

Chapter 10-04

GENERAL PROVISIONS

Sections:

10-04-010	Authority
10-04-020	Purpose
10-04-030	Definitions
10-04-040	Planning Board Authority
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10-04-010 Authority

Under the authority vested in the Planning Board of the Town of Northborough by MGL C. 41. § 81Q, said Board hereby adopts these rules and regulations governing the subdivision of land in the Town of Northborough.

10-04-020 Purpose

These subdivision regulations have been enacted for the purpose of protecting the safety, convenience and welfare of the inhabitants of the town by regulating the laying out and construction of ways in subdivisions providing access to the several lots therein, but which have not become public ways, and ensuring sanitary conditions in subdivisions and, in proper cases, parks and open areas. The powers of the Planning Board and of the Board of Appeals under these regulations shall be exercised with due regard for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for lessening congestion in such ways and in the adjacent public ways; for reducing danger to life and limb in the operation of motor vehicles; for securing safety in the case of fire, flood, panic and other emergencies; for ensuring compliance with the applicable zoning

bylaws; for securing adequate provision for water distribution, sewerage, drainage, protection of natural water resources, flood control, wetland areas and other requirements, where necessary, in a subdivision; for protecting, promoting and enhancing the natural beauty and amenities of the town; and for coordinating the ways in a subdivision with each other, with the public ways in the town and with the ways in neighboring subdivisions.

10-04-030 Definitions

For the purpose of these rules and regulations, the following words and terms used herein are hereby defined or the meanings thereof are explained or limited as follows:

APPLICANT — The person who applies for the approval of a plan of a subdivision and his administrators, executors, heirs, devisees, successors and assigns. The "applicant" or "applicants" must be the owner or owners of all the land included in the proposed subdivision.

APPROVAL — Approval by the Board of a preliminary or a definitive plan of subdivision and may include approval with modifications.

BOARD — The Planning Board of the Town of Northborough.

BOARD OF HEALTH — The Board of Health of the Town of Northborough.

CONSERVATION COMMISSION — The Conservation Commission of the Town of Northborough.

DEAD-END STREET — Shall be measured from the nearest sideline of the nearest intersecting street to the farthest point of the layout line of the cul-de-sac.

DEFINITIVE PLAN — A plan of a proposed subdivision or resubdivision prepared by a registered land surveyor or registered

engineer.

DISAPPROVAL — The disapproval of a preliminary or a definitive plan by a majority of the Board. The reasons for disapproval shall be given in writing as required in § 81S of the Subdivision Control Law.

EARTH REMOVAL BOARD — The Earth Removal Board of the Town of Northborough.

LOT — An area of land in one (1) ownership, with definite boundaries, used or available for use as the site of one (1) or more buildings complying with the area, frontage and other requirements of the Zoning Bylaws of the Town of Northborough.

MUNICIPAL SERVICES — Public utilities such as water, sewerage, gas, electricity, drainage and fire protection.

OWNER — The owner of record as shown by the records in the Worcester County Registry of Deeds or Land Registry District.

PERSON — An individual, two (2) or more individuals, a partnership, association or corporation.

PRELIMINARY PLAN — A plan of a proposed subdivision or resubdivision of land, or a print thereof, submitted for approval.

REGISTERED MAIL — Registered or certified mail.

REGISTRY OF DEEDS — The Registry of Deeds of the County of Worcester, Worcester County Court House, Worcester, Massachusetts, and, when appropriate, shall include the land court.

STREET — That area of land in an existing or proposed way between the lines designating the entire right-of-way and shall include the area intended for vehicular use, curbing, planting strips, sidewalks and median strips, if any.

SUBDIVIDER — The person undertaking the subdivision of land.

SUBDIVISION — Described in MGL C. 41, § 81L as follows: "Subdivision" shall mean the division of a tract of land into two (2) or more lots and shall include resubdivision and, when appropriate to the context, shall relate to the process of subdivision or the land or territory subdivided; provided, however, that the division of a tract of land into two (2) or more lots shall not be deemed to constitute a "subdivision" within the meaning of the Subdivision Control Law if, at the time when it is made, every lot within the tract so divided has frontage on a public way or a way which the Clerk of the city or town certifies is maintained and used as a public way, or a way shown on a plan theretofore approved in accordance with the Subdivision Control Law or a way in existence when the Subdivision Control Law became effective in the city or town in which the land lies, having, in the opinion of the Planning Board, sufficient width, suitable grades and adequate construction to provide for the needs of vehicular traffic in relation to the proposed use of the land abutting thereon or served thereby and for the installation of municipal services to serve such land and the buildings erected or to be erected thereon. Such frontage shall be of at least such distances as is then required by zoning or other ordinance or bylaw, if any, of said city or town for erection of a building on such lot, and, if no distance is so required, such frontage shall be of at least twenty (20) feet. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such a manner as not to leave any lot so affected without the frontage above set forth or the division of a tract of land on which two (2) or more buildings were standing when the Subdivision Control Law went into effect in the city or town in which the land lies into separate lots on each of which one (1) of such buildings remains standing shall not constitute a "subdivision."

SUBDIVISION CONTROL LAW — MGL C. 41, §§ 81K to 81GG, inclusive, and any acts in amendment thereof, in addition thereto or in substitution therefor.

TOWN ENGINEER — A registered professional engineer designated by the Board of Selectmen or its agent.

10-04-040 Planning Board Authority

- A. The Planning Board shall be responsible for administering these regulations pursuant to the powers vested in it under the Subdivision Control Law, MGL C. 41, §§ 81K through 81GG. The Board may assign as its agents appropriate town agencies or officials and may from time to time hire professional assistance to review plans and inspect improvements at the cost to the subdivider.

- B. No person shall make a subdivision within the meaning of the Subdivision Control Law, of any land within the town or proceed with the improvement or sale of lots in a subdivision or the construction of ways or the installation of municipal services therein, unless and until a definitive plan of such subdivision has been submitted to and approved by the Planning Board as hereinafter provided.

10-04-050 Waiver of Compliance

The Planning Board may waive strict compliance with the provisions of these rules and regulations and with the frontage and access requirements specified in the Subdivision Control Law in accordance with the provisions of § 81R thereof, as amended.

Chapter 10-08

PLAN BELIEVED NOT TO REQUIRE APPROVAL

Sections:

- 10-08-010 Submission Procedures**
- 10-08-020 Contents of Plan**
- 10-08-030 Public Ways**
- 10-08-040 Determination by Board**

10-08-010 Submission Procedures

Any person who wishes to cause to be recorded in the Registry of Deeds or to be filed with the land court a plan of land and who believes that the plan does not require approval under the Subdivision Control Law, may submit the plan, including the mylar, a sepia mylar, six (6) paper copies and six (6) copies of the application (Form A), at a regularly scheduled meeting of the Planning Board accompanied by the necessary evidence to show that the plan does not require approval. Said person shall file, by delivery or registered mail, a notice with the Town Clerk stating the date of submission for such determination and accompanied by a copy of said application. If the notice is given by delivery, the Town Clerk shall, if required, give a written receipt thereof. **[Amended 10-7-1997]**

A compatible electronic file of the plan, or other alternatives of the plan deemed acceptable by the Planning Board for use in inputting the plan information into the Town's computerized files shall be required at the time of submittal. **[Amended 10-7-1997]**

10-08-020 Contents of Plan

The plan submitted shall be clearly and legibly drawn on Mylar in black India ink. The plan shall be at a scale of one (1) inch equals forty (40) feet. Sheet sizes shall be either eighteen by twenty-four (18 x 24) inches or twenty-four by thirty-six (24 x 36) inches. The plan shall show the following information:

- A. Existing and proposed boundary lines, North point, date and scale.
- B. Name of record owner and engineer or surveyor.
- C. Names of all abutters as they appear in the most recent tax list.
- D. Lines of existing and proposed streets, ways, lots and easements. Sufficient data should be provided to determine the location, direction and length of every street and way line, lot line and boundary line.
- E. Zoning classifications of all areas shown on the plan, including groundwater district and uplands area as defined as those areas not subject to protection under the Wetlands Protection Act (MGL Ch. 131 Sec. 40) and the Town of Northborough Wetlands Bylaw. **[Amended 10-7-1997; 5-6-2003]**
- F. Location of all permanent bounds properly identified as to whether existing or proposed.
- G. Endorsement block area with room for the Planning Board to record its action, date of endorsement and signatures.
- H. Location of existing structures and relation to boundaries.
- I. A fifty-foot-wide buffer zone (natural or planted) between all commercial or industrial subdivisions abutting any residential development or residential zone. **[Amended 1-4-1988]**
- J. All driveways shall exit onto the frontage street. **[Amended 5-2-1994]**
- K. The plan shall include a notation stipulating the DEP stormwater management policy, as adopted and from time to time amended, shall apply to the division of five (5) or more lots and shall require a

filing with the Conservation Commission. **[Amended 10-7-1997]**

10-08-030 Public Ways

- A. In determining whether a way in existence when the Subdivision Control Law became effective in the Town of Northborough is adequate to qualify as a plan as not constituting a subdivision, the Board shall consider the following conditions, among others:
- (1) The right-of-way is at least thirty-three (33) feet wide and of reasonable horizontal alignment.
 - (2) The roadway vertical alignment shall not exceed ten percent (10%) and the horizontal and vertical alignment of the roadway shall provide a minimum two-hundred-foot sight distance. **[Amended 1-14-1991]**
 - (3) The roadway pavement shall be a minimum of twenty-two (22) feet wide with at least a twelve-inch gravel base. An adequate drainage system shall be provided according to the topography and soil characteristics of the area and as approved by the Town Engineer. **[Amended 1-14-1991]**
 - (4) The roadway must be bituminous surfaced or have provisions made for such resurfacing without cost to the town.
- B. When an applicant requests the Town Clerk to certify a way as maintained and used as a public way, the Town Clerk shall submit to the Board written evidence that this is a public way or a way used and maintained as a public way.
- C. The endorsement of a plan as not requiring approval under Subdivision Control Law does not imply that the lot(s) of land shown on such plan are correctly represented, are building lots or comply with the area requirements of the Zoning Bylaws of the Town of Northborough.

10-08-040 Determination by Board

- A. If the Board determines that the plan does not require subdivision

approval, it shall, without a public hearing and within twenty-one (21) days of submission, endorse the plan with the words, "Planning Board Approval Under Subdivision Control Law Not Required." The plan shall then be returned to the applicant and the Board shall notify the Town Clerk of its action.

- B. If the Board determines, within twenty-one (21) days of submission, that the plan requires approval, it shall give written notice of its determination to the Town Clerk and the person submitting the plan.
- C. If the Board fails to act upon the plan or fails to notify the Town Clerk and the applicant of its action within twenty-one (21) days after its submission, it shall be deemed to have determined that approval under the Subdivision Control Law is not required, and the Board shall forthwith make such endorsement on said plan, and, on its failure to do so, the Town Clerk shall issue a certificate to the same effect. The plan bearing such endorsement, or the plan and such certificate, as the case may be, shall be delivered by the Board, or in the case of the certificate, by the Town Clerk, to the applicant.

Chapter 10-12

GENERAL SUBDIVISION REQUIREMENTS

Sections:

10-12-010	Criteria for Approval of Plans
10-12-020	Approved Plan Required
10-12-030	Applicant's Responsibility
10-12-040	One Dwelling Per Lot
10-12-050	Compliance with Zoning Bylaw Required
10-12-060	Impact Report

10-12-070 Expenses; Filing Fees

10-12-010 Criteria for Approval of Plans

No subdivision shall be approved unless it complies with these rules and regulations and with the applicable provisions of zoning and other town bylaws and regulations and of the General Laws of the Commonwealth of Massachusetts, nor unless, in the opinion of the Board, such subdivision meets the requirements of public safety, including reasonable precautions against possible natural disasters, of traffic safety and convenience, of adequate water supply, stormwater drainage and sewage disposal and is designed with due regard to the rights, health and welfare of Northborough's inhabitants, including the residents of such subdivision. Proposed subdivisions shall conform to overall development plans adopted by the Planning Board and shall adhere to the principles of correct land use, sound planning and good engineering. Comments provided by the Town Engineer on subdivision plans must be considered and addressed by both the Planning Board and the applicant prior to said Board giving consideration to approving subdivision plans. [Amended 1-4-1988]

10-12-020 Approved Plan Required

No person shall make a subdivision within the meaning of the Subdivision Control Law, of any land within the town or proceed with the improvement or sale of lots in a subdivision or the construction of ways or the installation of municipal services therein, unless and until a definitive plan of such subdivision has been submitted to and approved by the Planning Board as hereinafter provided.

10-12-030 Applicant's Responsibility

The approval of a subdivision by the Board does not affect any rights others may have in or over the land to be subdivided, nor does it give the applicant the right to perform work on land owned by others. The Board assumes any plans submitted for its approval or consideration to be correct, unless evidence is presented to the contrary. The acquisition of necessary rights and the presentation of complete and correct information to the Board are responsibilities of the applicant, and the failure to do so, including the failure or inability to obtain all necessary permits, licenses, releases or rights, may constitute a reason for the disapproval or the rescission of approval of a subdivision plan.

10-12-040 One Dwelling Per Lot

Not more than one (1) building designed or available for use for dwelling purposes shall be erected or placed or converted to use as such on any lot in a subdivision without the consent of the Board, and such consent may be conditioned upon the providing of adequate ways furnishing access to each site for such building in the same manner as otherwise designed for lots within a subdivision. Each lot shall be serviced by its own driveway(s). Customary accessory structures are permitted.

10-12-050 Compliance With Zoning Bylaw Required

The Planning Board shall not approve or modify any plan of a subdivision of land unless all buildings, structures and lots shown on said plan comply with the Town of Northborough Zoning Bylaw or unless a variance from the terms thereof has been granted by the Zoning Board of Appeals.

10-12-060 Impact Report [Amended 4-15-2003]

All subdivision plans must be accompanied by an impact report, which details the probable effects of that development on the Town. The impact report shall be prepared by either a civil engineer, landscape architect, or land use planner, or jointly by any of the above, unless

otherwise agreed to by the Planning Board. The following areas of impact shall be addressed:

- (1) A traffic impact assessment shall be submitted documenting existing and proposed traffic conditions and identifying measures to mitigate any adverse traffic impacts. The assessment shall include:
 - (a) Existing traffic conditions: average daily and peak hour volumes, average and peak speeds, sight distances, accident data and levels of service (LOS) of intersections and streets likely to be affected by the proposed development. Generally, such data shall be presented for all streets and intersections adjacent to or within on thousand (1,000) feet of the project boundaries.
 - (b) Projected traffic conditions for design year of occupancy: statement of design year of occupancy, background traffic growth on an annual average basis and impacts of proposed developments which have already been approved in part or in whole by the town.
 - (c) Projected impact of proposed development: projected peak hour and daily traffic generated by the development on roads and ways in the vicinity of the development: sight lines at the intersections of the proposed driveways and streets; existing and proposed traffic controls in the vicinity of the proposed development; and projected post development traffic volumes and levels of service of intersections and streets likely to be affect by the proposed development [as defined in Subsection E (1) above].
- (2) Time schedule for construction.
- (3) Changes in surface drainage.
- (4) Increased consumption of groundwater.
- (5) Impact upon the existing water supply and distribution systems and well capacity of the town.
- (6) Discharge of any material into the air or water.
- (7) Land erosion or loss of tree cover.
- (8) Harmony with the character of surrounding development.
- (9) Identification of potential impacts to significant historic and

archaeological resources. The proponent must submit a project notification form to the Massachusetts Historical Commission (MHC). The submission to the MHC shall include a copy of the relevant United States Geological Survey map, clearly showing the project boundaries, and any other available plans. The MHC will make a determination, in writing, within (30) days of receipt of a complete project notification form.
[Amended 10-15-1990]

- (10) Impact on pedestrian safety and convenience.
- (11) Noise impacts on residential premises.
- (12) Drainage impacts and control measures to protect adjacent properties within the subdivision and abutters' properties.
- (13) Impacts upon groundwater quality and level.
- (14) Impact upon surface water quality and level.
- (15) Other matters reasonably requested by the Planning Board.

10-12-070 Expenses; Filing Fees

- A. All expenses for advertising, publication of notices, engineering, professional planning review, plans, inspection of construction, recording and filing of documents specified on the Filing Fee Schedule and required by the Planning Board or its agent shall be borne solely by the applicant.
- B. In addition to the filing fees and per-lot charges for plans, the applicant will pay any additional cost of retaining professional engineering review services if such services are deemed necessary by the Planning Board. All other expenses, such as inspections and test by the Water and Sewer Department, in connection with or for a subdivision, shall be separately billed to the applicant.
- C. Filing Fee Schedule. **[Amended 7-15-1991; 4-4-1994; 4-28-1998; 4-15-2003]**

Type

Fee

Form A, approval not required	\$250.00 plus \$50.00 p
Form B, preliminary plan	\$500.00 plus \$50.00 p
Form C, definitive plan	
a. If preliminary plan was filed	\$1,000.00 plus \$100.00 \$250.00 plus \$50.00 p and \$100.00 per lot rel
b. If no preliminary plan was filed	\$3,000.00 plus \$250.00 \$500.00 plus \$50.00 p and \$250.00 per lot rel
c. Re-issue lot release	\$50.00 per lot
Common driveways	\$1,000.00 plus \$100.00 driveway
Common driveway re-file, with no revisions to plan	\$250.00
Common driveway re-file, with revisions to plan per lot serviced by driveway	\$250.00 plus \$50.00
Scenic Road	\$250.00
Site Plan Review	\$100.00 plus \$25 per 1 of proposed floor area 1,000 square feet
Wireless Communications Facility Special Permit	\$1,000.00
Wireless Communications Facility Site Plan Review	\$500.00

Chapter 10-16

PRELIMINARY PLAN

Sections:

10-16-010	Purpose and Intent
10-16-020	Submission Procedure
10-16-030	Form and Content
10-16-040	Planning Board Action
10-16-050	Preliminary Sketch

10-16-010 Purpose and Intent

A preliminary plan of subdivision may be submitted by the applicant to the Planning Board and Board of Health for discussion and approval by the Board. The submission of such a preliminary plan will enable the subdivider, the Board and other municipal agencies to discuss and clarify the problems of such subdivision before a definitive plan is prepared. Therefore, it is strongly recommended that a preliminary plan be filed.

10-16-020 Submission Procedure

- A. Seventeen (17) copies of the preliminary subdivision plan shall be submitted by the applicant to the Town Clerk, along with three (3) completed Form B applications. The applicant shall simultaneously deliver these copies of the plans to the following individuals and departments: Town Clerk (Form B also), Board of Health, Board of Selectmen, Conservation Commission, Earth Removal Board, Building Inspector, Town Engineer (Form B also), Planning Board [five (5) copies of plan, Form B also], Town Planner, Department of Public Works, Police Department, Fire Department and Assessors Office. The distribution sheet must be signed by each department/individual and returned to the Planning Board. **[Amended 7-23-1990; 4-22-1996]**
- B. The applicant shall also file by delivery or registered mail a notice with the Town Clerk stating the date of submission of a preliminary plan accompanied by a copy of the completed Form B application. If the notice is given by delivery, the Town Clerk shall, if requested, give a written receipt to the person who delivered such notice.
- C. The submission of preliminary plans for nonresidential subdivisions is mandatory.

10-16-030 Form and Content

- A. The preliminary plan shall be drawn in either pencil or black India ink on tracing paper or other reproducible medium. The plan shall be at a scale of one (1) inch equals forty (40) feet or such other scale as the Board may accept. Sheet sizes shall not exceed twenty-four by thirty-six (24 x 36) inches. If multiple sheets are used, there shall be an index sheet showing the entire subdivision.
- B. The plan shall show the following information:
- (1) The subdivision name, boundaries, North point, date, scale, legend and title "Preliminary Plan."
 - (2) The names of the record owner and the applicant and the name of the designer, engineer or surveyor.
 - (3) The names of all abutters, as determined from the most recent tax list. This list shall be certified by the Board of Assessors.
 - (4) Existing or proposed lines of streets, sidewalks, ways, lots, easements and public or common areas within the subdivision in a general manner.
 - (5) The names, approximate location and widths of adjacent streets and of streets approaching within close proximity to the subdivision.
 - (6) The approximate boundary lines of proposed lots, with lot numbers, approximate areas and dimensions.
 - (7) Existing buildings and significant structures such as fences, pools, etc., in a general manner.
 - (8) Proposed system of drainage, including stormwater management system, the location of all swamps, marshes and lowlands, water bodies, streams, open drains and ditches and any drainage easements, adjacent to or within the proposed subdivision. **[Amended 10-7-1997]**
 - (9) Proposed water supply and distribution, sewage disposal and underground system for utilities, in a general manner.
 - (10) The topography of the land at a contour interval of two (2) feet.
 - (11) Profiles for proposed streets at a scale of one (1) inch equals forty (40) feet horizontal and one (1) inch equals four (4) feet

vertical. **[Amended 7-23-1990]**

(12) Zoning classification of all land shown on the plan, including overlay zoning, such as floodplain or groundwater protection districts.

(13) A fifty-foot-wide buffer zone (natural or planted) between all commercial or industrial subdivisions abutting any residential development or residential zone. **[Amended 1-4-1988]**

C. Conformance with Master Plan. With each proposed subdivision, the applicant shall provide written documentation specifying how the proposed project conforms to the Master Plan. **[Amended 2-11-1991]**

D. Blasting. If any blasting is anticipated to accomplish the construction of the proposed project, every effort shall be taken at the design stage to minimize the amount of blasting required. Alternative plans which minimize the amount of blasting shall be submitted to the Planning Board. **[Amended 2-11-1991]**

10-16-040 Planning Board Action

A. The Planning Board may hold an informal meeting at a regularly scheduled Planning Board meeting with the abutters and applicant. The Board will be responsible for notifying the abutters, once the applicant has submitted plans and a certified abutters list.

B. The Planning Board may give such preliminary plan its approval with or without modification. Such approval does not constitute approval in receiving approval of the definitive plan.

C. The Board may also disapprove the plan. A disapproval will be accompanied by a detailed statement of reasons for the action.

D. The Board shall notify by certified mail the applicant and, the Town Clerk, of its action within forty-five (45) days of the date of

submission. Failure to act within that time shall be considered as approval of the preliminary plan.

- E. Comments provided by the Town Engineer on subdivision plans must be considered and addressed by both the Planning Board and the applicant prior to said Board giving consideration to approving subdivision plans. **[Amended 1-4-1988]**

10-16-050 Preliminary Sketch

A preliminary sketch showing less information than required for a preliminary plan may be submitted by an applicant for an informal review and recommendations of the Board. Such preliminary sketch will not have the status of a preliminary plan, and the recommendations of the Board shall be conditioned on the extent of information shown on the sketch. Applicants are urged to submit such preliminary sketches in order to obtain the Board's recommendations regarding the overall layout and the location of the proposed streets in a future subdivision, thus avoiding the expense and delays necessitated by changes in a definitive plan if submitted without such preliminary review.

Chapter 10-20

DEFINITIVE PLAN

Sections:

10-20-010	General Provisions
10-20-020	Plan Specifications
10-20-030	Contents
10-20-040	Environmental Analysis
10-20-050	Profiles of Proposed Streets
10-20-060	Board of Health Review
10-20-070	Conservation Commission Review

10-20-080 Review by Other Town Officials

10-20-010 General Provisions

- A. The definitive plan shall conform substantially to the preliminary plan as approved, but may constitute only that portion which is proposed to be recorded and developed at the time. The Planning Board may disapprove a definitive plan if it violates sound land use planning principles and design, even though all requirements hereinafter enumerated are met.

- B. The Subdivision Rules and Regulations and zoning in effect at the time of the submission of the preliminary plan shall govern the definitive plan if it is duly submitted within seven (7) months.

- C. Any person who submits a definitive plan of a subdivision to the Planning Board for approval shall file with the Board the following:
 - (1) The original drawing of the definitive plan and thirteen (13) contact prints thereof.
 - (2) The minimum filing fee as specified in § 10-12-070 of these regulations.
 - (3) Application Form C in triplicate.
 - (4) Written documentation specifying how the proposed project conforms to the Master Plan, if no Form B was filed. **[Amended 2-11-1991]**
 - (5) If a preliminary plan has been submitted, alternative plans which minimize the amount of blasting shall be submitted at the definitive plan stage in accordance with the requirements of § 10-16-030D. **[Amended 2-11-1991]**

- D. Seventeen (17) copies of the definitive subdivision plans shall be submitted by the applicant to the Town Clerk, along with three (3) completed Form C applications. The applicant shall simultaneously deliver these copies of the plans to the following individuals and departments: Town Clerk (Form C also), Board of Health, Board

of Selectmen, Conservation Commission, Earth Removal Board, Building Inspector, Town Engineer (Form C also), Planning Board, [five (5) copies of plan, Form C also], Town Planner, Department of Public Works, Police Department, Fire Department and Assessors Office. The distribution sheet must be signed by each department/individual and returned to the Planning Board. **[Amended 7-23-1990; 4-22-1996]**

- E. The applicant shall also file by delivery or registered mail a notice with the Town Clerk stating the date of submission of a definitive plan accompanied by a copy of the completed Form C application. If the notice is given by delivery, the Town Clerk shall, if requested, give a written receipt to the person who delivered such notice.

10-20-020 Plan Specifications

The definitive plan shall be prepared by a registered engineer or registered surveyor and shall be at a scale of one (1) inch equals forty (40) feet. The size of the sheet may be either eighteen by twenty-four (18 x 24) inches, or twenty-four by thirty-six (24 x 36) inches but shall not exceed twenty-four by thirty-six (24 x 36) inches. A margin of three-fourths (3/4) inch shall be allowed. All subdivisions shall include a key sheet showing the entire subdivision in a scale of one (1) inch equals one hundred (100) feet. **[Amended 4-4-1994; 5-6-2003]**

10-20-030 Contents

The definitive plan shall contain the following information:

- A. Subdivision name, including the way or ways on which it is situated, corner locus map, boundaries, North point, date or dates of revision, benchmark and datum. All elevations to refer to United States Coast and Geodetic Survey bench marks (NAVD 88). **[Amended 5-6-2003]**
- B. Name and addresses of record owner, subdivider and engineer or

surveyor.

- C. Names and addresses of all abutters as they appear on the most recent tax list. This list must be certified by the Board of Assessors. A public hearing date will not be set until this list is delivered to the Planning Board.
- D. Existing and proposed lines of streets, ways, lots, waterways and public or common areas within the subdivision. The proposed street names shall be shown in pencil until they have been approved by the Board of Selectmen. Before endorsement of the definitive plan by the Planning Board, approved street name(s) will be permanently scribed on the plan.
- E. Sufficient data to determine readily the location, bearing and length of every street and way line, lot line and boundary line and to reproduce the same on the ground. Wherever a boundary line of the subdivision is within five hundred (500) feet of a Massachusetts Coordinate Survey Monument, the survey of the subdivision shall be tied to said monument or monuments.
- F. Location of all permanent monuments properly identified as to whether existing or proposed. The distance and bearing to the nearest town, county or state monument on an accepted way and monuments at all points of curvature and changes in direction of street side lines or where designated by the Town Engineer.
- G. Location, names and present width of streets bounding, approaching or within reasonable proximity of the subdivision.
- H. Suitable space to record the action of the Board and the signatures of the members of the Board.
- I. Existing and proposed topography at a two-foot contour interval for gentle slopes and at five-foot contour intervals for steep slopes. All contours shall be developed from original fieldwork of the

surveyor or engineer.

- J. Lengths, radii and central angles of all curves in lot lines and street lines.
- K. Zoning classifications and groundwater protection districts of all areas and adjacent zones within one hundred (100) feet of all subdivisions shown on the plan.
- L. Areas of lots with lot numbers and house numbers and areas of other adjoining land of the applicant not included in the subdivision.
- M. Size and location of existing and proposed storm drainage, water supply and sanitary sewer facilities and electrical distribution system.
- N. All information required on the preliminary plan shall be shown on the definitive plan.
- O. The storm drainage and sanitary sewer systems shall be shown, each on a separate sheet. The plan shall include invert and rim elevations of all catch basins and manholes, together with surface elevations of all waterways within the subdivision at one-hundred-foot intervals and approximate depth of water at these points. The drainage plan shall also show the stormwater management plan, the drainage areas inside the subdivision, areas outside the subdivision which drain into it and the route taken for all existing and proposed drainage discharging from the subdivision to the primary receiving watercourse or other body of water. Surface elevation and approximate depth of water shall be shown at each point where drainage pipe ends at a waterway. Drainage calculations prepared by the applicant's engineer, including the design criteria used, drainage area and other information sufficient for the Board to check the size of any proposed drain, culvert or bridge. **[Amended 10-7-1997]**
- P. Subsurface conditions of the tract, location and results of tests

made to ascertain subsurface soil, rock and groundwater conditions. Depth to groundwater and location and results of soil percolation tests if individual sewage disposal systems are proposed (on a separate sheet). Percolation test satisfactory to the Board of Health are to be taken on each lot within the subdivision.

- Q. Watercourses, ponds, marshes, floodplains, rock outcrop, trees of over ten-inch caliper (unless otherwise specified by the Board) and other significant natural features.
- R. Key plan, showing location of the subdivision at a scale of one (1) inch equals one thousand (1,000) feet, and an accurate index plan at a scale of one (1) inch equals one hundred (100) feet.
- S. Minimum building setback lines on all lots and a sketch plan showing proposed house sites.
- T. Location of all the following improvements unless specifically waived in writing by the Board: street paving, sidewalks, street signs, street lighting standards, all utilities above and below ground, granite curbs, gutters, street trees, storm drainage and all easements.
- U. A legend denoting any signs and symbols used on the plan and not otherwise explained.
- V. A sketch plan, acceptable to the Board, showing a possible or prospective street layout for any adjacent lawn owned or controlled by the owner or the applicant of the subdivision.
- W. Identification of all existing and proposed easements and rights-of-way that affect lots within the proposed subdivision, and the location of common driveways, if any, together with the required covenants.
- X. A fifty-foot-wide buffer zone (natural or planted) between all

commercial or industrial subdivisions abutting any residential development or residential zone. **[Amended 1-4-1988]**

- Y. A Phase I Environmental Site Assessment report which shall conform to the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM) Designation:E 1527-94 and shall be signed by a Licensed Site Professional (“LSP”). The report shall include the LSP’s professional opinion, findings and conclusions of “recognized environmental conditions in connection with the property” as defined in ASTM Designation:E 1527-94, Sections 11.5 and 11.6 and shall include not only hazardous substances or petroleum products as defined in Section 3 of ASTM Designation:E 1527-94, but also hazardous material or oil as defined in 310 Code of Massachusetts Regulations 40.0006. The site assessment shall be completed no more than six months prior to its submission to the Board. **[Amended 10-7-1997]**

10-20-040 Environmental Analysis

An environmental analysis, separate from the content requirements for definitive plans, shall be required for subdivision proposals of five (5) or more lots. The analysis shall be prepared by either a civil engineer, wetland biologist/scientist or landscape architect, or jointly by any of the above, unless otherwise agreed to by the Planning Board. The basis for the environmental analysis shall include the following **[4-15-2003]**:

- A. Sensitive areas map: This map shall be drawn at the same scale as the definitive plan map and show:
- (1) Slopes greater than fifteen percent (15%).
 - (2) Wetlands protected by the Wetlands Protection Act (MGL C. 131, § 40) and the Northborough Wetlands Bylaw. **[Amended 5-6-2003]**
 - (3) Flood hazard areas identified on National Flood Insurance Program maps.
 - (4) Aquifer recharge areas.

(5) Location of public and private wells on abutting properties.

- B. Composite site plan and environmental sensitive area map: This map shall be produced by overlaying environmentally sensitive areas, shown on the sensitive areas map, onto the site plan map of the proposed subdivision.
- C. Off-site environmental resources map: Important environmentally sensitive areas (e.g., public water supply, sensitive natural habitat, streams and wetlands protected under the Wetlands Protection Act and the Northborough Wetlands Bylaw) located within one thousand (1,000) feet of the subdivision shall be indicated on a United States Geological Survey topographic map and generally described. **[Amended 5-6-2003]**
- D. A narrative statement shall be submitted, documenting the following, with references to the above maps as germane.
- (1) Impacts and measures to protect wetlands protected by the Wetlands Protection Act and the Northborough Wetlands Bylaw. **[Amended 5-6-2003]**
 - (2) Effects to and from flood hazard areas and measures to minimize such effects.
 - (3) Extent and effects of the subdivision to known aquifer recharge areas.
 - (4) Effects on wildlife habitats and other natural areas.
 - (5) Impacts to nearby community and/or environmental resources.
 - (6) Presence of any endangered species (plant and animal) or any nearby habitats confirmed by the Natural Heritage Endangered Species Program (NHESP). **[Amended 5-6-2003]**

10-20-050 Profiles of Proposed Streets

Profiles of proposed streets (may be made on a separate sheet) shall be drawn with:

- A. A horizontal scale of one (1) inch to forty (40) feet.

- B. A vertical scale of one (1) inch to four (4) feet.
- C. Existing center line in fine black solid line with elevations shown every fifty (50) feet.
- D. Existing right side line in fine black dash line.
- E. Existing left side line in fine black dotted line.

10-20-050

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- F. Proposed center-line grades and elevations, with elevations shown every fifty-foot station, except that in vertical curves elevations shall be shown at twenty-five-foot station and at PVC and PVT.
- G. Existing and proposed sidewalks, bikeways and walkways shall be shown with widths and grade elevations.
- H. All elevations referred to the United States Coast and Geodetic Survey bench marks (NAVD 88). [**Amended 5-6-2003**]
- I. Rates of gradient shown.
- J. Size of location of existing and proposed water mains and their appurtenances and surface drains and their appurtenances.
- K. All center lines, street lines and curblines, with elevations every twenty-five (25) feet, of streets, for two hundred (200) feet either side of each intersection on a connecting street.
- L. Profiles shall show vertical location of waterlines, drainage lines and other utilities as well as required new waterways. Sizes of all pipes shall be shown as well as inverts of all pipes at each manhole or catch basin, together with invert elevation and rim elevation of each manhole or catch basin. Profiles shall be included for each proposed main waterline and all proposed sewerage system lines as well as all proposed drainage lines, whether or not within the

subdivision.

10-20-060 Board of Health Review

The Board of Health shall, within forty-five (45) days of the filing of a definitive plan with the Town Clerk, report to the Planning Board in writing of its approval or disapproval of the plan. If the Board of Health disapproves said plan, it shall make specific findings as to which lots, if any, shown on such plan cannot be used for building sites without injury to the public health, and include such specific findings and the reasons therefor in such report and, where possible, shall make recommendations for the adjustment thereof. If the report of the Board of Health shall so require, the approval by the Planning Board shall be on condition that no building or structure shall be built or placed upon the areas designated without consent of the Board of Health.

10-20-070 Conservation Commission Review

- A. The subdivider shall document, prior to Planning Board approval of the definitive plan, either that the Conservation Commission has determined that the Wetlands Protection Act (MGL C. 131, § 40) is not applicable to the proposed development or that he has filed a notice of intent with the Commission.
- B. Conservation Commission order of conditions shall be made a part of the Planning Board's decision.

10-20-080 Review by Other Town Officials

Prior to Planning Board approval of the definitive plan, the Board shall consider comments and recommendations of other town officials, including the Town Engineer, Highway Superintendent, Water/Sewer Superintendent, Fire Chief and Police Chief. **[Amended 1-4-1988]**

PUBLIC HEARING

Sections:

10-24-010 Hearing to be Held; Required Notice

10-24-010 Hearing to be Held; Required Notice

Before approval, modification and approval or disapproval of the definitive plan is given, a public hearing shall be held by the Planning Board. The public hearing notice shall be done in accordance with the following procedure: The applicant shall be responsible for the placing of the advertisement in a newspaper of general circulation in the Town of Northborough once in each of two (2) successive weeks, the first publication being not less than fourteen (14) days before the day of such hearing. A public hearing notice form will be provided by the Planning Board to the applicant to ensure proper notice. A copy of the advertisement shall be given to the Town Planner prior to publication. The applicant shall notify, by registered/certified mail, all abutting towns and owners of land abutting upon the land included in such plan in accordance with MGL C. 40A § 11. Prior to the public hearing date, the applicant shall deliver the return receipts to the Town Planner. **[Amended 1-14-1991]**

Chapter 10-28

DEFINITIVE PLAN APPROVAL

Sections:

10-28-010 Action by Planning Board

- 10-28-020 Performance Guaranty**
- 10-28-030 Failure of Performance**

10-28-010 Action by Planning Board

- A. Following a public hearing and within ninety (90) days (if a Form B was filed) or one hundred thirty-five (135) days (if no Form B was filed) of the definitive plan submission, the Planning Board shall approve, modify and approve or disapprove the plan, unless an extension has been requested in writing by the applicant. Such extension of time, if granted, shall be filed by the Board with the Town Clerk.

- B. Criteria for the Board's determination shall be the following:
 - (1) Completeness and technical accuracy of all submissions.
 - (2) Determination that development at this location does not entail unwarranted hazard to safety, health and convenience of future residents of the development or of others because of possible natural disasters, traffic hazard or other environmental degradation.
 - (3) Conformity with the design and construction standards of these regulations.
 - (4) Determination, based upon the environmental analysis (where submitted), that the subdivision as designed will not cause substantial and irreversible damage to the environment, which damage could be avoided or ameliorated through an alternative development plan.
 - (5) Conformity with all applicable zoning lot area requirements.
 - (6) Consistency with the purposes of the Subdivision Control Law.

- C. Approval of the Planning Board in respect to such subdivision plan shall be by majority vote of the Board. If the Board modifies or disapproves such plan, it shall state in its vote the reasons for its action.

- D. Following such action, the Board will file a certificate of its action with the Town Clerk and will send notice of its action by registered or certified mail to the applicant. A copy of the certificate shall be transmitted by the Board to the Building Inspector.
- E. Final Planning Board approval shall be endorsed on the original drawing of the definitive plan by the signatures of a majority of the Board, but not until the statutory twenty-day appeal period has elapsed following the filing of the certificate of the action of the Board with the Town Clerk, and said Clerk has notified the Board that no appeal has been filed.
- F. Following plan approval, endorsement and recording, the applicant shall provide the Planning Board with one (1) Mylar reproducible, five (5) prints of the plans, one (1) copy of final covenants and restrictions, if applicable, noting book, page number and date of recording for each, and one (1) Mylar reproducible and five (5) prints of the street profiles. One (1) copy of the definitive plan shall be transmitted to the Building Inspector by the Board.
- G. Failure of the subdivider to record the definitive plan within six (6) months of its endorsement, or to comply fully with these regulations, shall constitute reason for the Board to consider rescission of such approval, in accordance with Chapter 10-44 of these rules and regulations.
- H. Approval of the definitive plan does not constitute the laying out or acceptance by the town of the streets within a subdivision. Requests for street acceptance must be made through the Board of Selectmen and accepted by a majority vote by the Town Meeting.

10-28-020 Performance Guaranty

- A. Before endorsement of its approval of a definitive plan of a subdivision by the Planning Board, the subdivider shall agree to meet the conditions and to complete the required improvements

specified in Chapter 10-40 for all lots in the subdivision within two (2) years of the date of approval unless the subdivider has requested and been granted an extension by the Board.

- B. Approval with bonds or surety. Before approval of a definitive plan of a subdivision, the subdivider shall either file a performance bond or deposit money or negotiable securities in an amount determined by the Board to be sufficient to cover the cost of all or any part of the improvements specified in Chapter 10-40 or follow the procedure outlined below. Such bond or security, if filed or deposited, shall be approved as to form and manner of execution by the Town Counsel and as to sureties by the Selectmen.
- C. Approval with covenant. Alternately the subdivider may file a duly executed covenant in such form as the Planning Board requires, which provides that no lot may be built upon or sold until the ways and municipal services necessary to serve adequately such lot have been constructed and installed. Such covenant shall be approved as to form and manner of execution by Town Counsel, and shall be recorded in the Registry of Deeds by the owner of record and shall run with the land, whereby such ways and services as specified in Chapter 10-40 not covered by bond or deposit under Subsection B above shall be provided to any lot before such lot may be built upon or conveyed. Nothing stated herein shall be deemed to prohibit a conveyance by a single deed, subject to such covenant, of either the entire parcel of land shown on the subdivision plan or of all lots not previously released by the Board. A deed of any part of the subdivision in violation hereof shall be voidable by the grantee prior to the release of the covenant but not later than three (3) years from the date of such deed. Any covenant so filed and any conditions required by the Board of Health shall be either inscribed on the plan or contained in a separate document referred to on the plan.
- D. Approval with a mortgage agreement. Following the recording of a first mortgage covering the premises shown on the plan or a portion thereof given as a security for advances to be made to the

subdivider by the lender, the Planning Board may, at its option, release lots from the operation of the covenant given pursuant to Subsection C above without receipt of a bond or deposit of money upon delivery to the Planning Board of an agreement with said Board, which shall be executed by the subdivider and the lender and shall provide for retention by the lender of sufficient funds otherwise due the subdivider to secure the construction of ways and the installation of municipal services. Said agreement shall also provide for a schedule of disbursements which may be made to the applicant upon completion of various steps of the work, and shall further provide that in the event the work is not completed within the time set forth by the subdivider, any funds remaining undisbursed shall be available for completion.

10-28-030 Failure of Performance

Any such bond may be enforced and any such deposit may be applied by the Board for the benefit of the town, as provided in the Subdivision Control Law, MGL C. 41, § 81Y, upon failure of the performance for which any such bond or deposit was given to the extent of the reasonable cost to the town of completing such construction and installation.

Chapter 10-32

COMPLIANCE; FINAL ACCEPTANCE BY TOWN

Sections:

- 10-32-010 Release of Performance Guaranty**
- 10-32-020 Planning Board Determination**
- 10-32-030 Final Plans**
- 10-32-040 Final Release of Performance Guaranty**
- 10-32-050 Acceptance by Town**

10-32-010 Release of Performance Guaranty

- A. Reduction of bond or surety. The penal sum of any bond, or the amount of any deposit held pursuant to § 10-28-020B or any amount of funds retained pursuant to an agreement under § 10-28-020D, may, from time to time be reduced by the Board, and the obligations of the parties thereto released by said Board in whole or in part, so that the amount bonded, deposited or retained continues to reflect the actual expected cost of work remaining to be completed. If release is by reason of covenant, a new plan of the portion to be subject to the covenant may be required.
- B. Submission requirements. Prior to the reduction or release of any part of a bond, surety or covenant, the developer shall deliver to the Planning Board:
- (1) Separate deeds of easement, free from all encumbrances, for sewer, water, drainage and other necessary public purposes in the proposed streets and other areas of the subdivision being dedicated to the Town of Northborough. Conservation easements and Open Space easements shall be deeded to the Northborough Conservation Commission. **[Amended 5-6-2003]**
 - (2) An original plan suitable for filing in the Worcester Registry of Deeds and a reproducible copy of each section covered in Subsection B(1) above.
- C. Upon completion of improvements required under Chapters 10-36 and 10-40, security for the performance of which was given by bond, deposit or covenant, or upon the performance of any covenant with respect to any lot, the subdivider shall send by registered mail to the Town Clerk and the Board a written statement, in duplicate, that said construction or installation in connection with which such bond, deposit or covenant has been completed in accordance with the requirements contained under Chapters 10-36 and 10-40, such statement to contain the address

of the applicant. The Town Clerk shall forthwith furnish a copy of said statement to the Planning Board.

10-32-020 Planning Board Determination

- A. If the Planning Board determines that said construction or installation has been completed, it shall release the interest of the town from such bond and return the bond or the deposit to the person who furnished the same, or release the covenant by appropriate instrument, duly acknowledged, which may be recorded.

- B. If the Board determines that said construction or installation has not been completed, it shall specify in a notice sent by registered mail to the applicant and to the Town Clerk the details wherein said construction or installation fails to comply with its rules and regulations and upon failure so to do within forty-five (45) days after the receipt by the Clerk of said statement, as specified in § 10-32-010C, all obligations under the bond shall cease and terminate by operation of law, any deposit shall be returned and any such covenant shall become void. In the event that the forty-five-day period expires without such specifications or without the release and return of the bond or return of the deposit or release of the covenant as aforesaid, the Clerk shall issue a certificate to such effect, duly acknowledged, which may be recorded.

10-32-030 Final Plans

Prior to the final release of the performance guaranty, the subdivider shall file with the Planning Board an as-built plan and an acceptance plan. The as-built plan shall show all grading of disturbed areas, plans and profiles corrected and certified by the subdivider's engineer to be

actual as-built locations and profiles of all streets, ways and utilities, including those installed by others, the locations of all lot lines and the assigned house numbers for each dwelling. The acceptance plan shall show proper legal description of the roadway, lots within the subdivision, easements and restrictions. The subdivider shall also file an electronic copy of the as-built and acceptance plans in a format suitable to the Town Engineer for use in inputting the plan information into the Town's computerized files. **[Amended 5-6-2003]**

10-32-040 Final Release of Performance Guaranty

The Planning Board may withhold the reduction or final release of a performance guaranty until the developer shall have satisfied all of the obligations of these regulations and the Town Engineer and/or Planning Board agent responsible for site inspections verifies that proper inspections have been made and that all construction improvements required have been made by the subdivider.

10-32-050 Acceptance by Town

- A. A portion of bond withheld. A minimum of twenty percent (20%) of the original value of the bond shall be held by the town for the maintenance of streets and municipal services for a minimum of eighteen (18) months after completion of construction and installation or until the streets are accepted by the town, whichever comes first, after which date the town shall return the remainder of the bond to the subdivider.
- B. Acceptance of ways.
 - (1) Upon Planning Board approval of the as-built and acceptance plans and final release of the performance guaranty, the subdivider shall file with the Planning Board an original of the as-built acceptance plan on Mylar, together with the proper legal descriptions for initiating an article in the Town Warrant pursuant to the acceptance of ways at the Town Meeting and

shall grant a deed to the town of the streets, utilities and easements, as contained in the plan; said deed to be recorded by the town upon acceptance of the streets by the Town Meeting.

- (2) For the purpose of expediting the reduction or release of any part of a bond, surety or covenant, the Planning Board may request a signed, undated petition for the acceptance as a public way by the Town of Northborough of each street guaranteed.

Chapter 10-36

DESIGN STANDARDS

Sections:

10-36-010	Basic Requirements
10-36-020	Conformance with Master Plan
10-36-030	Protection of Natural Features
10-36-040	Access Through Another Municipality
10-36-050	Streets
10-36-060	Sidewalks
10-36-070	Storm Sewers
10-36-080	Open Spaces
10-36-090	Electric and Telephone Lines
10-36-100	Sanitary Sewers
10-36-110	Streetlighting
10-36-120	Curb Cuts
10-36-130	Common Driveways
10-36-140	Subdivisions in Floodplains
10-36-150	Fire Hydrants
10-36-160	Water Mains and Appurtenances
10-36-170	Monuments

10-36-010 Basic Requirements

- A. The subdivider shall observe all design standards for land subdivision as hereinafter provided. These standards shall be considered minimum standards and shall be varied from or waived only as provided in § 10-48-010.
- B. Provision for extension. Reasonable provision shall be made for extension of pavements and utilities to adjoining properties, including installation of watergates and manholes if necessary. The subdivider shall not deny others connection to the utilities, provided that they pay all costs of such connection.
- C. Design and construction.
 - (1) Design and construction shall reduce, to the extent possible, the following features:
 - (a) Volume of cut and fill. Cuts or fills in excess of eight (8) feet or roadway locations resulting in lots being more than eight (8) feet above or below the grade of the roadway shall be substantiated by the submission of cross sections showing the proposed grading within two hundred (200) feet of the roadway on both sides. **[Amended 1-14-1991]**
 - (b) Area over which existing vegetation will be disturbed, especially if within two hundred (200) feet of a river, wetland or water body or in areas having a slope of more than fifteen percent (15%).
 - (c) Number of trees removed greater than twelve (12) inches diameter at breast height.
 - (d) Extent of waterways altered or relocated.
 - (e) Dimensions of paved areas, including streets, except as necessary to safety and convenience, especially in aquifer recharge areas.
 - (2) Design shall emphasize, to the extent possible, the following:
 - (a) Use of collector streets to avoid traffic on streets providing

house frontages.

- (b) Visual prominence of natural features of the landscape.
- (c) Maintenance within the subdivision of runoff and vegetative cover equivalent to conditions before development.
- (d) All streets in the subdivision shall be designed so that, in the opinion of the Board, they will provide safe vehicular travel. Due consideration shall also be given by the subdivider to the attractiveness of the street layout in concert with the topography and natural features of the land in order to obtain the maximum livability and amenity of the subdivision. Street patterns derived solely for the purpose of providing maximum lot development will be cause for disapproval.
[Amended 1-14-1991]

D. Easements.

- (1) Where utilities cross lots or are centered on rear or side lot lines, easements shall be provided for a width of at least twenty (20) feet.
- (2) Where a subdivision is traversed by a watercourse, drainage way, channel or stream, the Board shall require a stormwater easement or drainage right-of-way of adequate width and proper side slope as determined by the Town Engineer or Planning Board agent to conform substantially to the lines of such watercourse, drainageway, channel or stream, and to provide for construction or other necessary purposes. In no case shall the width be less than twenty (20) feet or the side slope be steeper than two (2) horizontal to one (1) vertical.
- (3) Access easements to parcels to adjacent property shall be provided, if required by the Board, for use by emergency vehicles and for the benefit of the town. They shall have a minimum width of twenty (20) feet.
- (4) Wherever possible, easements along rear lot lines shall be continuous to the street at the end of the block to potentially connect with the adjoining blocks in the shortest direct line.

E. Utilities.

- (1) All required utilities, exclusive of transformers, shall be placed underground at the time of initial construction. Required utilities may include water, sewer, storm drainage, telephone, electricity, gas, wiring for streetlights, fire alarm systems and cable television, unless otherwise specified by the Board.
- (2) Where adjacent property is not subdivided or where all the property of the applicant is not being subdivided at the same time, provisions shall be made for the extension of the utility system by continuing the mains the full length of streets and to the exterior limits of the subdivision at such grade and size which will, in the opinion of the Board, permit their proper extension at a later date.
- (3) Connections for sewer, drain, water, gas, oil, electric and telephone service from the main structure in the way to the exterior line of the way shall be constructed for each lot whether or not there is a building thereon, except that the Board may waive such requirement, in whole or in part, in the case of a lot to be used for a park, playground or for any other purpose for which, in the opinion of the Board, such connections shall not be required.

10-36-020 Conformance With Master Plan

Any proposed subdivision shall be guided by the proposals and intentions of the Northborough Master Plan and the recommendations of the Conservation Commission, although deviations may be made to improve the general area of the subdivision and the town. With each proposed subdivision, the applicant shall provide written documentation specifying how the proposed project conforms to the Master Plan. [Amended 2-11-1991]

10-36-030 Protection of Natural Features

All natural features, such as trees, wooded area, watercourses, wildlife habitat, scenic points and historic spots, shall be preserved as much as possible. Any clearance, backfilling, cutting, thinning or other

disturbance to trees twelve (12) inches diameter at breast height located within the minimum front setback distance or other natural vegetation shall be prohibited unless deemed proper by the Board. Tree wells or retaining walls should be installed when and as requested by the Board for suitable grading around trees. Tree wells or retaining walls shall be of such design to meet the standards as set forth in the Tree Experts Manual or some similar publication. The contractor shall take all reasonable precautions and provide all reasonable protection to prevent damage to all trees not designated for removal, relocation or replacement in the course of construction. **[Amended 2-11-1991; 5-6-2003]**

10-36-040 Access Through Another Municipality

In case access to a subdivision crosses land in another municipality, the Board may require certification from appropriate authorities that such access is in accordance with the Master Plan and subdivision requirements of such municipality and that a legally adequate performance bond has been duly posted or that such access is adequately improved to handle prospective traffic.

10-36-050 Streets

A. Location and alignment.

- (1) Streets shall be continuous, of uniform width and in alignment with existing streets, as far as practicable.
- (2) Provision shall be made for the proper protection of streets, if adjoining property is not subdivided.
- (3) All curved streets must be designed to permit safe vehicular travel. A minimum two-hundred-foot-length stopping sight distance shall be provided. A minimum two-hundred-twenty-five-foot center-line radius shall be provided on all streets. **[Amended 2-11-1991]**
- (4) Street lines at intersections shall be cut back so as to provide curb radii of not less than thirty (30) feet.
- (5) Streets shall be laid out so as to intersect as nearly as possible

at right angles.

- (6) Rights-of-way shall be located a minimum of fifteen (15) feet from abutting property lines. **[Amended 10-7-1997]**

B. Width.

- (1) The width of rights-of-way shall be fifty (50) feet.
- (2) The Board may require street rights-of-way, which, in its judgment, may become primary streets, to be sixty (60) feet in width.
- (3) The minimum width of the actual traveled way in a subdivision shall be determined by the Board with regard to the nature of the subdivision, but shall not be less than twenty-six (26) feet in any case. **[Amended 5-6-2003]**

C. Grades.

- (1) The center-line grade of streets shall not be less than seventy-five hundredths percent (0.75%), not more than six percent (6%) for primary streets and not more than ten percent (10%) for secondary streets. **[Amended 5-6-2003]**
- (2) Vertical curves shall be installed wherever the change in grade exceeds two (2) percent. All vertical curves shall be designed to accommodate a minimum stopping sight distance of 200 feet, at a design speed of 30 mph. All calculations shall be based on the formulas listed in the Highway Design Manual produced by the Commonwealth of Massachusetts, Department of Public Works. **[Amended 5-6-2003]**
- (3) Where the grade of any street at the approach to an intersection exceeds four percent (4%), a leveling area shall be provided having not greater than two-percent grades for a distance of fifty (50) feet measured from the nearest right-of-way line of the intersecting street, wherever possible a low point in the proposed roadway shall be created to prevent stormwater flow onto an existing town road. **[Amended 5-6-2003]**

D. Dead ends.

- (1) Dead-end streets shall not exceed five hundred (500) feet in length unless, in the opinion of the Board, a greater length is necessitated by topography or other local conditions. Any proposed street which intersects solely with a dead-end street shall be deemed to be an extension of the dead-end street.
- (2) Dead-end streets within commercial and industrial areas shall be provided at the closed end with a turnaround having an outside pavement line diameter of one hundred (100) feet and a property line diameter of one hundred twenty (120) feet. Within residential areas, these diameters shall be ninety (90) feet and one hundred ten (110) feet, respectively. **[Amended 5-6-2003]**
- (3) Hammerhead turnarounds may be substituted for circular turnarounds subject to the review and approval of the Board.
- (4) Roads permanently designed to be five hundred (500) feet or less shall be paved to a twenty-six-foot width within a fifty-foot right-of-way. Temporary culs-de-sac designed to access abutting undeveloped property shall be paved to a width of thirty (30) feet within a fifty-foot right-of-way.

E. Adequate access from public way. When the physical condition or width of a public way from which a subdivision has its access is considered by the Board to be inadequate to carry the traffic expected to be generated by such subdivision, the Board may require the applicant to dedicate a strip of land for the purpose of widening the abutting public way to a width at least as great as that required within the subdivision and to make physical improvements to and within such public way to the same standards required within the subdivision. Any such dedication of land for the purpose of a way and any such work performed within such public way shall be made only with permission of the governmental agency having jurisdiction over such way, and all costs of any such widening or construction shall be borne by the applicant. **[Amended 7-23-1990]**

Sidewalks shall be included on both sides of the street. Sidewalks shall be at least five (5) feet wide and shall be pitched toward the gutter at three-sixteenths (3/16) inch per foot. Such walks shall be constructed twelve (12) inches from the property line. A loam and grass area shall be constructed between the sidewalk and the traveled way. The width of this grass area shall be four (4) feet. For dead-end streets, if the Board decides that a sidewalk on one (1) side only is acceptable, the sidewalk must be the complete length of one (1) side and the full circumference of the cul-de-sac.

10-36-070 Storm Sewers

A. Catch basins.

- (1) Catch basins conforming to the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges shall be installed on both sides of the roadway at intervals of not more than two hundred fifty (250) feet and at all low points and sags in the roadway and at points two and fifty hundredths (2.50) feet from points of curvature and points of tangency of the edge of pavement at all intersections where necessary. All catch basins shall include a six-foot granite guttermouth.
- (2) Catch basins shall be provided with a minimum sump of forty-eight (48) inches. **[Amended 5-6-2003]**
- (3) Catch basins shall connect directly into manholes. The use of Y-connections from catch basins into main storm sewers is strictly prohibited.
- (4) Catch basins shall not be interconnected except in those instances where physical conditions in the field so dictate and except with the express approval of the Board.
- (5) The drainage system shall be in accordance with DEP Stormwater Management Guidelines and the Town of Northborough's NPDES Phase II General Permit as amended from time to time. **[Amended 5-6-2003]**

B. Manholes.

Manholes conforming to the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges shall be provided at all changes of alignment or grade and at intervals not to exceed two hundred fifty (250) feet. Drops shall be provided in accordance with the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges.

C. Pipes.

- (1) The size of storm drainage pipe shall be in accordance with the drainage computations and shall be shown on the definitive plan. In areas where the groundwater table is high or where, in the opinion of the Board, perimeter drains and cellar drains should be installed, pipe sizes as determined by the drainage computation shall be increased by one (1) increment to provide additional capacity for carrying groundwater. If the developer chooses to leave the bottom third of his drainage pipe unsealed, then the pipe shall be bedded throughout its entire length in crushed stone to a depth of not less than six (6) inches beneath the pipe and to a height of not less than twelve (12) inches over the pipe and no less than fifteen (15) inches to the finished grade of the road surface. **[Amended 5-6-2003]**
- (2) All storm drainage pipe within roadway areas shall be reinforced concrete and there shall be a minimum cover of thirty-six (36) inches over all pipe. Drainage pipes of a material other than concrete may be substituted in easement and off-street areas only when it may be advantageous to do so and only with the approval of the Town Engineer and the Planning Board.
- (3) Capacity of drainage structures shall be determined on the basis of a twenty-five-year-storm intensity. Where natural drainage courses are obstructed, culverts or similar structures approved by the Board shall be installed to restore natural drainage. Capacity of these structures shall be determined on the basis of a fifty-year-storm intensity. Masonry headwalls and/or riprap shall be installed, as approved by the Board, to prevent erosion.

- (4) All drainage computations shall be submitted to the Board for review.
 - (5) When recharge is proposed, soil evaluation tests shall be submitted with the drainage computations verifying the suitability of the existing soils. **[Amended 5-6-2003]**
- D. All drainage systems shall be designed so that the rate of runoff after development shall not exceed the rate of runoff prior to development. **[Amended 2-11-1991]**
- E. Stormwater management plan shall be approved by the Conservation Commission. **[Amended 10-7-1997]**

10-36-080 Open Spaces [Amended 4-15-2003]

- A. The Planning Board shall determine the appropriateness of all open space areas within a proposed subdivision and shall make the final determination regarding the location of the open space area(s).
- B. Open space areas shall be provided in all proposed subdivisions per MGL Chapter 41 Sections 81O and 81U.
- C. The following criteria shall be used by the applicant in establishing the size and location of the open space area(s):
- (1) Such areas shall be of reasonable size, contiguous and not less than five percent of the total parcel area, depending upon the location and quality of the land being set aside. The minimum area acceptable shall be 40,000 square feet.
 - (2) If the land set aside for public use is excessively steep or wet, is not safely accessible, or is not dry for at least ten months out of the year, the Board may require additional land to satisfy this requirement.
 - (3) Any open space area shall contain at least the minimum amount of frontage appropriate for that particular zoning district.
 - (4) In areas designated as open space on the definitive plan, no disturbance or alteration shall occur to said areas. If such areas

have been environmentally damaged prior to the completion of the development, the Board may require the developer to restore or improve the condition and appearance of the open space areas, and may require the posting of a cash bond to ensure such restoration or improvement.

- D. No building or structure shall be erected upon such open space area for a period of three (3) years.

10-36-090 Electric, Intelligence & Communications

- A. All lines shall be installed underground as specified by the Board in accordance with the regulations of the electric company.
- B. Service shall be supplied to each lot from each streetlight before the subgrade is prepared.
- C. The Planning Board may permit transformers, switches and other such equipment to be placed on the ground in approved locations, screened from view.

10-36-100 Sanitary Sewers

Whenever the town's existing sanitary sewers are within one thousand (1,000) feet of a proposed subdivision, the developer shall meet the requirements of the Board of Water and Sewer Commissioners, as specified in the Town of Northborough Regulations Governing the Discharge of Waters and Wastes into the Public Sewer System. The developer may be required to construct and connect to the public sewer at his expense and subject to the joint specifications of the Planning Board and the Water and Sewer Commissioners.

10-36-110 Streetlighting

- A. Streetlighting including the purchase and installation of the poles and

lights, shall be supplied by the subdivider. Lights shall be located in the rear grass plot or in the median, if there is one. If streetlights are located in the median, the Board may require pedestrian lighting placed in the grass plot. **[Amended 10-7-1997]**

- B. Streetlighting design standards:
 - (1) Nominal spacing: maximum of five hundred (500) feet, less on curves and other areas where safety requires, as determined by the Planning Board, after review by the Chief of Police.
 - (2) Nominal monitoring height: twenty (20) feet.
 - (3) Lamp type and size: mercury or high-pressure sodium: one hundred (100), one hundred fifty (150) or one hundred seventy-five (175) watts.
 - (4) Light distribution: asymmetric (IES Type II or III).

- C. Industrial and commercial lighting design standards. All outside lighting and parking-lot lighting shall be white light on poles not to exceed twenty (20) feet in height and the intensity shall not exceed the minimum required by the Massachusetts Building Code. All lighting shall be located and shielded, if necessary, to prevent light from shining on adjacent property. Fixtures or equivalent are acceptable, providing that no glare reaches adjacent properties.

10-36-120 Curb Cuts

- A. Driveways in subdivisions containing one- and/or two-family dwellings only shall be at least ten (10) feet, but not greater than twenty (20) feet wide and have a curb return at the roadway of between five (5) and fifteen (15) feet in radius.

- B. Curb cuts of adjacent lots shall not be closer than thirty (30) feet unless otherwise approved to be closer by the Board.

- C. The driveway opening shall be located at least thirty (30) feet from the point of curve of an intersection measured along the front lot lines.

- D. The driveway opening shall be at least ten (10) feet from any existing or proposed structures located within the street right-of-way, such as transformers, hydrants, catchbasins, catchbasin throat stones and transition curbs, etc. [**Amended 4-15-2003**]
- E. Maximum grade shall be twelve percent (12%), and, within fifty (50) feet of the street line, six percent (6%).
- F. The minimum sight distance for a driveway entering onto a roadway shall be a minimum of two hundred (200) feet in each direction. [**Amended 10-1-1990**]
- G. The minimum center-line radius shall be sixty (60) feet. [**Amended 10-1-1990**]
- H. All driveways shall exit onto the frontage street. [**Amended 5-2-1994**]
- I. Driveway pads, consisting of a twelve (12) inch depth of crushed stone for a length of 25 feet measured from the intersection of the roadway, shall be installed prior to site development and housing construction. [**Amended 10-7-1997**]

10-36-130 Common Driveways

- A. A common driveway to serve more than one (1) lot may be granted by a Special Permit from the Planning Board. When two lots are served by a common driveway, the following standards shall be met. When more than two (2) lots are served by a common driveway, it shall meet the Town of Northborough's minimum road standards in addition to the following standards. In no case shall more than five (5) lots be serviced by one (1) common driveway. [**Amended 10-7-1997; 4-15-2003**]
 - (1) Minimum width: paved or graveled width of eighteen (18) feet and an easement width of twenty-four (24) feet.

- (2) Maximum grade: ten percent (10%), and within fifty (50) feet of the street line, six percent (6%).
- (3) Curb cut: not nearer than sixty-five (65) feet from the center-line intersections of any right-of-way.
- (4) Minimum center line radius: sixty (60) feet.
- (5) The minimum sight distance for a driveway entering onto a roadway shall be a minimum of two hundred (200) feet in each direction. **[Amended 10-15-1990]**
- (6) Common driveway easement shall be located a minimum of fifteen (15) feet from abutting property lines. **[Amended 10-7-1997]**
- (7) House numbering as issued by the Town Assessor shall occur at the following locations: for public safety purposes, a sign displaying house numbers for all the homes serviced by the common driveway shall be located at the intersection of the common driveway and the public way; house number displayed at the intersection of each individual private driveway and the common driveway; and house numbers shall be located on the front of each individual home. **[Amended 4-15-2003]**

B. The design of common driveways shall assure adequate safety for emergency vehicles, water service, if available, including hydrants, and adequate drainage of surface waters and provision for turnaround for use in all seasons by emergency vehicles.

- (1) If the proposed common driveway is located within 2000' of the municipal water service, the applicant shall be responsible for extending the water service for fire protection purposes to the site. If the municipal water service is not located within 2000' of the development, each home shall include an individual water sprinkler system. **[Amended 4-15-2003]**
- (2) For fire protection purposes, the water line shall have minimum diameter of 8". **[Amended 4-15-2003]**
- (3) Wands shall be attached to each fire hydrant. **[Amended 4-15-2003]**
- (4) For public safety purposes, a turn-around shall be provided at the end of each common driveway. The design and dimensions

of the turn-around shall be determined by the Board based on the topography, number of lots being served by the common driveway and the length of the common driveway. **[Amended 4-15-2003]**

(5) If the common driveway exceeds 500' in length, additional measures for public safety may be required by the Planning Board. **[Amended 4-15-2003]**

C. A declaration of covenants, easements and restrictions for the use and maintenance of said common drives may be required by the Board and shall include arrangements satisfactory to the Board concerning: roadway maintenance, snowplowing, and rubbish collection. **[Amended 4-15-2003]**

D. For all common driveways, the rate of a post-development runoff shall not exceed the rate of predevelopment runoff. The drainage system must be approved by the Town Engineer and the Planning Board. **[Amended 10-15-1990]**

E. Not more than one certificate of occupancy shall be issued until the Planning Board certifies in writing that the common driveway has been completed in accordance with the standards of this section. **[Amended 4-15-2003]**

F. All common driveways shall exit onto the frontage street. **[Amended 5-2-1994; 4-15-2003]**

10-36-140 Subdivisions in Floodplains

All proposed subdivisions shall be reviewed to determine whether they will be reasonably safe from flooding. If any part of a subdivision is located within the Floodplain District established under the Northborough Zoning Bylaw, it shall be reviewed to assure that:

A. The proposed is designed consistent with the need to minimize flood damage.

- B. All ways and public utilities such as sewer, gas, electrical and water systems shall be located and constructed to minimize or eliminate the risk of damage due to flooding.
- C. Adequate drainage systems shall be provided to reduce exposure to flood hazards.

10-36-150 Fire Hydrants

- A. Hydrants shall be provided every five hundred (500) linear feet along the traveled way or a portion thereof on one (1) side of each street unless a greater distance is approved by the Fire Department in writing. Hydrants should also be placed at each high and low point along the proposed way whenever possible for maintaining the water system. **[Amended 5-6-2003]**
- B. A hydrant shall, in all cases, be installed at the terminal end of each water main.
- C. A hydrant shall be located on each new main within five hundred (500) feet of the nearest supply main or a fraction thereof or, if no hydrants exist, within two hundred (200) feet of the connecting point where practical at all road intersections. **[Amended 5-6-2003]**
- C. Hydrant type, size and make, direction and pitch of threads shall be approved by the Fire Department and the Water and Sewer Department.

10-36-160 Water Mains and Appurtenances [Amended 5-6-2003]

- A. Water mains and appurtenances shall be sized and constructed to serve all lots on each street within a development in strict

compliance with the specifications of the Water Commissioners. The minimum size water pipe allowable, excluding hydrant connections, shall be eight (8) inches in diameter except in those instances where the Water Commissioners shall specifically authorized the use of six-inch diameter pipe for short distances where it can be ascertained that extension of the proposed system is not possible.

- B. If the proposed subdivision is located within 2000' of the municipal water service, the applicant shall be responsible for extending the water service for fire protection purposes to the site. If the municipal water service is not located within 2000' of the development, each home shall include an individual water sprinkler system.

10-36-170 Monuments [Amended 5-6-2003]

- A. All horizontal changes in the proposed roadway and the beginning and end of each curve shall be marked with Granite monuments. (see Section 10-40 Construction Standards)
- B. All easements shall have concrete monuments installed at each change in direction.
- C. All lot corners shall be marked with iron pins.

Chapter 10-40

CONSTRUCTION STANDARDS

Sections:

10-40-010 General Requirements

- 10-40-020** **First Inspection**
- 10-40-030** **Second Inspection**
- 10-40-040** **Third Inspection; Gravel Borrow**
- 10-40-050** **Fourth Inspection**
- 10-40-060** **Fifth Inspection**

10-40-010 **General Requirements**

- A. It is the intent that no street or way through private property shall be accepted by the town unless the same has been constructed and completed in accordance with the definitive plans and street profiles required in §§ 10-20-030 and 10-20-050, respectively, in these regulations, and in compliance with the following specifications.
- B. All work done under the provisions of this chapter shall be done to the satisfaction of the Town Engineer or an authorized agent of the Planning Board; such person shall hereinafter be referred to as the inspecting agent.
- C. To ensure high quality and uniformity of construction and unless otherwise specified, all the work and materials used in the work to be done pursuant to the Construction Standards, shall conform to the requirements of the Commonwealth of Massachusetts, Mass Highway, Standard Specifications for Highways and Bridges, 1995 Edition, as from time to time amended, as well as the Commonwealth of Massachusetts, Department of Public Works, Construction Standards, Part 3, 1977, as from time to time amended. **[Amended 10-7-1997]**
- D. The developer, in accordance with the contents for a definitive hearing (Chapter 10-24), shall be required to submit an estimate of quantities for the total project to the Planning Board for their review prior to the commencement of construction. The estimate will be used to determine the amount of any bond the developer must place as security at any time throughout the life of the project. Unit price

costs on the estimate shall be established by the Board and shall be subject to change at any time based upon prevailing construction costs in the general area.

- E. It shall be the responsibility of the subdivider to prepare as-built drawings of the subdivision construction during the progress of the work. The as-built maps shall be certified by the subdivider's engineer or architect to show the actual as-built locations and profiles of all streets, ways and utilities and any changes authorized by the Planning Board or inspecting agent. A set of prints of the definitive subdivision plans may be used for this purpose. The prints shall be used to prepare two (2) final Mylars reflecting the construction completed within the subdivision in accordance with these regulations. The final drawings shall be twenty-four by thirty-six (24 x 36) inches in size and shall be submitted to the town for approval prior to the acceptance of the street.
- F. The subdivider shall submit a schedule of the projected work by major categories of work to the Planning Board and the inspection agent for review and approval four (4) weeks to the start of construction. The schedule shall be by calendar weeks and shall address each category as required by this section. The schedule shall be adjusted periodically to reflect the actual work progress and related modifications to the schedule.
- G. As each construction phase is completed it shall be inspected for approval by the inspecting agent prior to starting work on the succeeding operation. Inspections during the work, as described above, shall be arranged with the inspecting agent prior to starting road construction and at each significant construction stage as specified below. The Planning Board or inspecting agent shall provide the subdivider with a checklist covering the required inspections. The inspecting agent shall record the date of inspection and shall file an inspection report with the Planning Board, subsequent to each investigation.

10-40-020 First Inspection

The first inspection by the Board or its authorized representative shall be made upon completion of the following work:

- A. Clearing and grubbing. This work shall consist of the cutting, clearing, grubbing removal and satisfactory disposal of brush, shrubs and trees under nine (9) inches in diameter and their stumps; the grubbing removal and disposal of other stumps of various sizes; and the removal and disposal of walls, fences, miscellaneous structures and obstructions above ground surface, and all refuse and debris, within the limits of the roadways as shown on the plans and as directed by the authorized representative of the Board. The stumps of brush, shrubs and trees, together with their major root systems, shall be grubbed and removed from all excavation areas and under all embankments. All damage done to remaining trees by the contractor's operations and all branches of trees extending within roadway areas shall be trimmed and painted where cut as directed by the authorized representative of the Board to provide a twenty-foot minimum vertical clearance. Dutch elm diseased wood shall be disposed of in accordance with the provisions of General Law, Chapter 660, Acts of 1948, and Chapter 761, Acts of 1949, Regulation 660-51A; and in accordance with any additional local regulations. Where the work includes the removal of elm trees or the limbs or stumps of elm trees, such trees, limbs or stumps thereof shall be disposed of immediately after cutting or removal in such a way as to prevent the spread of Dutch elm disease. The developer shall arrange for a location for the disposal outside of the site area and said location shall have the approval of the Board. Elm trees or limbs shall be either completely burned, if burning is allowed, or covered with earth to a depth of at least six (6) inches in the approved disposal area. No burning shall take place within the site area. All stumps of elm trees, including the major root systems thereof, which are removed shall be disposed of by either covering with earth to a depth of six (6) inches or by burning until the bark has been completely consumed, and then burying as specified

above. All topsoil and organic materials shall be removed for the full length and width of the roadway to its full depth as directed by the authorized representative of the Board. No removal of topsoil from the development shall be allowed until a four-inch thickness of compacted topsoil shall be provided throughout the entire area of all lots and on the planting strips along the roadways. Only such areas as roadways, driveways, building sites and areas under proposed embankments shall be stripped of topsoil.

- B. Roadway excavation. This work shall consist of the removal and satisfactory disposal of all material encountered above the roadway subgrade. Unsuitable material encountered within the limits of the roadway shall be excavated to its full depth as directed by the authorized representative of the Board and shall be replaced with a clean granular gravel conforming to the gradation of the roadway subbase. [See § 10-40-030D(7).] In areas of cut, all material shall be removed to a minimum depth of fifteen (15) inches below the finished grade as shown on the roadway profile and in accordance with the typical roadway section. Ledge or rock shall be drilled, blasted and shattered to a depth of five (5) feet below the above-mentioned finished roadway profile and shall be removed to a depth of two (2) feet three (3) inches below said roadway profile.

10-40-030 Second Inspection

The second inspection by the Board or its authorized representative shall be made upon completion of the following work, but prior to backfilling.

- A. Storm sewers.
- (1) General. This work shall consist of performing all excavation and backfilling operations for the construction of the storm drainage system, the installation and joining of all pipe and the installation, waterproofing and backfilling of all other storm drainage structures, such as catch basins and culverts.
 - (2) Catch basins.

- (a) This work shall consist of constructing catch basin structures in accordance with the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges.
- (b) Catch basin structures shall be constructed of precast concrete sections or of barrel blocks and mortar, at the option of the developer.
- (c) Mortar shall be composed of portland cement and sand, with sufficient water to form a workable mixture. The volume of sand shall not exceed three (3) times the volume of cement. Cement and sand shall conform to the requirements of ASTM Designations C150, Type II and C144, respectively.
- (d) Precast concrete catch basin sections shall conform to the requirements of ASTM Designation C478-68T.
- (e) The base section shall be monolithically pressure cast, having an inside diameter of forty-eight (48) inches, as manufactured by Nashua Pre-Cast Corporation or approved equal.
- (f) Joints between sections shall be mortar joints.
- (g) Frames and grates shall conform to the requirements of AASHTO-M105, Class 30, and to the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges.
- (h) When masonry is to rest on an excavated surface other than rock, care shall be taken not to disturb the bottom of the excavation, and final removal of the excavated material to grade shall not be made until just before the masonry is placed. In order to determine the character of the foundation material, the developer shall notify the authorized representative of the Board, who will make an inspection of the foundation. No masonry shall be placed until the foundation has been approved. Blocks shall be clean when laid. Block work shall be protected against weather and frost as directed or required. During adverse weather, the developer shall take all necessary precautions to ensure that

the work is proper and satisfactory in all respects. Where required, protection shall be provided by use of tarpaulins, wood and building paper shelters, or by other approved means.

- (i) During cold weather, masonry materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place, and a proper curing and drying will result. Protected spaces shall be artificially heated by approved means which will result in a moist or a dry atmosphere, according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture shall be warm throughout when used.
- (j) Blocks shall be laid with a push joint and in no case will sluicing or grouting of the joints be allowed, nor shall a joint be made by working in the mortar after the brick has been laid. All joints on the inside of the catch basin shall be neatly struck and pointed where plastering is not shown on the plans. No block work is to be laid in water; no water shall be allowed to rise on any masonry until it has set at least twenty-four (24) hours; and no drainage shall be affected over or through the catch basin without permission. All work shall be cured for a period of not less than seven (7) days after being placed and shall be protected from injury. Block structures shall not be backfilled until the outside plaster has set, one (1) inch thick shall be placed around the outside of the bottom flange
- (k) The blocks shall be wetted as necessary before laying. All joints shall be thoroughly flushed full of mortar and no joint on the inside face shall be greater than one-fourth (1/4) inch. As the block walls are laid up, the outside of the structure shall be plastered with one-half-inch-thick mortar coat. The mortar coat shall be spread and troweled so that all cracks are thoroughly worked out. The inside of the

bottom of the structure shall be plastered in the same manner. After hardening, plaster coats shall be carefully checked, by being tapped, for bond and soundness. No structure shall be backfilled until all mortar has completely set and been checked.

- (l) Precast sections, where used, shall be set so as to be vertical and in true alignment, and all joints shall be fully mortared. Hood assemblies shall be installed in accordance with the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges and shall be fully mortared into place.
 - (m) Frames shall be set in full mortar beds true to the lines and grades. All voids beneath the bottom flange shall be completely filled to make a watertight fit. A ring of mortar at least extending to the outer edge of the masonry all around the circumference.
 - (n) Where directed, the castings shall be temporarily set to provide for drainage during construction.
- (3) Manholes.
- (a) Standards.
 - [1] This work shall consist of constructing manhole structures in accordance with the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges.
 - [2] Manhole structures shall be constructed of block and mortar or of standard precast concrete sections, at the option of the developer.
 - [3] Precast concrete manhole sections shall conform to the requirements of ASTM Designation C478-68T.
 - [4] Base sections shall be so cast as to provide a watertight seal and to allow a flexible joint capable of deflecting a maximum of nine degrees (9°) from the center line of the pipe. Base sections shall be monolithically pressure cast, having an inside diameter of forty-eight (48) inches as manufactured by Nashua Pre-Cast Corporation or approved equal.

- [5] All rubber gaskets shall be stored in as cool a place as practicable, preferably at seventy degrees Fahrenheit (70° F.) or less, and in no case shall the rubber gaskets be exposed to the direct rays of the sun for more than seventy-two (72) hours.
- [6] Rubber gaskets shall be lubricated with Tylox No. 7, or approved equal, in accordance with the manufacturer's recommendation.
- [7] Concrete used for block masonry manhole bases, thrust blocks, concrete fill and structures shall be Class A concrete with a minimum cement content of five hundred sixty (560) pounds per cubic yard and a minimum twenty-eight-day compressive strength of three thousand (3,000) pounds per square inch. The aggregate shall conform to ASTM No. 467. Nominal size coarse aggregate shall be one and one-half (1-1/2) inch to No. 4. Percent air shall not exceed four and five-tenths (4.5).
- [8] If, in the opinion of the authorized representative of the Board, testing of aggregates and testing of the compressive strength of the concrete is considered necessary, then the developer, at his own expense, shall furnish the proposed sources of concrete ingredients, together with the latest test results of coarse and fine aggregates. After approval of aggregates, a testing laboratory shall make a trial mixture and provide three (3) test cylinders to be broken at seven (7) days and three (3) at twenty-eight (28) days. All laboratory work will be done at the developer's expense. If the seven-day strength tests are satisfactory, the authorized representative of the Board will approve the mixture for placement of concrete subject to review based on twenty-eight-day tests.
- [9] Waterproofing materials for all manholes shall be Minwax Fibrous Brush Coat, made by Minwax Company, Inc., New York, New York,; 450 Heavy

Tnemecol, made by Tnemec Company. Inc., North Kansas City, Missouri; Tremco 121 Foundation Coating, made by the Tremco Manufacturing Company, Cleveland, Ohio; Inertol No. 7, made by Koppers Company, Inc., Pittsburgh, Pennsylvania; or approved equal.

- [10] Excavation, shoring and sheeting and dewatering operations shall conform to the requirements specified above. Precast manhole sections shall be set so as to be vertical and in true alignment.
 - [11] The inverts of precast manholes shall be shaped with brick and mortar to provide channels conforming to the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges. When a pipe from a catch basin enters a manhole more than three (3) feet above the shelf of the manhole, a hand assembly shall be installed to direct the flow downward.
 - [12] Castings shall be placed in accordance with the requirements specified above under catch basins.
 - [13] Adjustment of frame and cover of precast manholes to the lines and grades shall be made with brick and mortar as required.
 - [14] Two (2) coats of bituminous waterproofing material shall be applied to the exterior surfaces of all manholes. The material shall be applied by brush or spray in accordance with the recommendations of the manufacturer.
- (b) Reinforced concrete pipe.
- [1] This work shall consist of furnishing and installing reinforced concrete pipe for storm drains in trenches and as drop connections at manholes and of furnishing, placing and compacting a crushed stone bedding; all in accordance with details as specified in these specifications.
 - [2] Reinforced concrete pipe shall conform to the

requirements of ASTM Designation C76, Class IV. Wall B, with the following additional requirements:

(c) Requirements.

- [1] The groove of all tongue-and-groove pipe and the bell of all bell-and-spigot pipe shall contain circumferential reinforcement equal in area to that of a single line within the barrel of the pipe. Reinforcement for bell-and-spigot pipe twelve (12) to twenty-four (24) inches in diameter shall be extended into the bell.
- [2] The ends of reinforced concrete pipe sections shall be of such design that, when properly laid, they shall have a smooth and uniform interior surface. Each joint shall be sealed to prevent leakage and infiltration.

(d) Sealing materials shall conform to the following requirements:

- [1] Rubber-gasketed joints shall conform to the requirements of ASTM Designation C443 and shall be flexible and able to withstand expansion, contraction and settlement. All rubber gaskets shall be stored in as cool a place as practicable, preferably at seventy degrees Fahrenheit (70° F.) or less, and in no case shall the rubber gaskets be exposed to the direct rays of the sun for more than seventy-two (72) hours.
- [2] Resilient joint materials shall consist of polyvinyl chloride or fiberglass impregnated with epoxy resin or other approved resilient joint materials. Laying and jointing operations shall be performed in accordance with ASTM Designation C-12 and in accordance with the manufacturer's recommendations, where they do not conflict with C-12. Whenever the work ceases for any reason, the end of the pipe shall be securely closed with a tight-fitting plug or cover. Reinforced concrete pipe shall be laid and jointed in accordance with the applicable provisions as specified herein with generally accepted practice and with the following provisions in order to obtain proper installation of the pipe.

(e) Laying and sealing.

- [1] The bedding shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the pipe and shall be placed in accordance with the requirements specified herein.
- [2] Necessary facilities shall be provided for lowering and properly placing the sections of pipe in the trench. The pipe shall be laid to the lines and grades established and the sections closely jointed. All pipe shall be laid upgrade, unless otherwise permitted.
- [3] All joints shall be cleaned and then sealed with the type of materials necessary to make a tight joint. Voids occurring in the outer and inner annular sealing material shall be filled with the same type of sealing material and the inside of the joint finished smooth. Liquid types of sealing materials shall be retained by molds or runners. Liquid materials shall be poured or pumped into the joint space in a continuous operation and agitated until the joint is completely filled.

B. Water systems. This work shall consist of furnishing, laying and jointing cement-lines cast-iron or ductile iron water pipe of various sizes, including all bends, elbows, tees, plugs, reducers, socket clamps and other fittings and appurtenances, gate valves and boxes, corporation stops and boxes, copper tubing and hydrants, performing all necessary leakage tests and disinfecting all completed water lines, as specified in these specifications and as directed by the authorized representative of the Water Board.

(1) Water mains.

(a) Cast-iron pipe and fittings shall be cement lined, coat-tar enamel double coated, mechanical-joint type and shall conform to the following USA standards:

- [1] Pipe: A21.6 or A21.8 wall thickness Class 22 for pipe twelve (12) inches and smaller and Class 24 for pipe greater than twelve (12) inches.
- [2] Fittings: A21.10.

[3] Cement lining: A21.4 with a thickness not less than one-eighth (1/8) inch on pipe twelve (12) inches and smaller and not less than three-sixteenths (3/16) inch on pipe greater than twelve (12) inches.

[4] Mechanical joints: A21.11.

[5] Flanges: B16.1.

- (b) Ductile iron pipe conforming to USA Standards A21.51 and A21.50, Thickness Class 1, may be furnished in lieu of cast-iron pipe, at the option of the developer. Ductile iron pipe shall be cement lined and coal-tar enamel double coated as specified for cast-iron pipe. Fittings for use with ductile iron pipe shall be as specified for use with cast-iron pipe.
- (c) All pipe and fittings shall be thoroughly inspected before being installed; all cracked or otherwise defective pipe or fittings shall not be laid, but shall be removed immediately from the work and new materials of acceptable quality shall be furnished.
- (d) Flexible couplings shall be Dresser, Style 38, for cast-iron pipe or approved equal.
- (e) Class A concrete for thrust blocks shall be in accordance with the requirements specified under manholes. [See Subsection A(3).]
- (f) Water pipes and related appurtenances, such as hydrants, valves, etc., shall be sized and constructed to serve all lots on each street within a development in conformity with the specifications of the Water and Sewer Commissioners.
- (g) The minimum size water main allowable shall be eight (8) inches in diameter, except in those instances where the Water and Sewer Commissioners shall authorize the use of six-inch-diameter pipe for short distances where it can be ascertained that extension of the system is not possible.
- (h) Water service lines shall be extended to each lot line before the street is surfaced. Shutoff valves to each service line shall be located in the grass area within the right-of-way.
- (i) Installation and testing of all pipe shall conform to AWWA

Standard Specification C600, except as herein modified.

- (j) Water pipe shall be laid true to alignment and to a depth of not less than five (5) feet, measured from the finished grade as determined by the contract to the top of the pipe, or as otherwise noted on the plans.
 - (k) Thrust blocks shall be constructed when practicable at all tees, bends, plugs or appurtenances in accordance with the table attached hereto, and as directed by the authorized representative of the Water Board. The blocks shall be placed against undisturbed ground and shall be so placed that pipe joints will be accessible.
 - (l) Adequate size socket clamps shall be furnished and installed in lieu of or in addition to thrust blocks as directed by the Water and Sewer Commissioners' representative.
 - (m) Hydrostatic and leakage tests shall be made on such lengths of pipe and in such manner as the Water and Sewer Commissioners' representative shall direct and in his presence.
 - (n) Trenches shall be kept free from water until the completion of the tests. The developer shall furnish all the necessary appliances and apparatus and make the tests at his own expense. Hydrostatic tests shall be made at a pressure fifty percent (50%) above the normal operating pressure, but in any case, not less than one hundred fifty (150) pounds per square inch.
 - (o) The system shall then be disinfected in accordance with AWWA Standard Procedure C601, and samples shall be taken and tested to ensure that the degree of disinfection meets acceptable requirements.
- (2) Gates and gate boxes.
- (a) Gate valves shall conform to the requirements of AWWA Standard C500 and shall be equipped with cast-iron adjustable valve box and cover. Gate valves and gate boxes shall be of the type used by the town.
 - (b) Mechanical joints shall be as specified under Item 308.
 - (c) All valves shall be carefully handled by the use of hoists or

skidways to avoid shock or damage.

- (d) All gate valves shall be installed vertically and set to line and grade as directed. All valves, valveboxes and covers shall be marked in accordance with the standards of the Water and Sewer Commissioners.
 - (e) Laying and jointing, testing and disinfecting of gate valves shall comply with the applicable requirements of the Water and Sewer Commissioners.
 - (f) Each gate shall be tightly closed before being placed in the line and shall remain so until the joint on each side is completely made. Gate boxes shall be carefully fitted together and to each gate, and shall be securely held vertical and plumbed straight during backfilling. Covers shall be set to the finished grade as directed by the engineer.
- (3) Corporation stops.
- (a) Corporation stops shall be of the type used by the town and shall be equipped with cast-iron adjustable stop boxes and covers. Boxes shall be of the sliding type, heavy weight and made of light gray cast-iron, true to pattern and free from flaws. A stationary inside stop rod three (3) feet long shall be furnished and installed with each box. Boxes and covers shall be thoroughly coated with two (2) coats of asphaltum varnish. Covers shall be marked in accordance with the standards of the Water and Sewer Commissioners and shall have a screwed plug which may be removed for operation of the rod without removal of the cover.
 - (b) Each stop shall be tightly closed before being installed in the line and shall remain so until the service connection is complete. The stop shall then be opened during testing of the system.
 - (c) The corporation stops shall be tapped into the main at or above the horizontal diameter of the pipe. They shall be screwed firmly into the main so that the inlet end projects at least one-eighth ($1/8$) inch beyond the inside face of the main and the key is upward. All connections shall be watertight.

- (d) Where directed, boxes shall be carefully fitted together and securely held vertical and plumbed straight during backfilling. Covers shall be set so as to be flush with the top of the bituminous concrete base course to be placed.
 - (e) Testing and disinfecting of corporation stops shall conform to the applicable requirements as specified by the Water and Sewer Commissioners.
- (4) Hydrants.
- (a) Hydrants shall conform to the requirements of AWWA Standard C502 and to the type used by the town.
 - (b) Mechanical joints shall be as specified by the Water and Sewer Commissioners.
 - (c) Class A concrete for thrust blocks shall be in accordance with the requirements specified under manholes. [See Subsection A(3).]
 - (d) Crushed stone for drainage pockets at hydrant drips shall conform to the requirements specified under crushed stone. [See Subsection D(5).]
 - (e) Hydrants shall be properly supported on a flat stone or an approved substitute, set to the line and grade as directed by the Water and Sewer Commissions' representative and held plumb while the joints are being made and during backfilling operations.
 - (f) Jointing, testing and disinfecting operations shall conform to the requirements of the Water and Sewer Commissioners. Thrust blocks shall be placed against undisturbed soil at the heel of all hydrants whenever possible.
- (5) Water services.
- (a) Copper tubing shall be soft, annealed seamless tubing for use with flared-tube fittings and shall conform to the requirements of ASTM Standard B88, Type K. Couplings shall be flared-tube type conforming to USA Standard B16.26.
 - (b) The depth of the service trench shall be at least six (6) feet

below finished grade and width of the trench shall be at least two and one-half (2-1/2) feet.

- (c) Operations and procedures relating to surplus material, trench subgrade preparation, excavation, backfilling, shoring and sheeting and dewatering shall conform to the applicable requirements specified under storm sewers. (See Subsection A.)
 - (d) Care should be exercised to prevent dirt and other foreign matter from entering the pipe and fittings.
 - (e) Joints in the copper tubing shall be kept to a minimum by use of coiled copper. Where necessary, joints shall be made with cast-brass three-part compression couplings of flared-tube-type fittings.
 - (f) Performing leakage tests and disinfecting the connections shall conform to the requirements of the Water and Sewer Commissioners.
- (6) Curb stops and boxes.
- (a) Curb stops shall be of the type used by the town. They shall be brass, male end and have tee handles drilled for attaching an extension rod. All tee handles shall be of the same size regardless of the curb stop size.
 - (b) Stop boxes and covers shall conform to the requirements specified under corporation stops. [See Subsection B(3).]
 - (c) Each stop shall be tightly closed before being installed in the line. The connection shall be made watertight, with suitable couplings and fittings and the stop opened during testing of the completed connection.
 - (d) Boxes shall be carefully fitted together and securely held vertical and plumbed straight during backfilling. Covers shall be set so as to be flush with the ultimate finished grade or as directed by the engineer.
 - (e) Testing and disinfecting of curb stops shall conform to the applicable requirements as specified by the Water and Sewer Commissioners.

C. Sanitary sewers.

- (1) Standard of construction. The developer shall conform to the requirements of the Board of Water and Sewer Commissioners and the Northborough Regulations Governing the Discharge of Waters and Wastes into the Public Sewer System.
- (2) Independent on-site systems. The specifications for on-site sanitary systems shall be determined by the Northborough Board of Health.

D. Excavation.

- (1) Trenching.

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- (a) Trench excavation shall include the removal and satisfactory disposal of all materials, including ledge encountered within the limits of the planned trench. For trench details see the current issue of the Massachusetts Department of Public Works Standard

Specifications for Highways and Bridges. Unsuitable material encountered at the bottom of trenches shall be removed as directed by the authorized representative of the Board.

- (b) When excavating sewer, drainage or water line trenches, and solid rock or other unyielding material is encountered, the material shall be removed below the bottom of the pipe to a minimum depth of six (6) inches. This clearance shall be provided under bell ends as well. Backfill material below the bottom of the pipe in the resulting trench shall be crushed stone for storm sewer pipe or gravel borrow for water pipe. Such shoring and sheeting as may be required shall be installed to protect the excavation, workmen or other work as directed by the unauthorized representative of the Board.
- (2) Dewatering.
 - (a) The developer shall provide effective water control systems such as diversion channels, temporary excavations and

embankments, pumps or other temporary facilities as may be necessary for dewatering trenches in order to construct drainage structures; lay and joint pipes; place and compact base materials such as crushed stone and gravel borrow; and perform backfill operations.

- (b) All excavation areas shall be maintained dry for such time and by such means that will prevent the entering of water through or from the adjacent ground if such entering water could, in the opinion of the authorized representative of the Board adversely affect the stability of the foundation material, the adjacent ground or a structure.
 - (c) Dewatering shall not be discontinued until the completed structure or facility has been inspected and approved and backfill material has been placed and compacted.
 - (d) In all cases where dewatering systems are used, an erosion control plan must be submitted for review and approval by the Town Engineer. In cases where the discharge will be within one hundred (100) feet of a wetland, approval of the Conservation Commission will also be required. **[Amended 2-11-1991]**
- (3) **Blasting.** When the use of explosives is necessary for the prosecution of the work, the developer shall see that the provisions of MGL C. 148, §§ 9, 10 and 10A, as amended, under the direction of the Fire Chief, are complied with.
- (4) **Ledge.** Ledge excavation shall extend to a depth of not less than fifteen (15) inches below the bottom of concrete foundations. The resulting trench below the bottom of the foundations shall be backfilled with crushed stone.
- (5) **Crushed stone.**
- (a) Crushed stone shall be placed beneath all drainage structures and shall be used to replace all over-depth excavation performed in storm sewer and water trenches. The work shall be performed in accordance with these specifications, as specified in the details attached hereto and as directed by the authorized representative of the Board.
 - (b) Crushed stone shall be clean and free from decomposed

materials, vegetable matter and other deleterious substances. The aggregate may be crushed rock, crushed gravel or uncrushed screened gravel.

- (c) The percentage composition by weight of crushed stone shall conform to the following grading requirements:

Sieve Sizes	Percentage Passing
1 inch	100
3/4 inch	90 – 100
1/2 inch	10 – 50
3/8 inch	0 – 20
No. 4	0 – 5

- (d) Grading requirements for crushed stone shall be determined by AASHTO Test Designation T-27.
- (e) When subjected to the Los Angeles abrasion test, the crushed stone shall not show more than thirty-five-percent wear, as determined by AASHTO Test Designation T-96.
- (f) Gradation tests shall be performed by a registered professional engineer at the expense of the developer. The results of such tests shall be submitted to the Board.
- (g) No storm sewer structure, including pipe, shall be backfilled until an inspection has been made by the authorized representative of the Board and until approval to proceed has been given to the developer.
- (6) Backfill.
- (a) Backfill shall consist of excavation material free from stones or lumps exceeding three (3) inches in greatest dimension, vegetable matter and other unsatisfactory material. When the material from excavation is unsuitable for use as backfill, it shall be disposed of as directed by the authorized representative of the Board and gravel borrow shall be furnished by the developer for the backfill.

- (b) Backfill material shall be placed in horizontal, uniform layers not exceeding eight (8) inches in thickness before compaction and shall be brought up uniformly on all sides of the pipe. Each layer of backfill shall be compacted to a relative compaction of not less than ninety percent (90%) as determined by AASHTO Test Designation T-99, Method C.
 - (c) Compaction equipment or methods that produce horizontal or vertical earth pressures which may cause excessive displacement or may damage the structure shall not be used.
 - (d) Compaction of structure backfill by ponding and jetting will be permitted when, as determined by the authorized representative of the Board, the backfill material is of such character that it will be self-draining when compacted and foundation materials will not soften or be otherwise damaged by the applied water and no damage from hydrostatic pressure will result to the structure. Ponding and jetting of the upper four (4) feet below finished grade will not be permitted. When ponding and jetting are permitted, material for use as structure backfill shall be placed and compacted in layers not exceeding four (4) feet in thickness. The work shall be performed without damage to the structure and embankment, and in such a manner that water will not be impounded. Ponding and jetting methods shall be supplemented by the use of vibratory or other compaction equipment when necessary to obtain the required compaction. Water used for ponding and jetting shall be furnished and applied by the developer.
- (7) Gravel borrow.
- (a) Gravel borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials.
 - (b) The percentage composition by weight of the gravel borrow shall conform to the following requirements:

Sieve Sizes	Percentage Passing
3 inches	100
1/2 inch	50 - 85
No. 4	40 - 75
No. 40	10 - 35
No. 200	0 - 10

- (c) Gradation requirements for gravel borrow shall be determined by AASHTO Designations T-11 and T-27.
- (d) Gravel borrow used for backfill of water pipe trenches shall conform to the gradation requirements specified above, except that one hundred percent (100%) of the material shall pass a two-inch sieve.
- (e) Gravel borrow shall be delivered as a uniform mixture. Segregation of the aggregates shall be avoided and after placing the material, it shall be free from pockets of coarse or fine aggregate.
- (f) Where the required thickness is eight (8) inches or less, the gravel borrow may be placed and compacted in one (1) layer. Where the required thickness is more than eight (8) inches, the material shall be placed and compacted in two (2) or more layers of approximately equal thickness by the maximum compact thickness of any one (1) layer shall not exceed eight (8) inches.
- (g) At locations where the gravel borrow is to be placed over areas inaccessible to spreading equipment, the gravel borrow may be placed and compacted by any means to obtain the specified results.
- (h) The developer shall submit results of compaction tests performed by a registered professional engineer, Commonwealth of Massachusetts, to the Board for approval prior to final release of the conditions of either a bond or a covenant. The locations of such tests shall be determined in the field by the authorized representative of the Board.

10-40-040 Third Inspection; Gravel Borrow

- A. This work shall consist of furnishing, placing and compacting gravel borrow in accordance with the details shown on the plans, as specified in these specifications and as directed by the authorized representatives of the Board.

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- B. This material shall be used for the construction of the roadway subbase and, if required, for embankment construction.
- C. The finished subgrade, immediately prior to placing the gravel subbase thereon, shall have a relative compaction of not less than ninety-five percent (95%) for a depth of six (6) inches as determined by AASHTO Test Designation T-99, Method C. The subgrade shall be smooth and uniform and true to the required grade and cross section. The surface of the grading plane at any point shall not vary more than five-hundredths (0.05) feet above or below the grade approved by the Board.
- D. The finished subbase, before paving, shall not vary more than five-hundredths (0.05) feet above or below the grade approved by the Board.
- E. Subgrade that does not conform to the above requirements shall be reshaped to the specified tolerance and recompact. No material shall be placed upon the prepared subgrade until the subgrade is in a condition meeting the requirements specified.
- F. Gravel borrow and placement shall conform to all of the specifications herein under storm sewers, K, gravel borrow and, in addition, shall conform to the following specifications.
- G. The relative compaction of each layer of compacted gravel borrow

shall not be less than ninety-five percent (95%) as determined by AASHTO Test Designation T-99, Test Method C.

- H. The developer shall submit results of compaction tests, taken in the subgrade and in the gravel subbase, performed by a registered professional engineer, Commonwealth of Massachusetts or qualified firm, to the Board for approval prior to final release of the conditions of either a bond or a covenant.
- I. The locations of such tests shall be determined in the field by the authorized representative of the Board.

10-40-050 Fourth Inspection

The fourth inspection by the Board or its authorized representative shall be made upon completion of the following work:

A. Pavement.

- (1) All streets shall have three (3) inches of bituminous concrete pavement laid in two (2) courses. The first course shall be a two-inch layer of Class I bituminous concrete binder course, Type I-1. The second course shall be a one-inch layer of Class I bituminous concrete wearing surface, Type I-1. [**Amended 7-23-1990**]
- (2) The bituminous concrete shall be mixed, spread, finished and compacted in accordance with the Commonwealth of Massachusetts, Department of Public Works Standard Specifications for Class I bituminous concrete pavement, Type I-1.

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B. Curbing.

- (1) Granite curbing and granite guttermouths as required by these specifications shall be installed prior to paving.
- (2) All granite curbstones shall be basically light gray in color, free from seams and other structural imperfections which would

impair its structural integrity, and of a smooth splitting appearance. Natural color variations characteristic of the deposit from which the curbing was obtained will be permitted.

- (3) All surfaces which are to be exposed shall be thoroughly cleaned, with all iron particles or rust removed by sandblasting or other satisfactory methods approved by the Board. All saw marks in excess of one-eighth ($1/8$) inch shall be removed.
- (4) Inlet stones shall conform to the geometry and dimensions as shown in the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges.
- (5) The top surface of stones shall be free from wind and shall be peen hammered or sawed to a true plane without projections or depressions greater than one-eighth ($1/8$) inch. The front and back arris lines shall be pitched straight and true. The back face of the inlet stone, for a distance of three (3) inches down from the top, shall have no depressions or projections which would exceed a batter of four-twelfths ($4/12$).
- (6) The front face shall be at right angles to the plans of the top and ends, and shall be smooth quarry-split, free from drill holes and without projections greater than one (1) inch nor depressions greater than one-half ($1/2$) inch measured from the vertical plan of the face through the arris or pitch line for a distance down from the top of ten (10) inches. For the remaining distance, depressions or projections shall not exceed one (1) inch.
- (7) The ends shall be squared with the top for their entire depth finished such that future butt joints formed do not exceed one-half ($1/2$) inch for the full width of the top and for ten (10) inches down on the face. The arris formed by the intersection of the plane of the end with the planes of the top and exposed faces shall have no variation greater than one-eighth ($1/8$) inch from the planes of the top and exposed faces.
- (8) The guttermouth for inlet stones shall be cut in the front face of the stone to the geometry and dimensions as shown in the current issue of the Massachusetts Department of Public Works Standard Specifications for Highways and Bridges.

- (9) Gravel borrow for bedding granite curbstones and their backing shall be furnished, placed and compacted in accordance with the provisions specified under gravel borrow. (See § 190-57.)
- (10) Mortar used for bedding the inlet stones shall conform to the requirements specified under catch basins.
- (11) All curb inlet stones shall be set in a full mortar bed on the supporting back walls of catch basins. Exposed surfaces of curb shall be kept clean and free from mortar and cement stains. The overhang on each side shall be sufficiently supported throughout by bedding in a thoroughly tamped gravel bed at least six (6) inches in depth and eighteen (18) inches in width.
- (12) After the stones are set, the remaining trench shall be backfilled with gravel and thoroughly compacted to the required grade, care being taken so as not to disturb the sloping granite curb.

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10-40-060 Fifth Inspection

The fifth inspection by the Board or its authorized representative shall be made upon completion of the following work.

- A. Sidewalks. Sidewalks shall be constructed on both sides of each street and as shown on the approved definitive plan. Sidewalks shall be at least five (5) feet wide and shall be pitched toward the gutter three-sixteenths ($3/16$) inch to one (1) foot. The base shall be a minimum of eight (8) inches of gravel borrow conforming to all of the specifications herein relating to gravel borrow for roadway subbase. Thereafter, each sidewalk shall receive a one-inch course of Class I bituminous concrete binder course, Type I-1, and a one-inch course of Class I bituminous concrete wearing surface course, Type I-1. Materials shall conform to the Commonwealth of Massachusetts, Department of Public Works Standard Specifications for Bituminous Concrete Sidewalks.
- B. Loaming and seeding.

- (1) This work shall consist of furnishing and placing stockpiled loam or loam borrow and of furnishing and spreading grass seed on suitably prepared roadway side slopes, planting strips and lots as specified herein under clearing and grubbing. All loam placed within the entire subdivision shall have a minimum thickness of four (4) inches compacted, provided that an additional four (4) inches of acceptable subsoil either exists or is placed beneath the loam.
- (2) Loam borrow shall consist of a fertile, friable, natural topsoil, typical of the locality, without a mixture of subsoil, refuse or other foreign materials, and shall be obtained from a well-drained, arable site. It shall consist of about equal portions of sand, silt and clay particles, mixed so as to exhibit properties of both sand and clay; be reasonably free of stumps, roots, heavy or stipp clay, stones larger than one (1) inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter; and shall have demonstrated that it is reasonably well-drained, does not contain toxic amounts of acid or alkaline elements and is fully capable of sustaining heavy vegetation.
- (3) The loam shall contain at least four percent (4%), but not more than twenty percent (20%) of organic matter as determined by the loss of ignition of over-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of two hundred twenty-one degrees Fahrenheit (221° F.) plus or minus five degrees (5°).
- (4) The areas upon which the loam is to be placed shall be suitably prepared.
- (5) The loam borrow shall be hauled to the project site by the developer and deposited and spread on areas and to the directed depth specified herein.
- (6) The developer shall maintain clean haul vehicles to ensure against depositing loam on the roadway surfaces of the haul route. Any loam or other dirt spilled upon said roadway surfaces shall be removed promptly and thoroughly before it becomes compacted by traffic.
- (7) Any existing growth on areas to be loamed shall be cut to a

maximum height of two (2) inches prior to loam spreading. After the loam has been spread, it shall be carefully prepared, with all large stiff clods, lumps, large stones, brush, roots, stumps, litter and other foreign materials being removed and satisfactorily disposed of.

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- (8) The loam area shall then be compacted by rolling, dragging or any other method which produces satisfactory results. The degree of compaction shall be equivalent to that produced by hand rolling with a roller weighing from seventy-five (75) to one hundred (100) pounds per foot of width. Grading shall continue until a reasonably smooth and even finish, true to the required grade and depth of loam, is attained.
- (9) Grass seed shall be of previous year's crop, with a weed seed content less than one percent (1%) by weight, shall comply with Massachusetts and federal seed laws, and shall be furnished, premixed and conforming to the following requirements:
 - (a) For grass plots and islands.

Type	Proportion by Weight (percent)	Minimum Germination (percent)	Minimum Purity (percent)
Red fescue or chewing fescue	60	70	83
Red top	20	90	92
Kentucky blue	20	80	85

- (b) For slopes four to one (4:1) and steeper.

Type	Proportion by Weight (percent)	Minimum Germination (percent)	Minimum Purity (percent)
Creeping red fescue or chewing fescue	25	85	97
Alta fescue	30	85	97
Annual rye grass	20	90	98

Red top	15	90	92
White clover or alsike	10	90	98

(c) Seeding of slopes two to one (2:1): Two-to-one slopes shall be planted with vegetative cover suitable to the area.

(10) A manufacturer's certificate of compliance to these specifications shall be submitted with each seed shipment prior to sowing any seed guaranteeing conformance with the above requirements and the net weight.

(11) Limestone and fertilizer shall be only such as will have been marketed in accordance with those provisions of General Laws, Chapter 94, as amended, which relate to commercial fertilizers.

(12) Limestone shall consist of either pulverized calcareous or dolomitic limestone, ground such that ninety-five percent (95%) will pass a No. 20 sieve and at least fifty percent (50%) will pass a No. 100 sieve, and shall have a satisfactory neutralizing value.

(13) Fertilizer shall be furnished in closed containers, plainly marked with the chemical analysis of the product, which shall have one (1) of the following compositions by weight:

Elements	Composition 1 (minimum percentage)	Composition 2 (minimum percentage)	Composition 3 (minimum percentage)
Nitrogen	10	8	7
Available phosphoric acid (P205)	6	6	7
Water soluble potash (K20)	4	4	7

(14) At least fifty percent (50%) by weight of the nitrogen content of the fertilizer shall be derived from organic materials.

- (15) The developer shall not commence seeding operations prior to obtaining permission from the authorized representative of the Board.
- (16) Any areas to be seeded which have become compacted hard shall first be rototilled to a depth of three (3) inches as directed by the authorized representative of the Board and regarded satisfactorily.
- (17) All debris and stones with dimensions greater than one (1) inch shall be removed before seeding operations begin.
- (18) Before seeding, laboratory tests shall be run to determine the acidity and fertility of the loam or topsoil. Results of tests shall be submitted to the Board. Limestone and fertilizer shall then be applied in amounts required to correct any deficiencies found in the loam or topsoil.
- (19) Limestone and/or fertilizer may be applied in dry form or hydraulically. After uniform spreading on the top layer of loam or topsoil, the limestone and/or fertilizer shall be thoroughly worked into the full depth of loam or topsoil by spading, harrowing or rototilling and the area graded to the required grade and cross section. The rate of application of fertilizer shall be two-tenths (0.2) pounds per square yard, unless otherwise directed. If limestone and fertilizer are applied dry, the limestone shall precede the fertilizer and shall be worked thoroughly into the soil before the fertilizer is spread.
- (20) After satisfactory preparation of the loamed or topsoiled areas, grass seed shall carefully and uniformly be sown thereon at a rate of three and six-tenths (3.6) pounds per one hundred (100) square yards. No seeding shall be done during windy weather or when the ground is frozen, wet or otherwise nontillable. Seeding shall be done in two (2) directions at right angles to one another. Areas with less than three-to-one slopes shall be seeded using an approved drill seeder.
- (21) The application of limestone and fertilizer, as necessary, and grass seed, may be made in one (1) operation using an approved spraying machine on slopes steeper than three to one (3:1). The material shall be mixed with water in the machine and

kept in an agitated state to preserve uniform suspension in the water.

- (22) A certified statement shall be furnished to the authorized representative of the Board prior to the start of spraying, specifying the number of pounds of limestone, fertilizer and grass seed per one hundred (100) gallons of water and also the number of square yards per gallon that can be covered using the specified solution.
- (23) The solution shall be applied throughout such that the resulting deposits of limestone, fertilizer and seed are equivalent to quantities as prescribed above.
- (24) Immediately following the sowing of the seed, the areas shall be thoroughly covered with a thin layer of loam or topsoil by raking, harrowing or dragging the surface.
- (25) Grassed and seeded areas shall be kept moist to a depth of at least two (2) inches to assure continuous growth. Watering shall be done in a manner which will provide uniform coverage without erosion and prevent damage to the finished surface by watering equipment. Areas shall be watered whenever directed. Watering equipment shall be sufficient to apply complete coverage within an eight-hour period.
- (26) If necessary, suitable signs and barricades of brush or other materials shall be placed to protect seeded areas.
- (27) All areas which fail to show a uniform stand of grass shall be reseeded until all areas are covered with a satisfactory growth of grass. A stand of grass shall have uniform coverage of at least sixty percent (60%) established permanent grass species with at least one hundred (100) plants per square foot, and all areas shall be satisfactory to the Board.
- (28) The developer shall care for all of the seeded areas until Conveyance or until release from the terms of the agreement between the developer and the Planning Board. Care shall include any regrading, refertilizing or reseeding required.

C. Bounds.

- (1) Stone or reinforced concrete bounds shall be set and

maintained in place on both sides of the street right-of-way at all angle points and at the beginning and end of all curves and as shown on the definitive plan. The bounds shall be not less than four (4) feet in length and not less than six (6) inches square throughout the length and shall have a drill hole in the center and shall be set flush with the grade of the surrounding ground. Wrought iron rods set in mortar in drill holes or discs approved by the Board set in drill holes may be used where points fall on exposed ledge.

- (2) Each lot line established within the subdivision shall be completely defined in accordance with the corresponding plans recorded or to be recorded at the Worcester District Registry of Deeds, by placing of permanent monuments at each point of changes of direction of that line.
- (3) A certification from a registered land surveyor indicating that all bounds have been set as shown on the approved Definitive Plan shall be submitted to the Board by the developer prior to release from the terms of any agreement executed between the developer and the Board.

D. Street signs. A metal street sign and a metal signpost approved by the Board shall be erected at each entrance to all streets shown on the approved definitive plan. Street names must be approved in writing by the Board of Selectmen before approval of definitive plans.

E. Street trees.

- (1) Street trees, of a size and species approved by the Board, after consultation with the Tree Warden, shall be installed at an average spacing of one hundred (100) feet on both sides of the proposed ways, except where the definitive plan shows trees along the ways which are healthy and adequate, which shall be retained. New trees shall conform to the standards of the American Association of Nurserymen, and shall have a minimum caliper of one and one-half (1-1/2) inches diameter at breast height or be a minimum height of twelve (12) feet tall with

good straight stems.

- (2) Street trees shall be located either in grass plots between the way and the sidewalk or behind the sidewalk no further than ten (10) feet. Each tree shall be planted in at least one and one-half (1 1/2) cubic yards of topsoil and a minimum of a three-foot circle, two (2) inches deep of wood chip mulch shall surround each tree at the surface. New tree plantings shall be guaranteed by the subdivider for a period of one (1) year.
- (3) The planting and guying of trees shall be done under the supervision of the Tree Warden, who shall be paid by the subdivider at the same hourly rate he received from the Town of Northborough.

- F. Driveways. All driveways within the bounds of the street right-of-way shall slope toward the street and shall be of bituminous concrete applied as outlined under Pavement, (§ 10-40-050A).
- G. Guardrails. Guardrails of a design approved by the Board shall be installed where required by the Board.
- H. Report of progress. The subdivider shall submit a report of progress to the Board every sixty (60) days at the request of the Board.
- I. Cleaning up. Upon completion of all work on the ground, the subdivider shall remove from the streets and adjoining property all temporary structures and all surplus material and such rubbish which may have accumulated during construction and shall leave the work in a neat and orderly condition.
- J. Maintenance. If released from restrictions with regard to sale of lots or building on lots by the posting of a performance bond, the subdivider shall maintain the roads for vehicular travel in a manner satisfactory to the Board. Further, the subdivider shall maintain the roads in a subdivision in a condition which meets all the above requirements to the satisfaction of the Board for a period of time of one (1) year from the release of check, bond or all restrictions

pertaining to the subdivision.

Chapter 10-44

REVISION OF SUBDIVISIONS AND PRIVATE WAYS

Sections:

- 10-44-010 Modifications to Existing Subdivisions and Private Ways**
- 10-44-020 Minor Revisions**
- 10-44-030 Reference to Subdivision Plan**
- 10-44-040 Rescission of Approval after Five Years**

- 10-44-010 Modifications to Existing Subdivisions and Private Ways**

The Board may rescind or modify its approval of a subdivision plan previously approved, may discontinue and abandon private ways and may establish or revise the exterior lines, profiles (grades) and names of such private ways previously approved under the Subdivision Control Law or shown on a plan recorded prior to the date said law became effective in the Town of Northborough and not laid out or maintained by the Selectmen or other public authorities. The procedure for such rescission or modification of approval, discontinuance of private ways and the establishment or revision of the exterior lines, grades or names thereof shall, so far as apt, follow the procedure for the submission, processing and approval of definitive subdivision plans, including the requirement for the construction of ways and the installation of utilities, where applicable. Lots sold or mortgaged in good faith and for a valuable consideration and any rights appurtenant to such lots shall not

be affected by any action of the Board under this section, except with a written consent of the owners and mortgages of such lots. The action of the Board under this section shall become effective in accordance with § 81W of the Subdivision Control Law.

10-44-020 Minor Revisions

Revisions of lot lines, utilities, easements and other changes which do not affect names, grades or exterior lines of ways may be acted upon by the Board without a public notice or a public hearing in accordance with these rules and regulations.

10-44-030 Reference to Subdivision Plan

Any plan showing a revision of an approved subdivision plan and submitted prior to the complete release of all lots or sureties in that portion of the subdivision affected by such revisions shall bear notation referring to the original subdivision plan.

10-44-040 Rescission of Approval After Five Years

The failure of the developer to begin work in a subdivision or a portion thereof within five (5) years of the approval of the definitive plan shall constitute a reason for the rescission of such approval.

Chapter 10-48

ADMINISTRATION

Sections:

10-48-010 Statutory Authority

10-48-020 Severability

- 10-48-030 Forms**
- 10-48-040 Amendments**

10-48-010 Statutory Authority

For matters not covered by these rules and regulations, reference is made to MGL C. 41, §§ 81K to 81GG, inclusive, and acts in amendments thereof, in addition thereto of the administration thereof.

10-48-020 Severability

If any provision of these rules and regulations or in the administration thereof, shall be held unconstitutional, invalid or void, it shall not affect any other provision of these rules and regulations or the administration thereof.

10-48-030 Forms

Forms A, B and C are a part of these rules and regulations. These forms shall be completed as appropriate and submitted with appropriate plans to the Planning Board. Blank forms may be obtained from the Planning Department.

10-48-040 Amendments

These regulations or any portion thereof may be amended, supplemented or repealed from time to time by the Board, after a public hearing, on its own motion or by petition.