiled in such a manner to minimize segregation of particle sizes. All processed gravel shall come

from approved stockpiles. The maximum size of stone in gravel shall conform to that specified under M1.03.1 six inches ((6") largest dimension) in the Standard Specifications referenced above.

- d. Before the gravel is spread, the roadbed shall be shaped to a true surface conforming to the proposed cross-section of the road. Rolling shall be with an approved two-wheel vibratory roller or equal. All layers shall be compacted to not less than ninety-five percent (95%) of the maximum dry density of the material as determined by Standard AASHTO. Test Designation T99 compaction test Method Ch. at optimum moisture content. Any depressions that occur, either during or after rolling, must be filled with additional gravel and re-rolled until the surface is true and even. When required by the Planning Board or their agent, samples of the gravel to be used shall be tested for gradation by a sieve analysis and the compacted gravel shall be tested for compaction. All tests are at the expense of the developer. The Planning Board may require streets to be re-excavated if the gravel base is placed prior to plan approval, or prior to an inspection and approval of the base.
5. The wearing surface of roadways and driveways within the right-of-way shall be a two course type I Bituminous Concrete Pavement, applied with a two and one-half inch (2 1/2") base course, after compaction, and a one and one-half inch (1 1/2") finish course, after compaction, in accordance with the Mass Highway Department (MHD) Standard Specifications for Highways and Bridges Section 460.

The base course shall be applied after the treated roadway has been sufficiently compacted, as approved by the Planning Board's agent. The finish course shall be applied only after the base course has weathered at least one winter. No lot may be sold and/or any Certificate of Occupancy issued until the base course is in place.

6. Catch basin rims shall be set at base course level upon application of the wearing surface. During the period of time following installation of binder pavement and prior to installation of curb, stormwater flow shall be directed to catch basins using haybales. The catch basin rims shall be raised to finish grade level just prior to final coat paving. (rev. 1/22/07) (rev. 12/13/10)

### **7.3 CURBING**

Curbing shall be installed as follows: A trench eighteen inches (18") in width and a depth of six inches (6") in addition to the depth of the curbstone shall be excavated. The foundation of the curb shall consist of sub-base gravel thoroughly compacted to a depth of at least six inches (6"). The curbing shall then be set in concrete along the front face. All curbs shall be fitted together as closely as possible. The joints between pieces of the granite curbstones shall be grouted with a cement mortar and neatly pointed on the top and front exposed portions. After pointing, the curbstones shall be cleaned of all excess mortar. The front face of the curbing shall be at right angles to the plane of the top and ends shall be smooth quarry split, free from drill holes and with no projections of more than one inch (1") and no depressions of more than one-half inch (1/2") measured from the vertical plane of the face through the arris or pitch line for a downward distance of eight inches (8") from the top. For the remaining distance, there shall be no projection or depression greater than one inch (1") measured in the same manner. The ends of the curbstones shall be square with the planes of the top and face so that when the curbstones are

placed end to end as closely as possible, no space shall show in the joint at the top and face of more than one-half inch (1/2") for the full width of the top and for eight (8) inches down on the face. After installation of the finish course of pavement, the curb reveal shall be six inches (6").  
(rev. 1/22/07)

#### **7.4 SIDEWALKS**

1. Sidewalks shall be designed pursuant to Section 6.13 of these regulations.
2. Preparation of the base shall be accomplished by removing material to a depth of ten inches (10") below finished grade. Any organic or yielding material shall be removed and replaced with eight inches (8") compacted thickness of binding gravel of the same specifications as that to be used for the gravel base on the roadway.
3. Forms shall be set to grade, and one four inch (4") layer of Portland Cement Concrete Pavement (3000 p.s.i.) shall be placed. The surface shall be broom-finished. The sidewalk shall have scored contraction joints every four feet (4').
4. If the Planning Board approves the installation of bituminous concrete sidewalks, two (2) courses shall be laid to a depth after rolling of four inches (4"). The bottom course shall be a binder course, two and a half inches (2 1/2") after rolling and the finish course shall be one and a half inches (1 1/2") after rolling. Compaction shall be done with a self-propelled tandem roller weighing not less than one and a half (1 1/2) tons and not more than five (5) tons. The courses shall be constructed in accordance with MassHighway Specs, Section 472, or latest version.
5. The sidewalk shall have a transverse slope of one-fourth of an inch (1/4") per foot, sloping towards the street.
6. Driveway aprons shall be constructed to the same specifications as sidewalks and meet the proposed sidewalk grades.

#### **7.5 GRASS STRIP**

Grass strips shall be provided on each side of the roadway between the roadway and the sidewalk. Where no sidewalk is to be installed, the grass strip shall extend between the roadway and the right-of-way sideline. The minimum width shall be as follows:

Collector:        5 feet if with sidewalk  
                          12 feet if no sidewalk

Sub-Collector: 5 feet if with sidewalk  
                          10 feet if no sidewalk

Access:            3 feet if with sidewalk  
                          8 feet if no sidewalk

The finished grade of such planting strips shall be three-eighth inch per foot (3/8": 1') sloping

toward the roadway. Where unusual physical land characteristics or topographical conditions exist, the Board may approve the construction of a planting strip at a slope greater than three-eighth inch per foot (3/8":1') provided the finished slope will not project above or below a plane sloped two (2) horizontal to one (1) vertical upward or downward from the edge of the roadway, and provided such variation is indicated on the Definitive Plan.

The strip shall have a nine-inch (9") gravel foundation and the top six (6) inches of planting strips shall consist of good quality loam, screened, raked, and rolled with at least a one hundred (100) pound roller to grade. The loam shall be fertilized and seeded with lawn grass seed applied in sufficient quantity to assure adequate coverage, rolled when the loam is moist.

The Board may require such banks and all other disturbed areas adjacent to the roadway to be loamed and seeded. However, it is suggested that consideration be given to the surrounding growth and terrain. Roadsides must be made to blend with the woods or natural surroundings that exist, and plantings in such areas should be chosen accordingly.

The developer shall be responsible for replacing all dead or diseased plantings for one full year from the time of planting.

## **7.6 GRADING OF SLOPES**

All slopes resulting from grading of street and sidewalks shall not exceed one foot (1') vertical to three feet (3') horizontal in fill; one foot (1') to two feet (2') cut; and 1 foot (1') to three-quarter foot (3/4') in ledge. Slope easements or retaining walls shall be employed where slopes cannot be contained within street sidelines.

## **7.7 BLASTING**

If blasting occurs, no perchlorate shall be used. The developer shall sample and analyze all wells located within five hundred (500) feet of the blast area for compounds contained in the proposed blasting materials prior to any blasting. These wells shall also be tested for quantity prior to any blasting. All structures within five hundred (500) feet of the blast area shall also be reviewed for cracks prior to any blasting. The Applicant shall alert homeowners within 500' of a blast area, via certified mail, when blasting is complete. The blast area shall be defined as the limits of construction. (rev. 1/22/07)

## **7.8 EROSION AND SEDIMENT CONTROL**

The developer shall control erosion and sedimentation during construction according to the objectives, principles and design considerations set forth in Residential Erosion and Sediment Control, published jointly by the Urban Land Institute, the American Society of Civil Engineers and the National Association of Home Builders, 1978 and according to the guidelines for Soil and Water Conservation in Urbanized Areas of Massachusetts published by the USDA, Soil Conservation Service, Amherst, 1975. These publications or any succeeding editions of these publications are hereby incorporated as part of these Regulations.

In addition to the requirements and objectives stated therein the following must also be achieved:

1. Erosion control measures shall be installed prior to any construction activity and maintained until all disturbed land surfaces are stabilized.
2. A construction entrance (anti-tracking pad) shall be used to minimize off-site movement of soil by vehicles. All construction access points shall be maintained to prevent tracking or flow of sediment onto roadways.
3. Street sweeping shall be conducted weekly (at a minimum) during construction until surfaces are stabilized.
4. An absolute minimum of existing vegetative cover shall be disturbed during construction in conformance with the Erosion and Sediment Control Plan. (rev. 12/13/10)
5. Only the smallest practical area of land shall be exposed at any one time during development. Disturbed areas shall be stabilized within fourteen (14) days of the last disturbance unless construction activities will resume on that portion of the site within two (2) days. Areas disturbed for more than fourteen (14) days shall have temporary retention areas built for the runoff to filter through. These retention areas shall consist of coconut logs at the beginning and end with a minimum of two polymer flock logs in the retention area. The retention area must be able to retain up to three inches (3") of storm water.
6. When land is exposed during development, the exposure shall not exceed ninety (90) days unless an alternative schedule was approved by the Planning Board during the Definitive Plan approval process. (rev. 12/13/10)
7. Where necessary, as determined by the Town Planner, temporary vegetation and/or mulching shall be used to protect areas exposed during development.
8. All disturbed areas shall be properly and neatly graded and shaped as soon as possible. Final grading shall include removal of all large rocks, stumps, debris, and all other deleterious materials from the finished surface.
9. At the toe of all cut and fill slopes in excess of ten feet (10') in height, baled hay or straw erosion checks shall be installed.
10. All disturbed areas shall be protected from potentially erosive runoff from up-slope areas by means of diversions, benches, or other acceptable means.
11. Hay bales and silk screen fence shall be placed around all catch basins until areas which they service are stabilized.
12. All stock piles shall have silkscreen fences around the perimeter.
13. All roof drains shall discharge to an undisturbed area. If the area around the structure's foundation is disturbed, roof drain discharge shall be piped to a stabilized area.
14. Cut and fills shall not endanger adjoining property.
15. Fill shall be placed and compacted so as to minimize sliding or erosion of the soil.
16. Grading shall not be done in such a way so as to divert water onto or pond water on the property of another landowner without the written consent of that landowner.
17. Fills shall not encroach on natural watercourses or constructed channels.
18. Permanent stabilization of disturbed areas shall be accomplished by building, paving, seeding, mulching, and/or landscaping. Slopes steeper than 3:1 shall be stabilized by the use of erosion control blankets over a surface prepared by hydroseeding. If any disturbed area is to be seeded, four inches (4") of loam shall be applied on top of the subsoil prior to seeding; six inches (6") of loam shall be applied on top of rock/gravel prior to seeding. (rev. 1/22/07)
19. During construction, necessary measures for dust control shall be exercised including watering and/or dust palliative.
20. Erosion and sedimentation control measures shall be maintained until final stabilization of disturbed areas has been accomplished and a certificate of compliance has been issued by the Millbury Conservation Commission.

## **7.9 SAFETY**

All precautions should be taken by the developer and all sub-contractors to observe common sense safety requirements. The Board designates the Town Planner and Building Inspector/Zoning Agent to report all unsafe activities during the construction of the subdivision to the Planning Board.

Holes greater than five feet (5') in depth and uncovered soil piles or materials stacked in an unsafe manner shall not be allowed unless the area is adequately protected. Covered soil piles shall not be higher than five feet (5') in height.

All construction activities in preparation of the subdivision shall comply with appropriate OSHA standards.

## **7.10 CLEANING UP**

Before the Board will release the interest of the Town in a performance bond or deposit to an amount less than twenty percent (20%) of the original surety amount and the cost of implementing any maintenance agreement, or twenty thousand dollars (\$20,000), whichever is more, or release the last lot in the case of approval with a covenant, the entire subdivision area must be cleaned up so as to maintain a neat and orderly appearance, free from debris, excessive slopes, deep holes and other objectionable materials. All trees and stumps removed to allow for construction shall be disposed of in a manner approved by the Planning Board. All boulders shall be buried within designated areas approved by the Planning Board or their agent, or otherwise properly removed. Upon completion of the work, all temporary structures, surplus material and rubbish shall be removed by the developer. All areas within the street lines and areas which drain into the street lines shall be restored to permanent vegetation satisfactory to the Planning Board or its agent.