

## 6.0 FEES, PERFORMANCE SECURITIES AND SPECIAL ACCOUNTS

### 6.1 Filing Fees

At the time of filing any plan with the Board, a Filing Fee in the form of cash or a check made payable to the “Town of Duxbury” shall be submitted with the application package. The application package will not be complete until all funds are deposited with the Duxbury Town Treasurer. Filing fees are as follows:

#### PLANNING BOARD FEE SCHEDULE

Approval Not Required Plans (ANR)	\$200 per plan plus \$100 per lot shown
Preliminary Plan	\$50 per lot (plus deposit of escrow account funds, see Sec. 6.2)
Definitive Plan <u>with</u> Preliminary Plan previously filed acted upon	\$200 per lot (plus deposit of escrow account funds, see Sec. 6.2)
Definitive Plan <u>Without</u> Preliminary Plan files and acted upon	\$400 per lot (plus deposit of escrow account funds, see Sec. 6.2)
Definitive Plan Amendments and Frontage Waiver Requests	\$100 per lot (plus deposit of escrow account funds, See Sec. 6.2)

### 6.2 Special Accounts for Consultant Costs

The Board may retain the services of a professional consultant to advise the Board on technical matters, review plans and inspect approved developments if the Board requires the assistance of a Planning, Traffic, Engineering, Legal, Soils or other professional to provide technical reviews and inspections of Subdivision Plans. The applicant will be responsible for paying all consultant costs incurred by the Town. At the time of filing either a preliminary or definitive plan, the applicant shall deposit with the Town Treasurer the following amount to be held in an individual interest bearing escrow account.

<u>3 Lots or Less:</u> \$3,000 minimum deposit	<u>4 or More Lots:</u> \$3,000 minimum deposit, plus \$500 per lot in the proposed subdivision
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Checks shall be payable to the “Town of Duxbury.”

Funds in the individual interest bearing account will be spent to pay consultant fees for the specific project for which they were collected. If at any time prior to approval of the Plan or final completion of the project the amount in the account falls below \$1,000 for subdivisions of 3 lots or less or \$3,000 for subdivisions of 4 or more lots, the applicant shall deposit sufficient funds to bring the account back to the amount of the original deposit or an amount determined by the Board. Said funds must be deposited within ten (10) days of written notification of the Board. Failure to replenish the funds in the account within ten (10) days shall be reason for denial of the plan for failure to comply with these regulations. In the case of approved plans, failure to replenish the required amount of money within ten (10) days of notification shall be cause for the Board to schedule a hearing to rescind the lot releases of developments that are incomplete.

Following completion of the development and payment of the final consultant bill for reviewing the As-Built drawings, the remaining money in the account, including interest, if any, shall be returned to the applicant. Upon request, a final report of the account shall be made available to the applicant.

If the legal ownership of the development is transferred to another party, the new owner shall be responsible for meeting all applicable requirements of this section by re-establishing the account for consultant reimbursement. Any person or entity claiming to be the applicant's successor in interest shall provide the Board with sufficient documentation to establish legal ownership. The balance of the original escrow account shall be returned to the party who deposited it.

The consultant retained by the Board shall provide the Board with a line item invoice which indicates the cost incurred for each project. The consultant shall also provide a report to the Board of their findings and recommendations.

An applicant may appeal the selection of the Board's consultant to the Board of Selectmen (BOS), providing that such appeal is made within fourteen (14) days of notification of the Board's appointment of the consultant. The reasons for such an appeal shall be limited to claims that the consultant selected has a conflict of interest or does not possess the minimum required qualifications. The minimum qualifications shall consist of an educational degree and five (5) years of practice in the field at issue and , an appropriate license, registration and/or certification in the field at issue. The required time limit for action by the Board upon an application shall be extended by the duration of the administrative appeal. In the event that no decision is made by the Board of Selectmen within thirty (30) days following the filing of the appeal, the selection made by the Board shall stand.

### **6.3 Performance Bond**

Following the approval of a Definitive Subdivision Plan, the developer has three options for completing the development:

#### **Option 1**

The developer completes all infrastructure improvements associated with the development such as: roads, drainage, seeding disturbed areas, utilities and tree plantings. If all work is completed to the satisfaction of the Board, no performance security is required and the Board will authorize release of lots.

#### **Option 2**

The developer partially completes improvements associated with the development and posts a Performance Security to ensure completion of the remaining work. The amount of the Performance Security is based on the estimated cost of completion of the development plus contingencies and a factor of 20%. After the developer posts a security acceptable to the Board (see Sec. 6.6 Form of Security) the Board will authorize release of the lots.

#### **Option 3**

The developer has an approved Definitive Plan, however, no construction has begun. The developer posts a security acceptable to the Board for the entire amount of the cost associated with completing the development. The amount of the security will be based upon the estimated cost of all improvements associated with the development plus contingencies and factor of 20%. After the developer posts a security acceptable to the Board; (see Sec. 6.6 Form of Security) they will authorize release of the lots with a condition that no lot may be built upon until the base coarse of asphalt leading to the lot has been inspected and approved.

### **6.4 As-Built and Roadway Acceptance Plan Security**

Prior to the endorsement of a definitive subdivision plan the applicant shall post a security to ensure completion of an As-Built drawing of the development as required in Section 5.4 and a Roadway Acceptance Plan as required in Section 5.5. The amount of the As-Built Bond will be based upon the number of permanent monuments (bounds) and the length of roadway. Bond amounts will be calculated as follows:

\$150 per bound and \$10 per foot of roadway.

## **6.5 Procedures**

### **6.5.1 Release of lots/covenant**

The developer shall request in writing an inspection for the purpose of determining an amount for the cost of completing the development.

Following receipt of the itemized estimate for the cost of completing the development from the Board's consultant, the Board will vote to set the amount of the security.

After the Board has received the security and accepts the bond as being adequate to ensure completion of the development, it will vote to release the lots and sign a lot release form. An original of the lot release form shall be recorded by the developer at the Plymouth County Registry of Deeds. Proof of recording shall be submitted to the Board within thirty (30) days of endorsement of the release.

### **6.5.2 Partial Release of Security**

Following completion of improvements of development under construction, the developer may request, in writing, a partial release of the performance security. The Board will have an inspection made to determine the amount of money necessary to hold in the performance security in order to ensure completion of the development. Following the Board's review of the inspection report the Board may vote to lower the amount of money required in the performance security. The Board will then notify the appropriate authorities to authorize a reduction of the performance security.

### **6.5.3 Total Release of Performance Security**

#### a) Performance Security

Following completion of the development, the applicant shall request in writing a final inspection. If all work is completed to the satisfaction of the Board, the Board will vote to release all remaining funds held in the performance security. If work remains incomplete or unsatisfactory, the remaining work must be completed within thirty (30) days, at which time another inspection will be conducted. The Planning Director will notify the developer in writing within fourteen (14) days of all incomplete or unacceptable work. When all work is completed to the satisfaction of the Board, the Planning Board will vote to release the balance of the performance security.

## b) As-Built Drawing and Roadway Acceptance Plan Security

Upon completion of the As-Built drawings and Roadway Acceptance Plan for public ways, the developer shall submit said drawings for review. Following an engineering review of the As-Built drawings, the Board's Engineer shall submit his/her findings to the Board. When the Board receives a favorable recommendation from its engineer to accept the As-Built and/or Roadway Acceptance Plan drawings, the Board will vote to release the security.

### **Continued Responsibility of Roadway**

The developer is responsible for the continued roadway maintenance of the new street up until the street is accepted by Town Meeting. This includes but is not limited to pavement wearing surface; snowplowing; drainage system; street trees; and sidewalks, if any.

## **6.6 Form of Security**

Two forms of security are available to the developer to select from to act as a "bond". The Board's requirements for these securities are described below. No depository institution acting as owner/developer may submit its own passbook account.

### **6.6.1 Treasurer's (Bank) Check**

Deposit a signed check, made out to the "Town of Duxbury", with the Town Treasurer.

### **6.6.2 Surety Company**

Surety companies acceptable to the Planning Board and registered with Massachusetts Division of Insurance can be utilized for posting a performance bond. The petitioner is responsible for maintaining such performance bond in good standing until such time the Planning Board votes a release.

## **6.7 Review and Recall of Security**

**6.7.1** The performance security held to ensure completion of the development will be reviewed annually after approval and endorsement of the Definitive Plan or at more frequent intervals at the discretion of the Board. The Board shall call a meeting with the developer to review progress. If the Board finds that the development has not been carried out in good faith, the Board will vote to recall the bond as described below.

**6.7.2** If the Board determines that construction of the roadway, drainage structures or other improvements shown on the approved and endorsed definitive

plan have not been completed, the Board will notify the developer in writing. Said notification will specify the incomplete or unsatisfactory work and how the construction or installation fails to comply with the endorsed Definitive Plan and Rules and Regulations. If after forty five (45) days of the Town Clerk's receipt of said notice all work has not been satisfactorily completed, the Board may vote to recall the performance security. The money held in the performance security will be transferred into a special account of the Town's General Fund for the purpose of expenditure on completion of the development. All obligations under the security by the developer will be void. Any interest or remaining balance of the security not expended on completion of the development will be returned to the developer.

## **7.0 DESIGN AND CONSTRUCTION STANDARDS**

### **7.1 General**

All definitive plans must comply with the design standards contained in this section. Any variation from these standards must be authorized by a formal vote of the Board and must specify the section of these Rules and Regulations for which a waiver is requested. Failure to comply with these standards without benefit of a waiver shall be grounds for denial of the Definitive Plan.

NOTE: Material specifications and design standards not specifically addressed within these Rules and Regulations shall comply with the standards set forth in "Standard Specifications for Highways and Bridges", published by the Massachusetts Highway Department, hereafter referenced as "State Specifications", and "A Policy on Geometric Design of Highways and Streets" published by the American Association of State Highway and Transportation Officials (AASHTO) hereafter referred to as "AASHTO".

### **7.2 Design Guidelines**

The roadway, drainage design and building construction in all subdivisions shall be designed to accomplish the following goals:

REDUCE, TO THE GREATEST EXTENT POSSIBLE:

- a) Volume of cut and fill;
- b) Area over which existing vegetation will be disturbed, especially if within 200 feet of a water body, wetlands resource area, or a slope of more than 15%;
- c) Number of mature trees removed. The petitioner should consult with the Tree Warden as to the removal of any trees that may be subject to the Shade Tree Act (MGL Chap.87) and/or the Scenic Road Act (MGL Chap. 40 section 15c);

- d) Extent of waterways altered or relocated;
- e) Visual impact of man-made elements not necessary for safety;
- f) Erosion or siltation;
- g) Alteration of natural valley flood storage areas;
- h) Disturbance of important wildlife habitats, outstanding ecological or botanical features, scenic views or historic resources;
- i) Detrimental impacts to water quality

**INCREASE, TO THE EXTENT REASONABLY POSSIBLE:**

- a) Vehicular use of principal streets to avoid traffic on secondary and minor streets providing house frontages;
- b) Visual prominence of natural features of the landscape;
- c) Legal and physical protection of views from public ways;
- d) Design street layouts to facilitate southern orientation of houses;
- e) Use of curvilinear street patterns;
- f) Pedestrian and bicycle access and safety;
- g) Natural green belt & trees, etc. on lots.

**7.3 Streets**

All streets shall be designed to provide safe vehicular travel. Consideration shall be given to the number of dwellings served and to creating an aesthetically pleasing design of the street layout.

**7.3.1 Classification of Streets –**

Subdivision streets shall be divided into the following classifications for the purpose of establishing the applicable design and construction standards:

Principal Street - A way that carries or is designed to carry through traffic between parts of Town or between Duxbury and other Towns. Principal streets shall have a R.O.W. layout width of sixty (60) feet.

Secondary Street - A way that carries or is designed to carry through traffic to abutting lots and provide access to minor streets. Secondary streets provide access to eleven (11) or more lots. Secondary streets shall have a R.O.W. layout width of fifty (50) feet. Second means of access/egress required.

Minor Street - Streets that provide access to abutting lots only and serve ten (10) lots or less, including cul-de-sacs. The R.O.W. layout shall have a width of fifty (50) feet. No second means of access required.

Local Street - Streets that provide access to abutting lots only and serve three (3) lots or less. The R.O.W. layout shall have a width of fifty (50) feet. See Section 7.3.10 for a detailed description of local street requirements.

**7.3.2 Pavement Widths**

# of Lots Served	Minimum Width of Traveled Way	Berm Width*	R.O.W.
Local 1-3	14 ft.	1.5 ft.	50 ft.
Minor 4-10	18 ft.	1.5 ft.	50 ft.
Secondary 11+	22 ft.	1.5 ft.	60 ft.

\* Berm width is in addition to the Traveled Way Width (See Appendix D, Figures 2, 3 and 4)

**7.3.3 Cross-Section**

The Definitive Plan shall show a cross-section of the R.O.W. and traveled way. Pavement and berm widths shall be as required on 7.3.2 above. The Board may require additional lanes, widths, or other dimension changes where the proposed use requires such for public safety. All cross sections shall conform to Figures 2 or 3 and shall meet the following design criteria:

- a) Except by approval of the Board, all wires for electricity, cable television, telephones or similar utility distribution systems shall be installed in conduit underground with all such distribution systems spaced not less than thirty six (36) inches (horizontally) from any water main, detector tape should be placed above the conduits.
- b) All poles for telephone, electric light or other cables shall be located at least five (5) feet from the back of berm and shall not be placed in sidewalks.
- c) Sidewalks shall be constructed as shown in Figures 2 and 3. Sidewalks are not required for Local Streets.

**7.3.4 Location, Alignment, Intersections**

a) Property lines at street intersections shall have a radius of not less than thirty (30) feet. In the case of intersections with significant traffic flow or other public safety issues, greater radii may be required. Minimum roadway berm radii at all intersections shall be thirty (30) feet.

b) The minimum roadway center line radius shall be one hundred fifty (150) feet. Greater radii may be required for principal and secondary streets, or where otherwise determined by the Board to pose a safety hazard.

c) Streets shall be laid out so as to intersect as nearly as possible at right angles. No street shall intersect any other street at less than sixty (60) degrees.

d) Streets entering opposite sides of another street shall be laid out either directly opposite each other or with a minimum offset of two hundred (200) feet between their center lines.

e) Connection of Subdivision Ways to Public Ways:

In the case of a Definitive Plan showing the connection of Ways within the subdivision over a private way to a Public Way, approval of the Definitive Plan shall be denied unless the applicant has sufficient rights in the Private Way to enable the applicant to construct improvements to the private way to bring it into conformance with the requirements of these Rules and Regulations, or as waived pursuant to M.G.L. c.41, s. 81R. The Definitive Plan shall show such Private Way, in accordance with the requirements set forth in Section 5.0 PLAN REQUIREMENTS and this section.

f) Reserve strips which prohibit access to streets or adjoining property shall not be allowed unless the Board determines that they are in the public interest.

### **7.3.5 Clear Sight Distance**

a) All roadway design shall take into consideration safe sight distances not only at intersections but also along the traveled way, in accordance with appropriate AASHTO requirements. Clear sight distance shall take into account topography, density of dwelling units, and horizontal and vertical alignment.

b) There must be an unobstructed sight distance along both approaches of both roads at an intersection and across their included corners for a distance sufficient to allow the operators of both vehicles approaching simultaneously to see each other in time to prevent a collision. The clear sight distance shall conform to the AASHTO requirements for sight distance at at-grade intersections for passenger vehicles (Case III-Stop Control on Minor roads and as shown in Figure 4.) The sight triangles shown in Figure 4 shall be free of any obstructions which would

block visual contact. Any object located within the sight triangle, including structures, trees, vegetation, fences, cut slopes and embankments, high enough to constitute a visual obstruction shall be removed or lowered. In plan view, the triangle is formed by measuring twenty (20) feet from the edge of pavement of the through street along the centerline of the proposed approach street. The intersection sight distance values (legs AB and BC) shall be as shown in the table below:

Design Speed-Through Street (Posted speed + 5 mph)	Intersection Sight Distance (AB & BC)
50 m.p.h.	500 ft.
45 m.p.h.	450 ft.
40 m.p.h.	400 ft.
35 m.p.h.	350 ft.
30 m.p.h.	300 ft.

### **7.3.6 Grades**

a) Grades of all streets shall be not less than one percent (1%), nor more than six percent (6%). Where the six percent (6%) requirement would result in adverse impacts to the aesthetic value of the site due to extensive cut and/or fill or tree removal, the Board may waive the six percent (6%) requirement provided such waiver is consistent with safety determinants, including the distance from an intersection, the number of dwellings served, the type of street, the length of the steeper graded portion of the street, the horizontal alignment and street curvature. At all intersections, the minimum grade on the approach street shall not exceed two percent (2%) within a distance of fifty (50) feet of the point at which the edges of the travel lanes intersect. Street grade at cul-de-sac turnarounds shall not exceed three percent (3%). Intersecting streets shall have sag vertical curve on approach street to keep water from encroaching onto pavement of through street.

b) There shall be a vertical curve for any change in street grade. Where proposed pavements meet existing pavements a vertical curve is not required if the difference in tangent grades is less than one-half of one percent (0.5%). Vertical crest curves shall have a minimum K value of thirty-five (35). Sag curves shall have a minimum K value of forty (40). K values of vertical curves shall be adjusted to provide the required stopping sight distance for the design speed as defined by AASHTO.

### **7.3.7 Storm Water - Drainage**

a) General - The proposed storm water drainage shall minimize contribution of pollutants to surface or groundwater on or off the site and shall not adversely impact adjacent property by creating ponding, significant changes in the water table or increases in water discharge as noted herein. The applicant must contact

the Conservation Commission to determine if the M.G.L. c. 131, s. 40 and Town of Duxbury General Bylaw, Chapter 9, apply. The applicant is encouraged to be innovative in creating a system which will fulfill the objectives listed in Section 7.3.7c.

b) Design - Storm water drainage systems shall implement "Best Management Practices" and conform to the guidelines described in the "Performance Standards and Guidelines for Storm Water Management in Massachusetts" published by the Massachusetts Department of Environmental Protection.

Under certain circumstances, the Planning Board may also consider, after demonstration by a registered engineer, other designs and practices common to Low Impact Development (LID) to mitigate the effects of storm water runoff when reviewing storm water drainage systems.

c) Objectives - All available drainage management systems shall be reviewed to determine the appropriate method or combination of methods for the site. Soil types, topography, wetland types and location, vegetative cover, water table, flood conditions and the presence of water bodies on or near the site shall all be considered in the design of the drainage system:

Plans and calculations shall be developed in coordination with the Board, Planning Director, DPW Director, Board of Health, and the Conservation Commission. The following objectives shall guide the design:

1. Protect surface and groundwater quality using creative, multi-stage systems;
2. Minimize disruption to existing natural and topographic features on the site;
3. Ensure no increase in the rate of discharge from pre-development to post-development conditions.
4. Minimize future maintenance of the system;
5. Ensure public safety;
6. Protect existing abutting homes, properties and septic systems;
7. Create aesthetically pleasing designs which enhance views of the natural environment;
8. Prohibit direct discharges into any water body or resource area.

d) Design Requirements - Design of the drainage system shall conform to the following requirements:

1. Calculations - There shall be no increase in the peak rate of storm water runoff leaving the site for pre and post development. Design calculations to determine the size of all pipes, culverts and basins shall be submitted to the Board for review and shall be prepared by a professional engineer registered in the Commonwealth of Massachusetts. Calculations shall be clearly organized, detailed and accompanied by a written narrative. Sizing of the piping system shall be based on the Rational Method. Drainage calculations shall include a map showing the tributary watershed areas, soil types and surficial cover characteristics (e.g., forest, grass, pavement).

2. Drainage System - The drainage system shall be designed based on a twenty-five (25) year storm event. A complete storm drainage system shall be designed for each street and shall be laid out and be of sufficient size to permit unimpeded flow of all natural waterways, to eliminate undesirable accumulation of water on any portion of the subdivision or surrounding property and to intercept storm water runoff from adjacent lots. The storm drainage system shall include catch basins, manholes, pipe, gutters, swales, culverts, head-walls, and other related items as may be required to complete the system to the satisfaction of the Board. Appendix B - Drainage Materials and Installation Specifications contains the specifications for acceptable materials and installation practices for drainage systems.

a) Catch basins shall be located along edges of pavement at all low points in the roadway and at intervals as follows:

Maximum 300 ft. for grades up to 4%

Maximum 250 ft. for grades from 4% to 6%

Maximum 200 ft. for grades greater than 6%

No basins shall be located within driveway curb cuts or at sidewalk handicap access ramps.

b) Storm water drainage piping shall be minimum twelve (12) inch diameter and shall have a minimum depth of cover of two feet six inches (2'-6") as measured from the roadway subgrade. Slope of pipe shall not be less than 1/2 of one percent (0.5%). The drainage system shall be designed for a minimum self-scouring velocity of three (3) ft./sec.

c) Drainage pipes shall have positive outfalls, head-walls with wing walls or pre-formed flared end sections, and rip-rapped stone aprons to provide energy dissipation. In every case, a minimum of thirty (30) feet of vegetated swale

shall be provided above the high water line of any stream, swamp, bank or wetlands. All outfalls into resource areas or their buffer zones shall be subject to the approval of the Conservation Commission.

d) Manholes shall be located at all changes in direction of drainage pipe, either horizontally or vertically, at all pipe connections and at maximum intervals of three hundred (300) ft. along pipe runs.

e) Culverts shall be designed on the basis of a one hundred (100) year storm on the assumption that the entire drainage area is built up to the density allowed by the current zoning bylaws. Hydraulic Calculations necessary to determine the size of waterway opening shall be submitted to the Board for review. Culverts shall have a head-wall at each end. Culverts thirty-six (36) inches or greater in equivalent diameter shall include additional protection for roadway side slopes and grates.

3. Swales - Wherever practical, except alongside roadways, stormwater shall be channeled via open swales to facilitate the removal of contaminants.

a) Scuppers or swales from the roadway onto adjacent lots must be designed to direct flows away from any existing or proposed homes. Whenever possible, scuppers and swales should be grassed to promote aesthetics and the removal of contaminants. Where higher velocities require the use of a heavier lining, rip-rap, trap rock or other similar material shall be used to prevent erosion.

b) Swales shall have minimum side slopes of 3:1 (horizontal to vertical) with maximum slope of swale not to exceed five percent (5%).

c) Dense vegetative cover shall be established as quickly as possible. Organic matter shall be incorporated into the soil to enhance potential for pollutant removal. Grasses shall be planted to provide enhanced vertical resistance to stormwater runoff.

4. Off-Site Systems - The use of existing or proposed off-site drainage systems will require the submission of legal easements or agreements with the applicable land owner as well as an access easement in the Town's favor. Drainage systems within off-site easement areas must comply with the requirements of these Subdivision Rules and Regulations. Calculations must be submitted demonstrating conformance with these Subdivision Rules and Regulations. All easements must be of a form acceptable to Town Counsel. See Section 7.3.13 Easements.

5. Sites within Aquifer Protection Overlay Districts (APOD) and Other Sensitive Areas - Special attention shall be given to sites within the APOD as defined in Section 406 of the Duxbury Protective Bylaw and shown on a map named the same dated December 4, 2002; other communities' Zone II; and areas subject to protection under M.G.L. c. 131, s. 40 or Town of Duxbury General Bylaw, Chapter 9; and other sensitive areas.

For such sites, the Board will require that a nitrogen loading analysis be performed to determine the suitability of the drainage system. These requirements also apply to existing drainage facilities either on or off the site which will be affected by runoff from the proposed subdivision. The analysis shall be based on criteria established in the Duxbury Protective Bylaw Section 406.6, Item 4, subscripts d, i and ii.

6. Drainage Basins - Detailed designs of all detention/retention basins and pre-treatment basins are required. At a minimum they shall include cross sections, soil types, depth to maximum level of groundwater, final slopes and elevations. A planting and stabilization schedule is required for side slopes. Drainage basins shall meet the following criteria:

a) Bottom of basins shall be a minimum of two (2) feet above maximum groundwater level and shall be vegetated to promote filtration of contaminants. Permanent standing water is discouraged unless the basin is located adjacent to or hydrogeologically connected to a wetland or water body.

b) A pre-treatment facility shall be provided to remove contaminants from the water prior to entering a detention/retention basin. Contaminants shall include sediment, grit, oil and general debris. Pre-treatment facilities may include lined siltation basins, oil/water separators, and oil/grit separators. No water shall be permitted to recharge or leach into the ground unless it has been pre-treated to remove oil and sediment.

c) Basins shall be designed to contain a twenty-five (25) year design storm with one (1) foot of freeboard at the maximum water level. All basins shall be designed with an emergency overflow spillway with appropriate erosion control protection.

d) Retention facilities shall be designed to dissipate within seventy-two (72) hours based on the percolation rate of the soil. Percolation tests for the site shall be required if a retention basin with recharge of stormwater into the ground is proposed.

e) Basin length to width ratio shall be at least 3:1 to maximize distance from inlet to outlet. Basin surface area shall be maximized.

f) Side slopes in basins shall not exceed 3:1 (horizontal to vertical) above a permanent pool and 2:1 within a permanent pool.

g) In dry basins, a pervious low flow channel shall be used to prevent erosion of the bottom of basin. Low flow channels shall have a minimum grade of two (2%) percent to prevent ponding. Suitable protection shall be provided to prevent erosion of the channel.

h) All pipes and risers shall be equipped with trash racks and/or guards as appropriate to prevent entry by children and animals.

i) Basins and associated outlet aprons and swales shall be incorporated into separate land parcels exclusively for purposes of stormwater management rather than be shown as easements. These parcels shall include the required buffers and maintenance access.

j) All facilities shall be designed to blend into the landscape to obviate the need for fencing and screening. Wherever possible, they shall follow the natural contours of the land so as not to create large disturbed areas, steep slopes or walls. Basins over four (4) feet in depth are not permitted.

k) Means of access for mechanized maintenance equipment shall be provided to all basins.

l) Plans for pre-treatment marshes shall specify the average and maximum levels of the adjacent water body and the final proposed water level of the marsh. If storage capacity is being created, the plans shall illustrate the methods being employed as well as the type and elevation of inlets and outlets. A specific planting scheme of wetland vegetation is required.

1. Pre-treatment marshes shall be constructed in upland areas. Wetlands shall not be removed or altered for marsh construction without approval of the Conservation Commission.

2. To promote water quality, the marsh shall be designed to retain the "first flush" of stormwater runoff to allow contaminants to settle out prior to entering the adjacent water body. Subsequently, it must be capable

of storing or detaining a ten (10) year storm event.

m) A fifty (50) ft. buffer zone of existing vegetation shall be retained between all basins or pre-treatment facilities and adjacent uses or structures. Buffers shall be adapted for access and shall be fully contained within the drainage lot. A thirty (30) ft. buffer zone of existing vegetation shall be retained between all point source discharges of stormwater and surface waters and wetlands. In tidal areas, the buffer zone shall be measured from the mean high tide level.

n) Basins shall have positive outfalls with rip-rapped stone aprons to provide energy dissipation. In every case, a minimum of thirty (30) ft. of vegetated swale above the high water line of any stream, swamp, bank or wetlands shall be provided.

o) The Board may require that a separate performance guarantee be posted to secure the completion and satisfactory functioning of any drainage basin or pre-treatment facility. This performance guarantee may be required for a specified time period to ensure the proper growth of plant species pursuant to M.G.L. c. 131, s. 40 310 CMR (10.55).

#### **7.3.8. Utility Requirements**

a) Water pipes and related equipment such as hydrants and water main shut-off valves shall be designed in accordance with the latest edition of the Rules and Regulations of the Duxbury Water Department and shall be installed under the direction and supervision of the Water Department to serve each lot of the subdivision.

b) Public Water Supply Standards: Wherever feasible, water supply shall be provided from a public water supply system. The water supply system will be considered adequate only if it is capable of providing each proposed fire hydrant with a flow of 750 gpm at 20 psi residual pressure for single and two family residential developments. For multi-family and non-residential developments approval of the Fire Chief/Department is required. Each proposed lot shall have water pressure of 35 psi, average peak day, at street grade without individual booster pumps for domestic water. Where any part of any lot is at elevation 120 feet (msl) or higher, the applicant shall submit calculations documenting supply adequacy.

c) Private Supply Standards: Where connection to the public water supply is not feasible in the opinion of the Planning Board, the Planning Board may approve a subdivision upon the Board's determination, following consultation with the Fire Department, that a sprinkler system or other provisions will adequately provide for fire safety. In addition, upon the Board's determination, following consultation with the Board of Health, wells on each lot shall be able to provide a sustained yield of five (5) gpm of water meeting latest edition DEP "Drinking

Water Regulations of Massachusetts" standards. Test wells may be required of the applicant.

d) Sewage disposal: On-site sewage disposal facilities shall be constructed in conformance with the Rules and Regulations of the Board of Health as promulgated and amended from time to time. No house may be occupied until the sewage disposal facilities have been approved by the Board of Health, and a certificate of occupancy has been issued by the Inspectional Services Department.

The applicant shall submit sufficient information including test pits, perc tests, topographic and hydrologic data to indicate the feasibility of on-site disposal in the event public sewers are not available.

### **7.3.9 Dead End Streets**

a) General - Dead end streets, including cul-de-sacs, shall not be more than 1000 feet in length, nor serve more than ten (10) lots. The length of dead end streets shall be measured beginning from the edge of the traveled way of the nearest through street to the center of the turnaround along the center line of the road.

b) Design Standards - All cul-de-sacs/dead end streets shall be provided with the following:

1. A circular turnaround. The pavement width at all turnarounds shall be a minimum of eighteen (18) feet with a one and a half (1.5) ft. Cape Cod berm.

2. A vegetated island shall be provided in the center of the cul-de-sac. See Figure 5.

3. Road grade shall not exceed three (3%) within a cul-de-sac.

4. Bituminous paving shall be used.

5. Drainage shall be provided in accordance with the requirements of Section 7.3.7

6. Modified turnarounds such as hammerheads may not be used, except as permitted under Section 7.3.10

### **7.3.10 Local Street**

a) General: When the subdivision of a tract of land creates three (3) or less lots, a local street design may be used utilizing the design standards below. All provisions of the Subdivision Control Law and these Subdivision Rules and Regulations shall apply to the application and plan. Only the dimensional requirements for the roadway within the fifty (50) foot R.O.W. shall differ from the standard definitive subdivision requirements.

b) Objectives: The intent of this provision is to reduce tree removal, site disruption and paving widths while providing safe and adequate access to the lots served by the local street.

c) Design Standards:

1. Fifty (50) foot R.O.W. with a one hundred and fifty (150) foot diameter cul-de-sac layout shall be required (See Figure 5).
2. Bituminous concrete paving shall be used.
3. Minimum width of traveled way shall be fourteen (14) ft. with one and a half (1.5) ft. Cape Cod berm.
4. Drainage facilities shall be provided to meet requirements of Section 7.3.7
5. Modified turnarounds built within the one hundred fifty (150) ft. cul-de-sac layout may be used such as hammerheads, etc. Such design shall accommodate a turnaround for a single unit (SU-30) truck (see AASHTO geometric requirements).
6. All lots must accrue legal frontage and access over the R.O.W. lines.

### **7.3.11 Street Lights**

Street lights may be required at intersections of streets, near sharp turns or other areas where the Board deems they are needed for public safety. The developer is responsible for installing the pole, wiring and arranging installation of the light fixture. The developer is responsible for paying for the cost of electricity until such time as the road is accepted by Town Meeting, or in the case of private roads, approval of the As-Built drawing at which time the light bill will be paid by fee owners of the road. Street lights must be installed prior to the issuance of the certificate of occupancy for the first dwelling in the subdivision. Design shall be approved by the DPW Director.

### **7.3.12 Street Names**

Applicants shall submit the proposed street names in writing to the Planning Director who shall forward them to the Town Historian along with the title sheet of the definitive plan that shows the locus and layout of the subdivision. Appropriate street names shall have historical significance or be related to a natural feature of the area. The Town Historian shall comment on the proposed name or give alternative suggestions for the applicant to select. Names of living persons will not be accepted. The Planning Board must grant final approval of all street names.

Any proposal for a public street name change shall be reviewed in accordance with Chapter 85 Section 3, 3A & 3B (Changing of name of ways) of the Massachusetts General Laws after notice of a public hearing in a newspaper of general circulation. Petitioners seeking such a change will be responsible for all costs incurred as to advertising and recording of the appropriate documentation at the Plymouth County Registry and/or Land Court (if applicable).

### **7.3.13 Easements**

Utility or drainage easements shall be provided where necessary and shall, whenever possible, be centered on side or rear lot lines, and shall be a minimum of twenty-five (25) ft. wide. For any utilities or drainage pipes buried greater than ten (10) feet below finished grade, the Planning Board will require Town ownership in lieu of an easement unless a public benefit can be demonstrated. All easements shall be shown on the definitive plan, As-Built drawing and Roadway Acceptance Plan.

All easements shall be accompanied by Easement Documents for recording at the Registry of Deeds. Easements must be clearly defined and described on the definitive plan. The applicant is responsible for recording all easement documents following endorsement of the definitive plan by the Board. Proof of recording shall be submitted to the Board within thirty (30) days of endorsement of the plan. Easements shall be in a form acceptable to Town Counsel.

There shall be no placement of any structure and/or subsurface system either above or below the land subject to an approved easement unless such easement is expressly dedicated to such use.

## **8.0 FRONTAGE WAIVER REQUESTS**

Applicants shall apply under the same procedures as a standard Definitive Subdivision plan, however, the plan showing the lots for which a waiver is requested shall consist of a plan similar to an ANR plan. All other plan requirements shall be the same as in a modification request.

## **9.0 LOT LETTERING**

Lot letters shall be assigned to each lot in a subdivision in the following manner:

Lot letters shall begin with letter “A” being the first lot on the right side of the proposed roadway with each lot alphabetically lettered around the proposed roadway. Should the number lots exceed the letters of the alphabet, double lettering shall be used, i.e. “AA, BB, CC...”. If the land shown on the plan is registered land, a separate plan shall be required showing the registered parcel forming single building lots and labeled alphabetically.

Lot letters shall be clearly displayed during construction. Lot letters shall be removed once a Certificate of Occupancy has been signed for a new house and a house number is assigned.

## **10.0 STREET SIGNS**

During construction, temporary signage shall be posted for street identification. The developer shall erect and set in concrete the permanent street sign pole. The street sign will be made by the Department of Public Works upon written request and payment of the applicable DPW fee. The developer is then responsible for installing the sign on the pole prior to the issuance of the certificate of occupancy for the first house in the development. All streets must have a sign made by the Department of Public Works that conforms to Town specifications. Any other proposal for street identification shall require approval from the Department of Public Works prior to installation.

## **11.0 SHADE TREES**

All subdivisions shall have deciduous shade trees in order to enhance the aesthetic quality of the streetscape.

The location, size, number and species of trees shall be determined jointly by the developer and the Director of Lands and Natural Resources (Tree Warden), and approved by the Board. Following the construction of the base course of the roadway, the developer shall request the tree warden to verify the staked locations for tree plantings. Groups of trees or shrubs may be required within the island of a cul-de-sac.

Trees shall be nursery stock quality, minimum of two (2) inch caliper. All trees must be properly wrapped and guyed. Trees shall be planted at appropriate seasons in order to ensure survival. The developer shall be responsible for maintaining the health of the trees for two (2) full growing seasons or until such time as the As-Built plans of the street are approved by the Board (private ways), or the acceptance of the street by Town Meeting (public ways) whichever is longer.

## **12.0 PRESERVATION OF NATURAL VEGETATION**

Every effort shall be made to preserve the existing trees or other rare or unique flora within the R.O.W. and on the lots being created. Cuts and fill for roadway construction shall be done in a manner that preserves natural vegetation whenever possible. Stock piles of fill shall be located in areas that do not bury existing trees above the natural grade. Machine operators shall exercise due caution during construction and avoid unnecessary damage to root systems or scraping bark from trees to be preserved.

The developer shall erect 8 ft x 8 ft. temporary wooden tree guards around specific trees designated to be saved to protect them from damage during construction.

## **13.0 CONSTRUCTION STANDARDS**

The construction of all subdivision improvements shall only occur during seasonal and weather conditions that allow for high quality infrastructure construction, utilizing accepted industry standards. See Appendix A for Roadway Construction Standards. See Appendix B for Drainage Materials and installation specifications.

## **14.0 CLEAN UP**

Upon completion of all work on the ground, the developer shall remove from the streets and adjoining property, all temporary structures and all surplus material and rubbish which may have accumulated during construction, and shall leave the work in a neat and orderly condition. During construction, the developer shall keep the site free of rubbish which may be carried by wind or rain off the site to abutting properties or onto public ways.

## **15.0 MAINTENANCE**

The developer shall maintain the roads for vehicular travel, including snow plowing, in a manner satisfactory to the Board, until approval of the As-built plan for private roads or acceptance by Town Meeting for proposed public ways. Further, the developer shall maintain the completed roads, drainage structures and shade trees in a subdivision in a condition which meets all the above requirements to the satisfaction of the Board up until approval of the As-Built plan or until acceptance of the roads by vote of Town Meeting.